POTS AND POTTERS IN THE CENTRAL JORDAN VALLEY

by

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Introduction

Tall Dayr 'Allā lies in the Central East Jordan Valley, at the northern edge of the az-Zarqā' valley, and 7 km east of the river Jordan. It has been settled more or less continuously from the Middle Bronze Age through the Persian period. Later, in the Islamic period it was in use as a cemetery, a practice that continues to this day.

Dayr 'Allā measures about 200 x 200 m at its base, and stands 25 m high. It is one of the larger sites of the region, together with as-Sa'īdiyya and al-Mazār.

In the Late Bronze Age Dayr 'Allā and as-Sa'īdiyya were surrounded by small sites (Leonard 1989), which was in striking contrast with general settlement patterns in this period and area. The reasons for this concentration of occupation, its relation to the major sites as-Sa'īdiyya and al-Mazār, and its impact on the following periods are the goals of a major study (see van der Steen 1995, 1996), which includes this pottery study.

Excavations at Dayr 'Allā started in 1960, led by H.J. Franken (see van der Kooij and Ibrahim 1989, and Franken 1992, for a general introduction), and are still continuing.

Table 1. Occupation periods at Tall Dayr 'Allā.

PERIOD	PHASES
Late Bronze Age	LB A - D
Transition	LB E - F
Transition	LB G - H
Early Iron Age (Iron Age I)	IA A - D
Iron Age II	IA E - M

History and Stratigraphy

During the Late Bronze Age there was a sanctuary on Dayr 'Allā, surrounded at the end of the period by 'treasuries' containing the pottery and other items used in the sanctuary and service rooms (Franken 1992:163 ff.) (see Table 1).

The first sanctuary was built on an artificial hill constructed over the Middle Bronze Age occupation (Franken 1992:11-12). This sanctuary has been destroyed several times by earthquakes and conflagration (Phase A-D). It has been dated by Franken to the 16th-13th century BC (1992:1).

Phase E, immediately following D and dated to the late 13th century, shows significant changes in the pottery. It was destroyed by an earthquake with conflagration (Franken 1992:176). The end of this sanctuary is dated somewhere after 1180 BC on the basis of a cartouche from Queen Taousert (Yoyotte 1962; Franken 1992:XVII). An effort to rebuild it was interrupted by a second earthquake, after which no more efforts were made.

The next building phase, Late Bronze Age phase G, has a plan that differs completely from the preceding ones. This phase has been found east and west of the cella: there were walls, some of them consisting of two parallel rows of bricks, floors and courtyards. A building constructed with double walls has been recovered west of the cella.

This phase was destroyed by conflagration. Phase H consisted of a tower-like building, set on phase G remains west of the cella. In both phases a number of storage bins was found (for stratigraphy of these phases see Franken 1992:71-72;101-103).

There are no indications that these structures had a religious function or were connected with a sanctuary in any way, although the structures seem too large to be purely domestic.

Following phase H, after a break of several years, comes the Early Iron Age, phase A, with a completely different architecture, consisting mainly of pits and flimsy walls. Some of the older architecture was reused, and there were traces of tentpoles (Franken1969:33-43). The pottery repertoire differs from the earlier periods, although the pottery technology, and shapes of the locally produced vessels remains the same (London and Franken 1995:218 and see below).

After Early Iron Age phase D, according to Franken (1969:21) a more settled population replaced the semi-nomads.

Several 'breaks' in occupation can be detected in this short history of the site (Table 1), on the basis of discontinuities in the archaeological repertoire (mainly pottery and architecture).

Existing Interpretations

The transition from Late Bronze phase D to E shows no significant changes in the architecture of the site (only a very small part of the older phases has been exposed). The changes in pottery, however, are significant (see below). According to Frendo, the Biblical Gadites who already lived in the area, took over the sanctuary and rebuilt it (1986:181).

