

**PRELIMINARY REPORT ON THE UNIVERSITY OF SYDNEY'S SIXTEENTH
AND SEVENTEENTH SEASONS OF EXCAVATIONS AT PELLA
(ṬABAQAT FAḤL) IN 1994/95¹**

by

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Introduction

The sixteenth season of excavations at Pella took place over two sessions, a winter session between 5 January and 11 February, and a spring session between 15 March and 21 April 1994. The seventeenth season took place between 12 March and 21 April 1995. In both seasons, the team numbered 34, with up to 55 local workmen being employed.²

Over the course of the eighteen weeks of excavations there were twelve areas of ac-

tivity on the main tall of Khirbat Faḥl and on Tall al-Ḥuṣn, but due to size restrictions only the Prehistoric and Bronze Age discoveries from the main tall will be addressed in this report. All pre-classical activity on Tall al-Ḥuṣn, and all post-Bronze Age activity on the main tall will be addressed in subsequent reports. This being said, there are seven main areas of activity addressed in this report:

1. In the South Central field (Area XXXII, trench D) enlarged excavations aimed to

1. The 1994/5 field seasons were directed by Stephen Bourke (ARC Postdoctoral Research Fellow in Archaeology, University of Sydney). Major funding bodies were the Pella Volunteer Scheme in association with the Near Eastern Archaeology Foundation (University of Sydney), the Australian Department of Foreign Affairs and Trade (Cultural Resources Section), the Australian Research Council, the Australian Institute of Archaeology (Melbourne), and the University of Sydney. We would like to thank H E Mr Mohammed Adwan, then Minister for Tourism and Antiquities; Dr Safwan Tell, Director-General of the Department of Antiquities in 1994, and Dr Ghazi Bisheh, current Director-General, Wajeih Karasneh, now of the Irbid Office, Department of Antiquities Representative in 1994 (winter), and 1995 (spring), and Ismael Melhem, then of the Irbid office, Representative in 1994 (spring), for their considerable interest and support. Equally appreciated was the enthusiasm, interest and assistance provided by H E Mr J. Shepherd, then Australia's Ambassador to Jordan, and his staff. We thank William Lancaster, Director of the British Institute at Amman in 1994, and current Director, Alison McQuitty, and Dr Pamela Watson, then Assistant Director of the Institute, for much logistical support and equipment hire. Finally, we thank the people of Ṭabaqat Faḥl village for continued hospitality.

2. Core staff members for the 1994 sessions were Stephen Bourke (director), Wajeih Karasneh (DAJ representative, Area IX), Ismael Melhem (DAJ Representative, Area IX), Erin Crumlin (XXVIII A and B), Karin Sowada (IVE), Samantha Eames (IIIQ), Jaimie Lovell (XXXIID),

Ruth Ward (XXIIIB), Karen Hendrix (XXVIII A), Bruce McLaren (IIIF, IVE and XXXIIC), Kathryn Swan (XXXIIE and XXIIIB), Tim Adams (XXXIVF), Amanda Parrish (XXVIII B), Ben Churcher (XXXIVF), Andrea Rowe (XXXIVA and XXXIVE), Rachael Sparks (registrar), Bronwyn Douglas (photographer), Vicki Griffith and George Findlater (surveyors), Jo Atkinson (conservator), Cameron Petrie, Lisa Mullen, Rachel Jackson, Catriona Bonfiglioli and Françoise Cuffe (draftspersons), Lachlan Mairs (archaeozoologist), Chantelle Hoppé (archaeobotanist), Maree Browne (volunteer co-ordinator), Abu Issa (foreman), Abu Sami (chief cook), 58 Australian volunteers and a local workforce of up to 55.

Core staff members for the 1995 season were Stephen Bourke (director), Wajeih Karasneh (DAJ representative, Area IX), Fiona Richards (XXXIID), Erin Crumlin (XXXIV E and G), Bruce McLaren (XXVIII C), Kathryn Swan (XXXII G), Ruth Ward (XXXII F), Tim Adams (XXXIVB), Karen Hendrix (XXVIII A), Ben Churcher (XXXIV F), Rachael Sparks (registrar), Rosemary Allan (photographer), Franz Reidel (surveyor), Jo Atkinson (conservator), Paul Donnelly, Cameron Petrie and Rachel Jackson (draftspersons), Lachlan Mairs (archaeozoologist), Chantelle Hoppé (archaeobotanist), Fouad Hourani (soil micromorphologist), Maree Browne (volunteer co-ordinator), Chris Browne (palaepathologist), Abu Issa (foreman), Abu Sami (chief cook), Aladdin Madi (cook's assistant), 30 Australian volunteers and a local workforce of up to 50.

expose greater areas of EBA and Chalcolithic occupation, whilst continuing the search for Neolithic remains.

2. Excavations in the south-west field Deep Probe (Area XXVIII, Trench A) continued to explore MBA, EBA and earlier deposits.
3. Further investigation of major MBA wall construction techniques and phasing in the south-east field East Fortification Complex (Area III, trench F).
4. Work began on the exploration of the MBA western fortification complex in the south-west field (Area XXVIII, trench C).
5. A deep sounding in the South Central Field (Area XXXII, Trench F) was commenced to explore large concentrations of mudbrick debris thought to relate to the EBA city wall found thirty metres to the east (in XXXIID) in 1992.
6. Work began on a Deep Sounding in the east field (Area IV, trench E), exploring MBA, EBA and earlier deposits.
7. Excavations continued in the south-east field in the area of the Late Bronze Age Governors' Residence (Area III, Trench Q).

More detailed reports on each of these field activities appears below, following a rough chronological order according to the dominant archaeological periods in each area. Further comment on a selection of small finds appear after field descriptions by area of excavation, followed by summary reports on the faunal remains excavated in 1994/5.³

1. Trench XXXIID: South Field Neolithic through MBA (Figs. 1-8)

After the promising results from the 1992 sondage (Bourke *et al.* 1994: 83-93), over the course of the eighteen weeks of excava-

tion during 1994/95, exploration expanded to the north, east and west of the original sounding until a 17 x 14 m area had been uncovered. Neolithic, Chalcolithic, EBA and MBA deposits of differing nature and varying extent were uncovered.

Shallow Ceramic Neolithic deposits, confined to an area roughly 5 x 5 m in extent, were located several metres west of the original sounding. They consist of shallow occupation deposits, several small areas of thick white plaster floor, a number of shallow pits, and short stretches of two stone walls (Fig. 1). Elements of the associated pottery (see below) find parallels within Jericho PNA and PNB assemblages.

Chalcolithic deposits and structures were found to be extensive across the area north of the later EBA city wall, but not to its west or south. Two further Late Chalcolithic ceramic-lined silos were uncovered in 1994 (Fig. 2) similar to those discovered in 1992 (Bourke *et al.* 1994: 85-86), along with at least three closely associated sub-phases of fragmentary Late Chalcolithic architecture, silos and pebble paving. A 4 x 4 m expansion to the north-east in 1995 uncovered a section of a very large structure which almost filled the newly opened area (Fig. 3). Although the overall plan remains



1. Trench XXXIID. Neolithic Plaster Floor Scraps and Postholes.

3. S. Bourke contributed field descriptions, ceramic summaries and edited the report. R. Sparks contributed all notes on small finds, excepting the amulet which was analysed by K. Sowada. P.

McLaren contributed notes on MBA fortifications and related pottery (IIIF and XXVIIIIC), and L. Mairs contributed the archaeozoological report.

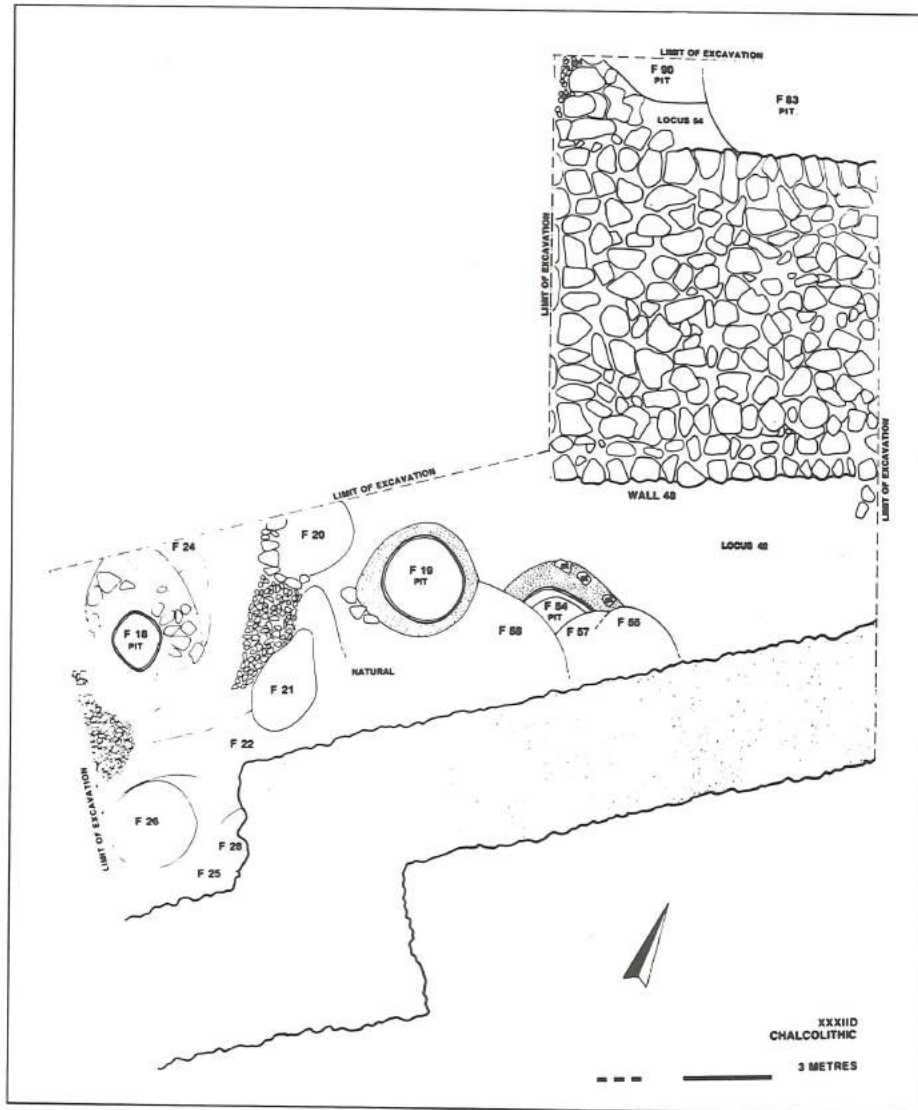
unclear due to the restricted size of the 1995 expansion, the structure is over two metres wide, running east/west. Construction is unusual, as the two-course small fieldstone foundation, sealed by a single layer of bun-



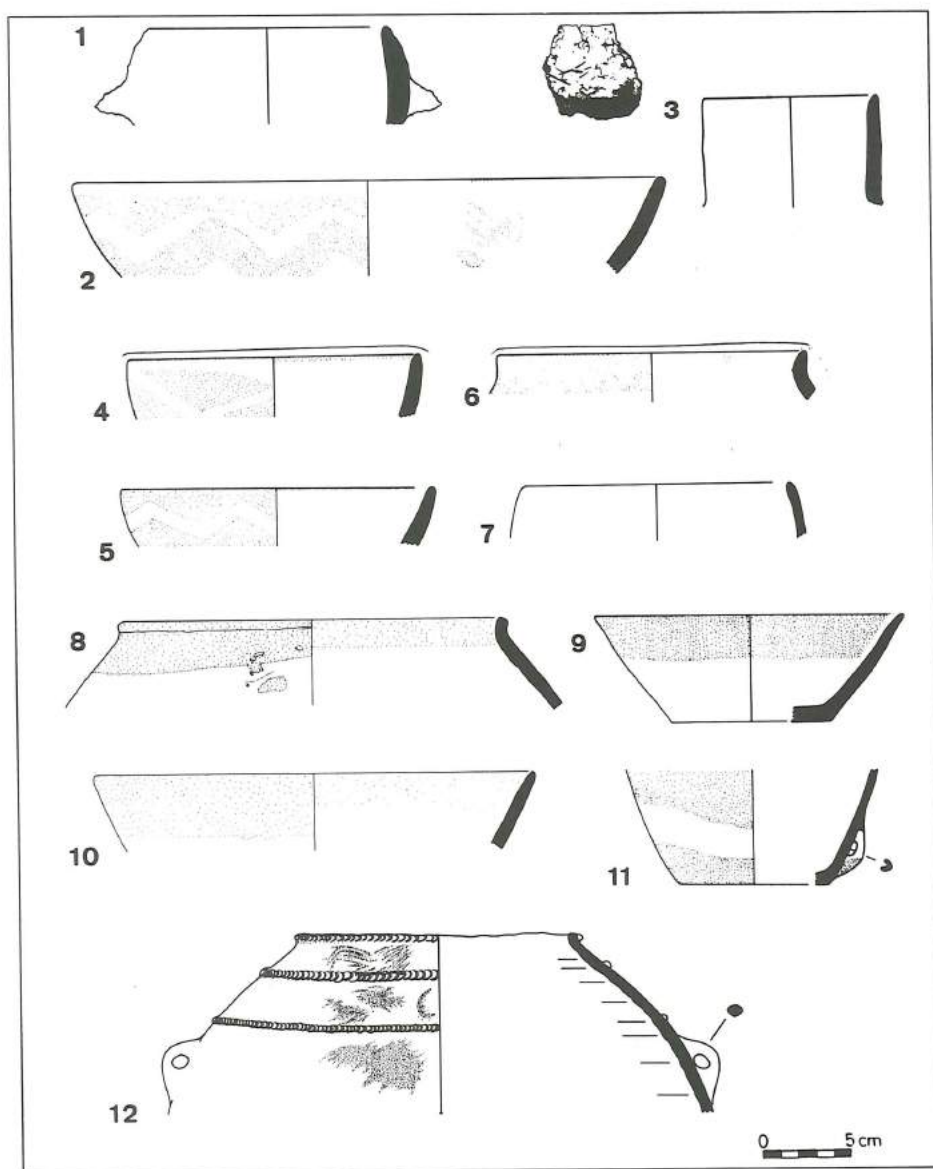
2. Trench XXXIID. Chalcolithic Ceramic Storage Silo.

shaped dark brown mud-bricks, does not seem substantial enough to represent the footings of what otherwise appears to be a massive boundary wall. If the structure is not a wall, then some form of raised platform would seem a reasonable alternative. Associated pottery (Fig. 4: 8-12 and below Fig. 7: 5-6) is Late Chalcolithic in date and similar to material recovered in 1992, although some elements present in the earliest sub-phase may suggest a more lengthy Chalcolithic occupation than first indicated.

