

Levant

The Journal of the Council for British Research in the Levant

ISSN: 0075-8914 (Print) 1756-3801 (Online) Journal homepage: <https://www.tandfonline.com/loi/ylev20>

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To cite this article: Monique M. E. Vilders (1992) The Stratigraphy and the Pottery of Phase M at Deir ʿAlla and the Date of the Plaster Texts, *Levant*, 24:1, 187-200, DOI: [10.1179/007589192790220847](https://doi.org/10.1179/007589192790220847)

To link to this article: <https://doi.org/10.1179/007589192790220847>



Published online: 20 Nov 2013.



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The Stratigraphy and the Pottery of Phase M at Deir ^cAlla and the Date of the Plaster Texts

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The article deals with the Iron Age II pottery from Tell Deir ^cAlla phase M excavated in 1967. After a short description of the architectural plan excavated in that season a technological description of the pottery is given. The analysis is written as a continuation of H. J. Franken's work on the Tell Deir ^cAlla Iron Age I material. An appendix aims to date the pottery found in a large pit at Tell Deir ^cAlla in 1960.

Introduction

A symposium on 'Plaster Texts from Deir ^cAlla', held in Leiden from the 21st–24th of August 1989, focussed on the linguistic, theological and paleographic aspects of the *Balaam* text (Hoftijzer and van der Kooij 1976). Little attention was paid to the date of the text in its architectural context. Until now the text has only been dated by means of paleographic comparison, which has led to a more or less generally accepted dating to the middle of the eighth century B.C. or one or two decades earlier (Lemaire 1985 and Naveh 1967). This date can now be compared with the result of a study of the pottery from phase M (excavated in 1967) in which the *Balaam* text was found.

In the first part of this article a short description of the architectural complex of phase M is given together with the associated objects as a contextual illustration to the pottery. The second part of the article is a technological analysis of the pottery from which a date is derived. An appendix contains a study of the pottery found at Deir ^cAlla in a large pit in 1960.

1. The architecture of phase M

Initially phase M was excavated in trial trenches (squares H and K)¹ in the 1962 season. In 1967 the excavation area was extended eastwards in order to enlarge the area of the Late Bronze Age temple complex excavated in 1964 (Franken 1964). This resulted in the find of the phase M complex as described below. The extension consisted of an area of 30 × 20 m., which was divided into two squares of 10 × 10 m. (squares AA and

BB), and five squares of 5 × 10 m. (squares CC, DD, EF, FF and GG).²

The plan of phase M (Fig. 1) shows that a number of walls, such as AA 116, were dislodged. In some cases this was caused by the earthquake which, followed by a fire, destroyed phase M and made the walls incline. The walls indicated with a dotted line (e.g. BB 108) were only recognized at floor level. The continuation of the walls of rooms 1 and 2 cannot be reconstructed any more due to the heavy erosion on this side of the area. The discovery of the plaster texts made it impossible to finish the excavation of the area in 1967.

Except for rooms 5, 7, 11, 13 and 16, the floor levels of phase M were not reached and the discovery of so many complete pottery objects in the rubble which filled all the rooms and areas may point to their having been stored on benches alongside the walls.

*Description*³

Room 1 had a 75 cm.-wide doorway in the eastern wall. The room measures 2.35 × 2.90 m. The connection of wall A (which was not given a field number), running practically north-south, with the north-south wall in BB 300 is not clear. Within the room a concentration of sherds was found against the northern wall.

Room 2 is connected with room 1 and had a 60 cm.-wide doorway in the southern wall. The room measures 2.70 × 2.75 m. An ashy layer was found in the western part.

Room 3 had a 60 cm.-wide doorway in the eastern wall. The room measures 2.30 × 3.00 m. In the north-west corner a pit was found with a diameter of 1 m. against the northern wall.

Room 4 is connected with rooms 2 and 3 and measures 2.50×2.20 m.

Area 5 (squares BB 100 and 200). Not much can be said about this part of the excavation area. Two walls are shown on the section drawing of the eastern baulk of square BB 100 in an east-west direction, but their extensions, both eastwards and westwards, have not been found. In the eastern part of square BB 200 a north-south wall was found running along the baulk.

Area 6 (square BB 400). It seems likely that this can be interpreted as an alley between rooms 1 and 2 and another complex of rooms, of which so far only the north-south wall BB 419 has been excavated. Just south of this wall two *tananir* (bread ovens) were excavated.

Area 7 (squares AA 100/200). In the field notebook this is defined as a street running east-west with two *tananir* in the north-east corner. A remarkable fact is that rooms 10 and 11 had no doorway leading to this street, whereas room 9 possibly did. In squares AA 300 and AA 400 (north of the street), two walls were found, but the connection was destroyed by a large pit with a diameter of 1.75 m. As these walls belong to phase M, this pit must belong to either a second building phase within phase M or a later phase.

Room 8. No trace was found of the northern wall. This room is 2.50 m. wide.

Room 9 had a 65 cm.-wide doorway leading to room 12. The room is 3.25 m. wide and more than 3 m. long. In the south-east corner, disappearing into the eastern baulk of the square, part of a bath-like construction of mud-bricks was discovered.

Room 10 had a 75 cm.-wide doorway leading to room 11, and an 80 cm.-wide doorway leading to room 14. The deposit inside the room was described as a layer of fine ash overlying a stone pavement.

Room 11 was a large room measuring 3.50×3.60 m. The continuation of the eastern wall AA 201 is not clear (possibly wall H 231 is a part of it?). A *tanur* was found in the north-west corner against the wall.

Room 12. The eastern and western walls are fragmentary, with doorways leading into rooms 9 and 16, and possibly a doorway leading into room 11.

Area 13 (squares CC 300 and CC 400). The space west of room 14, other than the two walls, was not excavated to the level of phase M.

Room 14 had an 80 cm.-wide doorway in the northern wall. The room measures 3×4 m. In the south-west corner a large pit with a diameter of 1.50 m. was found.

Room 15. As Fig. 1 shows, no doorway was found in 1967 or in later seasons (van der Kooij and Ibrahim 1989, 89). This room was dominated by a large, rectangular, bath-like construction bordered by mud-bricks measuring $29 \times 46 \times 15$ cm. (Fig. 2). Roughly 1.10 m. deep, it had a cross-step in the middle, which is 65 cm. deep from the rim of the pit. The eastern,

southern and western sides were built up of four rows of mud-bricks set on their sides, one on top of the other. The northern side consisted of ten mud-bricks in a horizontal position on top of each other. The cross-step was constructed from two flattened mud-bricks which rested on two upright mud-bricks. The size of the construction measured at the base is 1.40×0.85 m. This means that the walking space between the pit and the walls was limited to between 50 cm. and a metre. The finds within the pit (ten loomweights, two pounding stones, a polishing stone, two grinding stones and an unidentified stone object) give us no direct clue to its function.

