EXCAVATIONS AT TELL BRAK 2000: PRELIMINARY REPORT

By GEOFF EMBERLING *and* HELEN McDONALD

with contributions by

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The 23rd season of excavation at Tell Brak took place from March 13 to May 16, 2000, with David Oates as Project Director, Geoff Emberling as Field Director, and Helen McDonald in charge of the house and recording of pottery and objects. The season was co-sponsored by the Metropolitan Museum of Art and the British School of Archaeology in Iraq and was primarily funded by the Adelaide Milton de Groot Fund, in memory of the de Groot and Hawley families, of the Metropolitan Museum of Art; we also gratefully acknowledge significant support from the National Geographic Society (grant #6738–00), the Institute of Fine Arts of New York University, the British School of Archaeology in Iraq, and the McDonald Institute for Archaeological Research at the University of Cambridge. We would like to thank the Director General of Antiquities and Museums in Syria for his encouragement and interest. We also thank Ammar Abdul Rahman from the Department of Antiquities in Damascus, who paid us a visit during the season, as well as our representative from Hassake, Hussein Yusuf. The excavation staff was a pleasure to work with: Donald Hansen, Selma al-Radi, Marta Ameri, Jean Evans, Walton Green, Melanie Hatz, Torben Larsen, Tomasz Pazdej, Laurie Tedesco, David Thomas and Tim Skuldboel were site supervisors; Jack Cheng was registrar and photographer; Henry Wright conducted a series of soundings and gathered controlled samples of material relating to fourth millennium occupation of the mound; Michael Charles and Mette Marie Hald once again ran the botanical sampling programme; Jill Weber analyzed faunal remains; Susan Rees was conservator; and David and Joan Oates supported the project through the off-season and in the field with their expertise and enthusiasm.

This season the project continued to focus on two broad historical issues. Evidence from the last few seasons has begun to suggest that Tell Brak was as large and complex as cities in southern Iraq during the early fourth millennium BC, and we have been working to identify the early stages of this urban development. Since 1998, the project has also been excavating a large public building of the mid-third millennium BC in Area TC with the goal of understanding the nature of contacts between northern and southern Mesopotamia, as well as gaining insight into the operation of a large institution during this period. Texts from Ebla and Tell Beydar emphasize the power and interregional contacts of Tell Brak (ancient Nagar; e.g., Archi 1998), and Area TC is the first exposure of a major public building of this date at the site.

Excavation proceeded in four areas (Fig. 1). In Area TW, we continued our work in upper levels dating to the early third millennium BC as well as a lower area in which we have nearly completed excavation of an important non-domestic building of the mid-fourth millennium BC. Soundings in a small mound southeast of the main tell, known as Tell T2, revealed an area used for residences and ceramic production during the mid-fourth millennium BC. In Area TC, we continued excavation of the "Brak Oval," a building with a curving enclosure wall of which the final occupation probably dates to approximately 2350 BC. Finally, we worked at a ford in the Wadi Jaghjagh, 3 km east of the mound, that had been dated to the Roman period on the basis of its position between two nearby Roman military sites, while a date in the fourth millennium BC had been proposed on the basis of geomorphological work.

Area TW

In Area TW (Fig. 2), we continued to work toward a goal of clearing down to a massive gateway and associated walls of the early fourth millennium BC exposed in 1997 and originally thought possibly to be part of a city wall (J. and D. Oates 1997). The southern and eastern trench

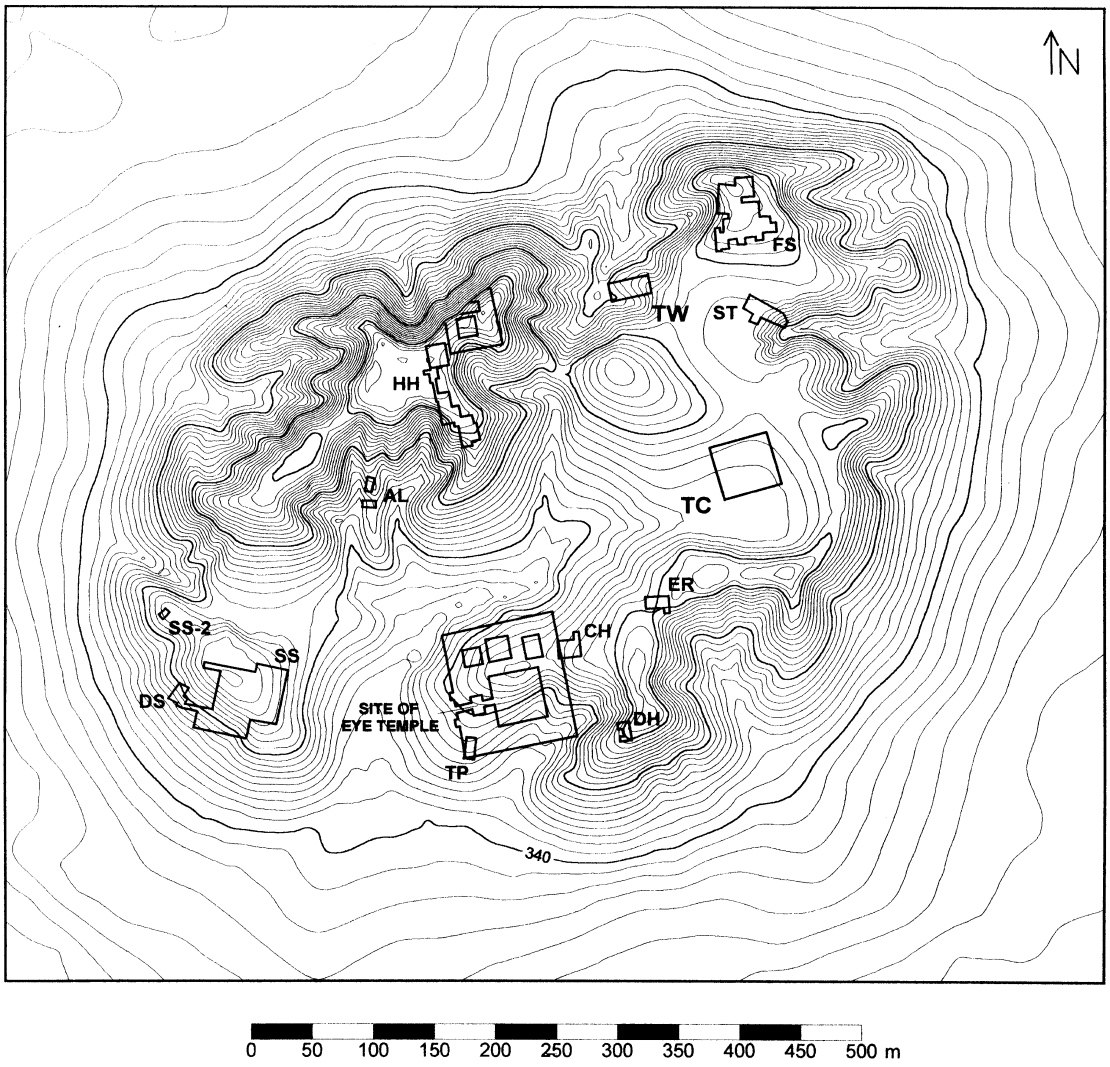

Fig. 1 Tell Brak, 1998 contour plan (1 m contour interval) showing excavation areas.

extensions begun in 1998 were excavated this season from Level 3 to Level 10, dating from the early third to the late fourth millennium BC (post-Late Uruk and pre-Ninevite 5). Among the buildings in these levels were a number of "grill structures" that are undoubtedly precursors to later grain storage facilities found throughout the Khabur (e.g., D. and J. Oates 1991, Pl. 31; Hole 1999).

Work in the lower (western) TW trench has focused on clearing a large and extremely interesting formal building (known as the "Niched Building") dating to the first half of the fourth millennium BC, clearly before the major contacts of the Late Uruk expansion had been established, and contemporary with earlier levels of the Eye Temple (Mallowan 1947). The structure was first discovered in 1997 (J. and D. Oates 1997:295, Fig. 17), and was further excavated in the 1998 season (Emberling *et al.* 1999:6–8, Fig. 7). Our understanding of the stratigraphic position of the building was greatly clarified this season by the work of Donald Hansen and Selma al-Radi, and it is now clear that the plan published in 1999 in part conflates structures of different levels. In addition, it now appears that we must alter the attribution of building levels, making the building itself TW Level 18; the large walls and gateway excavated in 1997 then become TW Levels 19–20.

The initial construction of the Niched Building (Figs. 3, 4) is marked by a distinctive but thin layer of gravel that was laid over the entire area. The structure is built over, but seems to

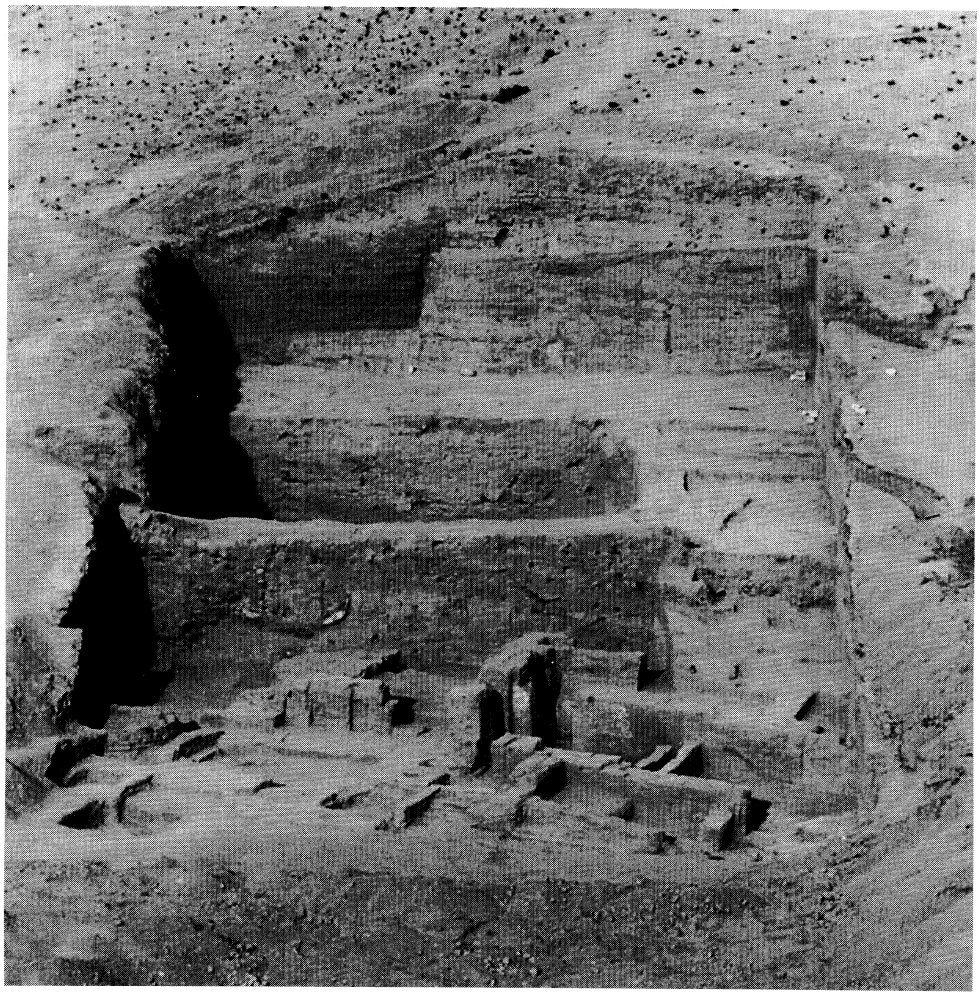

Fig. 2 Area TW from the west. The "Niched Building" of Level 18 is visible in the lower trench.

incorporate the massive walls that had been tentatively identified as city walls (Locus TW 1101 on Fig. 4). These earlier walls had been built of distinctive large bricks (46 × 25 × 8 cm) with an extremely thick layer of mud mortar between them. Wall 1101 did not continue straight through the western trench, however, but had extensions both to the north and south that were used as the east wall of the courtyard of the niched building.

As presently excavated, the southern portion of the building is tripartite in plan, recalling prototypes as far back as the Samarran period (e.g. Forest 1983), but with the unusual feature of an enclosed courtyard (1) along the main axis of the building (Figs. 3, 4). The courtyard may have been entered by a doorway to the west, although this area was heavily eroded and we were not able to be certain; another entrance may be preserved in the northern baulk.

The interior courtyard, with walls ornamented with niches and buttresses of two kinds (one extending to the floor, the other ending a metre or more above the floor), contained a large domed oven (Locus TW 1076; Fig. 5) as well as smaller rows of mudbrick fire installations, probably also used for cooking. The fill between the three major courtyard surfaces contained abundant samples of local chaff-tempered pottery. Preliminary analysis of ceramics, botanical remains, and bones from this area is reported on below. A room off the courtyard to the east (5) may have been a storeroom.

Access to the interior of the Niched Building was via an entranceway on the south side of the courtyard (1). Two piers of different dimensions made three doors; two led directly into the long

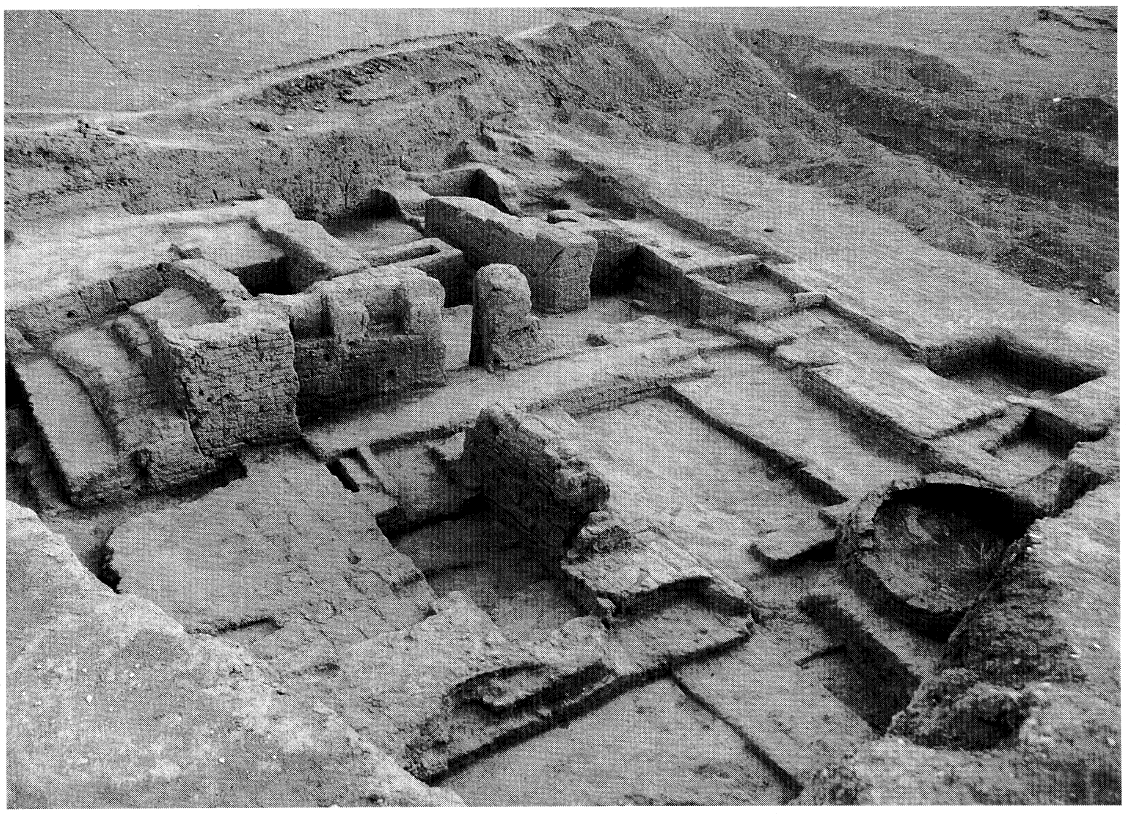

Fig. 3 The Niched Building from the northeast.

central hall (3), and the passage on the west led into a space presumably for attendants or storage. In front of the two major doorways was a raised platform with clear evidence of many coats of different coloured, thick plasters. The main feature of the central hall itself is a rectangular bin. A reed layer capped the fill in the bin and part of a cow's joint was the only find in the bin. Although the primary use of this bin is not certain, it certainly restricted access to the southern end of the room.