Early Bronze age discoveries are dominated by the recovery of a fourteen metre stretch of the monumental stone and mud-brick wall (Fig. 5) first detected in 1992 (Bourke *et al.* 1994: 83-85). It seems likely



3. Trench XXXIID. Plan of major Chalcolithic Structures.



4: 1-12. Neolithic and Chalcolithic Pottery from Trench XXXIID
 1. CN 15609, XXXIID 44.10 (Pottery Neolithic): Lug Handled Bowl. 2. CN 15685, XXXIID 46.2 (Pottery Neolithic): Open Bowl. 3. CN 15697, XXXIID 46.6 (Pottery Neolithic). Tall Narrow Necked Jar. 4. CN 15694, XXXIID 46.6 (Pottery Neolithic). Small Bowl. 5. CN 15696, XXXIID 46.6 (Pottery Neolithic): Short Necked Jar. 6. CN 15684, XXXIID 46.2 (Pottery Neolithic): Small Bowl. 7. CN 15692, XXXIID 46.5 (Pottery Neolithic): Small Jar. 8. CN 15226, XXXIID 18.37 (Late Chalcolithic): Short Necked Jar. 9. CN 15227, XXXIID 18.37 (Late Chalcolithic): Open Bowl. 10. CN 15627, XXXIID 42.34 (Middle/Late Chalcolithic): 'V-Shaped' Bowl. 11. CN 15628, XXXIID 42.34 (Middle/Late Chalcolithic): Lug-Handled Flat Base. 12. CN 15994, XXXIID 18.33 (Late Chalcolithic). Very Large Storage Jar (from Silo).

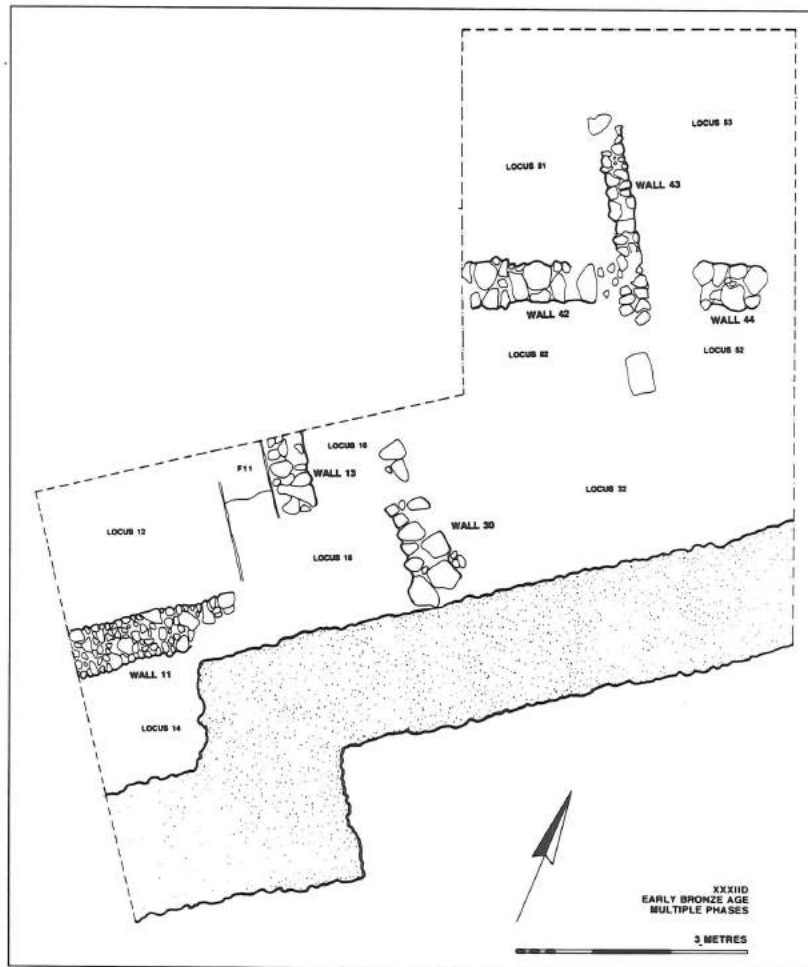


5. Trench XXXIID. EBA City Wall. Southern Trace.

that the wall represents part of the southern trace of the Early Bronze Age tall fortification, although the full course must remain

doubtful as massive MBA (west) and Iron Age (east) cuts have truncated it, as construction technique, structural history and associated artefacts are all very similar to the eastern trace of the EBA city wall discovered in 1992 (Bourke *et al.* 1994: 98-99).

Two very scrappy phases of EBA domestic architecture were traced north of the city wall (Fig. 6), matching the two phases of similar architecture discovered in 1992 (Bourke *et al.* 1994: 83). One phase is earlier than the city wall, and one at least partly contemporary with it. At any rate, all Early Bronze Age structures and associated de-



6. Trench XXXIID. Plan of Multiphase EBA Domestic Architecture.

posits date within the EBIB/II periods on the ceramic evidence (Fig. 7b: 7-21).

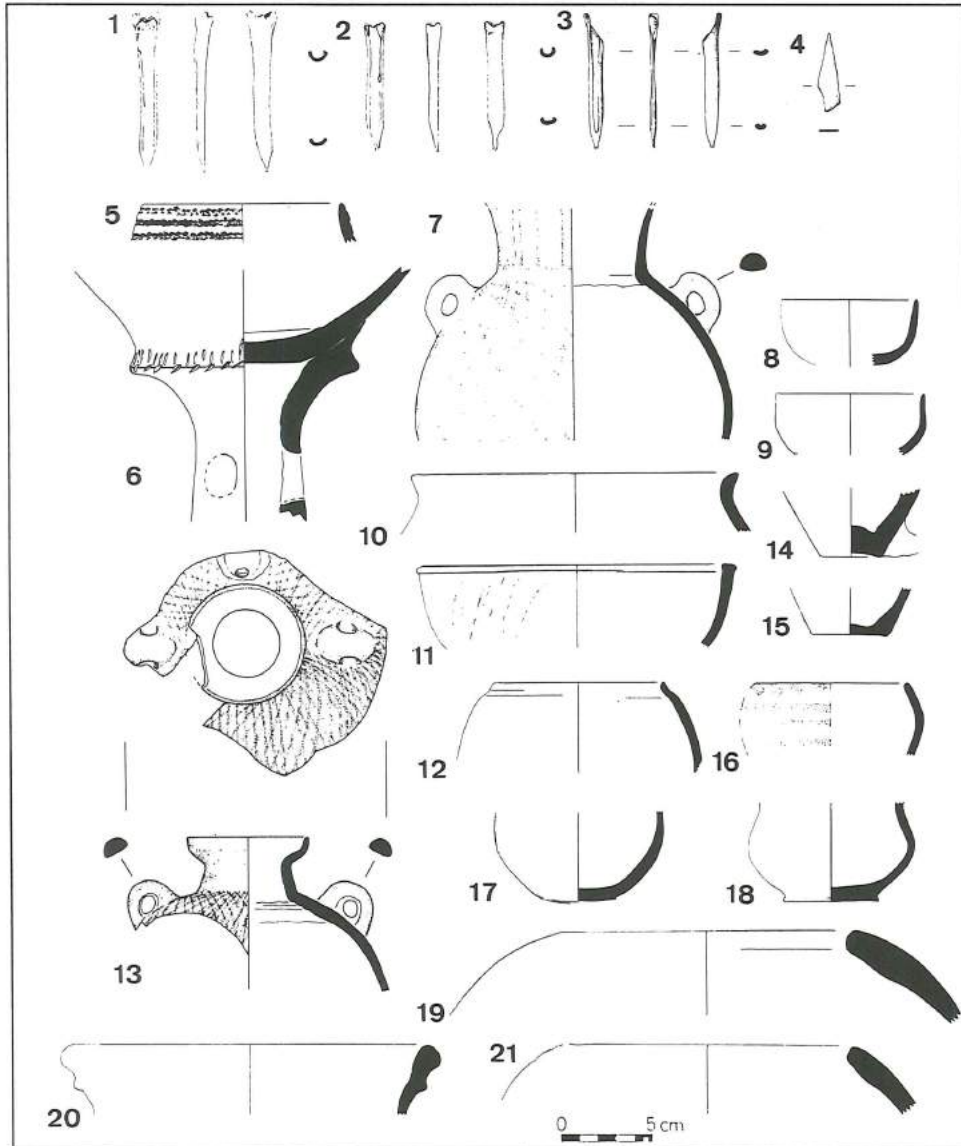
Chalcolithic levels produced a number of worked ovi-caprid metatarsals, such as those illustrated in Figure 7a:1-3. These are common tool types during the Chalcolithic, examples being known from sites such as Tall Abū Ḥāmid (Dollfus and Kafafi 1993: Fig. 3:12), Tulaylāt al-Ghassūl (Hennessy 1969: Fig. 11:1-2 and 8; Bourke *et al.* 1995: Fig. 7:14) and Horvat Beter (Dothan 1959: Fig. 18: 45-6). The tapering points suggests function as a borer, perhaps in piercing skins/hide. Bone tools of this kind have the advantage of being easily resharpened when the point becomes blunt, giving them a potentially long life, and leading to considerable variation in length. Another bone tool found in EB levels (RN 170107, Fig. 7a:4) may also be a borer, although the flat section suggests a slightly different method of

use to preceding examples.

Above the EBA phases, isolated wall fragments (one quite substantial), two intramural burials (MBIIA/B and MB/LB respectively), and what may be the debris from a massive mudbrick terrace wall in the far west of the area, make up the disconnected fragments of the Middle Bronze Age levels. Ceramic material associated with the various structures, burials and deposits date from the MBIIA/B through to the MB/LB period (Fig. 8).

2. Trench XXVIII: West Field Neolithic through MBA (Figs. 9-14)

The deep probe through Second Millennium deposits in the south-west of the tall was commenced in 1984, and continued in 1986 and 1992 (Bourke *et al.* 1994: 99-104). Over the course of 1994/95 the probe



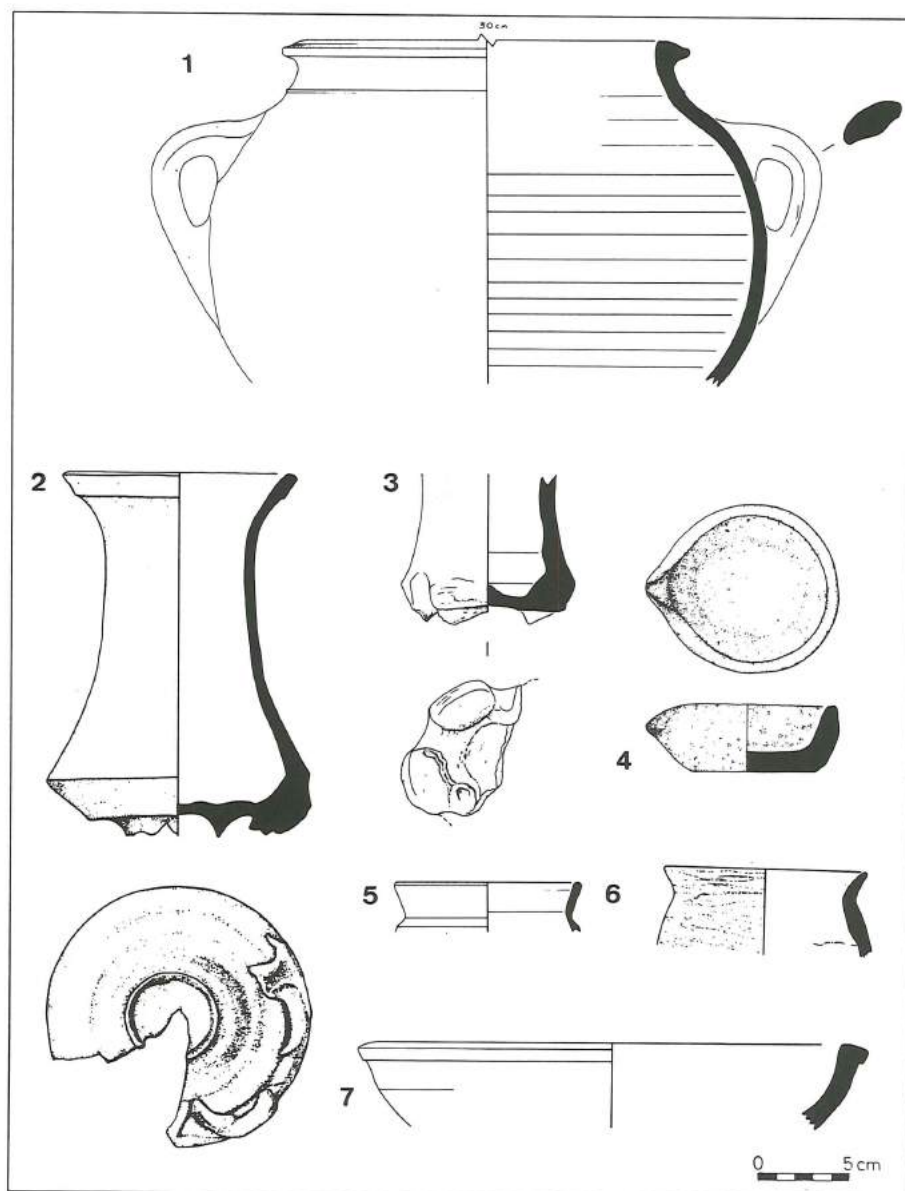
7. Trench XXXIID. Chalcolithic and EBA Small Finds and Pottery.

a) 1-4. Bone Points:

1. RN 170010, XXXIID 18.37 (Late Chalcolithic): Worked bone point. Mended from two fragments with a small chip from one edge. The surface is polished on both sides. 2. RN 170011, XXXIID 18.38 (Late Chalcolithic): Worked bone point. Mended from two fragments, and complete except for a small chip from the surface. Whittled to a point at one end, with the surface polished on both sides. 3. RN 170171, XXXIID 18.36 (Late Chalcolithic): Worked bone point. Mended from two fragments but incomplete, with the tip and upper part of shaft missing. Highly polished on both sides. 4. RN 170107, XXXIID 25.3 (Latest EBA): Worked bone point with flat upper and lower surfaces, broken at upper end and tapering to a point at the other. Highly polished on all surfaces.

b) 5-21. Chalcolithic and Early Bronze Age Pottery:

5. CN 15528, XXXIID 42.15 (Late Chalcolithic): Incised Red Slip Jar. 6. CN 15955, XXXIID 44.2 (Late Neolithic/Early Chalcolithic): Slash-Incised Fenestrated Chalice. 7. CN 15980, XXXIID 42.10 (Early EB): Red Slipped Pattern Burnished TNN Jar. 8. CN 15504, XXXIID 42.10 (Early EB): Small Bowl. 9. CN 15505, XXXIID 42.10 (Early EB): Small Bowl. 10. CN 15412, XXXIID 39.5 (Late Chalcolithic): Short-Necked Jar. 11. CN 15421, XXXIID 39.4 (Late Chalcolithic/Earliest EB). Deep Bowl. 12. CN 15420, XXXIID 39.4 (Late Chalcolithic/Earliest EB): Fine Holemouth Jar. 13. CN 15981, XXXIID 34.4 (Early EB): Red Slip Pattern Burnished Spouted TNN Jar. 14. CN 15398, XXXIID 26.6 (Latest EB). Flat Ring Loop Handled Jar Base. 15. CN 15395, XXXIID 26.4 (Latest EB): Flat Ring Jar Base. 16. CN 15376, XXXIID 25.4 (Latest EB): Fine Red Painted Chalky White Slipped Bowl. 17. CN 15375, XXXIID 25.4 (Latest EB). Fine Red Painted Chalky White Slipped Disk Base. 18. CN 15374, XXXIID 25.4 (Latest EB): Fine Red Painted Chalky White Slipped Convex Disk Base. 19. CN 15386, XXXIID 25.6 (Latest EB). Simple Swollen Square Holemouth Jar. 20. CN 15388, XXXIID 25.7 (Latest EB): Simple Swollen Rounded Holemouth Jar. 21. CN 15386, XXXIID 25.6 (Latest EB): Rounded Ridge Neck TNN Jar.