Room 16 consists of an inner and an outer room. The northern, outer room measures 3×2 m. with a 70 cm.-wide doorway in the northern wall. The plan indicates that there was a mud-brick bench (?) along the eastern wall, but no mention of this was made in the notebook. The southern, inner room measures 3×2.25 m. with a 70 cm.-wide doorway in the northern wall leading into the outer room. A large, almost square pit with a mud-brick step in the north-west corner was dug against the eastern and northern wall.

Room 17. Combination I of the *Balaam* text was found here. The eastern and the northern walls are incomplete. It had a 60 cm.-wide doorway in the southern wall. The room measures 2.75×3.50 m. The burnt floor level sloped down on all four sides towards the middle of the room where a shallow depression 40 cm. deep with a diameter of 1.50 m. was found. This depression contained a layer of burnt grain covered with mud-brick debris. The walking space (see rooms 15 and 16) on the eastern and western side of the depression was barely 50 cm.

Room 18 (square EE 300). The extension of the northern wall and of the rest of the walls was not found, since square EE 400 was not excavated.

Room 19 (square DD 300). This room is 2.75 m. wide and disappears into the southern baulk of the excavation area.

Room 20 (square EE 300). This room had a 75 cm.-wide doorway in the northern wall leading to room 8.

Interpretation

The plan (Fig. 1) shows an irregular complex of rather small rooms, and can be divided roughly into two sections. The first consists of rooms 1–4 with doorways in the corners of the rooms. The main entrance was probably via the western wall of room 1. The second section consisted of rooms 8–20, which are all connected with each other by doorways in the middle of the walls. The main entrance was probably via the western wall of room 9 leading to the street (area 7). It seems that the second section, with even one double room (room 16),

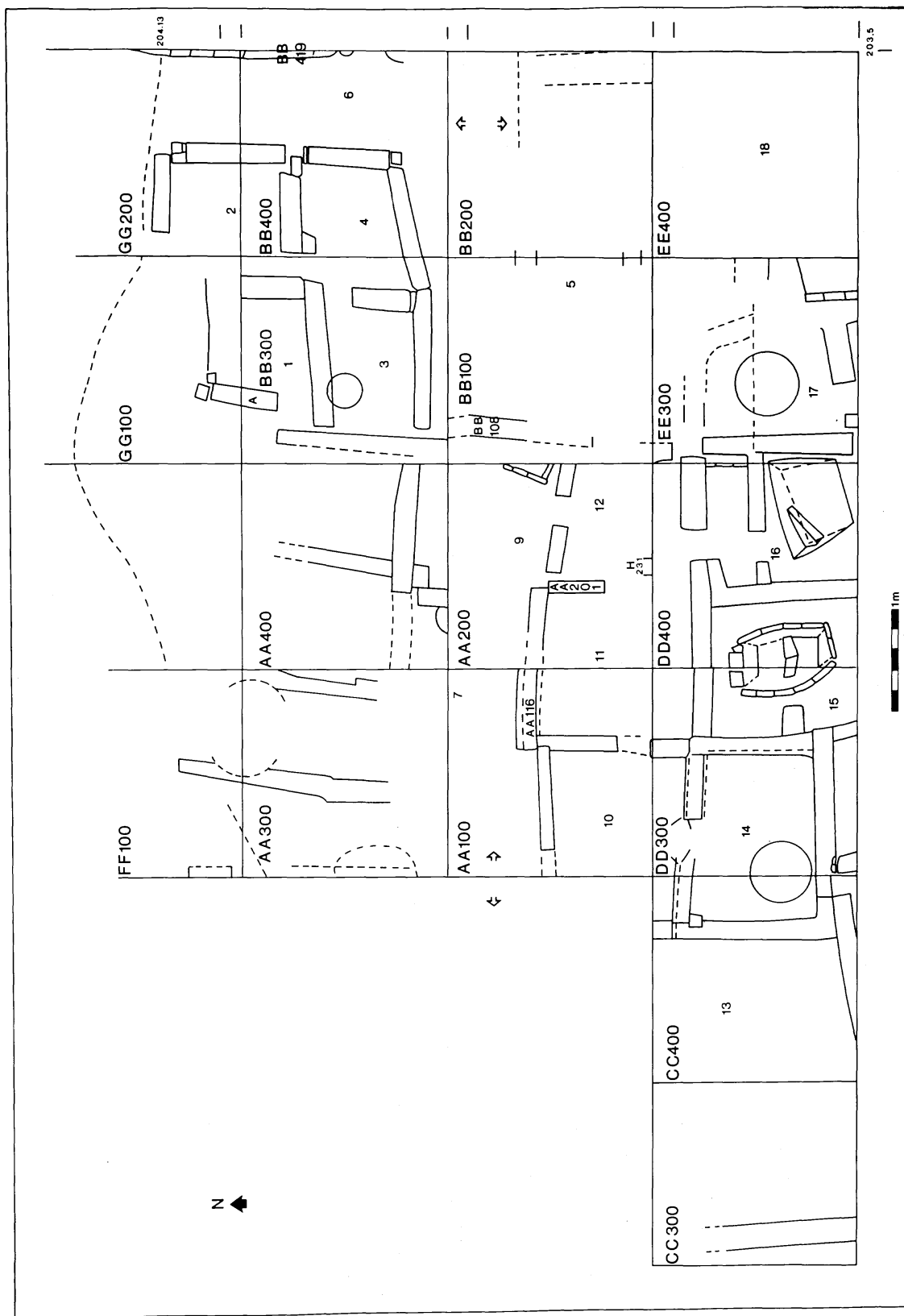


Figure 1. Plan of Deir ʿAlla phase M after the 1967 season.