Franken explains the changes in pottery with a gradual deterioration in the quality of the pottery in the course of phase E itself (even though the duration of this phase has not been established: Franken 1992:177). The architecture of the area does not suggest changes in population in this period.

Phase G and H are seen as a continuation of the earlier phases, even though the architecture differs significantly. No changes in population are postulated by either Franken or Frendo.

After phase H the site was abandoned for some time, after which it was reoccupied with a new population. According to Franken they were semi-nomads, living on the site only in winter, and practising agriculture as well as animal husbandry. Frendo thinks they were Israelites.

An Alternative Interpretation

The breaks between Late Bronze phase D and E, between Late Bronze phase F and G and between Late Bronze phase H and Iron Age phase A, are so many steps in the transition from Late Bronze to Iron Age.

The first step is determined by changes in pottery, but not in architecture or function of the excavated area; the second by a significant change in architecture and function of the excavated area, but no differences in pottery technology or repertoire, and the third step shows a change in architecture again, together with a change in pottery repertoire, although not in technology or basic morphology.

The standing explanations for these changes were all based on the assumption that the pottery was made on the site, by potters who were part of the population of Dayr 'Allā.

However, no trace of pottery production in the form of wasters or kilns has been found on either Late Bronze or Iron Age Dayr 'Allā (Franken 1969:38), which in itself makes it unlikely that pottery was produced on the tall.

One could, therefore, suggest that there were production centres that provided a larger area including Dayr 'Allā, with the vessels it needed. Technological and morphological changes in the pottery thus reflect shifts in the pottery production, but not necessarily in the population of the site. On the other hand, changes in the population of the site will not show in changes in the pottery technology, as the new population acquires its vessels from the same production centres. A change in economy on the site

may be reflected in a change in functional pottery repertoire, but not in general pottery technology or morphology.

In order to detect these differences and to clarify and explain the events that triggered the transition from Late Bronze to Iron Age in this area, the pottery of the first four periods, which mark the transition from Late Bronze to Early Iron age, has been analyzed on three levels: the functional, technological and morphological level.

The data for Late Bronze phase E and Iron Age phase B have been taken mainly from Franken 1969 and 1992, supplemented by the writer's own observations. The pottery from phase G-H has not been published before, and the observations are entirely the author's.

Functional Groups

A classification into functional groups is always tricky. It presumes that differences between these groups are the outcome of differences in function. It also presumes that the evolution of the shape of a pot, or of a certain part of it, is directly related to its function. But most of the time we do not even know what that function was. The problems involved in determining the function of a certain vessel or type of vessel are numerous (Orton *et al.* 1993:217 ff.). Physical features involved are capacity, width of neck and rim, absolute and in relation to body width, number and placing of handles, among others. Since for most periods we can only discern between very broad differences in function (we are for example not aware of differences that may have grown traditionally, and are function-related but not functional in the above sense of the word), and since most of the time we can only relate specific shapes to very broad function categories like 'storage', 'cooking', 'eating and drinking' (if that), here are only very basic classifications, mainly based on physical features (Table 2).

Unfortunately, no statistics are available for the earlier Late Bronze phases, so a statistical comparison of functional groups of phases A-D and phases E-F is not possible. However, some tentative conclusions can be drawn from the published material. In phase A-D there were basically two types of bowls occurring frequently: shallow bowls with diameters around 20 cm, and carinated bowls. Deep bowls do occur, but are noteably rare. In phase E the main bowl types are small bowls, large open bowls and deep bowls. Taking capacity as a criterium, I would suggest that the shallow bowls of phase A-D and the small bowls of phase E are functional equivalents, and the carinated bowls of phase A-D are the functional equivalent of the large open bowls of phase E. Chalices and goblets are relatively frequent in both phases, and so are jars/jugs and lamps. Cooking pots and kraters are rare. All in all the functional repertoires of phase A-D and E-F seem to coincide rather well, with the exception of the groups of deep bowls, storage jars (including pithoi) and dippers. These may have been functionally related.