8. Trench XXXIID. Middle Bronze Age Pottery.

1-7. Middle Bronze Age Pottery from Trench XXXIID:

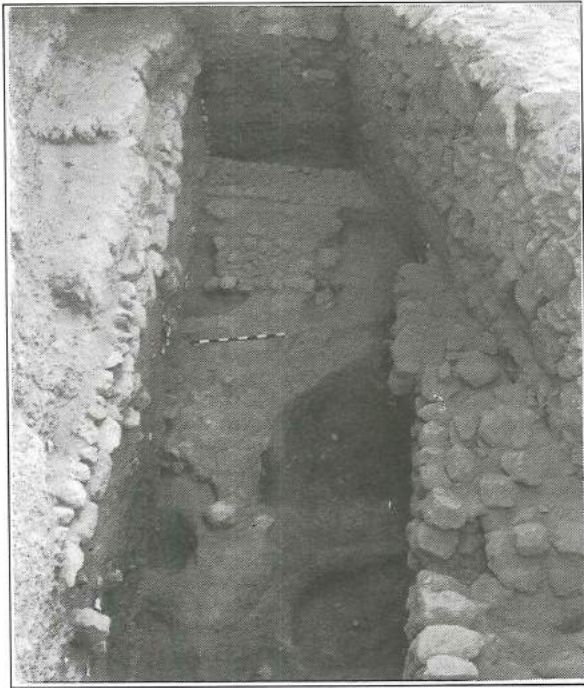
1. CN 15929, XXXIID 50.36 (Latest MBA): Painted White Slip Short Necked Jar.
2. CN 15874, XXXIID 50.38 (Late MBA): Fine Loop-Based Cylindrical Jar.
3. CN 15871, XXXIID 50.43 (Late MBA): Fine Loop-Based Cylindrical Jar.
4. CN 17005, XXXIID 51.9 (Early MBA): Flat Based Heavy Fabric Lamp.
5. CN 15880, XXXIID 50.43 (Late MBA): Fine Carinated Bowl.
6. CN 15971, XXXIID 51.11 (Earliest MBA): Carinated Small Bowl.
7. CN 15979, XXXIID 51.11 (Earliest MBA): Deep Bowl.

was taken down through six metres of occupational debris into sterile layers. The trench was originally laid out as a 10 x 5 m exposure in 1984, but the enforced preservation of a series of massive stone walls within the trench gradually reduced the area available to a 7 x 2 m diagonal strip across its middle. By the end of the 1995 field season, sterile deposits had been reached across this strip. Pits cut into the natural red pebbly conglomerate contained Ceramic Neolithic, Chalcolithic and EBA material. Short stretches of EBA walls were uncovered in the far eastern end of the 'strip', and multiple phases of MBA architecture (some

very large) were encountered across the trench.

Neolithic and Chalcolithic remains were confined to material from a number of pits cut into the sterile conglomerate (Fig. 9). Chalcolithic pits (Phase H) were large and deep and likely to have been used for grain storage, whilst the small Neolithic pits (Phase J) were probably used for cooking and domestic refuse.

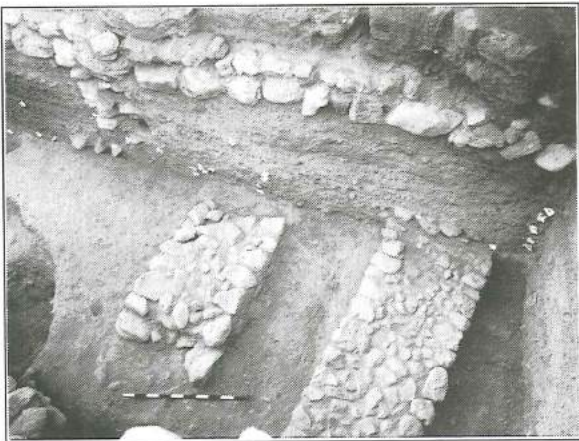
EBA deposits were extensive, but most layers were not associated with architecture. The only EBA architecture consisted of a short stretch of a double-walled structure (Phase G), located in the far eastern end of



9. Trench XXVIII A. Neolithic through EBA Pits cut into Natural.

the trench (Fig. 10). The double walls were neatly constructed of small fieldstones topped with gritty orange mud-bricks, with the interior between filled with gravel and small stones. Associated pottery dated to the EBIB/EB II periods (Fig. 11: 4-11).

Middle Bronze Age remains, both structural and depositional, were very extensive, with occupation likely to span the entire MBA in an essentially unbroken sequence. Six main phases of MBA architecture (Phases A-F) were isolated. The latest MBA phases (A-B) have been described in pre-



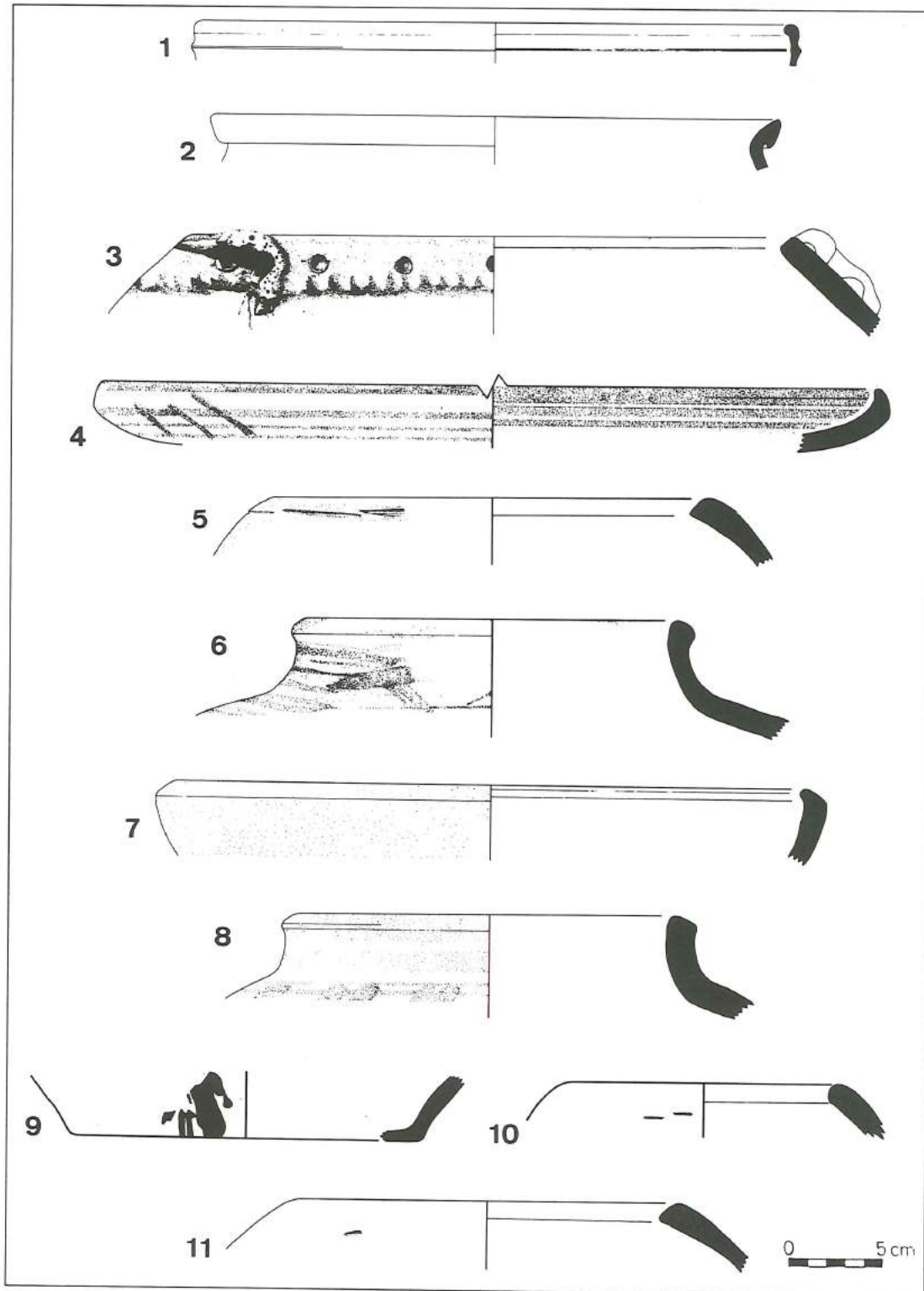
10. Trench XXVIII A. Early Bronze Age Double-Wall.

vious reports (Bourke *et al.* 1994: 101-104), although further analysis of Phase A-B ceramics would modify the picture slightly. Original readings for the date of the Phase A complex of floors (Bourke *et al.* 1994: Phase II, 101) dated them to the MB/LB period. However, they may span a wider period (MBIIC-LBIB) than first thought, if cooking pots such as those illustrated in Fig. 11: 1-2 are typical of the levels in which they were found.

Beneath the floors of the Phase A complex, a series of intramural burials of varying degrees of elaboration had been uncovered between 1984 and 1992 (Bourke *et al.* 1994: Phase III, 102-103). During 1994, four additional burials were excavated, two beneath floor packing, and another two beneath Phase A walls (see below) indicating that this area had been in use as a burial ground for some time before the construction of Phase A.

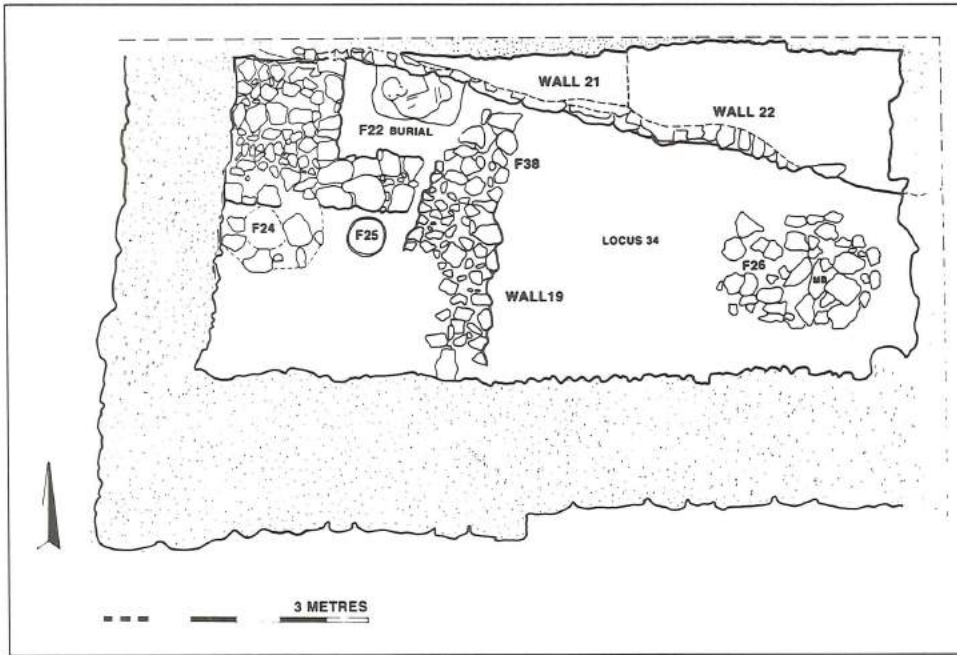
Four major phases (C-F) of MBA architecture were found below Phases A and B. The first of these (Phase C), a large mud-brick and stone wall, rebuilt several times (Walls 21/22), runs roughly east/west along the northern edge of the trench (Fig. 12). It seems likely to be the exterior wall of a major structure, with associated deposits to its south representing a thoroughfare many times resurfaced throughout the later MBIIB and earlier MBIIC periods.

Below this 'roadway' phase, a complex of three rooms and an east/west street (Phase D) running along the (then) southern margins of the wall were uncovered (Fig. 13). This complex and associated deposits are consistent with domestic occupation, and date from the first half of the MBIIB period. Beneath this phase, a massive stone and mud-brick wall with offset buttress was uncovered (Phase E), running east/west along the southern edge of the trench (see above, Fig. 9, right foreground). This massive border wall may be associated with the formal MBA defensive line, or (more likely) the



11. Trench XXVIII. Bronze Age Pottery.

1. CN 15260, XXVIII 29.6 (LBI/II): Cooking Pot. 2. CN 15262, XXVIII 29.6 (LBI/II): Cooking Pot. 3. CN 15568, XXVIII 33.28 (Late MBA): Plastic Snake-Decorated Holemouth Jar. 4. CN 15943, XXVIII 43.7 (Late EB): Grain Wash Platter Bowl. 5. CN 15948, XXVIII 43.7 (Late EB): Slash-Incised Holemouth Jar. 6. CN 15942, XXVIII 43.7 (Late EB): Grain Wash TNN Jar. 7. CN 15944, XXVIII 43.7 (Late EB): Upright Deep Bowl. 8. CN 15964, XXVIII 44.4 (Early EB): Grain Wash TNN Jar. 9. CN 15969, XXVIII 44.4 (Early EB): Flat Base of Jar. 10. CN 15968, XXVIII 44.4 (Early EB): Rounded Holemouth Jar. 11. CN 15962, XXVIII 45.6 (Earliest EB): Pinch Rounded Holemouth Jar.