Figure 2. Mud-brick pit in room 15.

was larger in size and somewhat better planned. Is it possible that the second section is a later extension to the first? The interpretation of areas 6 and 7 as alleys is strengthened by the fact that no objects were found. The absence of objects in areas 13 and 18–20 is explained by the fact that they were only partially excavated. Signs of household activities were found scattered all over the excavated area; several *tananir*, cooking pots, loom-weights and grinding stones were found. A number of rooms (1, 2, 13–15 and 17) was definitely used for storage, considering the large amount of storage pottery found. Room 14, for instance, produced nine storage jars and eleven jugs. In most cases storage was not the sole function; rooms 2, 3, 14, 15 and 17 were also used for weaving and spinning activities. Cereal was also ground; in rooms 14, 15 and 17 in particular a large amount of grinding stones, mortars, pestles and hand-mills was found.

Remarkable are rooms 14–17, which contain large, simply cut pits (in rooms 14 and 17) and well-constructed, aligned pits (in rooms 15 and 16), which cover almost the entire floor area of the rooms. The function of these pits is not clear; dyeing seems unlikely,

since no sign of heating possibilities was found. Other possible interpretations are dry-storage of grain or preparation of flax. The find of a large amount of loomweights in room 15 may point to the possibility that a loom was placed in the pit so that the weaver could sit on the edge of the pit to do his/her work.

In addition to these practical functions of the complex it will surely have had a religious one. Not only does the presence of the *Balaam* text point to this, but also the discovery of some unusual objects, such as an outsize jar (room 15), a stone with the inscription ³*bn shr*^{co} = stone of Shar^ca^o (room 2), a jug with the inscription *zy shr*^{co} = of Shar^ca^o (room 4, see for a description van der Kooij and Ibrahim 1989, 70), a so-called libation vessel (room 4), and an outsize loomweight (room 2).

The entire complex of rooms described here does not show a regular pattern of houses or dwellings as one would expect to find in a village. Rather, if one compares Beth Shan Upper Level V, an 'Israelite store city' (James 1966, fig. 75) which was destroyed about 800 B.C., our plan indicates a similar situation of store rooms and workshops belonging to a central administration building or sanctuary. Thus one might agree with the

interpretation of the excavator that it was a complex of workrooms belonging to a cultic centre (Hoftijzer and van der Kooij 1976, 13).

2. The pottery of phase M

The Iron Age I phases A–L at Deir 'Alla, which were excavated between 1960 and 1967, were published in 1969 (Franken 1969). In this publication the emphasis was on the technology of the potters. Work on the pottery has continued, culminating in the following technological study of the Deir 'Alla phase M pottery, which was excavated in the 1967 season, and the description of this pottery should be read as a continuation of Franken's work. During the analysis of the pottery of Deir 'Alla phase M the following questions were raised:

1. Is it possible to confirm the stratigraphically distinguished interruption in habitation between Deir 'Alla phase L and phase M ('There is an accumulation of washed material over the phase L buildings. Phase M shows a new lay-out of the village . . .') (Franken 1969, 61));
2. What can we say about the duration of this interruption;
3. Can the pottery give us an indication of the function of the architectural complex in which it was found (i.e. is it of a cultic nature or not?);
4. Is it possible to date the pottery?

The bulk of the sherd material was rim sherds and these formed the basis of this analysis: a total of 745 rim sherds and ninety-seven complete pots⁴ was studied. No attention was paid to the handles and base sherds for which I believe it is sufficient to refer the reader to the description by Franken (1969, 86–87 (handles), 102–118 (bases)). In the case of the complete pots a correlation was made with the constructed rim typology (see below). Within the range of types present in the group of complete pots, no rim types or variants were found which did not occur in the sherd material. From this congruency it was assumed that the information about the shaping techniques derived from the complete pots was also valid for the similar sherd material.

Analysis of the material

Archaeologists are beginning to understand that the final shape of an earthenware pot is not purely governed by tradition; technical aspects such as the nature of the clays used, the shaping techniques and the firing conditions also play a very important role. A more objective typology than the traditional shape typology is possible by means of the latter aspects.

1. Clay and temper

The microscopic study (10× magnification) of the material and thin slides (Fig. 3) resulted in a division into two clay groups: banded and non-banded clay. Banded clay consists of thin layers of clay with layers of sand and sometimes layers of iron oxide in between. The potters of Deir 'Alla who prepared this clay did not let the clay soak long enough for the clay particles to dissolve completely so that the undissolved clay grains broke down into sub-plates during the firing process (p.c. H. J. Franken). The occurrence of banded clay can easily be explained since the site itself stands on this kind of clay. Non-banded clay is found c. 1 km. due east of Deir 'Alla. Worth noting is the fact that both clays were tempered with organic material and that the banded clay was always tempered with quartz sand. This quartz sand (= eroded Nubian sandstone) is abundantly available in the neighbourhood of the site in the shape of dunes. A further division into the following six wares (the term ware refers to the combination of the clay and the non-plastic inclusions) was possible with the presuppositions that lime present in crystalline shape in the cavities of the sherd was post-depositional, and lime and quartz present in sand-fraction (1/16–2 mm.) or larger were added by the potter.

Ware 1: Non-banded clay tempered with a large quantity of crushed calcite and organic material. The iron present in the clay was either already present in the clay or was added by the potter. Gritty break (on the fracture).

Ware 2: Non-banded clay tempered with lime sand and organic material. Occasionally quartz grains (0.2–1.5 mm.) and fossils occur. Gritty break.

Ware 3: Banded clay tempered with quartz sand and organic material. The clay contains white-baking clay fragments and occasional lime and sandstone. Clean break.

Ware 4: Banded clay tempered with quartz sand and organic material. Together with the quartz sand, very fine lime and secondary lime are present in the clay. Gritty break.

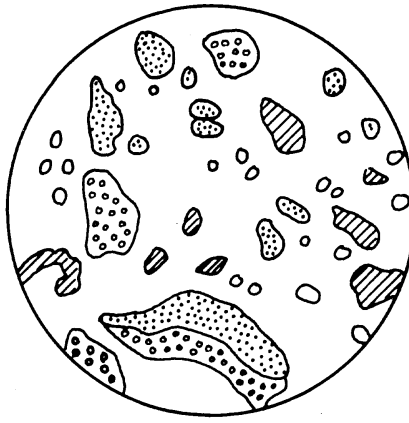
Ware 5: Banded clay tempered with quartz sand, lime and organic material. The lime is crushed in view of the angular shape. The quantity of quartz dominates. Gritty break.

Ware 6: Banded clay with little quartz sand and fine organic material. Contamination in this clay consists of secondary iron deposits, small fragments of sandstone and small iron and lime grains (0.2–1.5 mm.). Clean break.