For Late Bronze phase E, phase G-H and the earliest Iron Age phases statistics of the functional groups are available (Franken

Table 2. Presence of functional groups in different periods. (x=present; r = rare)

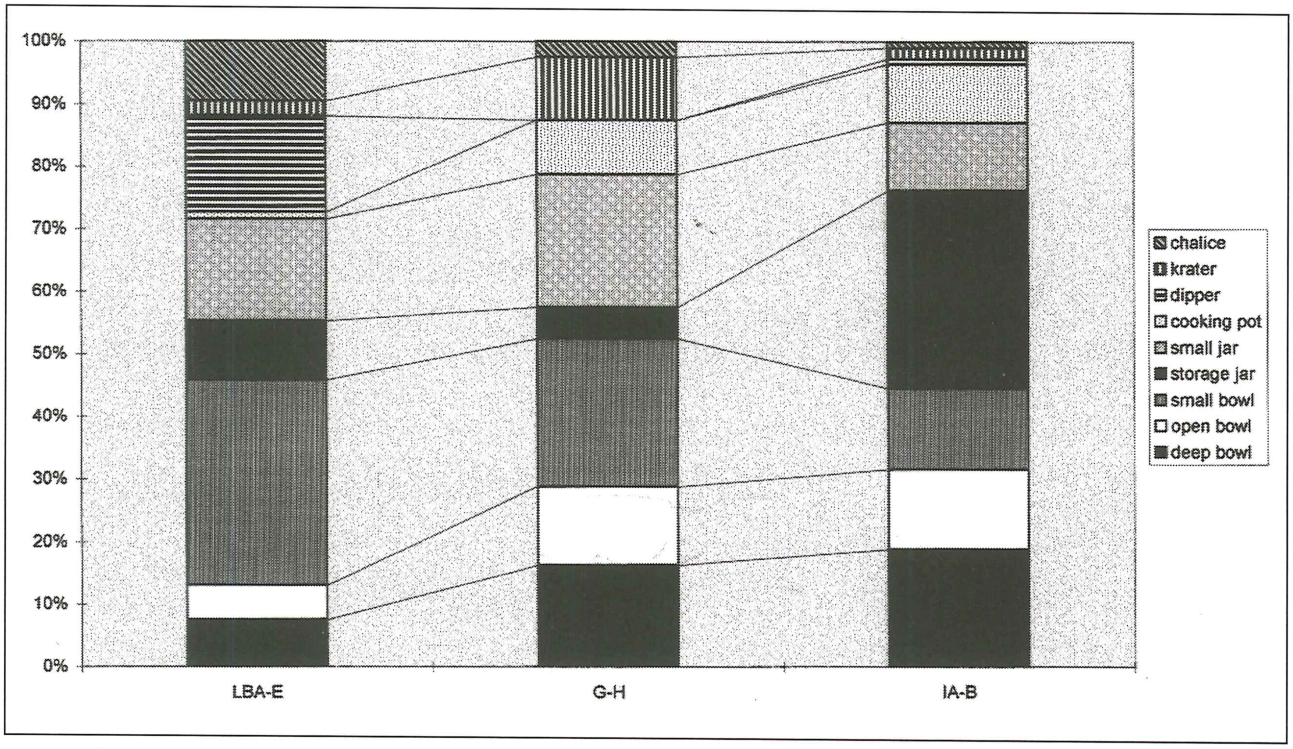
	LB A-D	LB E	LB G-H	IA B
deep bowls	r	x	x	x
open bowls	x	x	x	x
chalices	x	x	r	r
small bowls	x	x	x	x
storage jars	-	x	r	x
jars/jugs	x	x	x	x
dippers	r	x	-	r
cooking pots	r	r	x	x
kraters	r	r	x	x
pithoi	-	r	x	x
lamps	x	x	x	r
goblets	x	x	r	-
ceremonials	x	x	-	-

1969, 1992:164). There are no statistics for LB-phase F, and according to Franken, the material from Iron Age phase A may have got too mixed up with earlier material to serve as a reliable sample for the Iron Age (Franken 1969:240). Therefore the transition from Late Bronze to Iron Age is visualized using the functional repertoire of Late Bronze phase E, phase G-H and Iron Age phase B only (Fig 1).