12. Trench XXVIII. Multiphase Late Middle Bronze Age Architecture.



13. Trench XXVIII. Multiphase Early Middle Bronze Age Architecture.

exterior wall of a civic structure, dating to the second half of the MBIIA period. Beneath this wall, the earliest MBIIA remains (Phase F) consist of a series of scrappy wall fragments, pits, drains and floor surfaces.

Small Finds from burials in Trench XXVIII (Fig. 14).

Among grave goods from the burial pits in Trench XXVIII were ceramic models of a wheel (Fig. 14:9-10).

Wheels of this kind are well known from excavations in Palestine and Syria, dating from the third Millennium BC onwards,

where they appear as components of model carts and chariots. As the wheels from XXVIII are of different materials and design, they seem likely to represent at least two vehicles. A similar wheel (CN 13409, IIC 45.3), made of red-slipped clay and dating to the MBIIIB period was found at Pella in 1988. Contemporary parallels may be found at Gezer (Dever 1986: Pl. 49:8 and 54:7) and Tall al-Far'ah (Mallet 1988: Fig. 23: 7).

The scarab (Fig. 14:8) belongs to Tufnell's class of Antelope/Ibex base design, Class 9B, also identified as a goat. Plain modelling of the back and sides is a feature of many scarabs of this type cited by Tufnell, and the present example is no exception. Three scarabs bearing the goat design have been found previously at Pella, in the large MB/LB Tomb 62 (Richards 1992: 22ff., CN 12-14). Of these pieces, Richards no. 13 is the closest parallel for the base, sides and back, bearing a goat with a spotted hide and 'sign above the back. The goat design is also known from a range of sites in Palestine and Egypt, but the hatched body and semi-circle in behind the animal is found on scarabs from Jericho (Tufnell 1984: nos. 2478, 2483 and 2484; Cam-

bitoglou 1986: NM 53.278), Tall Far'ah South (Tufnell 1984: no. 2486; Petrie 1930: Pl. XXII: 232) and Tall al-Ajjul (Tufnell 1984: nos. 2493 and 2494). The antelope design is a well-known SIP scarab type, its floruit found in Jericho Groups III/V, dating to the MBIIB/C periods (Tufnell 1984: 195-196). A seventeenth century BC date for this example seems likely.

3. Trench IIIF: East Field Middle Bronze Age Fortifications (Figs. 15-17 and 20)

One problem connected with the eastern complex of MBA fortifications remained outstanding at the end of the 1992 field season, which was the exact relationship of the massive north/south eastern perimeter wall (IIIC Wall 41) and the equally massive east/west wall (IIIF Wall 7) that joined it in the north-eastern corner of trench IIIC. Trench IIIF (east of IIIC) had been opened in 1984 to address this issue, but did not reach constructional surfaces by the end of that season (McNicollet *al.* 1992: 42-43). The trench was reopened in 1994 to complete investigations.

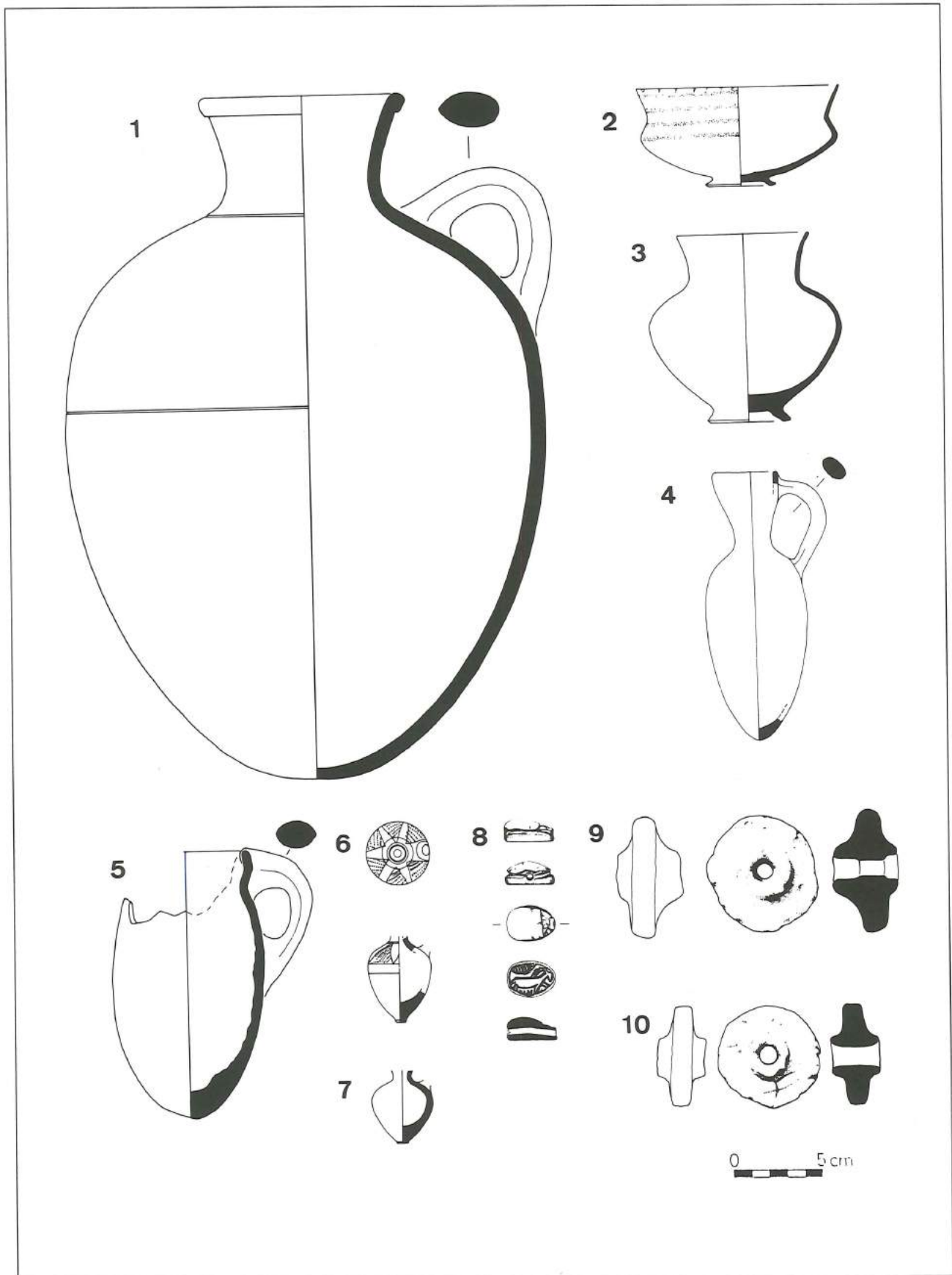
A sondage 2.5 x 2.0 m in extent was placed within the southwest quarter of IIIF (Fig. 15), positioned to cut the outer margins of both walls (IIIC W41 and IIIF W7) in the area of their intersection, so that a trench carried down through the mud-brick courses would recover the constructional relationship through time (Fig. 16). The sondage was carried through six metres of mud-brick superstructure before reaching the 1.5 m high stone sockle of IIIC Wall 41 and associated foundation trench deposits. The 75 cm deep foundation trench had been cut through a series of small pits and associated deposits (dating to the EB I) into the sterile gravels which lie at the base of the occupation sequence. The IIIF Wall 7 foundations began some two metres higher than those of IIIC Wall 41, due to the sharp rise in the bedrock topography (an east/west ridge) at this point. Although the foundations dif-

fered in height, the mud-bricks of the two walls were bonded together, with the grey bricks of the upper phase of Wall 41 'keyed in' to the orange bricks of Wall 7. Although it is possible that Wall 7 should only be associated with the upper 'grey brick' phase of Wall 41, all contextual material from constructional fills associated with Wall 41 suggest that all three mud-brick 'bands' of Wall 41 were constructed sequentially in the same program, and that Wall 7 was 'keyed in' when the Wall 41 superstructure reached the height of the IIIF ridge wall foundations.

Pottery associated with IIIC Wall 41 constructional levels (Fig. 17: 11-15; see below Fig. 20: 1-7) dates to the MBIIA/B period, or the eighteenth century BC. Parallels can be drawn with Apeh (MBIIA), Gezer, Shechem, Megiddo and Hazor (MBIIA/B), although some forms are long-lived, particularly at Jericho (MBIIB). Pottery associated with IIIF Wall 7 construction levels (Fig. 17: 1-10) is of similar date.

4. Trench XXVIIIIC: West Field Middle Bronze Age Fortifications (Figs. 18-20)

A heavy concentration of *in situ* mud-brick and much mud-brick debris had been identified on the middle south-western slope of the main tall during surface survey in 1989, and as the area seemed the best candidate for the long sought after western return for the city fortifications, a 3 x 15 m exploratory trench (XXVIIIIC) was opened over and north of the mud-brick concentration at the beginning of the 1995 field season. Initial excavation revealed three main Romano-Byzantine phases upslope and immediately above the mud-brick mass. The uppermost phase consisted of a massive Late Byzantine (sixth century AD) terrace wall, enveloping an earlier phase of Byzantine domestic structures (fifth/sixth century AD), which were in turn constructed directly on top of a small stretch of Late Roman/Early Byzantine (fifth century AD) limestone-paved colonnaded street.

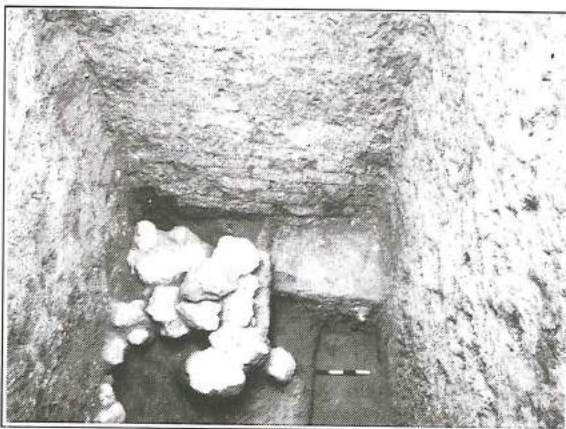


14. Trench XXVIII. Middle Bronze Age Burial Pottery and Small Finds.

- 1-7. Pottery from trench XXVIII A 1. CN 15993, XXVIII A 31.2 (MB/LB): One-Handled Amphoroid Jar. 2. CN 15500, XXVIII A 31.2 (MB/LB): Painted WS Carinated Bowl. 3. CN 15520, XXVIII A 31.2 (MB/LB). Fine Buff Jar. 4. CN 15517, XXVIII A 31.2 (MB/LB): White Slip Dipper Juglet. 5. CN 15983, XXVIII A 31.24 (Late MBA): Dipper Jug. 6. CN 15518, XXVIII A 32.11 (Late MBA): Tall el Yahudiyeh Piriform Juglet. 7. CN 15521, XXVIII A 32.12 (Late MBA): Fine Buff Piriform Juglet.
- 8-10. Small Finds from Trench XXVIII A :
- RN 170128, Steatite Scarab. XXVIII A 32.12. (Late MBA). L. 16 x W. 12 x Th. 7 mm. Carved off-white to beige oval steatite scarab amulet. It is complete and pierced longitudinally for suspension. The unglazed surface is lightly polished. The plain back bears a line delineating the head from the thorax, with two small nicks at the edge serving to define the thorax from the wing case. A diagonal nick divides the thorax. The trapezoidal head with double side lines and horn is joined to an inverted plain trapezoidal clypeus. On one side, the scarab is separated from the base by a single horizontal incision, and on the other, by two incised horizontal lines. An incised oval border frames a design along the length of the scarab base, depicting a horned quadruped in motion facing right. The body is cross-hatched with light incision, and the neck is incised with light diagonal lines. Four vertical lines are visible under the body as a 'space filler'. Over the back of the animal is a semi-circular space-filling ornament, the interior of which is lightly incised with seven diagonal lines.
- 9-10. RN 170174: XXVIII A 33.33. (Late MBA). Ceramic model wheel. L.79 x W.74 x Th. 39 mm. Medium levigated clay with many white lime, some grey chert, dark brown stone inclusions. Core 7.5 YR 7/4 'dull orange' and Slip 10 YR 8/3 'light yellow orange'. Mohs 3-3.5. Hand-made disc, roughly formed edges, one face rising to centre; smoothly bored hole through centre, rough at exits either end. 9. RN 170185, XXVIII A 33.28. (Late MBA). Model wheel, L. 70 x W. 68 x Th. 30 mm. Made of chalky white stone, possibly limestone. Mohs 2.0. Worn surface, slightly accreted with cut or tool marks across face. Disc with flat sides and flat upper/lower faces with central flanges around central hole.