The eastern wall of the Niched Building is a mass of mudbrick, laid in several stages, that may have been a platform or a series of repairs. Certainly there is evidence of slumping in the east wall of Room 2, which preserves an earlier face, and for which the latest face is on a marked slope. The southwestern corner of the building was heavily eroded by wash from two wadis that converge at that point, leaving many details of walls and doorways unclear.

Almost no *in situ* artifacts were present in the building as a whole. It appears that it had been cleaned out and filled with uniform reddish soil, leaving the walls preserved to a height of as much as 1.5 m. The gravel foundation layer, the niched and buttressed façades, the careful re-plasterings of the walls, some of which were covered with a gypsum plaster, and the final filling of the building clearly suggest that it was not a simple residence. Its architectural features recall those of the "temples" of Eridu, and in overall dimensions it is similar to these structures, but the formal separation of sacred and secular authority in this period has been questioned (Forest 1987). While the structure is too small to have provided living space, its cooking facilities would have been ample for preparing large feasts. It can be argued that the Niched Building was a kind of audience hall; a tribal leader or state official might have received visitors on the long bench in front of the doorways (the niched façade then being behind the seated dignitary). The central room might also have had such a function, with the bin controlling access to the southern portion of the room.[1]

[1] Thanks to Jean-Daniel Forest for discussion of this structure.

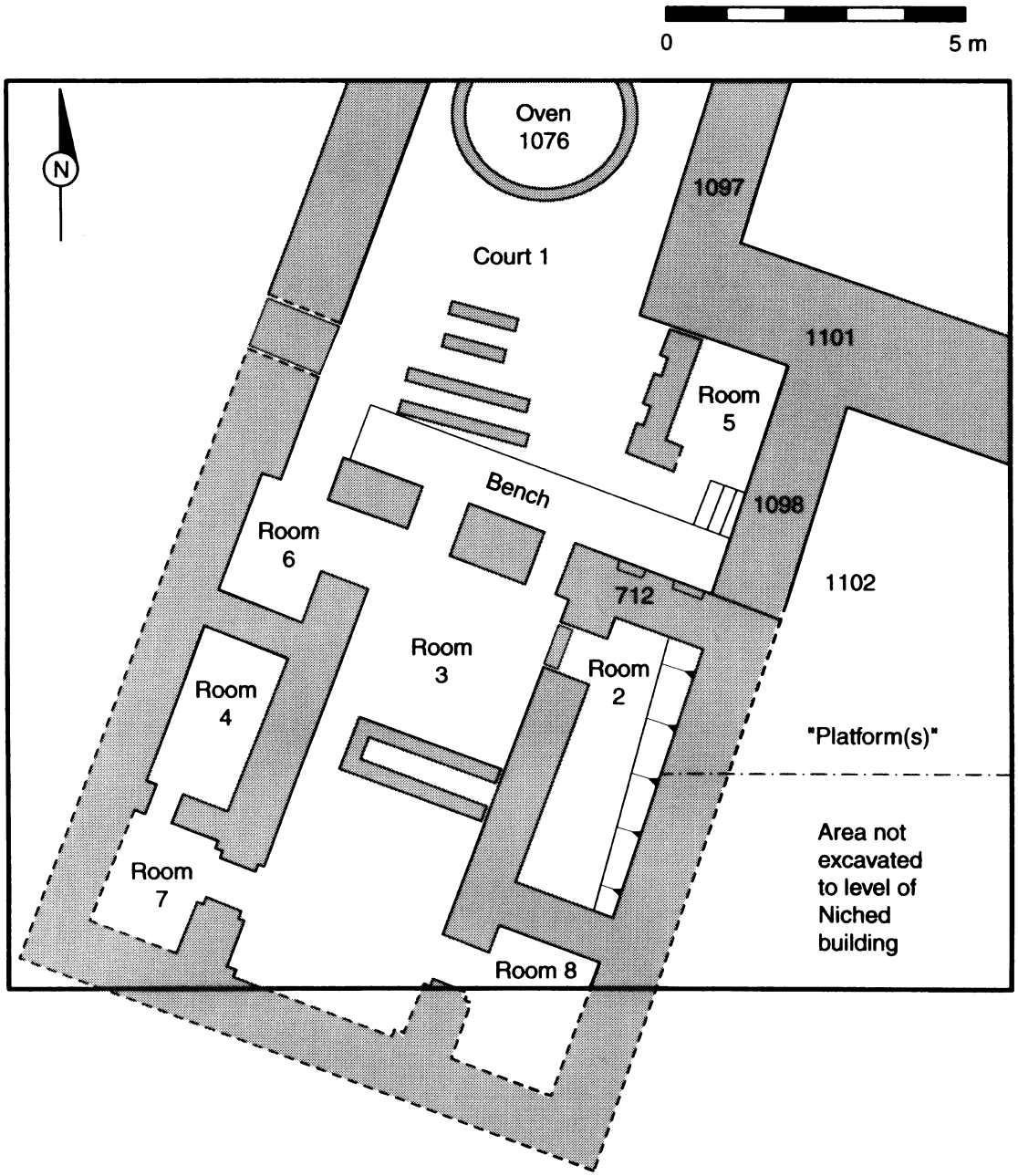

Fig. 4 Plan of the Niched Building.

Work in Area TW concluded with a small sounding beneath the Level 20 gateway in the original TW trench. The sounding produced a number of hole-mouth jar sherds diagnostic of Northern Early Uruk material as known from Gawra, Hacinebi, and elsewhere.

The forecourt of the Niched Building (Tell Brak TW Level 18): Preliminary note on an interdisciplinary study

By Michael Charles, Mette Marie Hald, Jill Weber *and* Henry T. Wright

During the excavation of the Niched Building in Area TW, there was a programme of screening and flotation sampling in a refuse-rich portion of layer 18 of the court north of the Niched Building of the mid-fourth millennium BC. After the building's construction, the space in front of the impressive red-plastered façade and porch was re-floored and kept clean. Later, however,

Fig. 5 Domed mudbrick oven (1076) in the courtyard of the Niched Building.

several fire installations were built here, and debris from their use — including pots smashed *in situ*, ashes and charred items, and bones, some still articulated — was dispersed on the court surfaces. This is an attempt to identify activities undertaken in this court. Wright studied the cultural materials, Hald and Charles studied the carbonized seeds, and Weber studied the bones.

Cultural Remains

At the southern end of the court was a grill structure composed of five rows of brick creating five long, narrow chambers approximately parallel to the façade and porch, the entire ensemble being about 2.1 m E-W by 3.0 m N-S (Fig 6). These had been levelled until only 0.10–0.12 m high, thus cutting plasters relating the individual chambers to each other. The sides of the bricks and the mud surfaces in the spaces between were burned red. Lenses of fine grey ash covered these surfaces (Loci TW 1099 and TW 1104) with a lens of similar ash to the northeast (Locus TW 1107). Over these lenses within and to the south of the grill ensemble was a deposit of ashy silt with fragments of burned bricks, mud plaster, sherds, and bones (Locus TW 1116C, W). In contrast to grill structures elsewhere, interpreted as the footings of storage structures, the even reddening of the bottom and sides of the five spaces suggests repeated use as a series of long, narrow fireplaces. These may have been used together, but we cannot demonstrate this.

After the levelling of this grill structure, similar deposition continued in the centre of the court (Locus TW 1085), completely covering the stumps of the brick rows. The source of this burned debris is not certain, but it seems possible that it results from continued use of a second fire installation, a large domed oven at the north end of the court, still in the process of investigation.

The artifactual remains from these ashy deposits (Table 1A) are remarkably limited in their diversity. There are only a few small flake and blade fragments of flint and obsidian, a few tiny crumbs of bitumen and of fine sealing clay, and some tiny disc- and barrel-shaped beads of such modest materials as black ceramic or bitumen, shell, and possibly chlorite. There are no fine stone, heavy stone, bone or metal artifacts. The rarity of flakes and blades argues against killing and

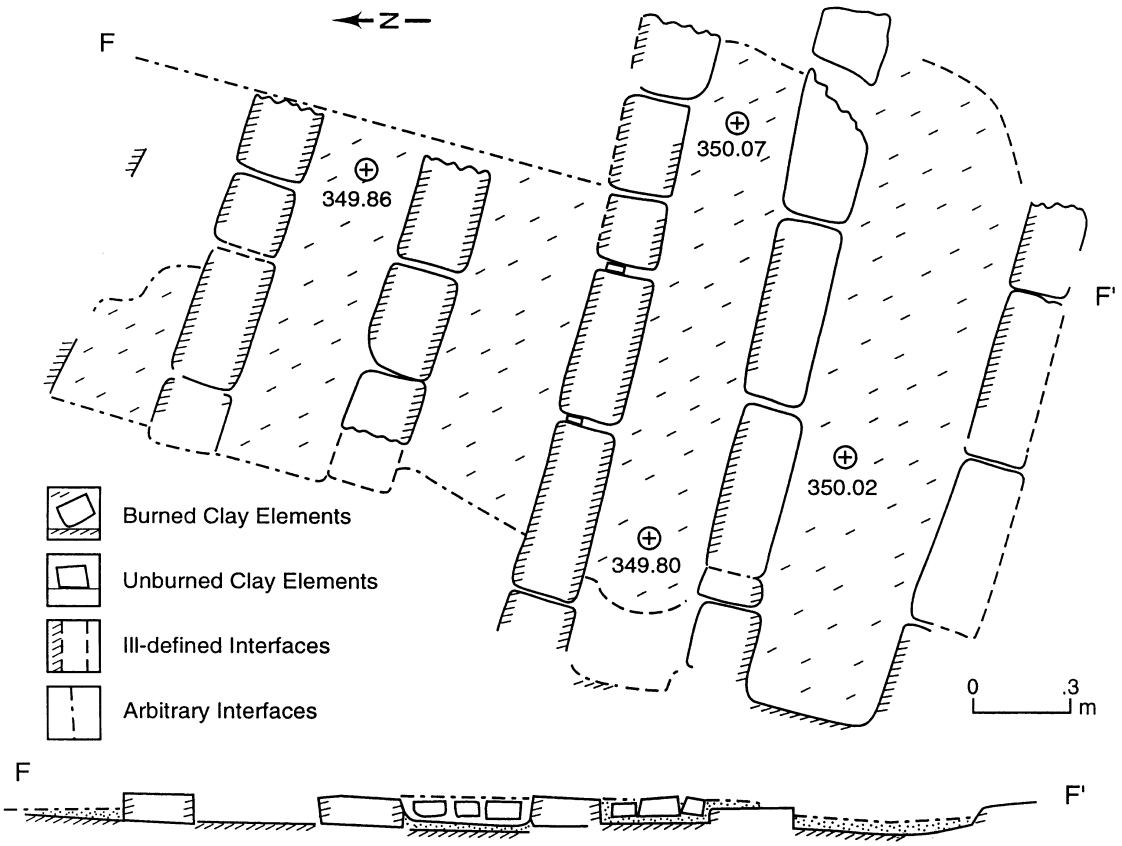

Fig. 6 Fire raisers in the courtyard of the Niched Building.

skinning of animals, and the absence of grinding tools argues against the processing of grain. The overwhelming majority of the remains are pot sherds and whole plates broken *in situ*. Relatively few of these are sherds of the plain and carinated fine-ware bowls and small jars well-known from this period (Oates and Oates 1993: Fig. 51). Almost none are of the sandy ware which will predominate later in the fourth millennium. A majority, 97 per cent of the body sherd weight and 90 per cent of the vessels represented by rims are of the "chaff faced ware" (Braidwood and Braidwood 1960: 232–239) tempered with vegetal material, probably animal dung, and fired at a low temperature to a brown or reddish-brown colour. Among the rims of this ware, the carinated bowls ("casseroles"), incurved with rounded rims, incurved bowls with beaded ("hammer-head") rims, and necked jars (whether with rounded, flattened or thickened rims) are present, but relatively rare. The most common form is a heavy open plate or shallow bowl with a thickened rim (Oates and Oates 1993: Fig. 54:66) which comprises 44 per cent of the vessels represented by rims in and south of the grill structure, and 71 per cent of these vessels in the layer above the structure. The strong representation of these vessels must be related to activities in the court of the Niched Building.

Plant Remains

The carbonized seeds floated from four samples of ashy sediment (Table 1B) have been analyzed to assess whether the charred plant remains recovered from TW represent either remains of fuels, food storage or production. The plant remains were divided into broad types, generally to the level of genus rather than species. Quantification was done as for the TC samples described elsewhere in this report.