The reliability range has been calculated (for method see Franken and Steiner 1990:69). For the small bowls the reliability range of the Late Bronze phase E sample is ±5.8% for Z=1.96, and ± 3.4% for Z=1.15, meaning that there is a 75% chance that the actual percentage (of the whole population) lies within a range of ± 3.4 of the calculated percentage, and a 95% chance that it lies within a range of ± 5.8 of the calculated percentage. The reliability range for the small bowls of Late Bronze phase G-H, the smallest sample, is ± 9.3 for Z=1.96 and ± 5.4 for Z=1.15 respectively. Therefore comparison is primarily between Late Bronze phase E and Iron Age phase B.

Most of the functional groups present in the Late Bronze Age are also found in the Early Iron Age, with the exception of the ceremonial vessels (including goblets: Table 2), which were directly related to the temple, and therefore not to be expected in the later period. If we look at the relative percentages however (Fig.1), there are some outstanding differences: larger bowls were far less common in the Late Bronze than in the Iron Age, and, on the other hand, in the Late Bronze repertoire we find far more small bowls than in the Iron Age. Storage jars form a large part (31.7%) of the Iron Age repertoire, but a relatively small part (9.5%) of the Late Bronze repertoire. Hardly any cooking pots (1.2%) were found in the Late Bronze (9.3% in the Iron Age), but a relatively large number (15.4%) of dippers (0.8% in the Iron Age).

As for Late Bronze phase G-H, the percentages of cooking pots, open bowls and deep bowls coincide with those of the Iron Age. The relative number of kraters and jars/jugs is large compared to the preceding as well as the following phases. There were



1. Functional groups per phase.

very few storage jars, and except for one goblet rim, no ceremonial vessels.

Technology

a) Ware groups (Fig. 2)

The term 'technological' is restricted to the descriptions given in Franken 1969 and 1992.

Eight different ware groups were found in the Late Bronze Age (Franken 1992:106 ff.), two of which, A and B, were considered local.

The percentages of the wares, whether local or foreign, do not differ significantly over the phases (Franken 1992:113). For the transitional phases G and H the distribution of the different ware groups according to Franken's classification is given below, in Fig.3. It coincides with those from the preceding phases (Franken 1992:113). The author has studied a sample of sherds from Iron Age phase B, and found that most sherds are made of either ware A or B. According to Frendo (1986:154) the ware in both periods is basically the same, but the Iron Age pottery is more neatly finished and less coarse than that of the Late Bronze Age.

Cooking pots in all phases are made from clay with a calcite temper. They may have come from specialized production centres, and distributed over a relatively large region (Vilders 1993:155).