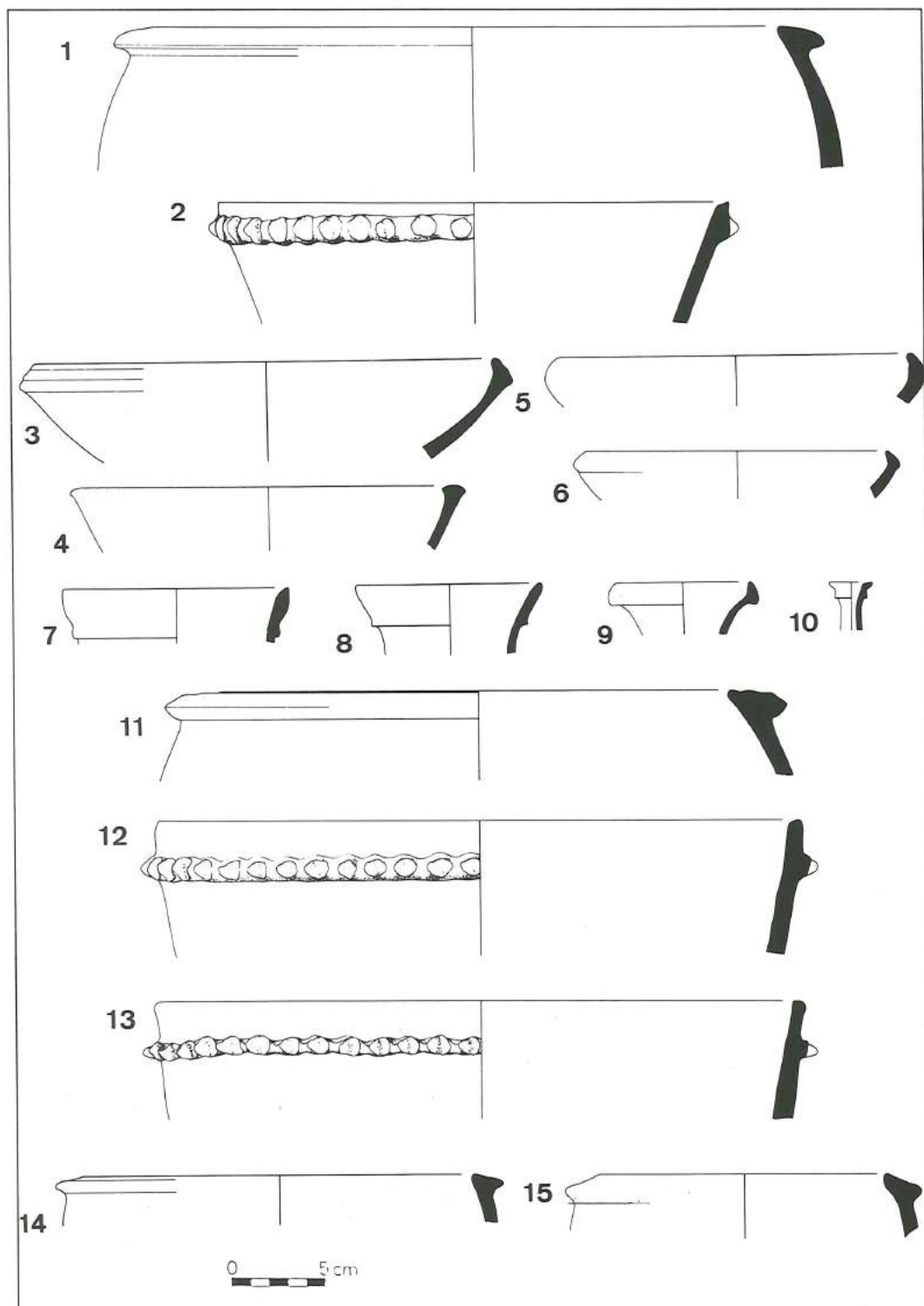
15. Trench III F. Beginning of Sondage between MBA fortification walls.



16. Trench III F. Base of III F Wall 7 (Black bricks at Base).

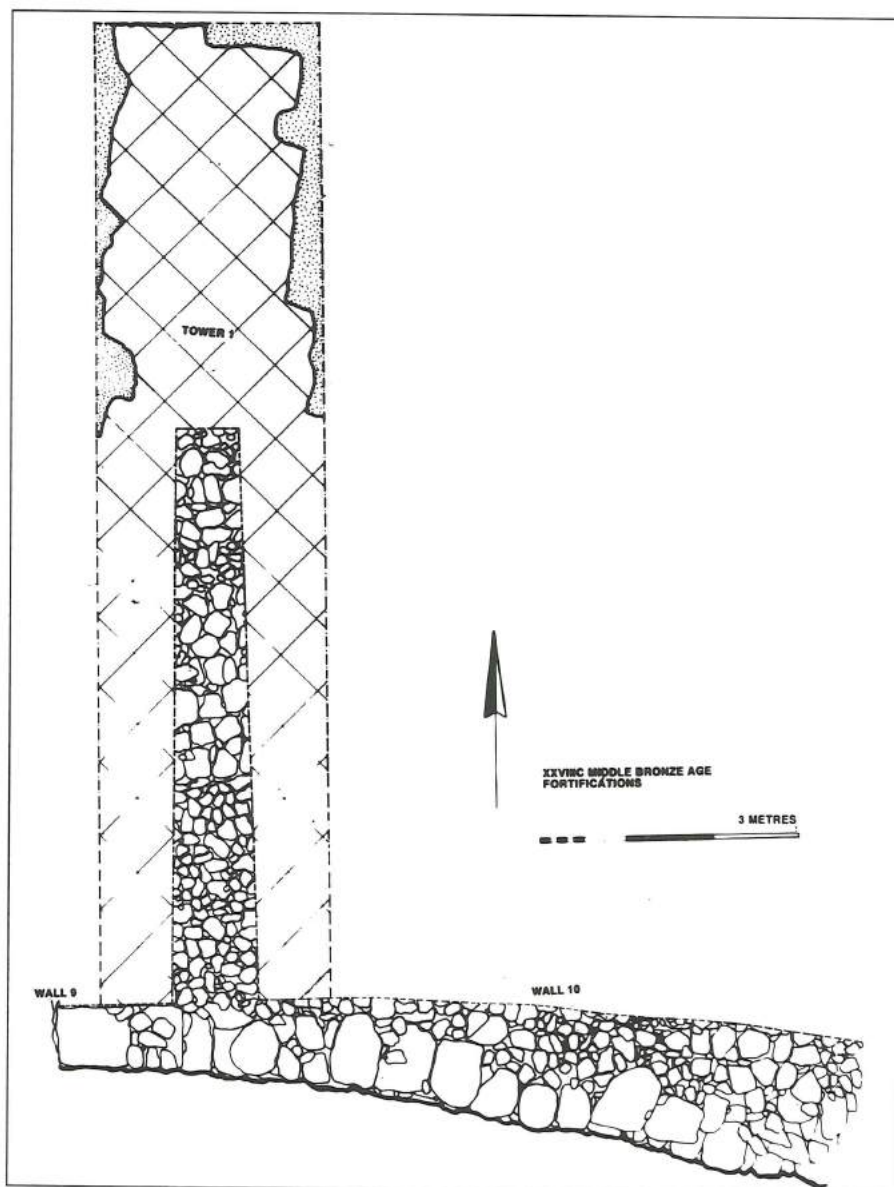
Following the removal of the Roman/ Byzantine pavers, a very large mud-brick structure was revealed immediately below. When the Late Roman/Byzantine street was constructed the top of this mudbrick structure had been sheered off, and the pavers laid directly upon the mud-bricks. As finally uncovered, the brick structure proved to be a solid mud-brick tower (Tower 1), consisting of approximately forty courses of mud-brick built upon a five course stone foundation, this last cut into bedrock (Fig. 18). The tower is nearly eight metres wide and over twelve metres thick. The entire south face of the tower was exposed as it lay close below the surface due to the tall slope (Fig. 19), whilst the northern face, preserved a bare twenty centimetres in from the north baulk, was traced along slightly less than three metres of its face, as it lay under some seven metres of later overburden.

In two separate probes on either side of the main trench, the western and eastern edges of the tower and associated city wall sections were uncovered (Fig. 18). The outer face of the western wall (Wall 9) was covered in mud plaster two/three centi-



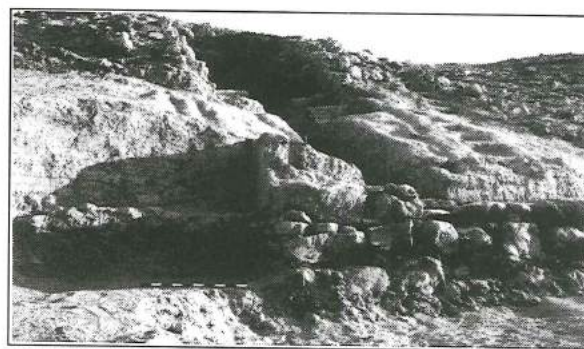
17:1-15. MBA Pottery from Trench III F Sondage.

1. CN 17084, III F 5.7 (Early MBA): Krater.
2. CN 17077, III F 5.5 (Early MBA): Cooking Bowl.
3. CN 17079, III F 5.5 (Early MBA): Rill-Rim Bowl.
4. CN 17106, III F 5.9 (Early MBA): Deep Bowl.
5. CN 17086, III F 5.7 (Early MBA): Simple Bowl.
6. CN 17085, III F 5.7 (Early MBA): Deep Bowl.
7. CN 17081, III F 5.6 (Early MBA): TNN Jar.
8. CN 17107, III F 5.9 (Early MBA): TNN Jar.
9. CN 17097, III F 5.7 (Early MBA): TNN Jar.
10. CN 17080, III F 5.5 (Early MBA): Ridge-Necked Juglet.
11. CN 15467, III F 7.8 (Earliest MBA): Krater.
12. CN 15466, III F 7.8 (Earliest MBA): Cooking Pot.
13. CN 15482, III F 7.13 (Earliest MBA): Cooking Pot.
14. CN 15468, III F 7.8 (Earliest MBA): Small Krater.
15. CN 15474, III F 7.5 (Earliest MBA): Small Krater.



18. Trench XXVIIIIC. Plan of Tower-1 and Walls 9 and 10.

metres thick, with an overall wall thickness averaging 2.6 m. It is attached to the western face of the tower at an oblique angle, set back 1.5 m from the southern edge (Fig. 19). A metre thick stone revetment links the southern edge of the tower with Wall 9, some four metres west of the tower, forming in effect a stepped triangular buttress, which is sealed with the same mud plaster facing as is Wall 9 and the western face of Tower 1. The eastern wall (Wall 10) joins flush with the southern edge of the tower, and averages 2.4 m in thickness. Tower 1 projects back over eight metres into the city proper. It is probable that a second (interior)



19. Trench XXVIIIIC. Intersection of Wall 9 and Tower 1.

line of walling ran parallel to that of Walls 9 and 10, in effect forming a casemate off either side of the tower. Further excavation will be required to confirm this arrangement.

The latest ceramics from tower foundation deposits are MBIIA/B in date. Parallels with MBIIA phases at Aphek are close and convincing. An MBIIA stepped rim juglet (Fig. 20: 20) found with a child burial placed within the stone foundations of Tower 1, is close to similar examples from the 'Palace' phase at Aphek (Beck 1985). Pottery from fill layers associated with both lateral walls (Fig. 20: 8-19) dates to the MBIIA/B period, and suggests that after the construction of the tower and walls, the casemates were filled with near contemporary debris. Overall, pottery parallels drawn from Aphek, Shechem, Megiddo and Jericho support an MBIIA/B date for the construction of the western fortification complex, matching the date independently determined for the eastern complex (Bourke *et al.* 1994: 96).

5. Trench XXXIIF: South Field MBA and LBA Funerary Libation Deposits (Figs. 21 and 23-24)

A new 5 x 5 m trench (XXXIIF) was opened some fifteen metres to the west of trench XXXIID in 1995 to determine if further traces of the EBA city wall could be detected west of the Wooster Area XXV Deep Probe (McNicoll *et al.* 1992: 30-31). Immediately below topsoil, numerous two metre deep Iron II pits badly cut about the insubstantial Iron I and LB/EI remains, but once below these pits, two distinct building phases (MBIIC/LBIA and LBIB/IIA) of an elaborate multi-roomed structure were uncovered (Fig. 21). The carefully constructed large and medium stone footings, the neatly laid pinkish buff mud-brick superstructure, extensive use of thick painted plaster on the walls and associated benches, and the elaborately fashioned and carefully sealed mud-brick and white mud plaster bins that abut the western face of the central north/south wall, taken together indicate a likely civic status for the building.

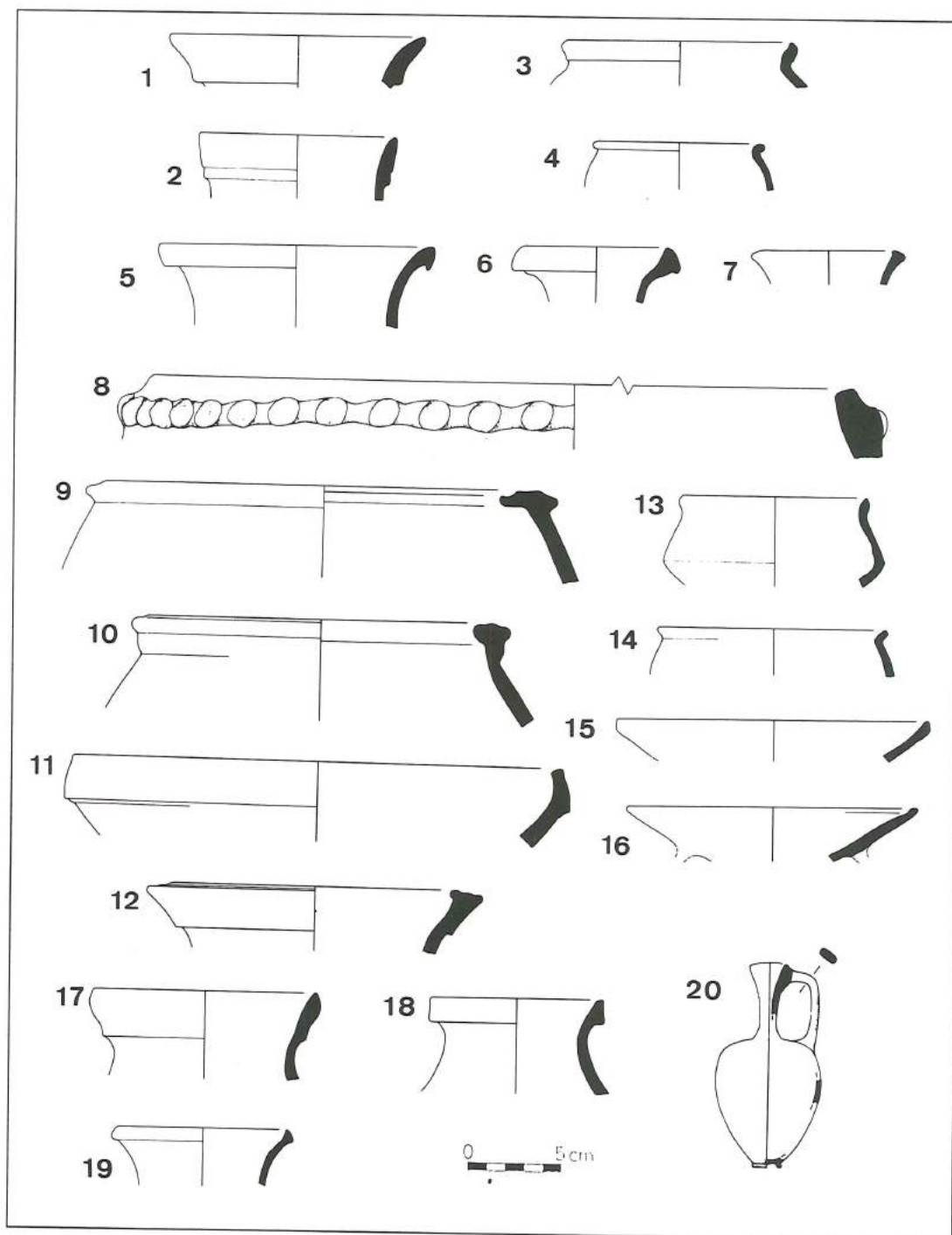
In a series of plaster-lined bins associated with both phases of the structure, a number

of complete ceramic vessels were found (Figs. 22 and 23). A collection of ceramic bowls, platters, small jars, juglets and plates, and an Egyptian faience lid came from two bins associated with the later building phase (Fig. 23), whilst a series of ceramic funnels (large and small), pinch-spouted flasks (large and small), and a unique gypsum bowl were recovered from bins associated with the earlier phase of the building (Fig. 24).