The most abundant crop in the TW Level 18 samples is barley, including two-row and six-row forms, followed by glume wheat, mainly emmer but with some einkorn wheat, with free-threshing

TABLE 1: *Remains from TWB Niched Building, Court 1*

A. *Cultural materials*	TW 1116C (.46 m3)		TW 1085.1,.3,.5 (.26m3)	
CERAMICS	Ct.	Wt. (gm)	Ct.	Wt. (gm)
FINE WARE				
Thin (<.4 cm) body sherds	82	76	38	87
Medium (.4 cm–.8 cm) body sherds	62	99	36	109
Plain Bowl rims	10		12	
Thickened Bowl rims	4		2	
Incurved Ledge-m Bowl rims	1		2	
Carinated Bowl rims	2		1	
Flared Plain Jar rims	2		1	
Flared Interior Ledge Jar rims	2		0	
SANDY WARE				
Medium (.4 cm–.8 cm) body sherds	8	35	2	9
Thick (.8 cm>) body sherds	1	83	1	6
CHAFF FACED WARE				
Thin (<.4 cm) body sherds	2	2	6	18
Medium (.4 cm–.8 cm) body sherds	293	861	357	3699
Thick (.8 cm>) body sherds	138	1696	207	12416
Beveled-rim Bowl rims	1		1	
Plain Bowl rims	18		11	
Thickened Plate rims	67		182	
Incurved bowl rims	1		0	
Incurved Thickened Rim Bowl rims	1		6	
Interior Ledge Rim Bowl	0		1	
Carinated Pot ("Casserole") rim	11		12	
Plain Jar rim	7		11	
Thickened Jar rim	8		3	
CHIPPED STONE				
Flint	17	7	10	2
Obsidian	16	3	6	1
OTHER				
Beads	3	0	3	1
Bitumen Fragments	3	2	0	0
Sealing Clay fragments	2	—	5	4

B. *Plant Remains*				
Locus	TW 1085:4	TW 1085:9	TW 1107	TW 1116:C
Sample no.	89	65	88	14
Context	floor	floor	hearth	grill feature
Vol. floated (litres)	12	7	5	—
Hordeum sp., grain	50	33	236	40
Hordeum sp., chaff	1	2	23	2
Glume wheat, grain	18	25	57	109
Glume wheat, chaff	5	39	49	63
Triticum aestivum/durum	1	3	3	—
Cereals indet.	—	16	42	19
Linum sp.	—	—	2	—
Pulse	2	3	—	12
?Nut shell	—	—	—	1
Aegilops sp., grain	2	9	80	11
Aegilops sp., chaff	5	39	43	12
Other grasses	29	36	80	32
Prosopis sp.	—	—	—	1
Other weeds	50	67	124	31
Straw internodes	2	1	6	—
Dung fragments	—	—	X	—
Charcoal	XXX	X	X	XX
Density	14	41	150	—
Glume wheat: grains: glumes	4:1	1:1	1:1	2:1
Barley grains: rachises	50:1	16:1	10:1	20:1
Cereal: weeds	1:1	1:1	1:2	3:1

TABLE 1: *Continued*

C. Animal Remains				
Locus	TW 1116c	TW 1099	TW 1104	TW 1085*
Volume screened (litres)	580	30	—	650
Total Weight of Bone	1421	115	156	4270
Weight Burnt	297	56	61	552
% burnt	21%	49%	39%	13%
No. Identified Specimens (NISP)				
sheep (*Ovis* sp.)	16	1	1	15
goat (*Capra* sp.)	8	2	0	13
sheep or goat	92	7	2	112
gazelle (*Gazella* sp.)	10	0	0	2
sheep/goat/gazelle	1	0	0	9
pig (*Sus* sp.)	4	0	0	0
cow (*Bos* sp.)	17	1	0	12
bovid/cervid	2	0	0	0
canid	2	0	0	1
fox (*Vulpes* sp.)	2	4	0	4
hare (*Lepus* sp.)	3	0	0	9
bird	1	0	0	13
fish	1	0	0	4
rodent	1	0	0	0
lrg mammal	149	41	11	169
med mammal	411	78	15	535
sm mammal	4	2	0	30
unid. mamm	274	19	0	410
unknown	4	0	11	2
TOTAL	1012	155	40	1340

*This includes TW 1085.1 to TW 1085.8

wheat and pulses such as lentils and peas in much smaller numbers. Wild/weed species, especially several varieties of goat-faced grass (*Aegilops* sp.), are almost as abundant as the cereals. The preservation of the samples is generally good, but many of the cereal grains show signs of distortion by fire; the barley grains, in particular, often have a "puffed-up" appearance, which is considered the result of exposure to strong heat (Hubbard and al Azm 1990). Charcoal is present in all samples and in fairly high quantities, in some samples as abundant as the total amount of plant remains.

The ratio of grain to chaff indicates degree of crop processing (Hillman 1984). The ratio of barley seed to rachis internodes is 10:1. The expected ratio of barley grains to rachis internodes is 1:1 and 3:1 for unprocessed two-row and six-row barley, respectively. Well cleaned barley from third millennium TC has a ratio of *c.* 3500:1. Though barley rachises generally survive charring less well than glume wheat chaff (Boardman and Jones 1990), the evidence here points to the likelihood of barley grains being at least partly cleaned.

For the glume wheat, in this case mainly two-grained emmer, the expected ratio of grains to glume bases is 1:1 in the unprocessed crop. The observed ratio is *c.* 1:1. The ratio resembles that of unprocessed, whole glume wheat spikelets. The wild grass *Aegilops* sp. has a ratio of grain to spikelets similar to emmer. These occurrences of uncleaned seed suggest the possibility that they were animal fodder, and arrived in the courtyard as dung fuel. This suggestion is supported by the evidence of a fragment of dung from TW Locus 1107 in which was the well-preserved embryo end of an emmer wheat grain. However, because plenty of charcoal has been observed in all samples, dung does not appear to have been a "fuel of necessity."

The co-occurrence of the two major crop types that were processed differently suggests that we are dealing with samples derived from the mixing of separately grown and processed crops, rather than a "maslin" (two crops grown together). The presence of a range of other cultivars may reinforce this idea though the numbers involved are small and may simply represent the "background noise" of discarded material, swept into fireplaces. The barley is not cracked or distorted in a way suggesting preparation as groats or stew for human consumption, and the seeds show possible

acid damage as if they had passed through the gut of a herbivore. Perhaps this semi-cleaned barley was fed to animals because spoiling of the grain had made it unfit for human consumption, or because of the scarcity of other animal foods, often the case in late summer. Most of the weed seeds would mature in late spring or early summer, but the Prosopis fruits in the autumn (Charles 1998:114). It is eaten by sheep and goats and the seeds pass through the animal gut with little damage (Charles 1985:41). The overall composition of the seed samples is compatible with material derived from animals grazing on the stubble field after harvest in late spring, being fed on a mixture of barley and glume wheat in the summer, and grazing in the fallow fields again in the autumn.

Animal Remains

The larger animal remains are well preserved but fragmented into small pieces. The taxa have been identified only to the generic level at this point, and detailed studies of individual elements are not yet available. The "number of identifiable specimens" (NISPs) is given in Table 1C. As is typical of fourth millennium deposits at Brak, sheep, goat and cow are the predominant genera. Pig, dog or jackal, gazelle, fox, hare, bird and fish also occur. There is no definite record of equids or cervids.

Among the herd animals, sheep are slightly more common than goat in and to the south of the grill structure (a ratio of 15:13 in TW Locus 1116C) and twice as common in the layer above the grill structure (a ratio of 16:8 in TW Locus 1085). Cow bone is substantially less than the total of sheep and goat bone in the two loci (a ratio of 12:116 in TW Locus 1116C; a ratio of 17:140 in TW Locus 1085). There are no other important domestic taxa.

Several of the wild and presumably hunted animals are surprisingly concentrated in one or the other context. Gazelle bones are most common in and to the south of the grill structure, but not above. In contrast, hare and bird bones are more common in the layer above the grill structure but not within or around. Other wild taxa are rare.

There is some information about the treatment of butchered meat. The bones of smaller wild animals such as bird, hare, and fox, were often intact though often burnt, suggesting the cooking of whole animals. The phalanges of sheep and goat were also often intact, but rarely burned, suggesting they were cut off and discarded before these animals were cooked. In contrast, the other bones of sheep, goat, gazelle and cow were usually fragmented into small pieces and burnt. This recalls the condition of bone at Middle Uruk Tepe Farukhabad in southwestern Iran, where the pattern of fracturing and burning of medium mammal bone suggested a cooking technique in which the fat-rich limb bones were fractured in the carcass so that tasty oils would be released during cooking (Redding 1981:241).

Discussion

The large oven and grill structure in the court north of the Niched Building are fire installations of very different sorts. The oven would enclose heat and could be used for baking. The extraordinary quantity of rough thickened-rim plates could have been baking dishes. Items probably baked were complete birds or hare, but the few animals represented by the bones could hardly account for the broken bowls. It seems likely that something else was baked in these bowls, perhaps dishes prepared from plant foods. Most plant remains, however, are probably from fuels, and identification of the vegetal foods must depend on the analysis of residues on the plates.

The grill structure directed intense heat upward, and could be used for roasting. Many sheep and goats and some parts of cows and gazelles were roasted near the grill structure. Here also, most plant remains are probably from fuels, and there is no evidence of the preparation of dishes involving plant foods.

In sum, we tentatively suggest that quantities of animal carcasses and plates of prepared food were brought to the courtyard for roasting and baking. Several ongoing analyses should further clarify the activities carried out in the court. Residue analysis of the thickened rim bowls should indicate whether they were used in the baking of meat or bread. Our knowledge of the plant remains will be enhanced not only through finer taxonomic characterization of the seeds, particularly the weedy plants, but through identification of the plant phytoliths, particularly from the

ashy deposits in the surfaces of the grill features. Study of the ages of the butchered animals, of the parts of the animal cooked, and the burning patterns on individual bones will indicate more about the cooking techniques as well as the social position of the intended consumers. Finally, comparable analyses of debris from other kinds of contexts — for example domestic, craft, or administrative areas — would help to highlight further what is distinctive about the architectural ensemble around the Niched Building.

Area TC

A large, flat area on the eastern side of the mound was designated TC by Mallowan, who excavated two trenches into deposits that turned out to be soil eroded from the surrounding higher areas of the mound. Excavation beneath these wash deposits during the 1998 season began clearing a large, burned building of the mid-third millennium BC. Because of a curving outer enclosure wall and architectural parallels with the Temple Oval at Khafaje, this structure was referred to as the "Brak Oval."

In the 2000 season, continuing excavation in Area TC exposed the plan of the Brak Oval over an area of 45 × 50 m (Figs. 7, 8) and showed that the parallels for its architectural form are considerably broader. The excavated area of the latest, burned level of the Oval comprises three units with limited access between them. The first consists of two rooms along the outer enclosure wall (Room 1 and the adjacent room to the east) with immediate access to an open courtyard, and several irregularly oriented rooms (18 and 19) to the north. Room 1, which contained sloping plaster surfaces and installations as well as numerous storage jars and grindstones, was probably originally used for grinding grain (Emberling *et al.* 1999:14, Figs. 15–16). The courtyard is bounded to the northeast by a diagonal wall that may have been a later addition to the structure; although it shares a continuous plastered face with the outer wall of the Oval, we have not yet excavated enough to be certain of the bonding of these walls. The activities conducted in the courtyard are indicated only by a fragment of a channel lined with gypsum plaster, possibly a drain, that survives against the north wall of Room 1. The drain may once have run north and joined a similar structure that flows west out of Room 18. However, ancient levelling operations destroyed much of the courtyard surface between Room 1 and Room 18 and obliterated any traces of it. If the structure north of Room 1 and the drain from Room 18 were once connected then this structure would have had a total length of over 30 m. From Room 18 the plastered channel (or drain) crossed what appears to be an irregular courtyard (17), turned south into

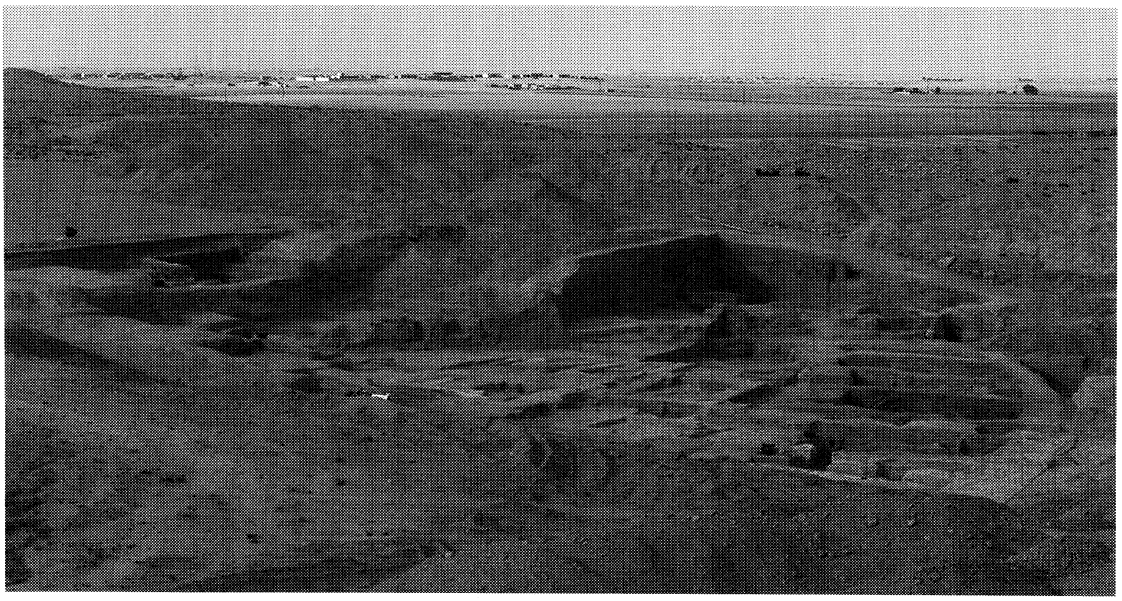

Fig. 7 The Brak Oval from the west.

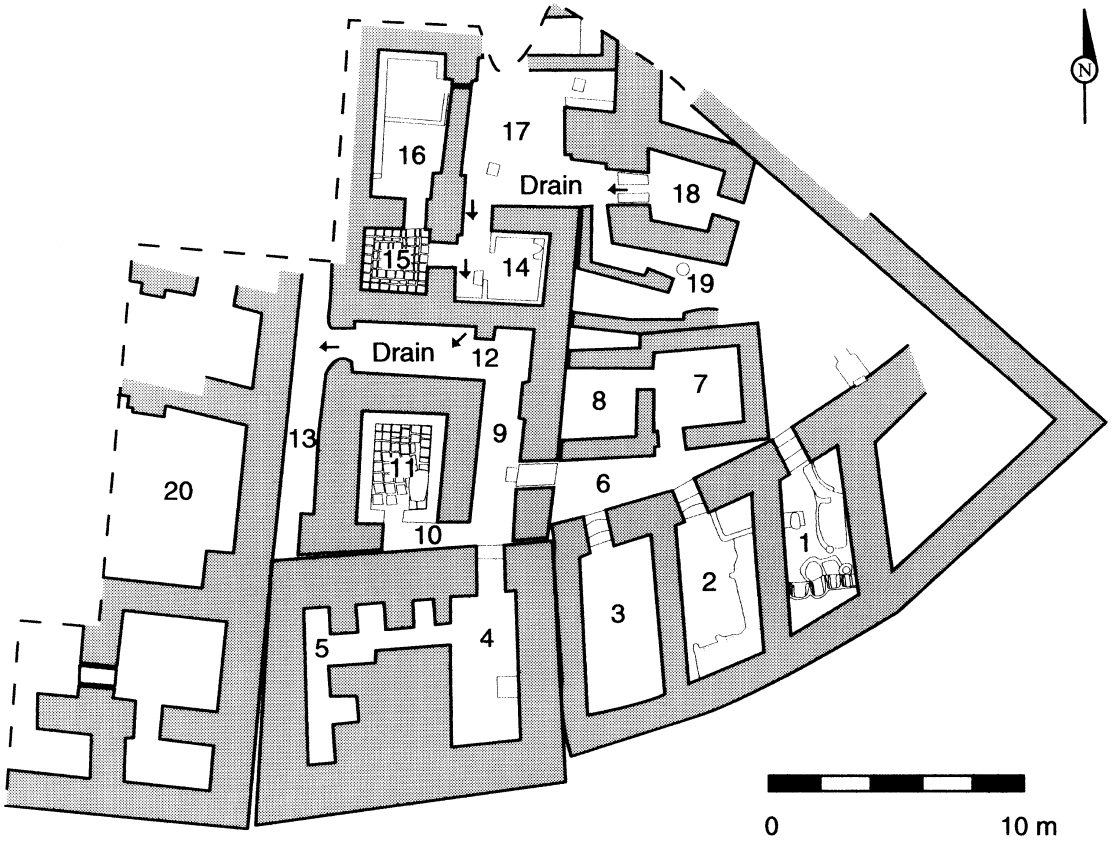

Fig. 8 Plan of the Brak Oval.

Room 14, running along its western edge and through its southern wall. Room 12 was a corridor filled with broken sherds and stones that seems to have been a sump for the drain, but a further channel extended under the western wall of Room 12. Room 14 contained a fire installation, and its only visible doorway was across the drain, which may have been covered by wood or matting. Room 15 had a floor made of unbaked bricks and was connected to Room 16 by a clear doorway. The proximity of grain storage and drainage features is suggestive of brewing beer, which we know to have been an important ration of third millennium temples in southern Mesopotamia, but we have not yet excavated vats or ceramic vessels in which beer might have been fermented. It is also possible that this drain was simply necessary to control rain runoff in a building of this size.