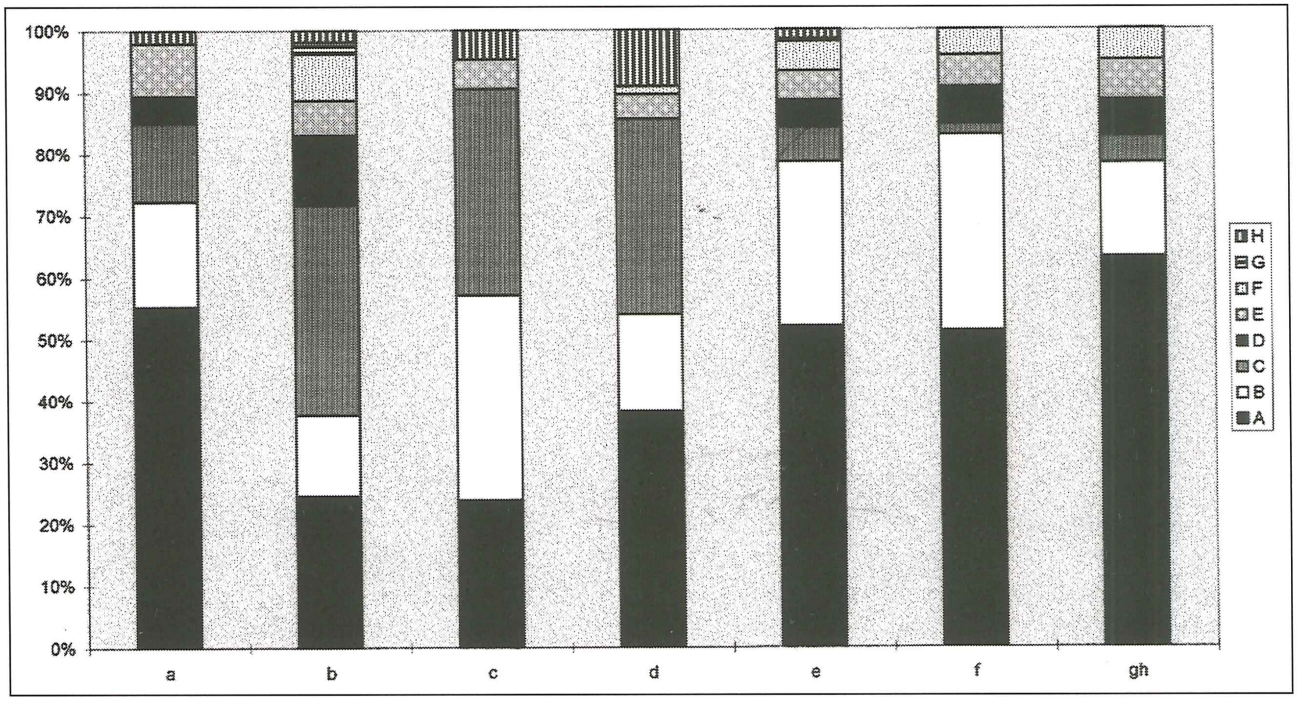
Franken has suggested the possibility that ceremonial ware may have been produced in a separate workshop: its use was limited to the sanctuary, and therefore of marginal significance commercially.

Besides it had a ritual function, so it may well be that its production was also surrounded by ritual.

b) Manufacture

Significant differences in pottery manufacture between Late Bronze phase A-D and phase E are "the marked absence of paint, the presence of heavy, thick-walled pots, and bases cut off and filled with dung tempered clay." (London and Franken 1995:215). The fast wheel has gone out of use, and all the pottery is made on the turntable (Franken 1992:151152), with leaner clays.

The manufacture of the different types of Late Bronze phase E and of Iron Age phase



2. Ware per phase.

B can be compared, since both have been described by Franken (1969, 1992).

Cooking pots. Each period had its own type of cooking pot (Franken 1969:119-121). They were shaped in moulds, and only differ in the manufacture of the rim: the rim of the Iron Age type has an extra fold outwards. Both types were found in phase. G-H (Fig.3:1,2).

Deep bowls. The Late Bronze Age deep bowls (Franken 1992: fig. 7.17:122-138, fig. 7.21:29-36) in general show the characteristics of Iron Age deep bowls type 3 (described in Franken 1969:137 and Franken 1992:156,*C2). Type 1, which has an extra outward fold of the rim, occurred occasionally in the Late Bronze Age (Franken 1992: fig. 7.21:30), but became popular only in the Early Iron Age. In phase. G-H nine bowls of type 1 were found, and four bowls of type 3 (Fig 3:3,4).

Kraters also differ only in the manufacture of the rim, which in the Iron Age had an extra outward fold (Franken 1969; fig. 51:48-51), visible as a ridge below the rim. The T-shaped profile of the rim is diagnostic of kraters in both periods.