Given the direct association of similar rough-finished funnels with MB/LB burials at Pella (Smith 1973: 211-212 and Pl. 20: A-C) and Megiddo (Guy 1938: 72 and Pl. 37: 13), and the central place of funerary libations in Levantine ancestor worship (Pitard 1994), coupled with the suggestion that public facilities existed to both sanctify new and purify decommissioned utensils used in ancestral worship (Pitard 1996), it may be suggested that the plaster sealed bins contain examples of such decommissioned funerary libation vessels. This in turn may suggest that the building is just such a public temple/repository as that alluded to in the Emar tablets (Fleming 1992).

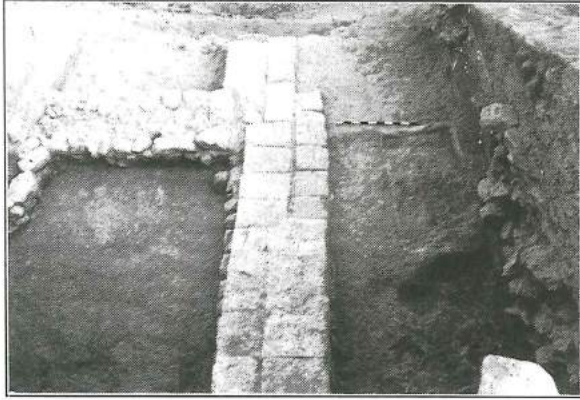
A similar lid in the Walters Art Gallery Baltimore, is thought to be from Tunch el-Gebel in Egypt. This is conical, and was matched with a tall ribbed body (Egypt's Golden Age 1982: 151, no. 157). Another close parallel is a ribbed cup in Lucerne, which makes use of similar 'dot' decoration in a simple zigzag pattern. This form of ribbed vessel is thought to be imitating basketry, where the ribs represent multiple reed coils which have been stitched together. They date from the Second Intermediate Period to the early Eighteenth Dynasty. It has been suggested that the type may have originated in Nubia, where it is most common (Egypt's Golden Age 1982: 142, no. 138).

This vessel is a product of a Palestinian gypsum workshop. Bowls formed a very minor part of the repertoire during the MB/LB period. The closest parallel is provided



20: 1-7. MBA Pottery from Trench IIIF and Trench XXVIIIIC.

1. CN 15471, IIIF 7.8 (Earliest MBA): TNN Jar. 2. CN 17074, IIIF 7.8 (Earliest MBA): TNN Jar. 3. CN 15460, IIIF 7.10 (Earliest MBA): Fine Carinated Bowl. 4. CN 15473, IIIF 7.6 (Earliest MBA). Fine Bowl. 5. CN 15483, IIIF 7.13 (Earliest MBA): TNN Jar. 6. CN 15457, IIIF 7.12 (Earliest MBA): 7. CN 15461, IIIF 7.10 (Earliest MBA): TNN Jar. MBA Pottery from XXVIIIIC 8. CN 17025, XXVIIIIC 9.3 (Early MBA): Cooking Pot. 9. CN 17068, XXVIIIIC 9.1 (MBA): Krater. 10. CN 17027, XXVIIIIC 9.3 (Early MBA): Storage Jar. 11. CN 17028, XXVIIIIC 9.3 (Early MBA): Deep Bowl. 12. CN 17054, XXVIIIIC 9.4 (Early MBA): TNN Storage Jar. 13. CN 17051, XXVIIIIC 9.4 (Early MBA): Fine Carinated Bowl. 14. CN 17052, XXVIIIIC 9.4 (Early MBA). Fine Bowl. 15. CN 17031, XXVIIIIC 9.3 (Early MBA): Fine Platter Bowl. 16. CN 17040, XXVIIIIC 9.3 (Early MBA): Loop Base Fine Platter Bowl. 17. CN 17039, XXVIIIIC 9.3 (Early MBA): TNN Jar. 18. CN 17026, XXVIIIIC 9.3 (Early MBA): TNN Jar. 19. CN 17053, XXVIIIIC 9.4 (Early MBA): TNN Jar. 20. CN 17001, XXVIIIIC 8.7 (Earliest MBA Burial). Fine Buff Burnished Juglet.



21. Trench XXXIIF. Plastered Bins (far right) and MBA mud-brick walls.

by an MB/LB carinated rim fragment from Gezer Field VI (Dever 1986: Pl. 52: 12). Ring bases were used on other contemporary gypsum bowl forms, such as the plate or ram's-head handled bowls from Pella (RN 70961, unpublished) and Jericho (Kenyon 1960: Figs. 171: 15 and 187: 17). In the absence of close parallels in stone, it seems likely that the inspiration for this shape came from a variant of the traditional MB/LB ceramic carinated bowl, where the upper walls lean in slightly and which sometimes feature similar lug handles. Comparable material is known from Pella (McNicoll *et al.* 1992: Pl. 44: 3), Tall Dan (Biran *et al.* 1996: Fig. 4: 99.17), Gibeon (Pritchard 1963: Figs. 9: 4 and 27: 4) and Tall Far'ah South (Price-Williams 1977: Figs. 26: 4, 35: 5 and 51: 3). The gypsum version shows a tendency to place the carination further down the body than that seen on the ceramic prototypes. It probably represents a spontaneous development within the local gypsum industry.

6. Trench IVE: East Field Deep Probe (Figs. 24 and 27)

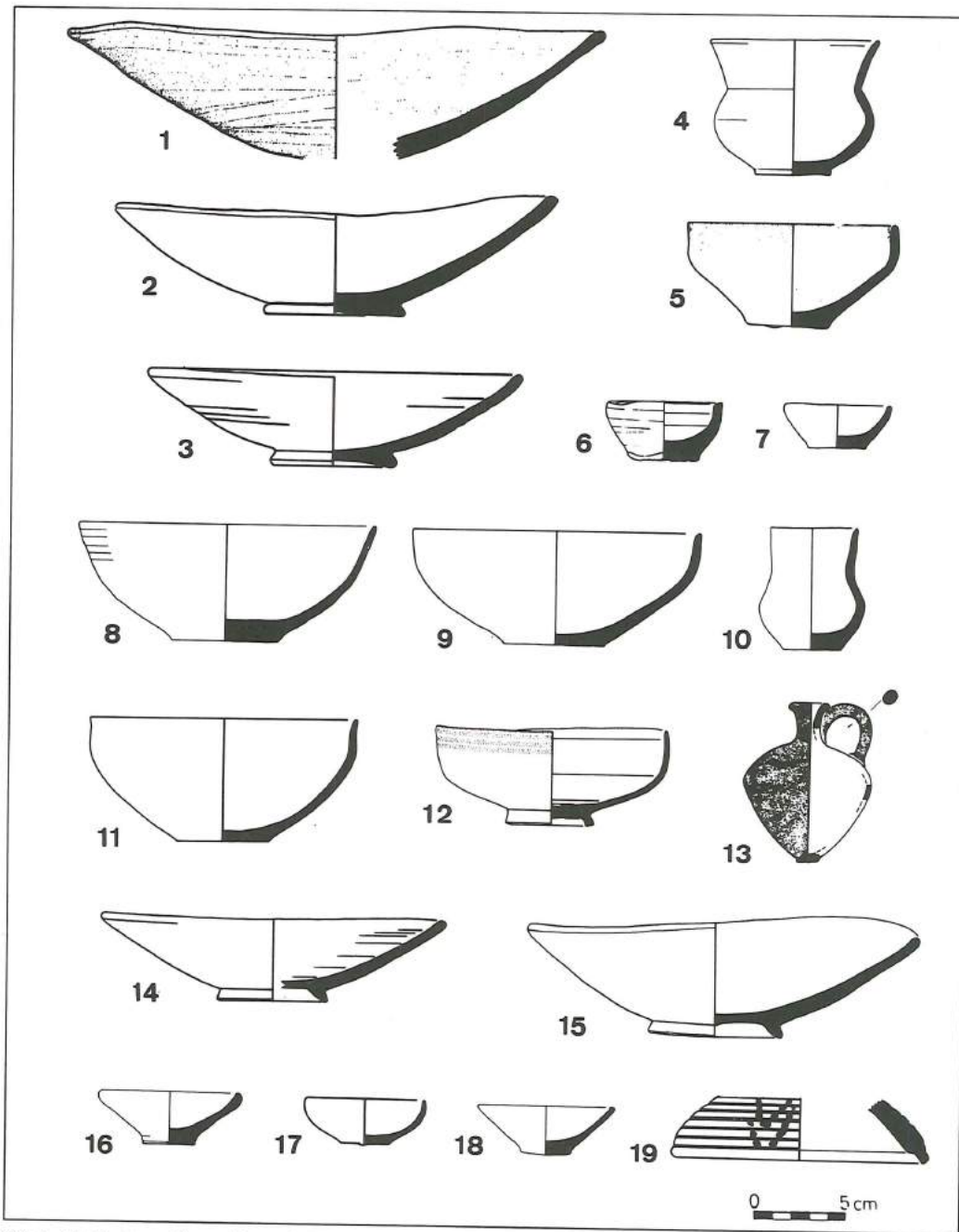
Trenches IIIP and IVE had reached LBIIA/B levels by the end of the 1990 field season, when last excavated (Walmsley *et al.* 1993: 184-188). In the intervening years, several very wet winters (particularly that of 1992) had rendered the six metre high baulks very dangerous, and in places they

had collapsed into the trench, putting much of the adjacent consolidated Late Byzantine/ Umayyad housing at risk. As a conservation measure, it was decided to backfill trenches IVE and IIIP, but before this occurred a sondage 3 x 3 m in extent was placed in the centre of trench IVE to sound the area to sterile.

Over the course of the 1994 field season, the sounding penetrated through seven metres of deposit before reaching sterile gravel. In so doing, three phases of LB (LBI-IIA), four phases of MB (MBIIA-IIC), and two phases of EB (EBIB-II) architecture and associated ceramics (see below Fig. 25a: 1-7) were discovered above a series of stone and plaster-lined pits ranging in date from the EBI through Ceramic Neolithic (Fig. 24). All pits were cut into a thick dark brown redeposited Aceramic Neolithic layer (probably PPNB in date), which in turn lay above sterile red gravels. The sequence recovered from the IVE sounding is similar in most respects to that recovered from trench IIIC, but has in addition a number of Pottery Neolithic through Late Chalcolithic pits as well as the redeposited PPNB material.

7. Trench IIIQ: South-East Field Buildings and LBIB-IIA Governors' Residence (Fig. 25b - 27)

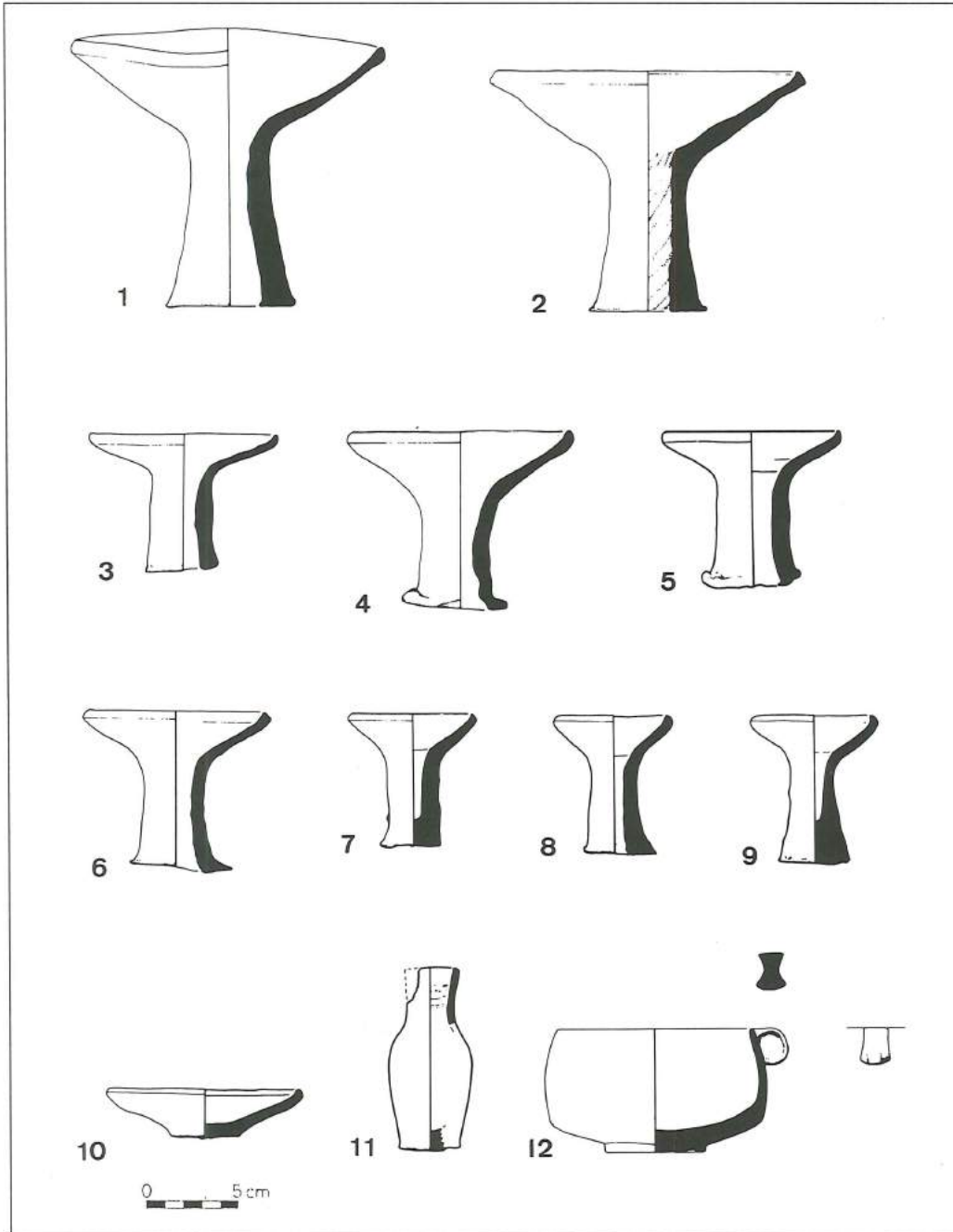
Whilst completing the exposure of the Governors' Residence (trenches IIIN/IIIS) in 1992, we uncovered a major street running down its western side (Bourke *et al.* 1994: 104-109). As it seemed likely that further civic structures lay to the west of the street, trench IIIQ, last dug in 1990 (Walmsley *et al.* 1993: 188), was reopened in 1994 and taken down to the phase of the Governors' Residence (East Cut Phase V, LBI/IIA). As a four metre high baulk separated trenches IIIQ and IIIN, it was first removed. Thereafter excavations continued through two phases of LBIIA/B (East Cut Phase IVA-B) architecture and a complex of plaster-lined bins, benches and pits, perhaps as-



22:1-18. Pottery from Trench XXXIIF. LBA Phase of Funerary Libation Deposit.