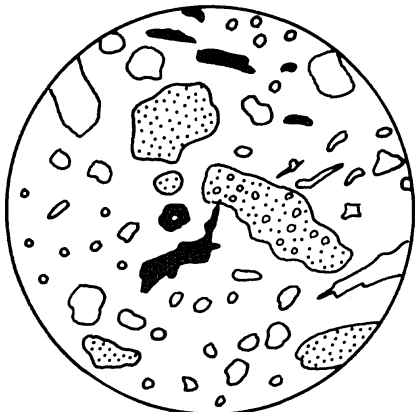
For the cooking pots non-banded clay mixed with calcite and organic material was used (ware 1). The largest group of pottery, consisting of household crockery such as bowls, jars, kraters and oil-lamps, was



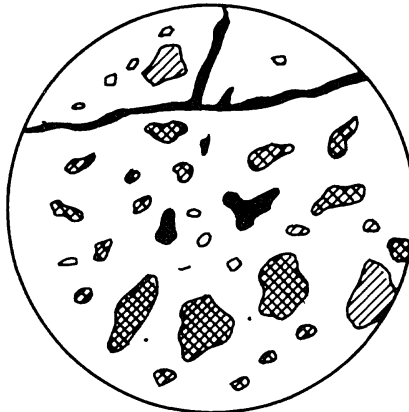
ware 1



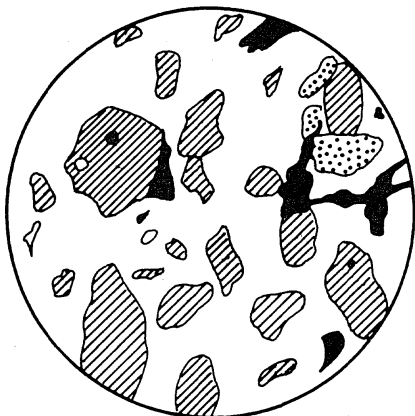
ware 5



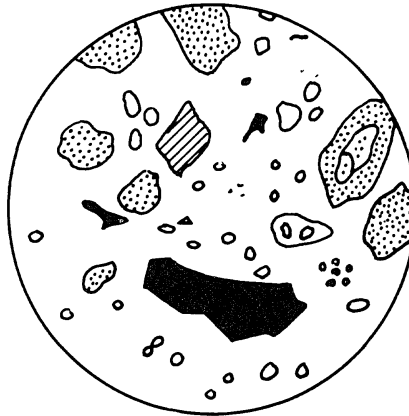
ware 3



ware 2



ware 4



ware 6







-  = cracks and cavities of the organic material
-  = quartz
-  = lime
-  = calcite
-  = lime sand
-  = iron

Figure 3. Thin slide drawings of the six wares.

made of banded clay mixed with organic material and quartz sand (ware 4), and organic material with quartz sand and crushed lime (ware 5). Defined as imports were cooking pot type 3, not only because of its quartz temper (ware 3), but also because it was fired in a reduced atmosphere, and the so-called 'Madaba-ware' (Franken 1969, 145) (ware 6).

2. Basic shaping techniques

For the shaping of the body, three basic methods were used:

a. Made in a mould

A slab of clay was pressed into a mould (which was most probably of clay) to form the base, and on this the shoulder and the neck were formed by means of coiling. This resulted in a sharp angle between the body and the shoulder, which in the case of the Deir ʿAlla cooking pot type 2 is weakened because of the use of the wheel for finishing off the shoulder. This shaping technique was used for the production of cooking pots (types 2 and 3), and the so-called *Mensif* bowl (type 18).

b. Coiling

Three different methods of coiling were employed at Deir ʿAlla: coil-built (jars type 2); coil-built in two phases (first, the upper part was built, then when this part was strong enough to carry its weight it was placed upside down on the turntable and the base was closed with one or more added coils: jars type 1, type 3 (cylindrical jars, see Fig. 4) and type 5 (kraters)); and coil-built on a mould-made base (cooking pots types 2 and 3). Considering the turn-marks on the wall of the material, this coiling was very often done with the aid of a slowly revolving turntable. The bulk of the phase M material, such as bowls, jars and kraters, was constructed in this manner.

c. Throwing

This method was used on a large scale in the Middle and early Late Bronze Age, but then the knowledge became extinct in the Near East (partly due to the '... economic and social circumstances' (Franken, in press)). At Deir ʿAlla we see the introduction of wheel-thrown pottery from Iron Age I phase G onwards, not as an innovation by the indigenous potters, but as imports (Franken 1969, 145). Within the Deir ʿAlla pottery repertoire (including phase M) a number of the jars type 2 and the oil-lamps were thrown.

3. Secondary shaping techniques

For the finishing of the pottery the following variants were recognized:

a. Burnishing

The growing tendency to burnish is especially clear in Deir ʿAlla phases H–L in the group of shallow bowls. We can define phase M as a continuation of this tradition, because 56% of the shallow bowls were burnished either on both the inside and outside or on the inside only. This phenomenon is especially clear in the new types of shallow bowls (types 19 and 20), which were, with one exception, always burnished on the inside only.

b. Painted decoration

This occurred sparsely in phase M. Some jars, bowls and pilgrim flasks were decorated with a brown-red paint (= slip with iron oxide). Lines, circles, squares and in one case something that looks like a wheel were used as motifs.

4. Firing

Most of the material was fired in an oxidizing to neutral atmosphere, producing earthenware with a reddish to brown-reddish colour. A few types were fired in a reducing atmosphere producing a greyish to black colour on the surface (e.g. cooking pot type 3), which is a further indication that this type of cooking pot was imported. A large number of the sherds contained secondary contamination such as salt/lime from the sub-soilwater which penetrated the material after it had been deposited. A test was performed on a selection of sherds from the six wares to discover whether, by refiring them in an oxidizing atmosphere at 750°C. for 30 minutes, we could distinguish a relationship between colour and ware. Both before and after the refiring, the colour of the surface and the core were noted with the use of the Munsell Soil Color Charts (1942). The result of this test was not conclusive, possibly because the number of sherds selected for the test per ware (ten sherds) was too small.

Description of the types

After the initial sorting of the material it became clear that it was possible to use Franken's typo-chronology, developed for the Deir ʿAlla Iron Age I material, for the phase M material. This, of course, also had the advantage of making the comparison with phase L easier.