In ph. G-H kraters were of the Late Bronze type (Fig.3:25,26).

Thin walled bowls. Manufacture of all thin-walled bowls (type 4) was the same in all three periods (Franken 1969:104 and Franken 1992:153; Fig. 3:5-12).

Open bowls. The typology of the Iron Age open bowls is based mainly on the rim sherds. Their manufacture, as far as could be traced, was identical with that of the Late Bronze Age bowls (Franken 1969:146 ff.; Franken 1992:153 ff., *A4,*C1,*F), and of phase. G-H.

Storage jars with rounded base and two handles halfway on the body differ in the making of the rim and the base. (Franken 1969:161ff. and Franken 1992:156,*E1). The Iron Age jar had an extra fold to the outside of the rim, which is occasionally seen in the Late Bronze Age repertoire, and the base was 'closed upside-down', a technique used in the Late Bronze Age, but not for storage jars, it seems.

Most of the jar bases in ph. G-H were closed upside-down, with a slab of clay.

Smaller jars: These had a ring base, one or two handles on the shoulder or from shoulder to rim and a once-folded rim. In the Iron Age these were the type 2a-e jars, constructed in the same way as the Late Bronze Age jars. (Franken 1992:156 ff.,*B4,*D,*E3, and Franken 1969:111 ff. and 167 ff.).

There is a third group of jars, which may or may not have been a separate functional group, the 'biconical jars' (Franken 1992: fig. 5.10:17). Its manufacture was the same as for the smaller jars but it had a biconical body, and no neck. It does not occur in the Iron Age repertoire, but one rim has been found in phase. G-H (Fig. 3:24).

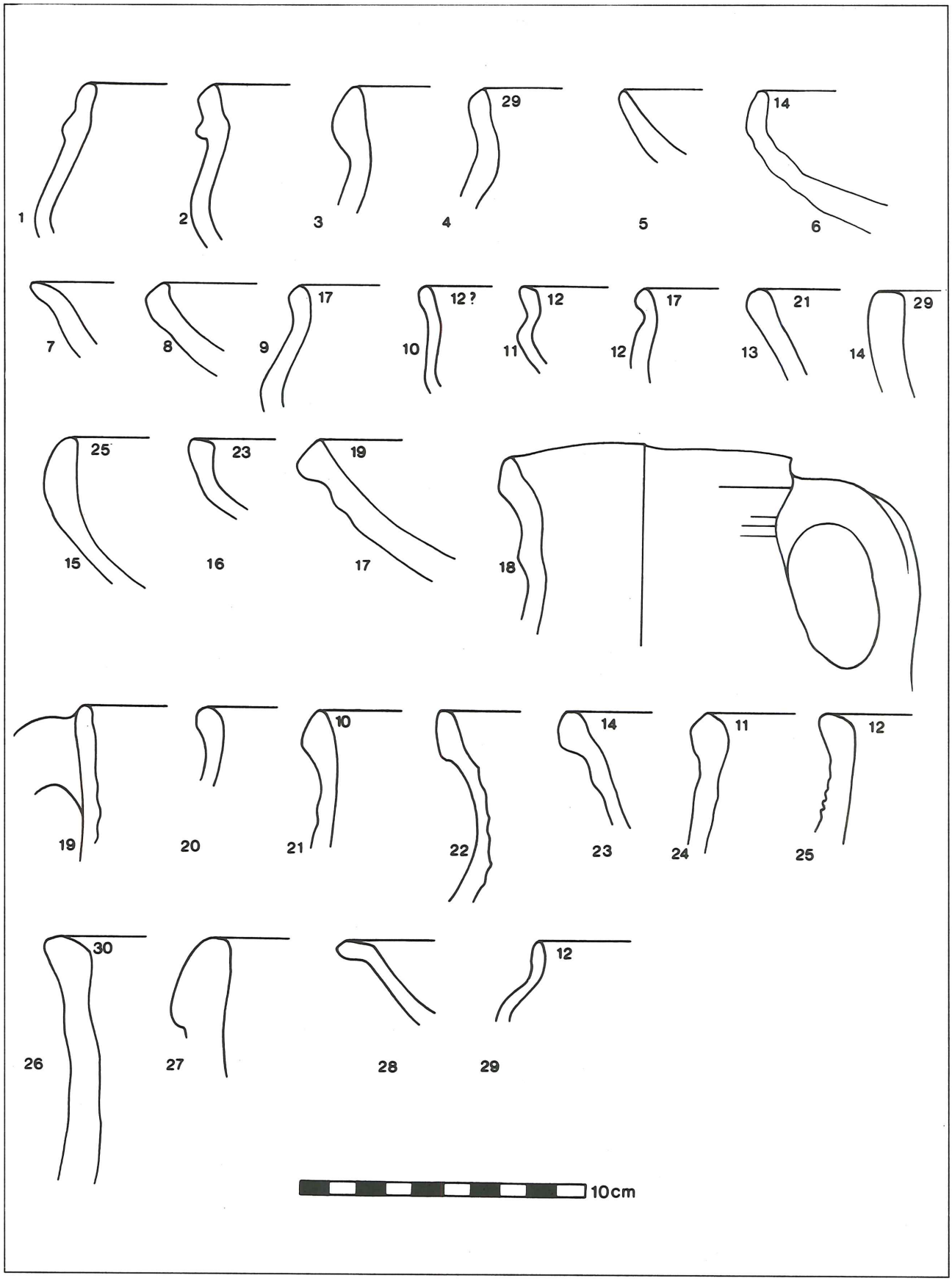
Pithoi: some very large storage jars are found in the Late Bronze layers, some of which had a collared rim (Franken 1992:88 and figs. 5-16;26). In the Early Iron Age layers several pithoi of the same type were found (Franken 1969: fig.47:1-2). Their method of manufacture is not described. Generally pithoi were made by coiling (Franken 1992:89).