Room 16 had a mudbrick bin constructed in its northern end and a mass of burned grain in its southern half, all outside the bin. The burned grain was intensively sampled in hopes of understanding the spatial layout of storage as well as the practices of crop preparation represented (see the botanical report below). Room 16 had clearly been constructed to serve other uses, however, since its walls and benches were carefully plastered with gypsum and its current east wall forms what must originally have been one side of a doorway to the east (Fig. 9). At some point after the fire, two simple burials were cut into the rubble of Room 16, one having a space for the head dug into the southwest corner of the room.

A second unit of rooms comprised the two westernmost rooms along the enclosure wall exposed in 1998 (Room 2, which contained a series of bread ovens, and Room 3, which was empty), along with two rooms to the north, also used for grain storage (7–8). Although Rooms 2 and 3 were clearly built as a unit with Room 1, there was apparently no direct access among them in the latest phase of the building, although it is possible that an entrance through the east wall of Room 7 was destroyed by later levelling operations. This area seems to have been connected to Room 9 by a narrow doorway, with a step down to the west from Room 6. Rooms 9, 10, 12, and 13 are corridors surrounding Room 11, which has a floor made of unbaked mudbricks and benches

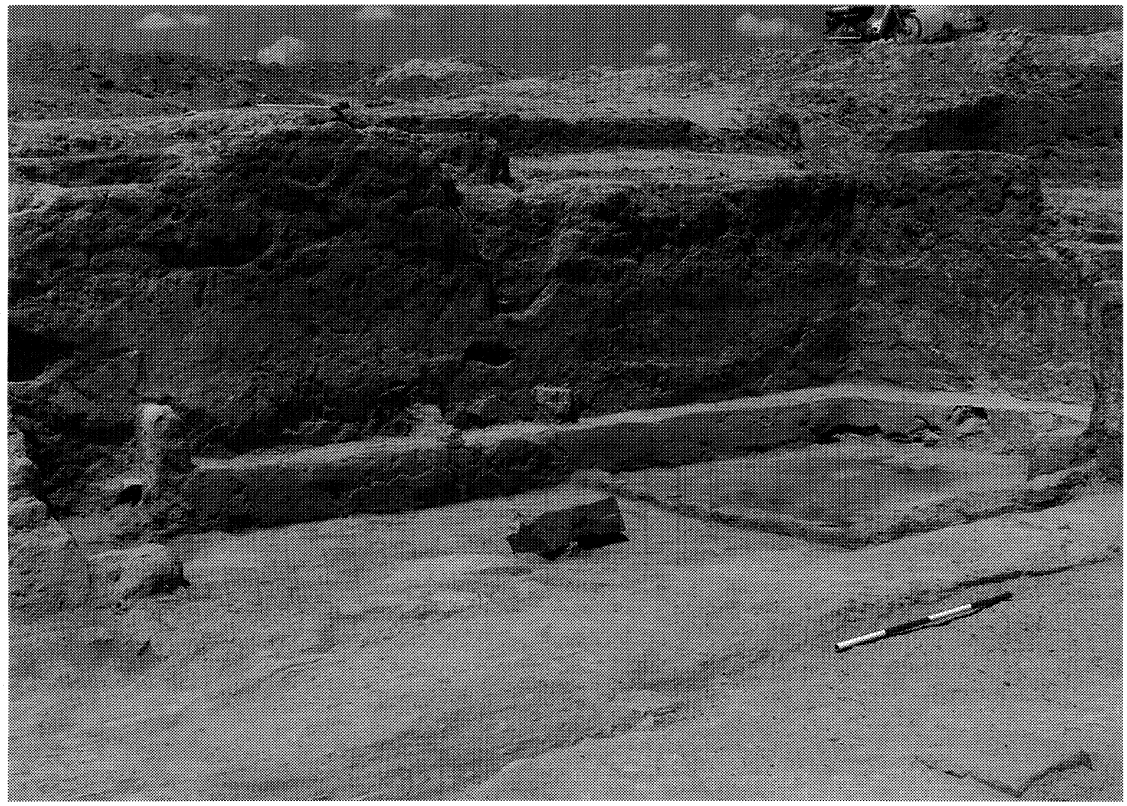

Fig. 9 Room 16 of the Brak Oval from the southeast.

along each wall. Large quantities of burned material came from these corridors, particularly grain in Rooms 9 and 12 and wooden beams in Room 12, which had been turned into a long sump for material draining out of Room 14 to the north. To the south, the thick surrounding walls of Rooms 4–5 may have supported an upper storey (Fig. 10). The fill of Room 5 also contained a large quantity of burned and baked bricks which could have come from such an upper storey. The corridor that seems to lead nowhere, in the southeast corner of Room 5, may have been a stairwell, although no remains of steps were recovered.

Finally, an area to the west, excavated at the end of the 2000 season, had no access to other parts of the Oval, but was enclosed within a segment of the outer enclosure wall. The excavated area (Room 20; Fig. 11) had extremely thick wall plaster and a thick layer of gypsum plaster on its floor, but unlike other areas of the Oval, had not been burned, and its use for the moment is uncertain. A fragment of a Late Akkadian cuneiform tablet, listing grain rations, was found on the last day of excavation in a layer of wash above this room.

Excavation of the Oval has shown that it had a complex history of construction and modification; the final grouping of rooms in the building does not correspond to their construction sequence. The excavated walls seem to have been built in at least three stages. Our present understanding is that the earliest group consists of Rooms 1–3, and on present evidence includes the rooms to the north and northwest (14–19) and most probably the corridors surrounding Room 11 (9, 10, 12, 13), with Rooms 7–8 being secondary additions (Room 6 would then be the remainder of the earlier courtyard). It seems clear from the pattern of cutting and modification as well as the brick sizes and texture that Rooms 4–5 were built later. The block of rooms around Room 20 was possibly constructed latest of all the excavated areas, although this observation will have to be tested through further excavation.

It remains difficult to compare the Brak Oval with Temple Ovals in southern Mesopotamia in terms of architectural form. No excavated oval in the South is known to have had an outer enclosure wall constructed in segments. Excavation in 2000 failed to find evidence that

Fig. 10 Rooms 4–5 of the Brak Oval from the north. Pits in the walls may have been part of the later levelling/quarrying operation in this area.

the outer enclosure wall continued further to the northeast. The relevant layers were reached only at the end of the season, however, and we must be prepared to consider the possibility that the form was other than an oval.

The Brak Oval is also unlike excavated Temple Ovals in having a large area clearly dedicated to storage and processing of grain, although a smaller area at Khafaje seems to have been so used (Delougaz 1940:27). Grain ration texts from the contemporary Palace G at Ebla (Milano 1987) list the monthly requirements for the palace as being 1066 *gubar*, with 1 *gubar* equal to 102 litres (Milano 1987:548). This quantity of grain would fit into a room about 6 × 6 m and 3 m high; the annual storage needs for a comparable institution would necessarily have been much higher than this monthly amount. Dolce (1990) calculated that the Middle Bronze palace at Ebla contained roughly 270 square metres of storage area, or about 3.6 per cent of its total area. We are now considering possible comparisons with palace buildings as well as temples.

After the fire that destroyed much of the Oval, there is evidence that at least two levels of smaller structures were built on top of the burned building to the north and northwest of Room 16 and subsequently a massive excavation and levelling cut through both the upper structures and the Oval itself (Fig. 12). The floor levels in the Oval itself are quite varied, and to the north the levelling operation cut beneath floor levels in some areas, leaving no trace of doorways and making interpretation of excavated architecture difficult. The levelling may also have been responsible for a series of roughly circular pits dug into the walls of the Oval, although these pits could also have been cut from a building level above the Oval which the levelling has entirely removed. Presumably this levelling was undertaken in preparation for new building activity that never took place, although it is also possible that it represents excavation to make large quantities of bricks. The levelled area was left open and was filled in gradually by erosion from higher points on the mound. Given current debates about the relative date of political events and changes in ceramic styles in the Early Dynastic-Akkadian transition (Lebeau 2000), we are unable to give a precise, definitive

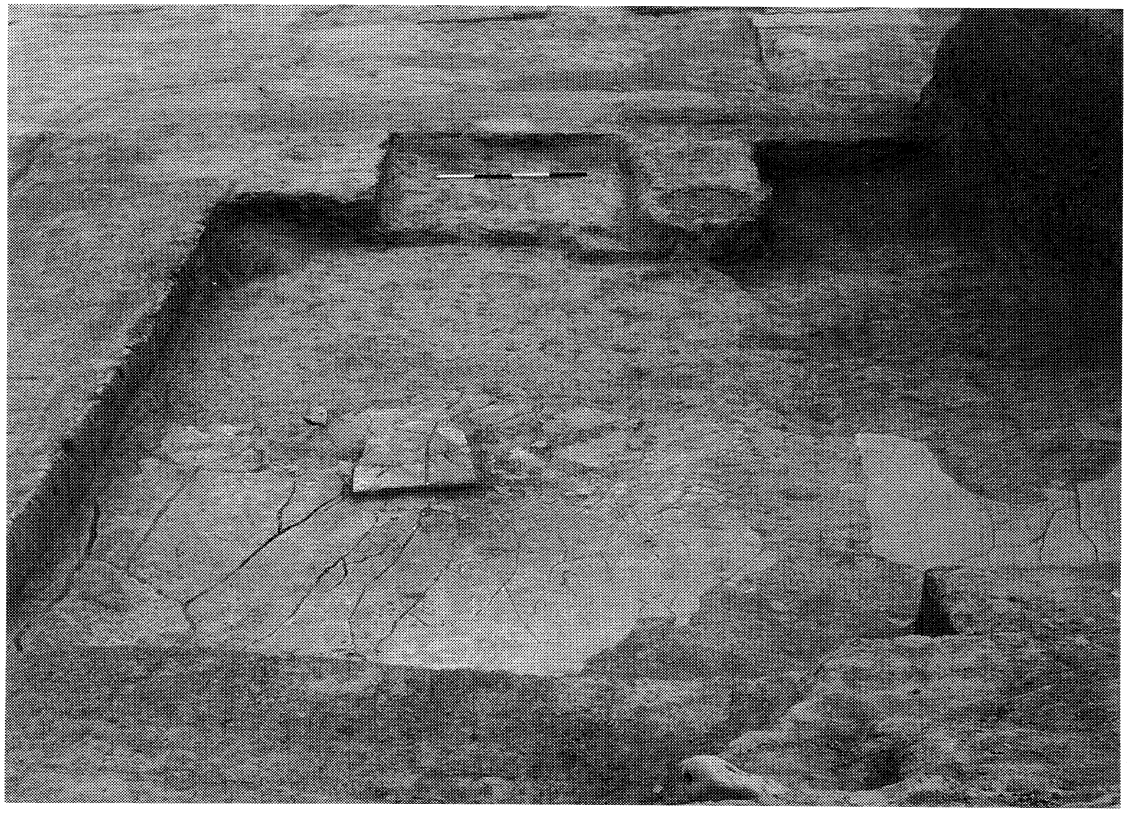

Fig. 11 Room 20 of the Brak Oval from the north.

date for the destruction and abandonment of the Oval. A reconstruction in which the Oval was destroyed by an Akkadian army at the beginning of the Akkadian period, with the levelling operation taking place later in the Akkadian period, would fit the available evidence. It is certainly the case that much of the pottery so far recovered from the building and the stone vessel found in Room 16 (see below) have parallels in material from the so-called "late ED III destruction level" identified in CH (Level 6) and other areas of the site (ER Level 5; area AL etc.). This pre-Akkadian period, contemporary with the late Early Dynastic period destruction level, is designated Phase L in Brak volume 2 (D. Oates *et al.* in press). In particular, bowls with flared sides and rounded bases are common in the destruction of both Phase L and the TC Oval, but are rarely found in the monumental Akkadian buildings of areas FS and SS (for illustrations of this bowl type see Emberling *et al.* 1999, Fig. 21:e, g; J. Oates 1982, Fig. 2:35).

The levels of domestic architecture above the Oval provided two discrete groups of whole pots abandoned *in situ*. One excavation area to the northeast contained at least seven levels of Akkadian date above the Oval. Locus TC 449 was the deposit in a small L-shaped room; the other leg of the L contained two large storage jars (Fig. 13). In a separate area, designated TC 1005, one house contained over 30 pots broken *in situ* (Fig. 14). In addition to the illustrated pottery, this area also contained numerous storage jars and some beakers. Many of the vessels in TC 1005 have parallels in Area FS Level 3, the latest of the Akkadian levels in that area, which also contained numerous abandoned vessels (see catalogue p. 50 below). In particular there is a close parallel for the grey-burnished footed jar Fig. 13:9 from FS Level 3. The grey stoneware footed jar (Fig. 13:4) has a parallel from the infill of the FS Akkadian monumental building (FS Level 5; *Brak* 2, pot 154) and it seems that vessels with rims like Fig. 14:6 continue into the post-Akkadian period (cf. *Brak* 2, pots 793, 794).

Twelve sealings were recovered from the levels above the Oval. Of these, four were sealed with Early Dynastic III style contest scenes (one of which was, however, impressed on a docket of a shape found elsewhere in Early Akkadian contexts), three were Brak Style (see below), three were

Fig. 12 Walls of the Oval with overlying smaller structures, all cut by a levelling operation; western wall of Room 15 from the east.

sealed with the same geometric seal, one was sealed with an Early Bronze Age Syrian design and one had an indistinguishable design. Unlike the sealings from the destruction level of the Oval, none of the sealings from levels above the Oval seems to be in a primary context. Most came from the makeup of floors, or in levelling fill between phases or from pits, and many had been burnt or baked after being broken.

Objects from the TC building

On the floor of Room 16 (beneath the layer of burned barley) lay the pieces of a rectangular limestone vessel with two lugs at one end (now mended and in the Deir ez-Zor Museum; Fig. 15). This vessel is identical to vessels found in the Phase L destruction levels in areas ER and CH (J. Oates 1982:209, Fig. 1:18). This season ten fragments of similar rectangular stone vessels were found in TC. Four of these fragments came from the fill of Room 4, one each from the fill of Room 3 and the doorway between Rooms 4 and 5, three came from wash above the building and the last from the northeast trench in a level above the Brak Oval. Although in previous seasons fragments of rectangular stone vessels were found in Akkadian levels, all the complete or near complete ones have come from the Phase L destructions (D. Oates *et al.* in press). Such vessels do not seem to be plentiful at other sites in the area.