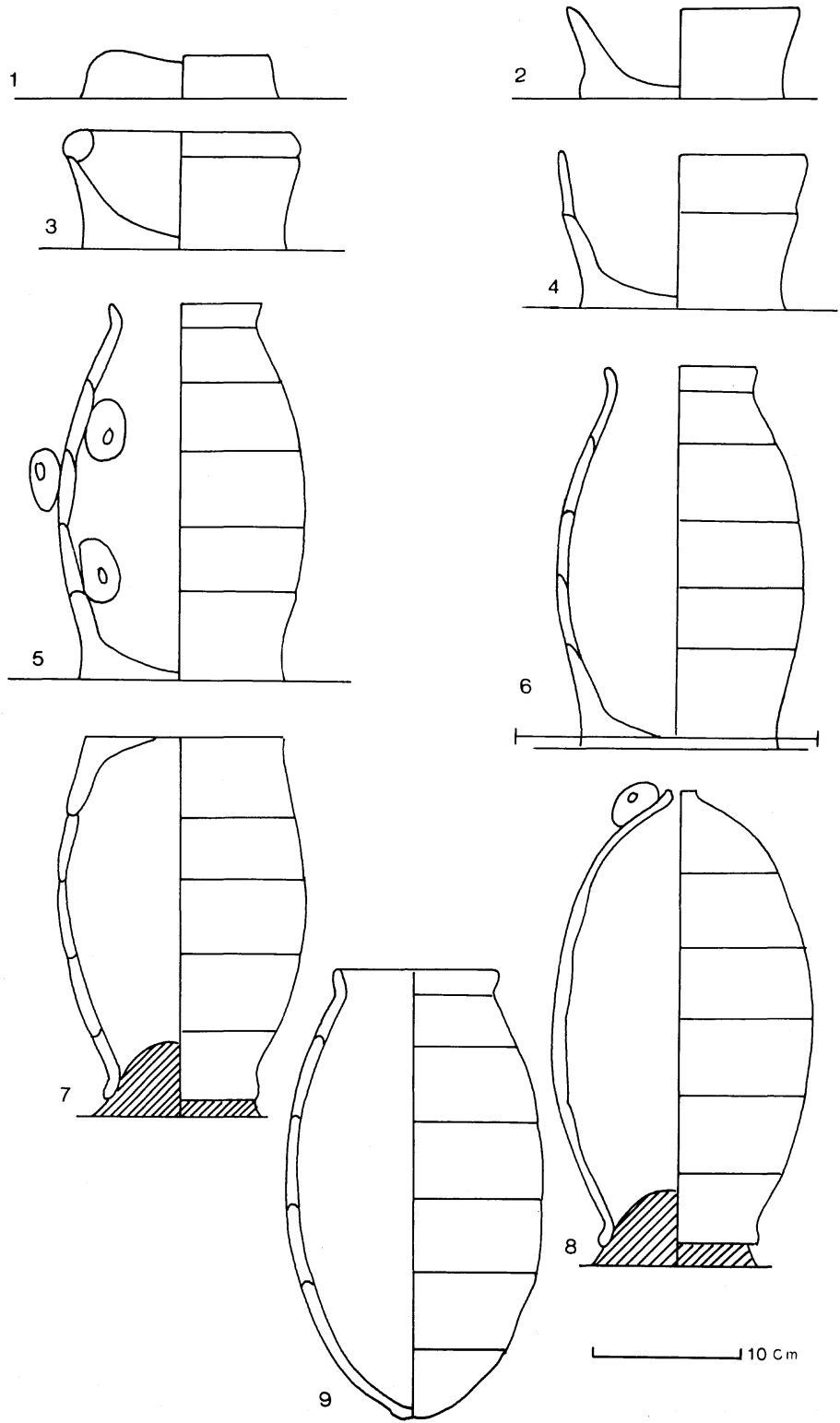


Figure 4. *Reconstruction shaping technique jar type 3.*

For the sake of this comparison a functional division was superimposed over the technological division (as was done with the Deir 'Alla Iron Age I material). This resulted in the following primary division: cooking pots, bowls, jars and oil-lamps. Within these functional groups a rim typology was made by using the shaping technique of the rim as the divisional criterion. A further division was then made on the basis of the various ways of finishing off the rim, which resulted in a number of variants within most of the types (for drawings of the variants see Fig. 5).

Following Franken (1969), the new types received a consecutive number and the new variants a letter. In this section only a description of the new types is given. A description of the other types is given in Franken (1969).

1. Cooking pots (Franken 1969, 119–132)

Cooking pot type 1 is no longer represented in phase M. The type 2 rim variants C and E decrease in number from phase H onwards and have disappeared in phase M. All four rim variants of cooking pot type 3 occur (see