1. CN 15977, XXXIIF 2.36 (LBA): Platter Bowl. 2. CN 15976, XXXIIF 2.36 (LBA): Platter Bowl. 3. CN 15975, XXXIIF 2.36 (LBA): Platter Bowl. 4. CN 15926, XXXIIF 2.38 (LBA): Fine Carinated Bowl. 5. CN 15927, XXXIIF 2.27 (LBA): Upright Bowl. 6. CN 15850, XXXIIF 2.27 (LBA): Small Rough Based Bowl. 7. CN 15904, XXXIIF 2.27 (LBA): Small Bowl. 8. CN 15906, XXXIIF 2.32 (LBA): Bowl. 9. CN 17007, XXXIIF 2.36 (LBA): Bowl. 10. CN 15978, XXXIIF 2.36 (LBA): Bowl. 11. CN 15892, XXXIIF 2.33 (LBA): Carinated Bowl. 12. CN 15891, XXXIIF 2.33 (LBA): Small Jar. 13. CN 15905, XXXIIF 4.3 (LBA): Black Burnished Piriform Juglet. 14. CN 17009, XXXIIF 4.1 (LBA): Platter Bowl. 15. CN 15895, XXXIIF 4.1 (LBA): Platter Bowl. 16. CN 15894, XXXIIF 4.1 (LBA): Small Bowl. 17. CN 17008, XXXIIF 4.1 (LBA): Small Rough Based Bowl. 18. CN 15893, XXXIIF 4.1 (LBA): Small Rough Based Bowl.

19. Faience Lid from LBA Phase of Funerary Libation Deposit . RN 180034, XXXIIF 2.23. LBI/IIA: Faience lid fragment L. 46 x W. 33 x Th. 13 mm. . Pinched edge, sides gently convex, seven horizontal ridges preserved on exterior. The interior edge is flanged to fit onto the vessel rim. White glazed exterior and white at core, Munsel 10 YR 8/2 'white'. Decorated exterior with brown spots in possible multiple 'v' design, 10 YR 4/2 'dark greyish brown'. Mohs 2.5.



23:1-11. Pottery and one Small Find from the MB/LB Phase of the Funerary Libation Deposit in Trench XXXIIF.

1. CN 17010, XXXIIF 11.2 (MB/LB): Large Funnel. 2. CN 17024, XXXIIF 11.4 (MB/LB): Large Funnel. 3. CN 17011, XXXIIF 11.4 (MB/LB): Rough Based Medium Funnel. 4. CN 17017, XXXIIF 11.4 (MB/LB): Rough Based Medium Funnel. 5. CN 17022, XXXIIF 11.4 (MB/LB): Rough Based Medium Funnel. 6. CN 17020, XXXIIF 11.4 (MB/LB): Rough Based Medium Funnel. 7. CN 17016, XXXIIF 11.4 (MB/LB): Small Rough Based Chalice. 8. CN 17014, XXXIIF 11.4 (MB/LB): Small Rough Based Funnel. 9. CN 17015, XXXIIF 11.4 (MB/LB): Small Rough Based Chalice. 10. CN 17019, XXXIIF 11.4 (MB/LB): Small Rough Based Plate. 11. CN 17018, XXXIIF 11.4 (MB/LB): Small Rough Based Bottle.

12. Gypsum Bowl from the MB/LB: Phase of the Funerary Libation Deposit. RN 180050, XXXIIF 11.4, F.26 (Plaster-lined pit). MB/LB. Gypsum Bowl. Mohs 2.0. Simple rim with vertical, concave sided lug handle attached either on or just below rim; sides are convex to a sharp carination low on the body, then curved in to well-formed ring base. Circular in plan view, with a compass point in the centre of the base underside, probably from blocking out the shape. The vessel has been mended from several fragments and is incomplete, with parts of the rim and upper body missing.



24. Trench IVE. Base of Deep Sounding and Chalcolithic Pits.

sociated with olive oil processing and storage (Fig. 26), before reaching the Governors' Residence architectural phase, dating to the LBIB/IIA periods.

This Residence phase consisted of an initial (LBIB) major construction phase (Phase VB), featuring substantial walls of roughly dressed fieldstone foundations topped with neatly laid yellow-brown mudbricks, well constructed stone doorways, white plaster floors and stone paved courtyards (Fig. 27). This was followed by an extensive (LBIB/IIA) rebuilding (Phase VA2), consisting of a series of relatively poorly constructed walls laid over the primary surfaces abutting the early phase walls, subdividing the original courtyarded areas into smaller (apparently domestic) structures. These were associated with numerous pits, some stone lined. In the last (LBIIA/B) phase (Phase VA1), there was further evidence for semi-permanent round structures defined by post and stakehole patterns, erected within the reduced courtyard areas in the southern reaches of the trench, matching the occupational history of the Governors' Residence across the roadway from the IIIQ complex (Bourke *et al.* 1994: 105-107).

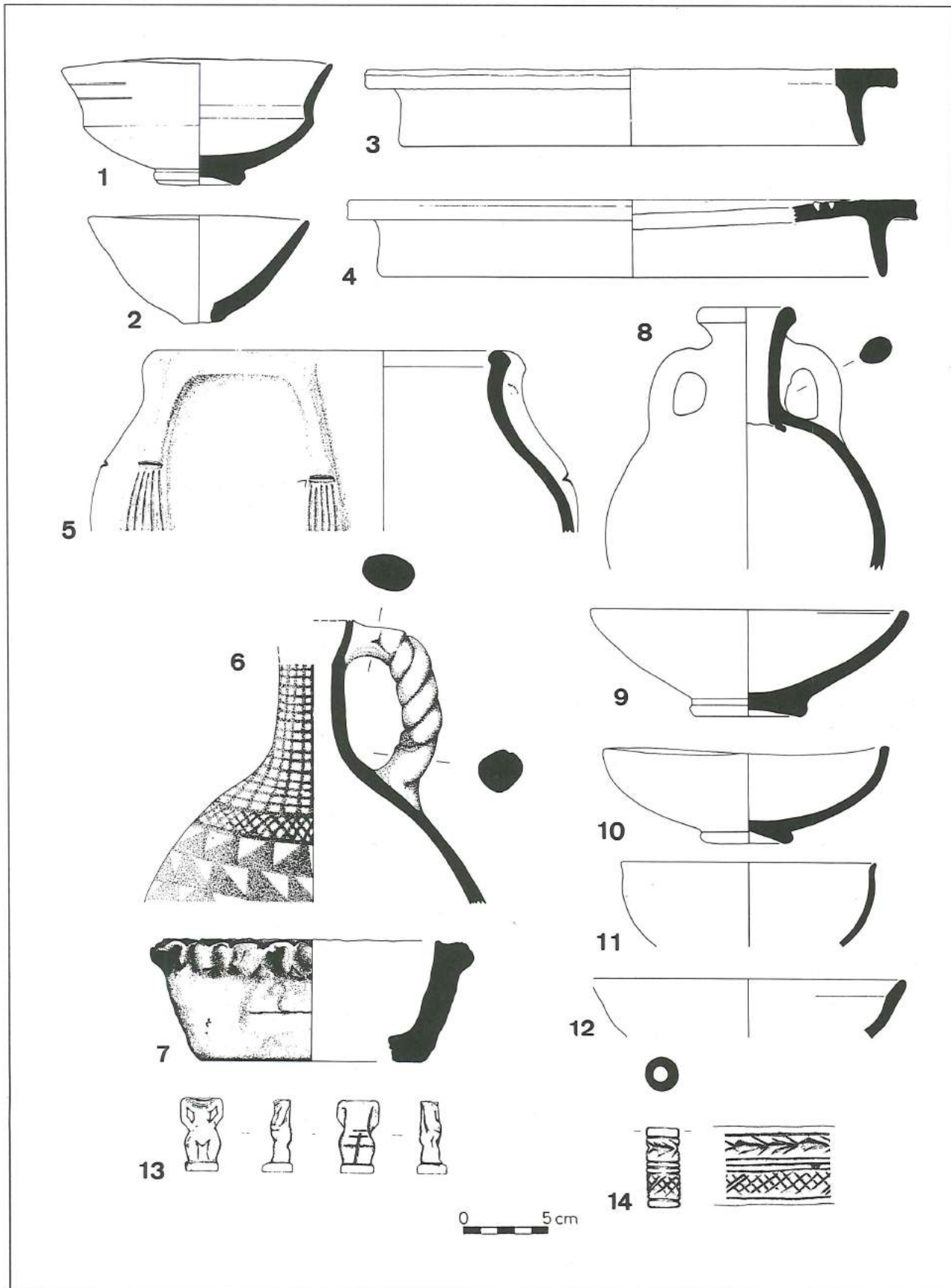
Pottery from the Residence phase (Fig. 25b: 8-12) is securely LBI-IIA in date, with the few small fragments of Mycenaean and Cypriot imports (if contemporary) suggesting the refined relative chronology pro-

posed above.

No. 13 is an example of the Ptah-Sokar amulet type well-known from the region (McGovern 1985: 18). Late Bronze and Iron Age Ptah-Sokar amulets come from a range of Palestinian sites, including Megiddo, Beth Shan, Lachish and Tall Far'ah South, and Egyptian sites such as Buhen and Matmar. Good parallels can be identified from Megiddo. Two large examples with clearly modelled *wesh* collars closely match the Pella amulet. These were found in Stratum VB, dating to the Tenth Century BC (Loud 1948: Pl. 206: 48 and 206: 50). Two slightly later examples from Stratum VA feature more curvaceous modelling of the body, but are still worth noting here (Loud 1948: Pl. 206: 54-55). From Lachish, Iron Age II examples feature a plinth and a suspension hole at the back (Tufnell 1953: Pl. 35: 44).

McGovern has suggested that the black disk on the head of Ptah-Sokar amulets occurs from the LBII into the Iron II. This trait was visible on the blue faience head (Pella RN 150007), possibly an unusual form of Ptah-Sokar amulet, found in an Iron Age I context at Pella in 1992 (Bourke *et al.* 1994: Fig.18: 5). Although the head is missing from RN 170009, the clear modelling and dense faience suggests a relatively fresh mould and firing at a higher temperature than that of RN 150007. The amulet was found on the main tall during the removal of the IIIQ/N baulk, in a Phase Oa-Ob context (McNicoll *et al.* 1992: 90-93), dating to some stage within the Iron I/IIA transition. Given the context and parallels, a tenth century BC date is not unreasonable.

Seal no. 14 (Fig. 25) belongs to the Mittanian common style; a similar example was discovered at Pella in 1988 (RN 110507, Walmsley *et al.* 1993: Fig. 15: 4), featuring net, double row of fish and reflected scroll design. Fish and net combinations of this kind were a popular design during the Late Bronze Age, with parallels found at Beth Shan VIII (James and McGov-



25a and b. Trench IVE and Trench IIIQ. Bronze Age Pottery and Small Finds. a: 1-7, b: 8-14.

- a) 1-7. Pottery From Trench IVE Deep Sounding; b:8-12. LBA Pottery from Trench IIIQ; 13-14. LBA Faience Amulet and Faience Cylinder Seal from Trench IIIQ .
- a) 1. CN 15263, IVE 111.6 (LBA): Carinated Bowl. 2. CN 15265, IVE 111.10 (LBA): Funnel. 3. CN 15244, IVE 111.16 (Late MBA): Cooking Plate. 4. CN 15249, IVE 111.16 (Late MBA): Cooking Plate. 5. CN 15293, IVE 115.8 (MBA): Plastic and Incised Zoomorphic Decorated Cooking Pot. 6. CN 15336, IVE 122.1 (Earliest MBA): Red Painted Chalky White Slip Twisted Handle Jug. 7. CN 15334, IVE 124.1 (Early EBA): Heavy Walled Cooking Bowl.
- b) 8. CN 15325, IIIQ 120.20 (LBIIA): Painted White Slip Pilgrim Flask. 9. CN 15274, IIIQ 120.5 (LBIIA): Open Bowl. 10. CN 15289, IIIQ 121.3 (LBIIA): Simple Bowl. 11. CN 15311, IIIQ 126.1 (LBIB): Fine Bowl. 12. CN 15313, IIIQ 126.1 (LBIB): Everted Rim Bowl.
13. RN 170009. IIIQ 118.3: Phase Oa-Oe, Iron I/IIA: Faience Amulet. Mohs 3.0. L. 27 x W. 15 x Th. 9 mm. Mould-made amulet, missing the head, of a squat naked figure with short legs, protruding belly, arms akimbo and hands on the stomach, standing on a plinth. Angular and well-defined body; the legs, although apart, are not separated. The flat back is schematic, with a diagonally incised line separating the legs, two short horizontal incised lines across the small of the back and a horizontal modelled curve below the buttocks. Across the shoulders, a linked wesh collar is visible. The amulet is glazed shiny pale blue (now worn) on a dense and hard grey-white faience base.
14. RN 170067. IIIQ 121.14. LBIB/IIA: Cylinder seal. Whitish faience, surface glaze missing except for faint bluish traces. Mohs 2.5. L. 28 x D.12 mm. Complete. Pierced through length. Decorated with cross-hatched net design in upper register, framed by parallel lines above and below. There is an additional parallel line below, with a row of three fishes swimming left below, similarly framed.