The clay sealings found in the destruction of the TC building enable us to look at administrative activities, the responsibilities and areas of activity of certain officials as revealed in the use of their seals. The largest collection of sealings came from Room 5; forty-eight clay sealings all impressed with the same Early Dynastic style contest scene seal (Fig. 17:1) were found in this room, most from the central niche in the north wall (Fig. 16). All except one had impressions on their backs of strings and folds, perhaps of leather, as the surface is smooth with no sign of a weave. This suggests they are container sealings, either from packages or from the shoulders of large jars. No remains of large jars were found in Room 5, however; this might be taken as evidence that either

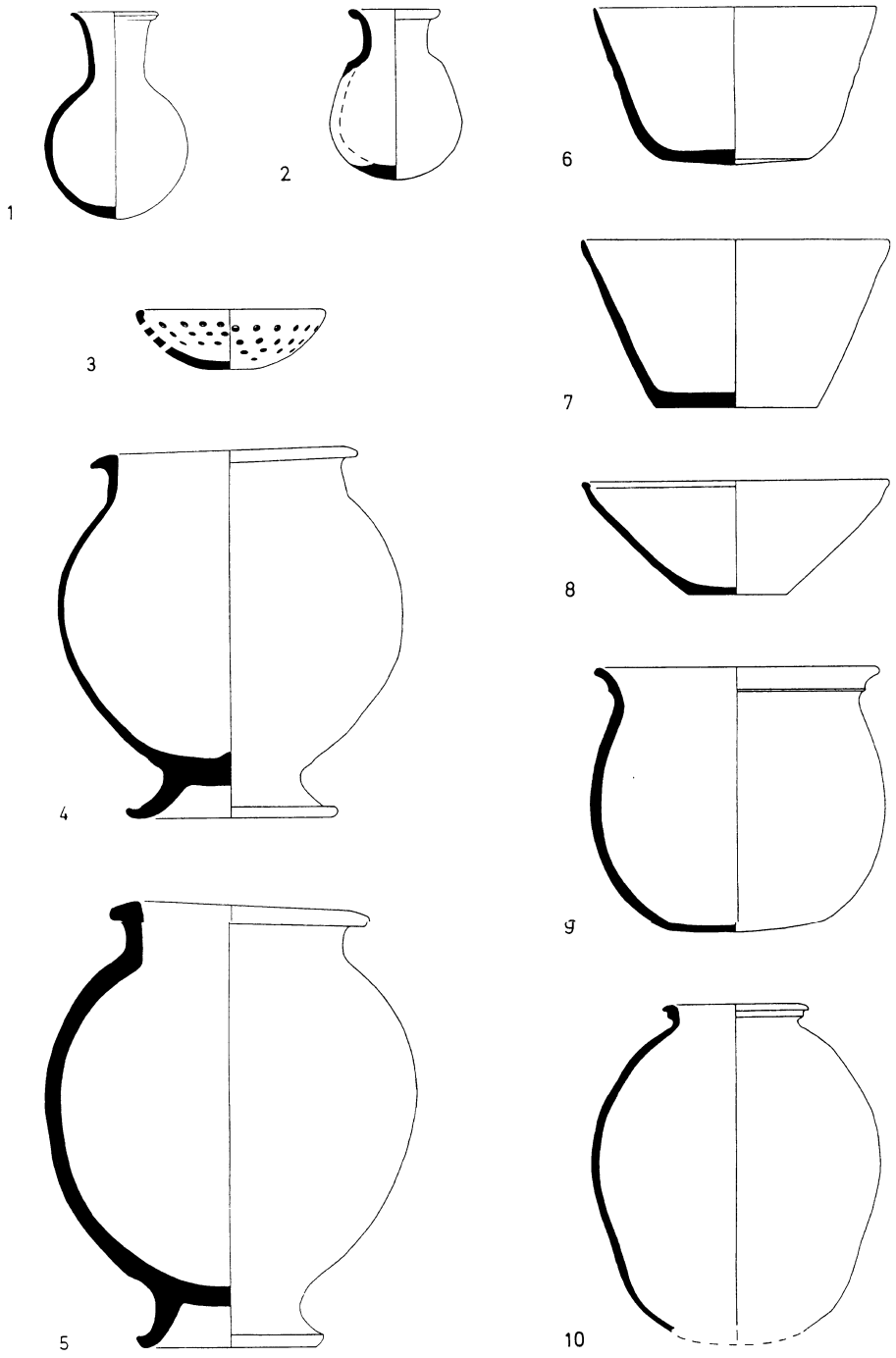

Fig. 13 Locus TC 449 pots. See Catalogue on p. 50.

packages were involved, or, possibly, that this sealing deposit represents activities carried out in the adjoining Room 4 (where remains of large jars were found); in this case, the sealings might have been kept (possibly in a basket) either for recycling or perhaps as a record of the number of containers opened and resealed (as suggested by Frangipane [1994] for sealings found at Arslantepe). At least one impression of this same seal on the same type of sealing was found in Room 2, the bakery, in 1998; and two sealings of the same seal, with a peg and string impression on the reverse (possible door sealings), were found in Room 4. This indicates that the official who

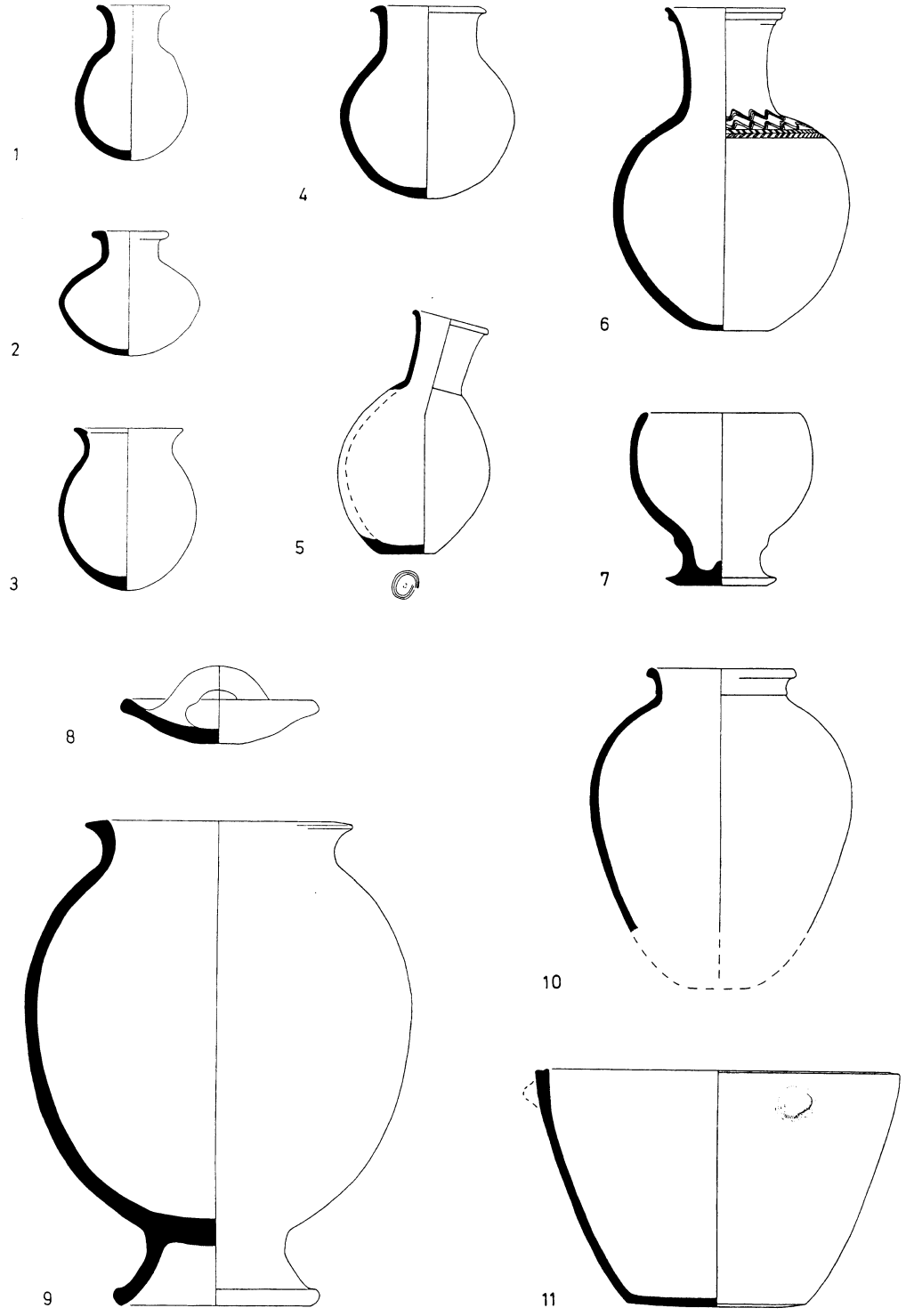

Fig. 14 Locus TC 1005 pots, Late Akkadian. See Catalogue on pp. 50–51.

used this seal was sealing containers that were opened in Rooms 2, 4 and 5, and also perhaps the door of Room 4. Of course we can not say what was in the containers that were being sealed.

The discovery this season of impressions of Brak-style seals in the TC building was of interest. The Brak style, so-called because most of the sealings of this style come from Brak, is the most prevalent seal style in the early Akkadian public buildings in areas FS and SS. The Brak style has

Fig. 15 Rectangular stone vessel from Room 16 (TB 20191).

a number of distinctive features, including animal protomes (like the upside-down deer protome in No. 4), the guilloche (in Nos. 5 and 6), hatched band (No. 6) and detached animal heads (lionesses in Nos. 4 and 8; bulls in No. 5 and both lionesses and bulls in Nos. 6 and 7). The cutting is generally rounded, often with prominent use of the drill (D. Matthews 1997: 136). The use of the drill is most pronounced on No. 7, in which those shapes which are not drilled are cut in a more linear manner than is common on most Brak-style designs.

Until this season it was not clear to what extent this seal style was used in the immediately pre-Akkadian period at Brak, as only one Brak-style sealing had been found in (admittedly small exposures of) the Phase L destruction level dated to around 2300 BC (D. Matthews 1997, seal No. 184). However, this season out of fifteen different seal designs from sealings in the TC building, at least five were of the Brak style (Fig. 17 Nos. 4–8). (The fragmentary nature of No. 3 makes it difficult to be certain that it is a Brak style design, though it is very probable.)

The two most frequent Brak style designs in the sample excavated from the Brak Oval to date are Nos. 4 and 6 with five and eight examples respectively (Fig. 16). These two designs are associated with one or other of the granary rooms (Rooms 8 and 16), but in neither room do the sealings seem to relate to containers that may have held the barley. Those from Room 16 are door sealings, perhaps indicating that there was so much barley in the room that the easiest way to control access to it was to seal the door. The sealings from Room 8 and 7 are test strips which do not seal anything but probably had an administrative function. It has been suggested they may have been used in the same way as specimen signatures today (J. Oates, in *Brak* 2). The officials using these two seals seem to have had an area of activity that included Rooms 7, 8, 16 and Courtyard 17.

The other Brak-style designs are known from single sealings. A bulla or docket from Room 11 (No. 5), a test strip from the fill of Room 4 (No. 8) and another door sealing from Room 16 (No. 7). Altogether there are three convincing door sealings from the building this season (sealed

Fig. 16 Find spots of sealings. The numbers indicate the design; a square around the number indicates a door sealing; dashed lines indicate possible door sealings.

with Nos. 9, 7 and 6). These examples have boxes around them on Fig. 16. All of these have peg and string impressions on the reverse and are large sealings with flat bases and therefore seem reasonable candidates for door sealings. (There would seem to be little reason to have a very large and heavy sealing attached to something portable.) Several other sealings with peg and string impressions on the reverse are less convincing candidates for door sealings, either because they are very small, or incomplete, and they therefore could be either door sealings or some other kind of closure. These are indicated by dashed lines around the design number on Fig. 16.

As well as Brak-style designs, there are also two Early Bronze Syrian designs (Fig. 17:9 and :10) — styles specific to Syria that have little in common with the Mesopotamian tradition. Designs similar to No. 10 have been found before at Brak (D. Matthews 1997, Nos. 484, 485), but No. 9 represents a new style at Brak. The sealings sealed with Nos. 10 and 11 are of indeterminate types. Other fragmentary (and not illustrated) Early Dynastic style designs came from Corridor 13 (two test strips sealed with different seals), Room 4 and Room 8 (both indeterminate types).

Only one actual seal was found in the TC building this season (Fig. 17:12). This small stamp seal was found on the floor of the westernmost niche in the northern wall of Room 5. No impressions on clay of this seal were found in the building. In fact, by the later half of the third millennium stamp seals had largely gone out of use and it may have been used as an amulet rather than an actual seal.

Plant remains from the 2000 excavation at Tell Brak, Area TC: preliminary results

By Mette Marie Hald

Analysis of storage rooms from large urban sites is particularly interesting for its ability to throw light on internal settlement layout and aspects of economic and social organization (e.g., Jones

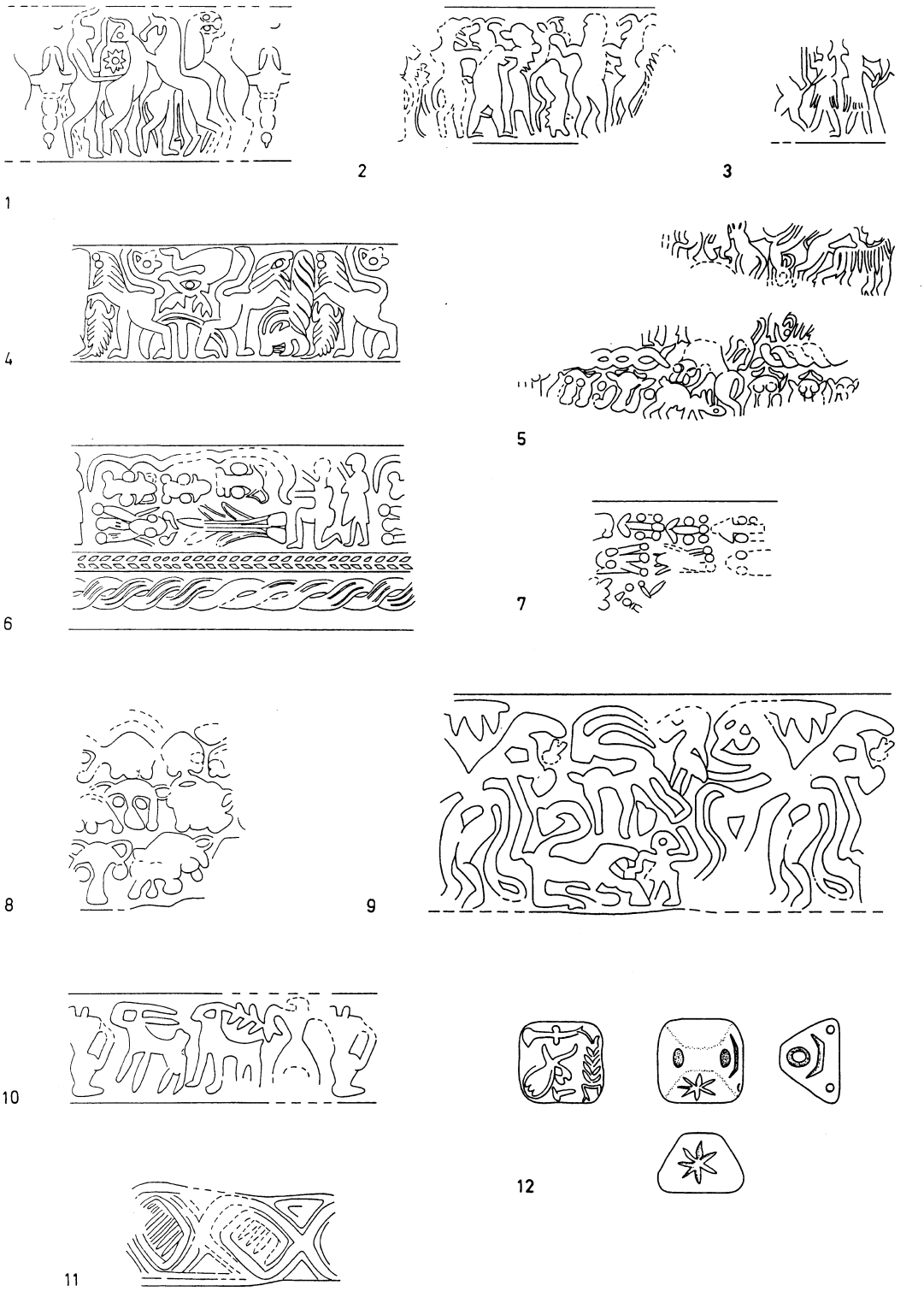

Fig. 17 TC seal designs. See Catalogue on pp. 51–53.