Juglets: three different methods for the manufacture of juglets ('dippers') are described for the Late Bronze Age, (Franken 1992:154 ff.*A9,*A10,*I). 'Shaving' of the base is typical for Late Bronze dippers. Two other types, with pointed bases, are encountered in both periods (Franken 1969:106 and fig. 48:20-23; 1992: fig. 4.10:28,29,33). Two pointed dipper bases have been found in phase G-H.

Morphological Groups

Significant morphotypological differences between Late Bronze phase A-D and phase E are:

- a different type of carination: in phase D the typical Late Bronze Age double carination, in phase E a single bend, more



3. Profiles of pottery groups.

characteristic of Iron Age shapes. Many bowls in phase E have an incurving rim profile, whereas the rims as well as the bases in the earlier phases are usually flaring.

- Chalice bases in phase E are almost twice as high as in the earlier phases, and less flaring.
- lamps: the phase E lamps have a more deeply pinched spout than the phase D ones, and an everted rim, like the Iron Age ones.
- Cooking pots: the Late Bronze type II cooking pot with folded rim appears in phase E, to the exclusion of the older Late Bronze type cooking pots with flaring rims.
- most of the earlier pottery has a slip layer; in phase E only 11 out of 268 published sherds have a slip layer.

Painted motives remain more or less the same: horizontal bands wit zig-zag lines in between, metopes on biconical jars with vertical zig-zag and chequered bands. Bichrome decoration is found in phase D, but not in phase E.

Already in phase D some of the shapes that are considered typical for the later phases are found occasionally, such as a small bowl with S-shaped rim, and heavy deep and open bowls and kraters (Franken 1992:127-129).