26. Trench IIIQ. Late Bronze Age Plastered Features (Phase IV).



27. Trench IIIQ. Late Bronze Age Walls, Bins and Courtyards (Phase V).

ern 1993: Pl. 62b), Megiddo VIIA (Loud 1948: Pl. 161:14), Atchana level VB (Collon 1987: no. 931), Rās Shamra (Schaeffer-Forrer 1983: RS 23. 11 and RS 24. 227) and Ayia Irini (Pecorella 1977: no. 67; Figs. 190 and 210: 67). Mitannian 'Common Style' seals seem to appear in greater numbers in northern Palestine, especially at sites like Beth Shan, suggesting the development of local workshops in the region (Guardata 1986: 16). Both fish and fish with net motifs may have originated in this area (Guardata 1986: 17; Collon 1975: 133), although they are also found at Nuzi (Porada 1947: Pl. 5: 78-84).

8. Archaeozoological Report (1994-95)

Over 7,000 identifiable fragments of bone have been analysed, dating from the Neolithic through to the Iron Age. Discussion will focus on general trends in animal use on the main tall and the more specialised use of Tall al-Ḥuṣn during the EBA, where hunting of deer (*Cervid* sp.) and gazelle (*Gazella* sp.) played a major role in the 'domestic' economy. On the main tall at Pella there is a gradual decline in the use of cattle (*Bos*) and a concomitant rise in the use of sheep and goats (*Ovicaprines*) from the Neolithic through to the Late Bronze Age (LBA) when ovicaprine use escalates.

In the Iron Age, the pre-LBA status quo is resumed. These findings have important implications for current hypotheses on the development and collapse of urban society during the EBA, for the redevelopment of urbanism in the MBA and its subsequent collapse in the LBA; and for the restructuring of Iron Age society.

Methodology has been discussed previously (Bourke *et al.* 1994: 121-123). However, to summarise briefly, data is analysed using the Number of Individual Specimens (NISP), the Minimum Number of Individuals (MNI) calculated by the maximum distinction method, and Sheep/Goat Equivalents (SGE), a relative meat value based on Twentieth Century liveweight-at-slaughter patterns. The NISP and MNI values are given for comparison with other sites. However, discussion relates to meat equivalent values as these give a more realistic interpretation of dietary preferences and animal use. For analytical purposes, since the number of positively identified Cervid remains are very low in comparison with cattle, all juvenile Bos/Cervid remains are classified as juvenile cattle, as this is more likely the case.

Neolithic faunal remains have been scanty. It would be inappropriate to present these figures as representative of an early domestic economy since NISP values are less than ninety. In contrast, 644 identifiable fragments have come from Chalcolithic levels in trench XXXIID. The absolute non-existence of Gazella remains, together with the relatively light use of Ovicaprines, pigs and cervids is of great interest for this period (see Tables 1-4). Cattle comprise nearly 85% of the dietary meat in the Chalcolithic, higher than in any subsequent period, whilst ovicaprines make up less than 9%. This indicates that during the Chalcolithic the population at Pella was highly settled and depended almost entirely on domestic livestock. This is in keeping with Croft's findings at Tall ash-Shūna North,

where domesticates predominate but with a slightly different emphasis, due to that site's location on the floor of the Jordan valley (Baird *et al.* 1994: 130-131). It is interesting that gazelle were hunted at Tall ash-Shūna North, and deer at Pella. This and the larger dependence on pigs at Shuna emphasise the different environmental niches of the two, with the valley floor being somewhat wetter and less timbered than the environs of Pella.

At Pella there is no evidence for the dramatic variation in animal husbandry techniques found at ash-Shūna North over the Chalcolithic/Early Bronze Age periods (Baird *et al.* 1994: 130-131). However, relatively low NISP values alone have been used by Croft in his study, and it remains to be seen if his interpretation holds after further excavation and analysis. Theories behind the rise of complex urban society during the EBA are based on an assumed increase in complexity of socio-economic and political institutions (Richard 1987: 22). However, the faunal evidence from Pella indicates that the domestic economy was running to a tried and tested formula from early in the settled history. In this regard, it could be construed that urbanism at least had its roots (and perhaps even its main trunk) in the Chalcolithic period. Richard further suggests that a three-tiered ranked site city-centred state polity was in evidence by the EB II, with varying levels of administrative organisation based on function as producer or redistribution centre (Richard 1987: 28). It remains unclear how city states inter-related with their 'hinterland' sites. The Egyptian Old Kingdom model, as discussed by Redding in the analysis of the Kom el-Hisn fauna (Redding 1992: 99-107), does not seem appropriate for the EBA Levant, even though strong Egyptian influence in the region is obvious. Pella varies very little between the Chalcolithic and the EBA (see Tables 1-4). EBA Pella was intermediate in size, although strongly walled, and produced exactly the same livestock as during the Chalcolithic. Richard's three-

tiered, centrally organised, urbanised EBA society does not account sufficiently well for the observable variety of economic structures in the region.

Middle Bronze Age Pella witnesses only a subtle change in animal husbandry practices, with a slight decline in the use of cattle, and a relatively sharp increase in the use of deer. Once again, there is no indication of major changes in animal husbandry practices between the EBA and the MBA, such as those Horwitz reported for the Refaim Valley (Horwitz 1989: 44-54). As with Croft's interpretation, Horwitz based her conclusions on NISP values alone, and very low ones at that (the total NISP for both periods is only 537). The MBA deposits at Pella are extensive, with the faunal count being correspondingly huge. There was little variation in husbandry practices between the early and middle stages of the MBA. Although there was some variation in the late MBA, this may have been due to the relatively low bone count for this phase. There is no evidence for central control and distribution of foodstuffs at Pella during the MBA, despite spatial analyses from sites in the region that may suggest otherwise (Dever 1987: 159).

There is little evidence of changing animal husbandry practices in the first half of the LBA, but this alters as the period unfolds. Ovicaprine use nearly doubles, whilst pig and cattle use drops dramatically, this perhaps in keeping with adaptation to a drying environment, and may tie in with climate-based theories on the collapse of regional economies at the end of the Bronze Age (Liverani 1987: 66-73). The agricultural basis of Canaanite culture would have been seriously eroded by any severe climate change. Indeed, many authors have suggested that the entire eastern Mediterranean may have been affected, undermining trading networks, socio-economic structures and even political systems, with the possibility of famine being widespread

(Redford 1992: 223; Lloyd 1989: 56; Ahlström 1993: 292; Mazar 1990: 288; Gorny 1989: 91).

With the coming of the Iron Age, we see a return to the status quo of earlier periods, perhaps indicating a return to a climate more conducive to cattle rearing, although pig production remains relatively low. During this period there is also a change in butchery practices, with chop marks and sagittally cut vertebrae increasing in frequency. This may reflect the changing types of tools available during the period. Iron holds its edge and can be sharpened more easily than either bronze or stone. Not all butchery was carried out using iron cutting implements, since most carcasses were still being disjointed, as in previous periods. However, there appears to be less concern about accuracy in this regard, as evidenced by the presence of more butchery marks in general, and an increasing number of carcasses being split sagittally (i.e. in half down the spine). There are less than 300 identifiable specimens from this period, which hampers analysis. However, the implications are that the environment had improved and new technology and butchery practices were being implemented.

Table 1. NISP values for all periods on the main tall.

	Chalco	EBA	MBA	LBA	IA	Total
Ovicaprine	255	365	2682	407	163	3872
Bos	226	219	746	55	88	1334
Bos/Cervid	11	16	73	4	19	123
Cervid	12	5	137	8	10	172
Sus	140	41	203	5	9	398
Gazella	0	1	10	0	1	12
Total NISP	644	647	3851	479	290	5911

Table 2. MNI values for all periods on the main tall.

	Chalco	EBA	MBA	LBA	IA
Ovicaprine	75	112	377	94	46
Bos	56	64	196	24	22
Bos/Cervid	9	12	38	3	11
Cervid	4	3	39	4	6
Sus	23	20	99	4	6
Gazella	0	1	3	0	1
Total MNI	167	212	752	129	92

Table 3. SGE values for all periods on the main tall.

	Chalco	EBA	MBA	LBA	IA	Total
Ovicaprine	75	112	377	94	46	704
Bos	672	768	2352	288	264	4344
Bos/Cervid	54	72	228	18	66	438
Cervid	24	18	234	24	24	324
Sus	34.5	35	148.5	6	9	233
Gazella	0	1	3	0	1	5
Total SGE	859.5	1006	3342.5	430	410	6048

Table 4. Percentage SGE values for all periods on the main tall.

	Chalco	EBA	MBA	LBA	IA	Mean
Ovicaprine	8.7	11.1	11.3	21.9	11.2	11.6
Bos	84.5	83.5	77.2	71.1	80.5	79
Cervid	2.8	1.8	7	5.6	5.9	5.4
Sus	4	3.5	4.4	1.4	2.2	3.9
Gazella	0	0.1	0.1	0	0.2	0.1

Tall al-Ḥuṣn during the Early Bronze Age: An example of intra-site variation

During the EBA, an easily defended site on Tall al-Ḥuṣn had been occupied and heavily fortified. The foundations for major fortifications have been uncovered on the eastern side of al-Ḥuṣn, and it is from this area that the vast majority of faunal material has emerged. In all, 1102 fragments have been identified, producing a very different picture from that on the main tall (Table 5).

Table 5. Animal use on Tall al-Ḥuṣn during the Early Bronze Age.

	NISP	MNI	SGE	%SGE
Ovicaprine	896	91	91	19.2
Bos	72	22	264	56.1
Bos/Cervid	15	4	24	5.1
Cervid	30	11	66	14
Sus	38	13	19.5	4.1
Gazella	51	7	7	1.5
Total	1102	148	471.5	

Hunting of deer and gazelle becomes relatively more common, ovicaprine use increases dramatically, and cattle use drops. The hills surrounding Pella must have been well forested, providing an adequate habitat for deer. As hunting has always been as-

sociated in historical times with the officer class in the army, it is perhaps not surprising that the occupants of a fortress on Tall al-Ḥuṣn obtained more than fifteen percent of their dietary meat in this manner. The variation between the main tall and al-Ḥuṣn is marked. The variation is not as marked as the NISP values alone would indicate (see Tables 1 and 5), since the vast majority of identified specimens were either cranial or distal limb elements. This would indicate that the EBA courtyard area (trench XXXIVF) was used as a primary butchery area, since the remains were found in floor deposits and not in pits. This is a prime example of the spatio-functional differentiation that would be expected in a complex segmented society.

The Equids of Pella

Not many equid remains have been recovered from Pella. Equids did not form a major part of the diet in the Near East until Hellenistic times, being used mainly as pack animals for the caravans transporting goods across the Near East, so it is not surprising that their remains are infrequently found, and those that normally appear come from donkeys (*Equus asinus*) or mules. The horse (*Equus caballus*) was mentioned in the Drehem archive from the Ur III period (2113-2029 BC) in Mesopotamia (Postgate 1994: 161), and apparently introduced into Egypt around 1700 BC, just prior to the Hyksos era (Cansdale 1970: 76), but direct evidence for the horse in the southern Levant in the MBA is still lacking.

The earliest evidence for horse at Pella comes from two Late Bronze Age IIA pit deposits, the first from trench XXXIIF on the main tall, and the second from trench XXXIVB on Tall al-Ḥuṣn. This would seem to be the earliest direct evidence for the horse in Jordan. They were used for pulling war chariots by all eastern Mediterranean peoples, but intensively by the Egyptians, Mitannians and the Hittites during the LBA.

Conclusion

For a death assemblage that covers five Millennia, the number of identified specimens is small. Still, the death assemblage at Pella gives some idea of the animals consumed at the site, and given some intra-site variation between the main tall and al-Ḥuṣn, a pattern has emerged that indicates a degree of stability in animal use during most of the settlement history. Whilst fewer cattle were killed than sheep or goats, as much larger animals cattle provided the bulk of the meat consumed on the site - strongly indicating both a preference for this meat and an ability to support cattle in larger numbers than today. In the el-Amarna texts, oxen figure heavily in preparations for the arrival of Egyptian troops in various cities in the Levant, and 500 oxen were given by one ruler to the king of Egypt as a gift (EA 301). Cattle were obviously highly prized in the Levant as well as in Egypt. Sheep and goats made up the majority of the remainder of the meat source at Pella. Once again, their secondary product use can only be surmised at this stage. Numerically, they predominated in all periods at the site.

As mentioned earlier, the second half of the Late Bronze Age witnessed a change in animal husbandry practices that could easily fit with the collapse of regional systems in the Levant at this time. Economic stress created perhaps by environmental deterioration is apparent. The reversal of husbandry trends in the Iron Age suggests a return to the stability of previous eras.

9. Summary and General Conclusions

The recovery of a fifteen metre deep sequence in Area IV (trench IVE) was important, although the very thin Chalcolithic and Neolithic layers were disappointing. The presence of Neolithic (again sparse) in the much expanded trench XXXIID was encouraging, as was the isolation of two complete phases of Chalcolithic architecture in the eastern area of the expansion, promising more in

the future when excavations will again be expanded to the east. The recovery of a complete sequence in the western tall (trenches XXVIII B and XXVIII A) was also important, although the very thin Chalcolithic and Neolithic layers was again disappointing.

The massive depth and elaboration of the EBA terracing operations on Tall al-Ḥuṣn (XXXIV F) again underlines the importance of the EBA architecture on the southern hill, and the south-eastern gatehouse (XXXIV E) and western industrial/storage facility (XXXIV B) only serve to emphasise the elaboration of the al-Ḥuṣn EBA complex.

The newly instituted exploration of the MBA west fortification complex (trench XXVIII C) promises much, as does the discovery of MBA cultic deposits along the central southern slopes (trench XXXII F); both areas will be further explored in future seasons. With the east fortification deep probe (III F) and the exploration of the area west of the Governors' Residence (III Q) complete, excavations in the East Cut (Areas III/IV) are finally at an end after fifteen years, having uncovered over 4000 years of virtually continuous occupational history. With six probes into natural at various places along the south side of the tall, it becomes increasingly clear that the Neolithic and Chalcolithic settlements on the main tall were neither continuous nor extensive. Equally, it seems that the earliest (EBIA) and latest (EBIII-IV) EBA phases are absent. However, continued recovery of extensive monumental architecture of second Millennium BC date underlines the strength and continuity of occupation during this period.

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