1987). At Tell Brak, plant remains from Early Dynastic and Akkadian period storage contexts of large public buildings as well as smaller household-level structures have been excavated, enabling us to begin to draw comparisons between the two.

During the 2000 season, 85 archaeobotanical samples from the mid-third millennium Brak Oval in Area TC were processed by flotation. Areas having a high concentration of botanical remains were systematically sampled at close intervals across the floors to assist the identification of spatial variation within the plant assemblage. Analysis of twenty-five samples from the latest level of the Brak Oval is presented here.

All samples were floated on site. The flots were collected in a 300 mm sieve and stored for later analysis. The heavy residues were retained in a 1 mm mesh, and after drying they were sieved through 1 mm and 5 mm sieves and sorted by eye for plant remains as well as for sherds and bones. Off-site all samples were briefly scanned to determine their richness and general seed content. Twenty-five samples were chosen for initial analysis, determined by the variety and abundance of seeds in each sample. Because most of the chosen samples were very rich, they were split into fractions until an amount of an estimated 300 cereal grains was reached. The fractions were then sieved through a 1 mm sieve to divide them into coarse and fine fractions; only these coarse fractions are reported on here. The plant remains were quantified as follows: for cereal grains, embryo ends were counted; cereal chaff was counted as rachis internodes or glume bases. For wild grasses, embryo ends were counted, and for *Aegilops* chaff, glume bases. The relative abundance of charcoal is noted on a scale from X to XXX, where X = less than $\frac{1}{2}$ ml, XX = up to *c.* 1 ml, XXX = 5–7 ml, estimated visually. Table 2 also lists the density, that is, the number of charred plant remains per litre of processed soil, for each sample.

The identified plant remains from each sample are listed in Table 2 and pie charts (Fig. 18) illustrate the contents of the samples from five rooms within the Oval. Except for the Room 12 samples the TC samples show overall a strong prominence of two-row hulled barley grains followed by large wild grasses, with only very minor occurrences of other crop types or plant elements. The second-most abundant crop plant, emmer wheat, dominates the samples in Room 12. Charcoal was observed in most samples though in low quantities. One sample contained fragments of dung, another contained material suggested to be fruit skin. The density of the samples is overall very high.

Figure 19 shows the densities of samples in Room 16, expressed as a percentage of the sample of highest density (sample 127). The densest samples are composed almost exclusively of barley grain, presumably representing cleaned, sieved product while the lower density samples around the edges have a higher proportion of wild barley grain and *Aegilops* chaff consistent with their being the bi-product of crop cleaning (e.g. sieving).

All rooms analyzed above appear to have functioned as, or been connected to, storage facilities inside the Brak Oval. In many samples small weed seeds are completely absent, indicating that the harvested plants had been sieved. The next biggest plant group found in the samples, however, is the wild grasses, mainly large grass seeds such as *Aegilops* sp. and *Hordeum spontaneum*, that will stay with the barley grains through cleaning processes because they have more or less the same weight as the barley (therefore will not be winnowed away) and size (will not be sieved away). The barley grains, therefore, appear to have been stored after sieving but prior to hand sorting.

Sample 70, in the northwest corner of Room 16, stands out from the other Room 16 samples by containing slightly higher levels of wheat grains, weeds and a high number of straw internodes. The straw internodes in particular imply that this sample was processed differently from the others; possibly winnowing or coarse sieving was less carefully done, as straw will usually be removed during these early crop-cleaning processes. Sample 140 also has a slightly different plant composition, as it contains more wild plant species than crop plants. A closer look at sample 140, however, shows that exactly the same plant types are present as in the other Room 16 samples, that is, barley grains and large grass seeds. Sample 140 appears, therefore, to have gone through the same crop-cleaning processes as the majority of the samples from Room 16. The higher amounts of large grass seeds could be explained if sample 140 comes from a different source, i.e. a field with higher levels of wild grasses. Thus, two sources of crops might tentatively be identified within Room 16: a less well cleaned source and a weedy source. Further study of these samples, including analysis of material from the fine fractions, should help to determine whether this proposition is correct.

TABLE 2: *List of plant items in TC samples*

Room	6	8		12				16											17						
Sample no.	10	147	104	76	149	80	113	70	124	152	121	159	117	116	115	150	97	127	130	98	140	226	239	168	217
Trench	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
Locus	635:2	624:5	696:5	672:10	672:18	672:22	672:31	657:4	657:7	657:8	657:14	657:15	657:22	657:23	657:24	657:25	657:26	657:27	657:29	657:30	841:2	841:11	843:2	870:10	870:18
Volume floated (ltr.)	1	1.8	1.5	16	3	32	2	16	4	2.4	2		1.5	1.5	2	2	6	1.5	2	3	6	1.5	7	0.4	24
Fraction sorted	1/4	1/16	1/16	1/4	1/1	1/8	1/8	1/4	1/128	1/16	1/32	1/32	1/16	1/2	1/16	1/16	1/8	1/16	1/1	1/1	1/4	1/8	1/2	1/8	1/8
Density per litre soil	336	6880	11600	70	117	75	2992	291	12864	3327	6448		5493	224	3264	3536	848	11760	335	271	328	2720	303	8220	111
Cereal grain																									
Hulled Hordeum distichum	46	323	388	38	9	53		685	301	423	292	360	420	103	379	326	544	364	590	589	194	230	574	367	195
Triticum dicoccum			2	158	47	59	637	13	1					1			1			1		1	1	12	28
Triticum monococcum				13	6	2					1														7
Trit. dicoc./monococ.		1			21	26	1	1		1			1		1		1	4						9	34
Trit. spelta					2																				
Trit. aestivum/durum				43		39	2	9					1										1	4	4
Trit. aestiv./durum/dicoccum				4		10																			
Wheat indeterminate	6			4	2	1																			
Cereal indeterminate	25		1			11								1							1			6	5
Cereal chaff																									
Trit. dicocc. glume base					5		2	1	1			6					1		4	2					
Trit. monococc. glume base						1										1									
Trit. aestiv./durum rachis							1	1																	
Hordeum distichum rachis					1			1																	
Hordeum distichum lemma base												7													
Glume base indeterminate						4																			
Pulses																									
Pisum sp.	2				2	1																			
Lens sp.						1																			
Lathyrus sativus	2																								
Lathyrus/Vicia sp.																							1		
Wild																									
Aegilops crassa		1	9		24	8	12	57	10	28	17	1	9		13	10	14	10	5	10	106	34	70	4	
Aegilops speltoides		1			4	2	2	25	2		3	2			2						24	6	13		
Aegilops tauschii		1			4	4	2	17	4	2		6	2	3		1		2			27		4		
Aegilops indeterminate		1	1	2	4			12		2			1		1			1			7	4			
Aegilops sp. grain		1	6		3	4	21	1		3	2	10	8	2	1	1	7	3	1	5	1	1	4	1	5
Hordeum spontaneum		13	2	5	13	11	59	262	69	36	78	72	46	31	6	99	64	37	34	36	129	183	106	3	10
Grasses	1	2	26	7	46	10	1	66	12	2	10	11	27	27	5	4	2	18	36	171	3	51	283	5	43
Vaccaria sp.					6	5			1	2							1	1							1
Vaccaria-type				2	110	39																			
Malva sp.								1				4							1						
Galium sp.				3		2	6																3		
Trigonella sp.					2	2																			
Centaurea-type						1																			
Ornithogalum-type					4	1																			
Papaver sp.					1																				
Weeds indeterminate	2						2					1											1		1
Other																									
Charcoal	X	X	X	X					X		X		X			X	X			X	X	X	X		
Straw internodes					1			13	1			1					1	1					1		1
?Fruit skin	X																								
Dung fragments																								X	

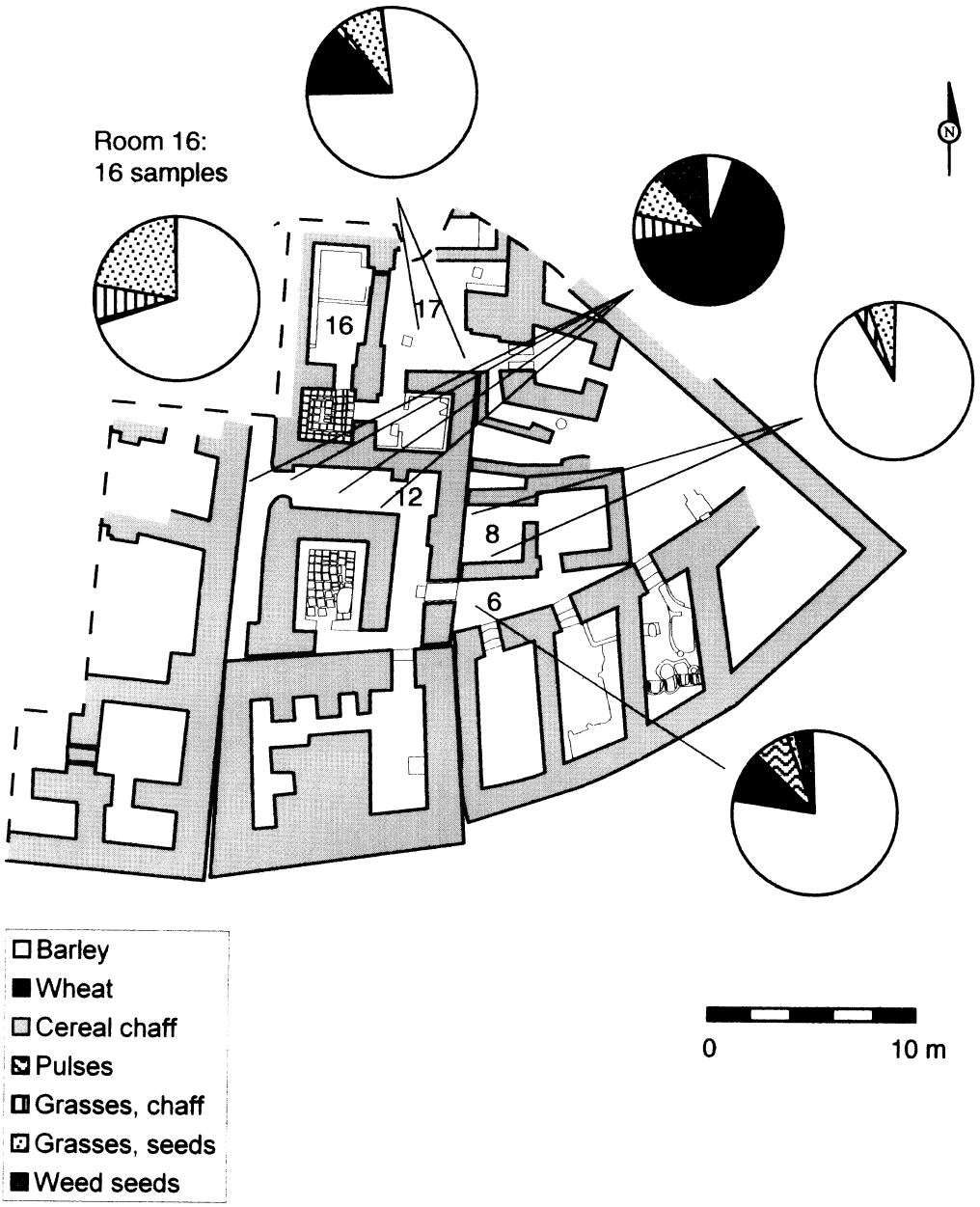

Fig. 18 Botanical samples from the Brak Oval.

In their study of third-millennium BC plant remains excavated in previous seasons at Tell Brak, Charles and Bogaard (in press) analyzed plant remains of both the Early Dynastic destruction level and the Akkadian period. They observed that the ED trenches contained stored crop products (barley, pea) and/or early stage crop processing by-products in smaller household-scale contexts, whereas, in Level 3 of Area FS, an Akkadian public building was excavated, containing stored hulled barley (samples from Rooms 3 and 4, loci FS 351, 1067; Charles and Bogaard, in press). The fact that the public building was the only context that did not contain any pulses led Charles and Bogaard to suggest that agriculture at Tell Brak might have been divided into a specialized institutional agriculture concentrated on barley and other cereals, and a household-scale agriculture involving the growing of both cereals and pulses. The present analysis of plant remains from the Brak Oval supports this suggestion in part: the pulses observed in the samples were so few that

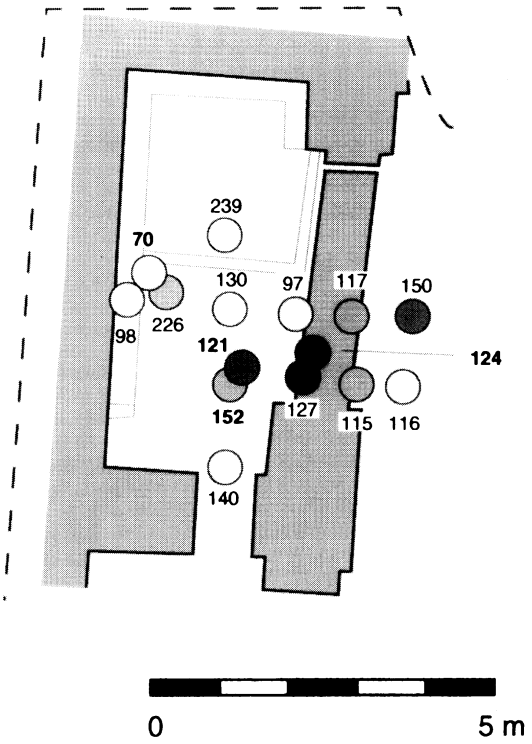

Fig. 19 Density of botanical remains in samples from Room 16, Brak Oval.

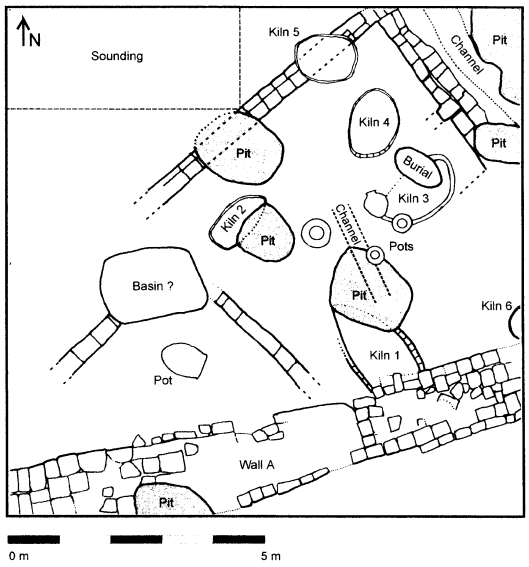

Fig. 20 Tell T2 trench A showing ceramic pit kilns and burial. Level 4 architecture is indicated with light shading.

they must be regarded as contamination. Public context storage rooms in the present study contain only cereals like barley and emmer wheat.

From the relative abundance of plant elements in their samples, Charles and Bogaard (in press) suggest that barley was grown, at least in part, for animal consumption. In the case of Room 16, however, the degree of cleaning of the crops would suggest that the barley was intended for human rather than animal consumption — possibly for use in brewing beer — as crops used for fodder would not necessitate this extra work of cleaning the grains. Two-row hulled barley appears to have played a major role in the economy of Early Dynastic Tell Brak, as the mere abundance of barley inside the Brak Oval testifies. The importance of barley at Tell Brak corresponds well with general archaeobotanical knowledge of Bronze Age Northern Syria. In the Syrian Bronze Age sites of Selenkahiye, Hadidi and Sweyhat, studied by Van Zeist and Bakker-Heeres (1988), barley was the most prominent crop, making the authors suggest that barley was the most important crop plant from EB onwards, and may have been used in trade (1988:310–311). Future archaeobotanical analysis should be able to throw further light on the economic strategies concerning agricultural products, both within the Brak Oval itself and between structures of different economic levels on the larger site.