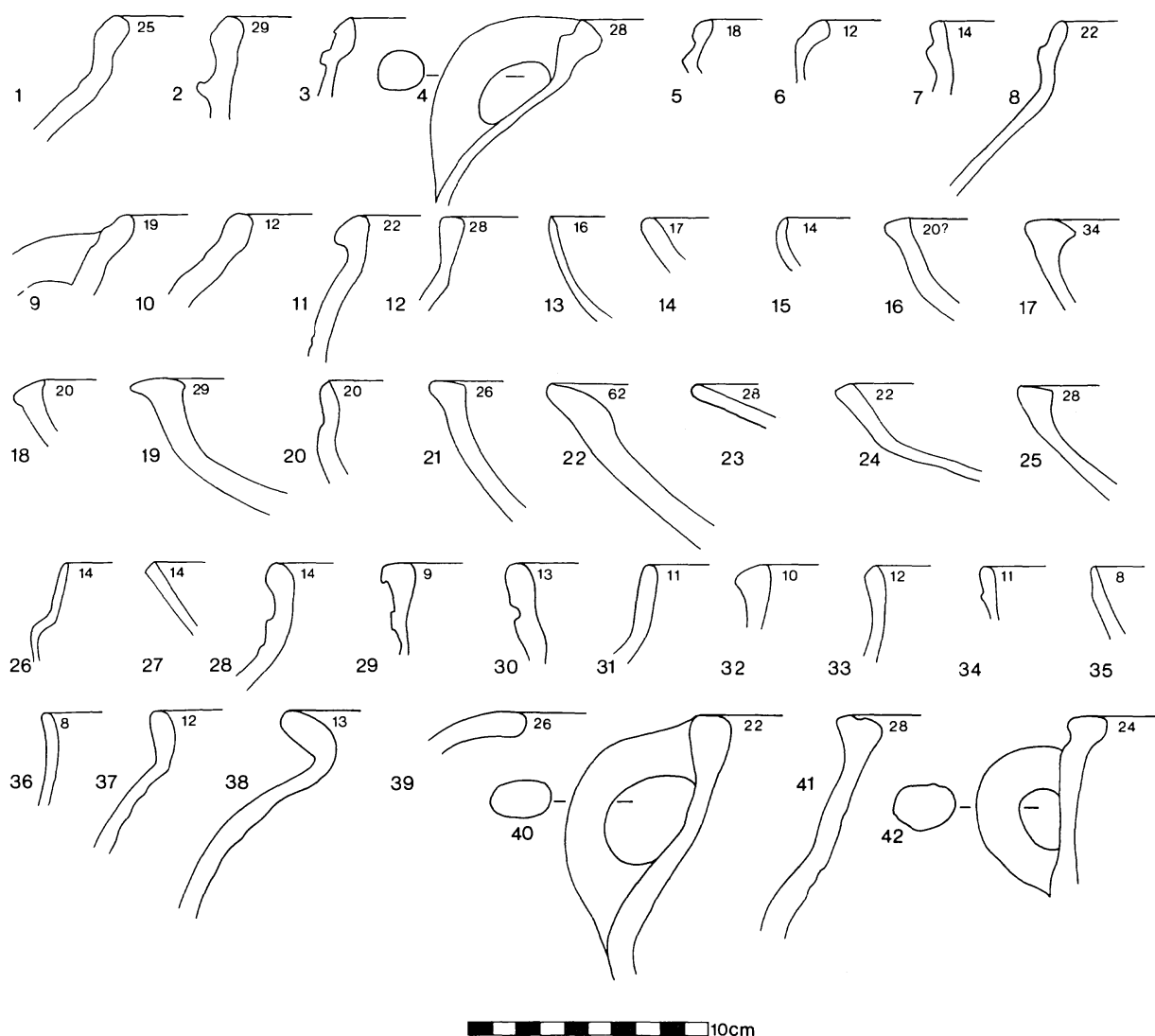


Figure 5. Phase M types: no. 1–5: cooking pot 2A, B, D, F and G; no. 6–9: cooking pot 3A–D; no. 10–12: deep bowl 3A, B and D; no. 13: shallow bowl 4; no. 14–16: shallow bowls 5–7; no. 17–19: shallow bowls 10–12; no. 20–21: shallow bowls 14–15; no. 22–25: shallow bowls 18–21; no. 26–27: 'Madaba-ware'; no. 28–32: jar 1D, H, L, M and N; no. 33–36: jar 2B–E; no. 37–38: jar 3A–B; no. 39: jar 4; no. 40–42: jar 5A–C.

Table 1. Relationship between functional groups and wares.

	1	2	3	4	5	6
Cooking pots type 2	×	×				
type 3			×			
Bowls				×	×	
'Madaba-ware'						×
Storage jars				×	×	
Oil-lamps				×	×	

Table 2; the given amount of sherds in this figure does not include the rims of the complete pots).

2. Bowls (Franken 1969, 133–160)

a. Deep bowls

In agreement with phase L types 1 and 2 do not occur, but type 3 in its three variants continued in phase M.

b. Shallow bowls

If more pottery from this group were available one would find that Franken's types 7–12 (in this group type 6 is an exception) are actually all variants of type 5. As Franken states in his book: 'It should always be kept in mind that a flat horizontal rim was not necessarily horizontal when put away to dry . . . Thus bowls, separated in this system, may have looked exactly the same before firing' (1969, 146). Of this group types 8, 9 and 16 have gone out of use in phase M and of type 4 only variants A, F and G occur.

New types of shallow bowls:

Type 19: Platter bowls

This new type of shallow bowl is an almost flat platter (with a disc-base?), with an unprofiled rim, and an average diameter of 24 cm. Most likely these platters were thrown from the cone, but in the absence of complete platters this cannot yet be ascertained. In most cases the inside was burnished and possibly slipped.

Type 20: Shallow bowls

This is a shallow bowl with an unprofiled, flattened rim, a disc-base and an average diameter of 20–22 cm. The basic shaping technique of the body consisted of coil-building on a slab of clay with the aid of a turntable. The sharp carination between body and shoulder was the

Table 2. Type occurrence in phase L, phase M, and in the pit.

			L	M	Pit
Cooking pots	Type 1	A	2	0	0
		B	1	0	0
		C	2	0	0
		D	0	0	0
	Type 2	A	5	7	6
		B	9	20	27
		C	1	0	0
		D	1	23	0
		E	4	0	0
		F	7	3	0
		G	12	2	0
	Type 3	A	18	1	1
		B	20	2	0
		C	15	22	2
		D	4	4	0
Deep bowls	Type 1	A	0	0	0
		B	0	0	0
		C	0	0	0
		D	0	0	0
	Type 2	A	0	0	0
		B	0	0	0
		C	0	0	0
		D	0	0	0
	Type 3	A	7	21	0
		B	2	30	21
		C	0	0	0
		D	38	18	1
Shallow bowls	Type 4		50	29	15
		5–12	71	134	94
		13–16	15	93	29
		18	30	8	3
		19	0	10	4
		20	0	40	44
		21	0	0	26
	Type 1	A	0	0	0
		B	0	0	0
		C	0	0	0
		D	9	16	16
		E	0	0	0
		F	0	0	0
		G	0	0	0
		H	17	20	3
		J	18	0	0
		K	21	0	0
		L	17	5	0
		M	0	13	2
		N	0	28	35
Storage jars	Type 2	A	2	0	0
		B	7	44	23
		C	8	14	6
		D	28	16	9
	Type 3	E	8	12	38
		A	0	11	3
		B	0	0	1
		C	0	0	1
	Type 4	A	0	12	11
		B	0	8	1
		C	0	35	8
		D	0	11	8
	Type 5	A	0	2	2
		B	0	2	2

result of the scraping of the base. Burnishing (and slipping as in type 19?) was common practice for the inside.

c. Large shallow bowls

Of the two types occurring in phase L, type 17 has disappeared and type 18 only occurred sparsely in phase M.

d. 'Madaba-ware' (Franken 1969, 145)

This pottery already occurred in the earlier phases at Deir 'Alla and was recognized as being an import. The name was given by Franken after he had seen this pottery at the museum in Madaba some twenty years ago. The origin of that pottery was a grave in the neighbourhood of Madaba.

Two functional groups have been distinguished: shallow bowls and cups with one handle. Both groups are very thin-walled with an unprofiled rim and an average diameter of 14–16 cm. Throwing was the basic shaping technique used for both groups and burnishing occurred in most cases on the inside and outside.