Tell T2

Two trenches were opened on Tell T2, a satellite mound to the southeast of the main Brak mound (Fig. 1). The upper level in these trenches had intrusive third-millennium material, including Ninevite 5 sherds and a burial of this date. The major occupation exposed, however, was a series of simple pit kilns and sherd pavements with refired pottery indicating open firing (Fig. 20). Portions of two houses dating to the mid-fourth millennium BC were also excavated. A pit filled with lumps of marl may have been used to store the raw clay used in making the pots. In the last week of the season, a sounding was dug to a depth of 3 m from the surface, and it appeared that plain level had been reached. There was no significant occupation of early fourth millennium date in this sounding.

Area JF (Jaghjagh ford)
By Walton A. Green

As an adjunct to the main excavations, the author carried out a six-week excavation and geomorphological investigation of a stone construction in the bed of the Wadi Jaghjagh, about 3 km east of the tell. In keeping with Tell Brak recording, this area has been designated JF and includes the excavation of a pottery scatter about 50 m downstream of the main stone architectural feature, and several geomorphological trenches in the area, all of which are indicated on the general contour plan of the area (Fig. 21).

Trenches JFa, b, d and e were located in order to open the maximum area with the minimum movement of earth. On the western bank of the wadi, Trenches JFa and d revealed the western end of the ford relatively close and approximately parallel to the current bank (Fig. 22). To the east (cut bank), it was not possible to expose the extent of the feature, but the line of stones on the northern margin of the roadway continues into the section and is not downcutting.

The JF feature is of interest for two main reasons: first as a stratigraphic marker dating the Jaghjagh floodplain sediments; and second as a substantial piece of architecture *per se*, which may give evidence about ancient routes, transport, and travel. The latter area of interest is of broader social importance but requires consideration of regional settlement data and will form the basis of future discussion. Our initial concern is with the dating of the feature and the sediments of the Jaghjagh floodplain.

The main feature was briefly described by D. and J. Oates (1990), and consists of four courses of massive limestone blocks buttressing a series of pavements and pebble layers that cross the wadi. Based on the massive stone construction, the presence of a hole in one of the stones that could have held a water depth indicator, and its location near a potential route from a Roman outpost near Brak to Roman imperial Singara (Oates 1968), the Oates tentatively described the feature as a Roman ford; remains of a ford on the Wadi Radd along this route were also found this season. A geomorphological examination in the region of Tell Brak in the autumn of 1999 (Wilkinson 1999), however, produced evidence that sediments that lie stratigraphically over the feature were possibly laid down in the Mid- rather than Late Holocene (i.e. before *c.* 2000 BC). If this is the case, of course, the feature cannot be Roman in date. Therefore the current investigations were undertaken in order to determine the date and function[2] of the feature. In the absence of viable explanations to the contrary, we assume the feature to be a reinforced crossing point or ford.

Two factors make determining the date of the ford problematic. First of all, any clastic particles (rock fragments, pot sherds, coins, etc.) in the course of a river, that are small enough to be entrained and transported by the flow of water, are regularly mixed, moved, and re-deposited. Hence the only stratigraphic unit in its original anthropogenic depositional context is composed of the massive stones of the feature itself. No unambiguous primary context containing diagnostic sherds was found in stratigraphic relationship to the crossing. Therefore the dating of the feature is not a simple matter of archaeological superposition and ceramic typology; instead, it involves several lines of indirect evidence. The second complicating issue is that the feature was probably in use during multiple periods; construction, use, repair, and reuse represent exploitation of the same geographical feature over a long time by many groups of people. The complicated structure with multiple pavements and pebble layers reinforces the notion that it represents a relatively long period of use between its original construction and its final abandonment. (The banks of the modern channel are too steep for the feature to be used as a crossing point today and there is no known ethnographic or historical record of its use.)

[2] Impressed by the scale and solidity of the feature — much more than needed for a mere crossing — and aware of ethnographic examples of opportunistic damming of the Jaghjagh for crop irrigation, Wilkinson (pers. comm. Nov. 1999) also suggested the possibility that the feature was a dam or other hydraulic feature rather than merely a ford. Though we cannot entirely reject this hypothesis, there has been no evidence, such as laminated silt or clay behind the feature, to support the idea that significant amounts of water were retained upstream of it. Furthermore, the massive stones of the feature are no higher than the dense pebble concretion upstream of them and even if some of the stones have been removed for other purposes, there are not enough tumbled stones to suggest that the feature was ever higher than it is now. Finally, the large particle size of strata immediately downstream of the feature suggest prolonged fast flow over the feature, which would be counter-productive if the feature were a dam.

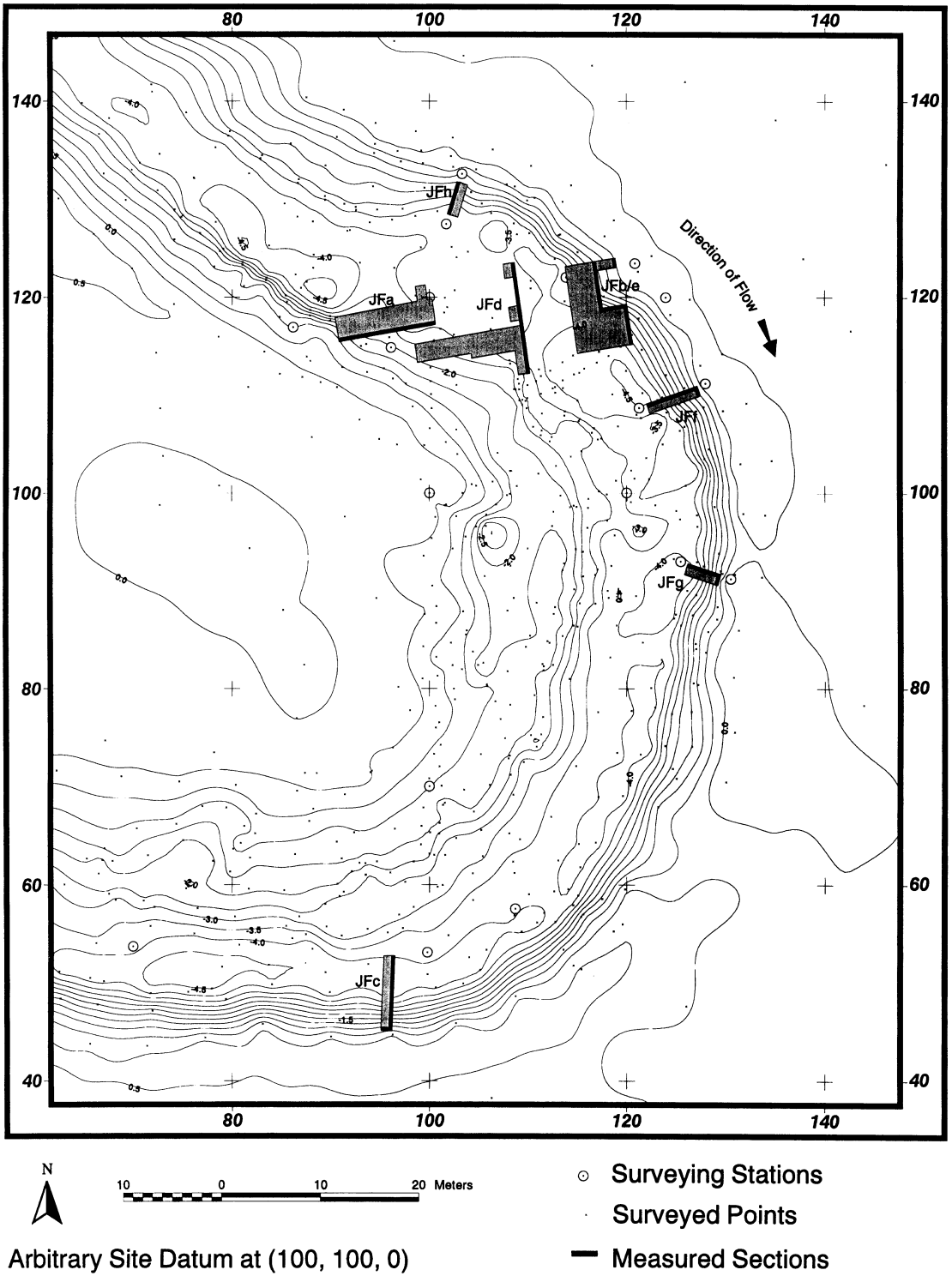

Fig. 21 Contour plan of Area JF with trench locations shown. Half-metre contours produced in ArcView 3.2 from surveyed points.

The following lines of dating evidence must be taken into consideration:

(1) Archaeological superposition: Several of the stones that seem to be in their original anthropogenic context (though they may be a late addition to the structure) are interbedded with

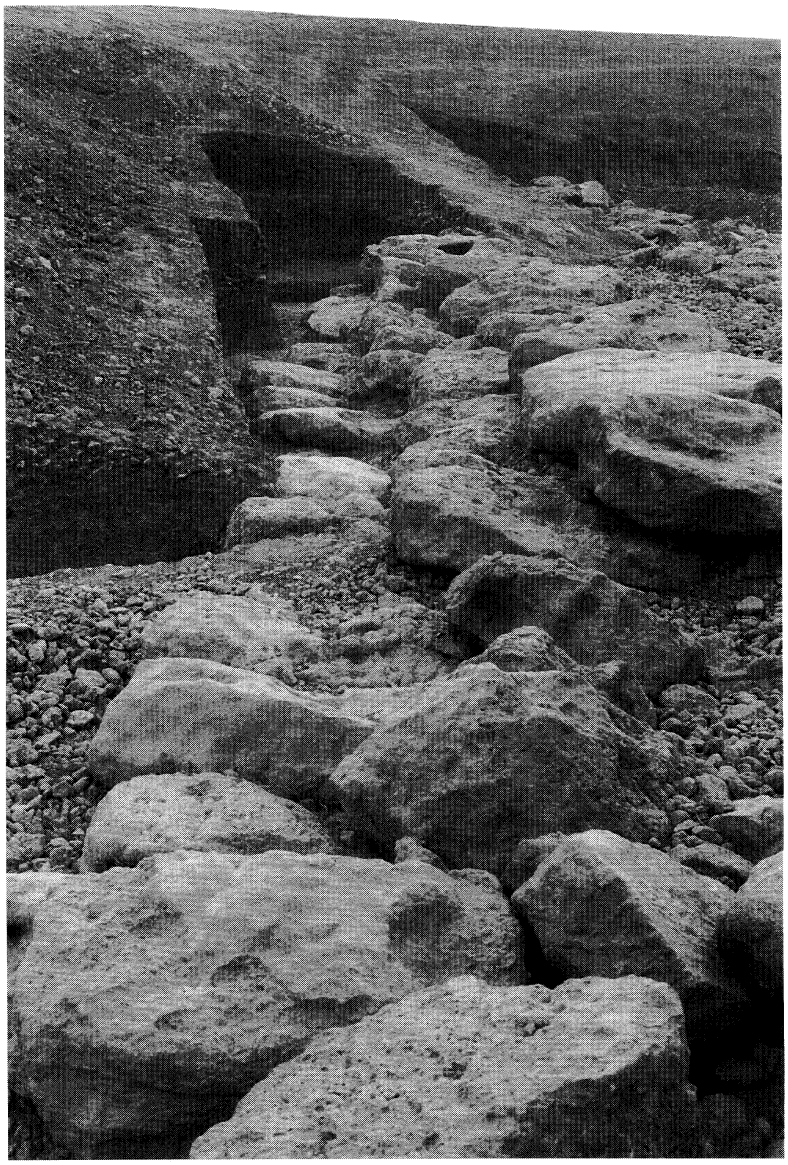

Fig. 22 Western end of the feature from the centre of the wadi.

a dense sherd scatter (Loci JF 5, JF 14; see Fig. 23). Therefore these stones were placed in their current positions after the deposition of Locus 14 and before that of Locus JF 5. Both loci contain sherds that are encrusted with calcareous coating precipitated from the carbonate-rich waters and sherds that have been heavily rolled and rounded by the action of the stream. Therefore both loci are secondary contexts and since the "assemblage" is reworked, one can question whether it gives a real date for the rocks with which it is interbedded. The density of the scatter and the homogeneity of the ceramic fabrics, however, suggest that it represents a relatively synchronic (not time-averaged) assemblage. Rim sherds (Locus JF 5: 29 drawn of several hundred; Locus JF 14: 18 drawn of 18) include Old Babylonian diagnostics (Joan Oates, pers. comm.) and would give a tentative second millennium date for the associated rocks if the sherd scatters are accepted as having temporal significance. These rocks are stratigraphically in the highest extant portion of the feature, so the initial construction of the ford must have preceded their placement there, but not necessarily their original placement somewhere along the Jaghjagh.

Fig. 23 Sherd scatter (Locus 14); stones on either side were lifted off the sherd scatter for the photograph.

(2) Dating of non-anthropogenic strata by latest inclusion: Stratigraphic layers deposited on top of the feature by flowing water provide possible *ante quem* dates; analysis of the 55 rim sherds that were recorded from such contexts is under way.

(3) Historical likelihood: Historical documents and the archaeological record at Tell Brak itself and at surrounding sites may indicate periods of greater centralization, increased regional control, and more extensive trade. For instance the maximum extent of Brak as an urban centre in the Uruk period (Emberling *et al.* 1999) is a likely time for construction or extensive exploitation of the Jaghjagh ford. And it seems unlikely that such an extensive stone structure was constructed before the beginning of urbanization in the fourth millennium.

(4) Technological inference: The fitted pavements and elaborate buttressing of the feature suggest that it may have been designed for transport by cart. This would suggest a *post quem* date in the late fourth or early third millennium BC, when wheeled vehicles are first documented (Littauer and Crouwel 1979). Similarly, the presence of claw-chisel marks on several limestone blocks may indicate a later date or subsequent additions to the structure.

A preliminary appreciation of these lines of evidence is that the initial construction of the massive stone structure of the ford was certainly after the late fourth millennium BC. Abandonment could have occurred any time after the Roman period, but was possibly not until the second millennium AD. We hesitate to offer more precise dates at this time, but full analysis of the excavation records is under way and should refine these loose estimates.

Summary and conclusion

In the next season, we plan to continue excavations in Areas TC and TW. In Area TC, we plan to continue to follow the outer curve of the Oval around to the west; excavate down to the Oval in areas to the northwest and northeast of the present excavation area, where we expect the Oval not to have been levelled and thus to be found within 1–2 m of the surface; begin to investigate earlier phases of construction of the Oval itself by working in areas cleared in 1998 and 2000; and dig a sounding against the outer wall of the Oval to identify the construction level and situate it

within a stratigraphic context in the hopes of ultimately connecting this sequence with that of Area TW. In Area TW, we anticipate that the Level 20 gateway will be fully exposed over the entire trench by the end of next season. In addition, we plan to excavate a sounding beneath the Niched Building in the western trench of Area TW with the ultimate aim of reaching Ubaid levels beneath, thereby tracing the development of the late fifth to early fourth millennium settlement.

Catalogue

Fig. 13 Pottery from TC 449, scale 1:4 except for 10, scale 1:10.

1. Bottle with globular body. Rim 80% extant, body 65% extant. Buff fabric with fine grit. Munsell 5Y 7/3 pale yellow. Ht. 11.5; Rim 5. Pot reg. no. 2000:32.
2. Small bottle or jar, complete. Buff, gritty fabric with badly salted surface. Munsell 5Y 8/4 pale yellow. Ht. 9.5; Rim 5. Pot reg. no. 2000:24. Cf. *Brak* 2, pot 1339, 1340 (FS 3) Akkadian.
3. Small sieve or colander, complete. Base cut/scraped. Buff, gritty fabric, Munsell 5Y 8/2 white. Ht. 3.3; Rim 10.8. Pot reg. no. 2000:25; TB 20027. Cf. *Brak 2*, pots 1628 (FS 4/3), 1640 (FS 5) Akkadian.
4. Grey stone ware jar with high ring base. Rim and base complete, some body sherds missing. Colour varies, base light grey, rest dark grey. Slightly lop-sided, signs of scraping on mid-body. Ht. 20.5; Rim 14.8. Pot reg. no. 2000:30; TB 20192. Cf. *Brak* 2, pots 154 (FS 5), base 155, Akkadian.
5. Grey ware jar with high ring base. Complete, found in two halves, old breaks with badly salted joins. Chaff and grit inclusions. Munsell 2.5Y N5 to N7 grey to light grey. Ht. 24.9; Rim 14.5. Pot reg. no. 2000:26; TB 20033.
6. Beaker-like bowl, complete. Buff fabric with fine grit. Munsell 5Y 7/3 to 7/4 pale yellow. Ht. 8.8; Rim 15.7; capacity 1050 ml. Pot reg. no. 2000:27; TB 20040.
7. Beaker-like bowl, almost complete, rim very worn. Green stoneware, Munsell from a green that could not be matched to 5Y 5/3 olive varying to 7/6 yellow. Ht. 9.4; Rim 17.2. Pot reg. no. 2000:34. (Cf. *Brak* 2, pots 62, 83, 84 all from Akkadian levels).
8. Shallow open bowl with internally beaded rim. From the room itself (TCG 449) and also pieces from a pit external to the room (TCG 457). Too green to find a match on the Munsell chart. which lacked the GLEY pages. Ht. 6.3; Rim 17. Cf. *Brak* 2, pot 926 (SS 3) Akkadian.
9. Wide-mouth jar. Rim and base complete but 60% of body missing, old salted breaks. Lower body and base scraped. Pale surface, buff gritty fabric with occasional fine chaff. Munsell 5Y 8/3 pale yellow to 10YR 8/3 very pale brown. Ht. 14.8; Rim 15.3. Pot reg. no. 2000:33. Cf. *Brak* 2, pots 1235, 1245 (FS 3), 1253 (SS 5) Akkadian.
10. Large storage jar, complete. Buff, gritty fabric with some chaff. Ht. 45.5; Rim 20.2. Pot reg. no. 2000:37.

Fig 14 Pottery from Locus TC 1005, scale 1:4 except for 10 and 11, scale 1:10.

1. Small bottle, complete. Buff gritty fabric. Munsell 5Y 8/3 pale yellow. Ht. 9.5; Rim 4.6. TC 1005:21; TB 200045; pot reg. no. 2000:136. Cf. *Brak* 2, pot 1356 (SS 4) Akkadian.
2. Small squat bottle or jar, complete except for chipped rim. Grey gritty fabric. Ht. 7.5; Rim 4.7. TC 1005:1; pot reg. no. 2000:117. Cf. *Brak* 2, pots 1372–1381, Akkadian squat bottles; rim between those of 1381(SS 4) and 1374 (FS 3) and body shape closest to 1375 (SS 4).
3. Round-based jar, complete. Internally beaded rim. Surface burnished, worn and flaking over much of base and body, grey ware with fine grit. Ht. 10.5; Rim 6.5. TC 1005:26; pot reg. no. 2000:140; TB 20046.
4. Round-based jar, almost complete. Grey-burnished surface, gritty fabric. Ht. 11.7; Rim 6. TC 1005:35; pot reg. no. 2000:41. Cf. *Brak* 2, pot 180 grey-burnished (FS 3); the same shape is also found in grey stoneware (sometimes with a brown surface) pots 132 (FS 3), 140 (SS 4).
5. Lop-sided bottle with incised circle on base, complete except for a third of the rim missing. Pale grey, well-levigated fabric with smoothed surface. Ht. 14.8; Rim 4.8. TC 1005:27; pot reg. no. 2000:25; TB 20043. Cf. *Brak* 2, pot 1369 (SS 3).
6. Jar with combed and incised decoration on shoulder. Half of rim missing, otherwise complete. Tall neck with groove just below rim. Two lines of wavy comb decoration on shoulder made

with a four-prong comb. A herring bone incised band below the combing. Body has a large dent in it, squashed before firing. Surfaces smooth and well-finished, fine grey fabric. Ht 19.7; Rim 7.5. TC 1005:15; pot reg. no. 2000:147; TB 20034. Rim related to *Brak* 2, pots 793, 794 date uncertain, SS 3/2 and FS 3/2b, late Akkadian/early post-Akkadian; Cf. *Rimah*, pot 553.

7. Footed goblet, complete. One side slightly flattened, making the vessel slightly oval from above. String-cut base. Buff, gritty fabric. Ht. 10.5; Rim 9.5–10. TC 1005:31; pot reg. no. 2000:120; TB 20044. Cf. *Brak* 2, pots 1186-1190 (FS 3, SS 4); the three examples from SS 4 are from closure deposits on top of the monumental building.
8. Lid. Saucer shaped with a handle attached to the interior surface. 80% complete. Orange gritty surface (Munsell 5YR 6/6) with a pale grey core. Ht. 4.6; Rim 12.1. Pot reg. no. 2000:149, TB 20036. Lids are not common at Brak in the late third millennium and when they do occur tend to be shaped like inverted goblets or small bowls, cf. *Brak* 2, lids 1705, 1706. They are more common in early third millennium levels where they tend to be flat discs with knob or loop handles, *Brak* 2, lids 1710, 1714.
9. Large jar with high ring base. Grey/black diagonally-burnished surface with red-brown paste. Abundant fine black grit. Rim and body complete, base 30% extant. Ht. 29.4; Rim 16.2. TC 1005:18; pot reg. no. 2000:157. Cf. *Brak* 2, pot 191 (FS 3) Akkadian.
10. Large storage jar, one of several from this locus. Lacks base, otherwise complete. Buff, gritty fabric with some chaff. Ht. 40 ext.; Rim 22.4. TC 1005:11; pot reg. no. 2000:142.
11. Large basin with four, evenly-spaced, knob lugs, complete. Rim is oval, and the vessel is drawn at its widest extent. Buff, gritty fabric with some chaff. Ht. 35.8, but varies up to 37; Rim 49–56. There are a number of large basins with knob lugs from FS 3 and SS 4, cf. *Brak* 2, pots 1060–1062, although some have large holes in the base and are funnels.

Fig 17 Seal designs from the TC Oval building
DM 000 = D. Matthews 1997, followed by seal number.

1. This seal is so far the most used in the Oval. Fifty sealings sealed with this seal were found in the 2000 season, at least one sealing was found in 1998 (TB 20180) and the design published in *Iraq* 61, Fig. 19c (TC B 121, reg. no. 10181) may be another impression of the same seal. The 2000 season examples include two peg and string sealings from the fill of Rm 4 (TC 625, TB 20181; TC 648, TB 20182) and a large collection of container sealings from Rm 5 (which may be either packages or large jar sealings). These included four sealings from the fill on the floor of the northern leg of the passage of Rm 5 (TB 20183, 20184, 20185, 20187), one from the western leg of the passage of the same room (TB 20186), two from the floor of the westernmost niche (TB 20189a-b), 15 complete and 26 fragments of sealings from the central niche in the northern wall of Rm 5 (TB 20188 b-e). There was also an unusual sealing directly onto a mud brick from the northern leg of the passage (TB 20183). Seal design: ED III contest scene, two crossed lions attack two herbivores (the one on the right seems to be a cow/bull, the head of the one on the left is lost). The cow/bull is held by another bull standing behind it and there is a rosette in the field between these two figures. In the field between the legs of the two lions is a ?stick or ?fish. There is a scorpion where the design repeats between the backs of the bull and the headless herbivore. There is probably something in the field above the head of the scorpion but it is unclear. All of the rollings of this seal are shallow and indistinct; either it was cut that way or the seal was worn. Seal ht 2.45; seal circ. 3.5 cm.
2. Sealing from the upper fill of Rm 16 (TC 657, TB 20174). Obverse: single rolling of ED III contest scene. Reverse: peg and string impression, peg d = 2.5 cm approx. Seal design: two groups each of three figures; left hand group ?bull attacked by a ?lion on either side; right hand group a ?naked hero attacked by a ?lion on the left and a ?bull on the right. The spiky mace/stand on the left of the rolling may be the same as the spikes on the extreme right; if so the differences are due to distortions in the rolling. The impression is very shallow and indistinct; either the cutting was very shallow or the seal was very worn. Seal ht 2.15; seal circ. 3.7 approx.

3. Sealing from the floor of Rm 16 (TC 841, TB 20173). Obverse: a single rolling. Reverse: curved cloth-covered area and string, rounded base (possible jar sealing?). Seal design: fragmentary ?contest scene. Two skirted human figures back to back, the one on the left holds the tail of a lion, the one on the right holds what could be the horn of an animal or something else entirely. Seems to be Brak style.
4. This design was found on five different "test strip"-type sealings (two from the floor of Rm 8 (TB 20155a-b), three from the floor of Rm 17 (TB 20154 a-c.). Each sealing has a single rolling on the obverse and a flat finished surface on the reverse. Seal ht 1.8; seal circ. 3.6 approximately. (Another test strip sealing sealed with this seal was found in the 1998 season in the area south of the Oval, TC C218, see *Iraq* 61, Fig. 19e and Fig. 12.) Seal design: two lions, with raised tails, face each other and hold an inverted goat between them. There is a scorpion in the lower field, between the goat and the lion on the right. Between the backs of the lions there is an inverted deer protome in the upper field with another detached head (?lioness) to the left. In the lower field, below the deer protome and between the back legs of the lions, there is a curved axe-like object.
5. Brak style seal rolled on a fragmentary bulla (or docket?) from the fill of Rm 11 (TC 620, TB 20162). Generally ovoid in shape but very incomplete. Obverse: three rollings on three surfaces. Reverse: string impression on broken surface. Seal design: two-register seal contest design and detached heads, with registers partly divided by a guilloche. Two of the rollings are drawn, but due to distortions in the rollings it has not been possible to put them together. Upper register, left to right, contest scene includes two lions holding an inverted herbivore, another inverted horned herbivore, a lion attacking a shaggy standing ?goat. The lower register has a lion attacking a standing ?sheep. The back of the lion interrupts the guilloche that divides the registers. On either side of the lion and sheep are detached bulls heads. Seal ht and circumference unknown. Sealing ext. L 5.2; ext. w 3.0; ext. th 1.7. This is the only Brak style design known so far where the divider between the registers (here the guilloche) is interrupted, in this case by the back of the lion from the lower register and the feet of another lion from the upper register.
6. This seal was found on eight sealings from the Oval. Three from an area northeast of Rm 1, one of which had a peg impression on the reverse (TCD 438, TB 20157 a-c). A test strip from the floor of Rm 17 (TC 870, TB 20160). A possible door sealing with impression of a large angled peg and string on the reverse, from the fill of Rm 16 (TC 657, TB 20159). A bulla with string impression on its broken reverse from fill on the floor of Rm 7 (TC 623, TB 20158). Two sealings from fill between the northern wall of Rm 8 and the southern wall of Rm 19, one of which is a test strip (TC 805, reg. nos. 10875, 10876). Seal design: Brak-style seal in two registers with a snake, three lioness heads, a bull's head, a ?fly and two skirted figures, one kneeling and one standing in the upper register. Lower register has a guilloche. Registers divided with a hatched band. Seal ht 2.9; seal circ. 4.55 cm. Cf. *DM* 248–256 for Brak style designs with detached heads and guilloches, plus small figures *DM* 249. The one element that has not been seen so far in Brak style designs at Brak is the fly. The snake is found on one of the designs from the HP sealing dump (R. J. Matthews *et al.* 1994, Fig. 13:13).
7. Sealing from fill of Rm 16 (same locus as the barley heap) (TC 657, TB 20170). Obverse: two rollings. Reverse: peg and string impression, possible door sealing. Peg d. 3–3.5 cm. Seal design: Brak-style seal with row of detached lioness heads, row of bulls' heads and something unclear below that looks like a collection of lines and drill holes. The heavy use of the drill is found in some Brak-style designs like this one, but the very linear style of cutting also found in this design is not typical and contrasts with the usually rounded shapes of the Brak style.
8. Test strip sealing from the fill of Rm 4 (TC 626, TB 20164). Obverse: single rolling of Brak-style seal. Reverse: flat, finished surface, also finished edges parallel to the edges of the rolling. Design: at least three rows of lioness heads positioned vertically. Very shallow impression. Cf. *DM* 243, from one of the floors in the SS building, for the same type of lioness heads, although orientated differently.

9. Large peg and string sealing found in two pieces, probably a door sealing (TB 20163 (reg. no. 10885); TC 621/665), from the fill of Rm 3 and the fill below floor 612 and compacted surface 666. Obverse: at least five overlapping rollings of the same large seal. Reverse: large angular peg with three rows of string and flat base. Seal design: two large animals, a lion and a ?deer, crossed. The ?deer seems to have antlers but also has a long tail, so possibly the antlers could be something else in the field. The lion seems to have a ?fly in its mouth. The other figures are all smaller and consist of a gazelle with its head turned back and a ?bird in the upper field. In the lower field a small skirted human figure with one arm raised and the other in the mouth of a small lion on four legs. The style is sinuous and unlike either the Brak style or the ED IIIB contest designs. It is probably one of the specifically Syrian styles of the Early Bronze Age, but no exact parallels are known at present (although there may be similar designs at Sidon, Dominique Collon pers. comm.). Seal ht 3.4; seal circ. 5.2 cm.
10. Two sealings from fill between the northern wall of Rm 8 and the southern wall of Rm 19 (TC 805, TB 20172a and b). Both have string impressions on their reverses and rounded bases. There are no peg impressions, although the area where a peg impression might be expected is not extant on either sealing. The internal curve on TB 20172a has a diameter of 2.4–2.5 cm approx. Seal design: Early Bronze Syrian design, two horned animals, a ?gazelle and deer face left. Behind them a skirted figure either with ?long sleeves or holding a ?cloth in front, and an upside down (tête-bêche) figure. Seal ht 1.7; seal circ. 4.15 cm. Cf. *DM* 484–485, from CH Level 6 for figures with long sleeves and procession of horned animals.
11. Sealing from the gap between the north wall of Rm 8 and the south wall of Rm 19 (TC 805, TB 20177). Obverse: two rollings of a geometric seal and a patch that could be a cloth impression. Reverse: rounded base, rest unclear, broken, with dents ?string. Seal design: lozenge/diamond shapes filled with diagonal lines, triangles in the field between the diamonds. Seal ht 1.3–1.6. Cf. *DM* 422, Eye temple shafts.
12. Stamp seal or amulet from the floor of Rm 5 (Locus TC 1159, TB 20134, reg. no. 11070). Pyramidal with a square base in pale grey-brown soft stone. It is pierced near the apex and two of its sloping sides have incised decoration; one has a seven-pointed star, the other a crescent with two dots. The impression on the left shows the design on the base and includes a bull's head, a ?nail below and a ?bird above and a scorpion to the right. L 1.35; w 1.3; ht 0.95; d. of perforation 0.35.

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