3. Jars (Franken 1969, 161–170)

a. Type 1: Large storage jars

Within the phase M material five variants (D, H, L, M and N)⁵ occurred. Variants J and K, which are still present in phase L, have disappeared and variants M and N were new. Variant M is an unusual rim, being unprofiled, and in shape and shaping technique similar to the deep bowls type 3D. The reason why this variant is attributed to the storage jars is its average diameter of 10 cm. The construction of variant N is similar to variant B, but the final shape differs and it can be defined as a descendant of variant B.

b. Type 2: Jugs and juglets (Franken 1969, 167–170)

In sharp contrast with the situation in phases A–L, phase M has produced a large amount of complete jars type 2 (thirty-three specimens in total), but instead of clarifying the picture of this type it has made it even more complex. During the present research it appeared that it was possible only in a few cases to correlate the complete objects with the sherd material. For the complete jugs belonging to this type, four basic shaping techniques were used:

- thrown from the cone,
- wheel made,⁶
- thrown in two phases,
- coil-built in two phases.

Of the five rim variants distinguished, only variant A does not occur in phase M.

c. Type 5: Kraters

This is the largest type of jar found in Deir 'Alla with heights varying between 22–50 cm., an average diameter of 28–30 cm. and with four to six handles.

The rim was constructed by folding the last coil to the outside, whereby in variant A the rim was given a square shape due to the use of a rib or other flat object. In variant B the top of the rim was made horizontal and with a sharp object a ridge was made on the upper side. Variant C is similar to variant B, but without the ridge. Constructed on a turntable, it was coil-built in two phases (see Fig. 4 for this technique). When in leather-hard condition a ring-base was added. In most cases the inside and outside were wet-smoothed.

New types of jars:

Type 3: Cylindrical jars⁷

This is an oval-shaped jar with an average height of 38 cm., an average diameter of 10 cm. and a round base. The rim is unprofiled and flared. Within the basic rim-shape two variants have been distinguished: variant A is the basic shape with a round lip-profile, and variant B has a square-shaped lip. No handles occurred and in some cases the outside was slipped.

d. Type 4: Hole-mouth jars

First introduced in Deir 'Alla in phase M in very small numbers: only eleven rimsherds and no complete pots.

The rim was constructed by folding the last, flattened coil inwards and then outwards. The average diameter of this jar was 24–28 cm.

4. Miscellaneous pottery

The following complete pots have not been included in this analysis because of the rarity of their shape. An undecorated pilgrim flask (height 29 cm., reg. nr. 1939) was found north of room 1. Room 2 yielded a nearly complete bowl (reg. nr. 2074) which possibly belongs to the 'Madaba-ware', but it was impossible to check this since the bowl is in Amman. Together with the bowl a so-called libation vessel was found (height 25 cm., reg. nr. 2325). A one-handled cup with spout (height 10 cm., reg. nr. 1940) was found in room 3. One small cup without a handle (height 6 cm., reg. nr. 2073), a so-called 'coal-pan' (reg. nr. 2314) with two (originally three) legs, and an outsize storage jar (reg. nr. 2130) with a height of 118 cm. were found in room 7.

Conclusion

The custom of the phase M inhabitants to dig many pits resulted in disturbance of the underlying layers. This is the reason why a number of types, namely those that appeared scantily in the phase M material and not at all in phase L, were regarded as contamination and were not included in this study.

The comparison of phase L with phase M (see Table 2 below) yielded the following conclusion: the phase L cooking pots type 2C and E, shallow bowls types 8, 9, 16 and 17 and jars types 1J and K, and type 2A have disappeared in phase M. Cooking pots type 2A, B, D, F and G, type 3A, B, C and D, deep bowls type 3A, B and D, shallow bowls types 4-7, 10-12, 14, 15 and 18, 'Madaba-ware', jars type 1D, H and L, type 2B, C, D and G, and type 5 (kraters) continued in use. Besides this there emerged a number of new types in phase M: shallow bowls type 19 (platter bowls) and type 20, jars type 3 (cylindrical jars)⁸ and type 4 (hole-mouth jars), and jars type 1M and N rim variants.

The fact that the new types are already locally produced in phase M confirms the stratigraphical data with respect to an interruption in the habitation of the site. This conclusion is based on the wares used (wares 4 and 5), which implies that they are local imitations of types developed elsewhere. Is it possible that the residents settled somewhere else during the interruption where these types were produced or imported, and upon return to Deir ʿAlla the potters began to imitate these with the local clays? In the author's opinion the interruption lasted no longer than one or two generations, since the majority of the phase M pottery types coincide with the phase L types.

Is it now possible to come to a functional interpretation of the architectural complex after having looked at the pottery? The repertoire of the sherd material paints a picture of ordinary household crockery, with no unique or luxurious products. On the other hand, there are some rare shapes in the complete pots and objects (see p. 190). Considering the pottery evidence (together with what we know of the architecture, pp. 188-91) the author suggests that this building was not part of a domestic settlement but had a cultic function.

Date

Dating on the basis of technological development is not yet possible due to the lack of such pottery studies from neighbouring sites (one of the exceptions is the technological study of the pottery from the Baqʿah valley survey (McGovern 1986), but this deals with pottery from Late Bronze Age I and II graves and an Iron Age I settlement). As a result the author has used the traditional shape comparison as a relative dating method.

The introduction of the hole-mouth jar in Jerusalem in phase 2 (ninth century B.C., Franken and Steiner 1990), together with its earliest occurrence at Tell es-Saʿidiyeh in stratum VII (Pritchard 1985, fig. 1:22), and the introduction of the platters in Beth Shan in Upper Level V (James 1966, fig. 63:4), in Samaria in period III (Crowfoot, Crowfoot and Kenyon 1957, fig. 4:17-19) and in Jerusalem phase 2, provide us with a relative *terminus ante quem* for the beginning of phase M: the mid-ninth century B.C. A *terminus post quem* is given by the fact that the characteristic seventh-century Neo-Assyrian bottles (Dornemann 1983, fig. 39; Amiran 1969, photo 310) and the narrow-mouthed cooking pot (Albright 1943, pl. 55: 1, 3, 6, 8, 10-12; 56: 12-14. He even dates this type of cooking pot to the very end of the seventh century B.C.) do not yet occur in Deir ʿAlla in phase M. As to the cylindrical jar in phase M, this type is introduced at Beth Shan c. 800 B.C. (James 1966, fig. 63:4), but recent excavations at Tell es-Saʿidiyeh (Tubb 1988, fig. 19) have clearly shown that this type was already produced in large numbers in Late Bronze Age II.

Based on the analogy with evidence from other sites this author would date Deir ʿAlla phase M between 850-700 B.C. This conclusion tallies with the independent paleogeographical date of the *Balaam* text (see p. 187).⁹

Appendix

Introduction

The pottery dealt with here was found in a large, almost round pit with a diameter of c. 8 m., situated in the south-eastern corner of the excavation area and covering square B almost completely and part of square C (these squares are located in the initial excavation area west of the phase M area, Franken 1969, fig. 19). This pit was discovered and excavated during the first season of excavations at Tell Deir ʿAlla (Franken 1960).

In order to dig the pit in antiquity a large terrain had to be cleared of houses. To the south-east of the pit a plastered floor was found which ran against a wall belonging to phase M. The pit had possibly been dug after the destruction of phase M, when this wall was still in use. Franken (1969, 62) suggested that the plastered floor was some kind of 'catchment area' that led water into the pit, but since no signs of plastering were found on the walls of the pit it seems unlikely that it functioned as a cistern. Whatever its original function, it did not last long and, possibly, became a refuse pit; the pottery found within is covered with a green oxide encrustation. After the pit fell into disuse it was covered by a thick layer of clay on which a house was built. Due to the

looseness of the filling material of the pit, which is described as brown earth in the field notebook, this clay layer sagged at the edges, which resulted in the collapse of the house.

From the field notebooks of the 1960 excavation of squares B and C, the following field numbers are given to the filling of the pit: B 152, 154, 155, 156, 160, 225, 228, 408, 432, 433 and 442; C 331–332. These deposits contained a total of 455 rim sherds and no complete pottery (other artefacts found were a small number of fragmentary stone bowls and bone tools).

As a direct result of the study of the Deir ʿAlla phase M pottery, it is now possible to answer the question of the relation of the pottery found in the pit with that of phase M. The pottery from phases N, O and P, overlying phase M, was cursorily studied, mainly to find out whether the newly introduced shallow bowl (see below for a description) present in the pottery repertoire from the pit is also represented in this later material.¹⁰

Analysis of the material

As in the study of the phase M pottery, the same technical aspects were studied except for the colour, since the green encrustation made it impossible to refire. This material was also fitted into Franken's typology without any problem, which resulted in the following types occurring: cooking pots types 2 and 3, deep bowls type 3, shallow bowls types 4, 5, 10–12, 18–20 and the 'Madaba-ware', and jars types 1–4. Table 2 shows the differences with phase M: phase M cooking pots type 2D, F and G, type 3B and D, deep bowls type 3A and shallow bowls type 14 do not occur in the pit material. New in the pit repertoire is a shallow bowl, which was given the type number 21 (description below), and an indication of a new type of deep bowls, of which nothing more can be said at present, because of the small amount of sherds.

Shallow bowls type 21

This new type in the Deir ʿAlla pottery repertoire is a shallow bowl without handles and a fairly wide mouth opening (with an average of 24–28 cm.). Signs of scraping were found under the shoulder on the outside. The construction involved in the shaping of the rim, which is basically unprofiled as with all shallow bowls, was to flatten the last coil horizontally, resulting in a triangular shape of the rim-profile. No signs of burnishing were found.

It can be concluded from the wares used (wares 4 and 5) and the shaping technique that this shallow bowl fits perfectly into the Deir ʿAlla pottery tradition and can be

taken as a local continuation of the development of the craft within the group of shallow bowls.

Conclusion

Answering the question posed in the introduction is now possible: because of the occurrence in the pit material of the jar types 3 and 4, which were introduced in phase M, and the fact that the new type of shallow bowl (type 21) in the pit material is not yet represented in the phase M repertoire, the pottery from the pit can certainly not be dated earlier than or contemporaneous in date with phase M. The study of the later phases N, O and P pottery has made it clear that this new type of shallow bowl does not occur there, which would suggest that the pit was filled up after phase P.

Another matter which will remain unanswered here is the date of the pit itself; considering its contents this author believes that it cannot be dated earlier than phase M.

Acknowledgements

I would like to thank Professor H. J. Franken for permitting me to publish his excavation material and for his support during the research, Mrs P. Bearman for correcting my English and Mr A. E. A. van Driel for making the drawings.

Notes

¹ In the same season phase M was also excavated in square C. A plan of this square is given in Franken 1969, 62. The pottery from this square is not included here.

² Trenches H and K partly coincide with squares AA 100 and 200 and BB 100 and 200 (in the 1967 season finds from this square were given AA and BB field numbers).

³ The rooms and areas have been given a preliminary consecutive number.

⁴ Except for nine objects (reg. nr. 1818, 2003, 2034, 2303, 2305, 2074, and 2306), all are in possession of the Leiden University (reg. nr. 1679, 1838, 1932, 1935–37, 1939–41, 1981, 1994, 1997–99, 2001, 2002, 2004, 2005, 2027–29, 2033, 2037–41, 2044, 2046, 2072–75, 2085, 2086, 2090, 2101, 2123, 2130, 2281–90, 2292–2302, 2304, 2307–11, 2313–22, 2324–30, 2332–35, 2337 and 2338).

⁵ The four variants H–L occurred together from phase J onwards and were recognized as a development of rim variants A–G. Remarkable in this respect was the find of these rim variants H–L at the nearby site of Tell es-Saʿidiyeh, where they were found in stratum XII, dated by the present excavator Mr J. N. Tubb to the end of the Late Bronze Age II period, i.e. first half of the twelfth century B.C.

- ⁶ This shaping technique was restricted to the so-called 'small, squat black perfume juglets' (Kelso and Thorley 1941–43, 123).
- ⁷ Wampler calls this type hole-mouth jars (1947, 12).
- ⁸ Curiously enough, this cylindrical jar is found at Tell es-Sa'idiyeh as early as the Late Bronze Age II period (Tubb 1988).
- ⁹ Further independent support for this date is provided by the ¹⁴C date of a sample of charred grain from BB 303 which, corrected by means of dendrochronology, 'can be estimated at c. 800 B.C.' (Hoftijzer and van der Kooij 1979, 16).
- ¹⁰ Mr J. N. Tubb, the excavator of Tell es-Sa'idiyeh, has kindly given me permission to publish the Late Bronze and Iron Age pottery from his site, and within that project more attention will be paid to the Deir 'Alla pottery from phases N, O and P.

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