Some morphological types, well-represented in phase E are not found in the Iron Age: a group of 'bowls with incurving upper part' with a more or less biconical body, (Franken 1992:142,165-179, 82, 25) and biconical jugs or jars (Franken 1992:78,16-17). One biconical jar rim was found in phase G-H (Fig. 3:24).

A new type in the Early Iron Age is the large jar with bichrome horizontal bands on the neck (Franken 1969:178, 68-71). This type was not found in phase G-H.

For some of the - mainly larger - vessels the basic difference is in the shape of the rim, which has an outward fold. Occasionally the shape is already found in Late Bronze Age phase E. In the Iron Age it becomes general, although the older rim shape does not disappear (Cooking pots: Franken 1969:184 nos 11-14 and 1992:143 nos 240-46; phase G-H: Fig.3:1,2; deep bowls: Franken 1969:184 nos 15-33 and 41-55; 1992:141,142 nos 122-138; phase G-H: Fig. 3:3,4; storage jars: Franken 1969:186 nos 106-109 and 188 nos 1-43; 1992:143 nos 199-231).

Thin-walled bowls are the same in both periods with the exception of Iron Age type 4a bowls: these differ from the Late Bronze Age small, round walled bowls (Franken 1969:184 nos 56-63; 1992: Fig 7.16:1-12) in that the top of the rim is rounded rather than pointed, and the diameter is much larger. Both are found in phase G-H (Fig.3:5,6).

For the Iron Age open bowls Franken has given a framework, in which to fit the different shapes (Franken 1969:147). Again, no statistics are available for the Late Bronze, but the published material makes it clear that all shapes found in the Iron Age also occur in the Late Bronze Age (Franken 1992:37-103; see also 140,141 nos 66-109).

In phase G-H type 5,9,11,13,15 and 16 were found (Fig. 3:13-17). Type 16 is the typical chalice rim, both in the Late Bronze and Iron Ages. The pedestal base may either be smooth or ribbed on the outside, both features were found on Dayr 'Allā in both periods (Franken 1992: Fig. 7.14:7; 7.15:11; 7.17:112,117 and Franken 1969: Fig. 48:53-64). The ribs on the outside are sometimes considered an Iron Age feature (Amiran 1969: 213).

Decoration, both in the Late Bronze and Iron Ages, is mostly painted. Franken (1992:115 ff.) shows that slip, which has already seriously diminished in Late Bronze Age phase D, has practically disappeared in phases E and F. In phase G-H four bowls, three of type 4a, and one of type 4h, had a pink or red slip. The 4a bowls were of the 'Late Bronze Age' variety, with a pointed

rim profile.

Slip does not occur in the early phases of the Iron Age. The repertoire of painted motives from the last phases of the Late Bronze Age is largely repeated in the Iron Age. Some motives, known from the early phases of the Late Bronze Age, but not from the later ones, return in the Iron Age, (for example) the row of filled-in triangles, or alternating black and red bands. In general it can be said that the quality of the decoration is gradually improving. A few painted fragments were found in phase G-H, with a decoration of mainly horizontal bands. Plastic decoration is seen in the Late Bronze Age, but it is rare, and most of it comes before phases E-F (Franken 1992: fig. 7.14:8; 7.21:40). In Iron Age phase B bar and ledge handles suddenly become popular. They are found occasionally in the Late

Bronze Age (Franken 1992: fig. 7.16:16; 7.20: 264). After phase B, they are rarer, but they are still found occasionally.

Pottery Production in the Dayr 'Allā Region

These data suggest that the three discontinuities in the pottery repertoire are each of a different nature.

The transition from Late Bronze phase D to E is marked mainly by differences in manufacture and morphotypology, while the functional repertoire remains more or less the same. Slip and paint virtually disappear, the fast wheel is replaced by the turn-table, producing heavy, thick walled bowls, a new way of producing bases is introduced. Flaring and everted rims and bases disappear, and we find different shapes for practically all functional groups.

Frendo explains this break with a new people taking over the place, whereas Franken suggests a slower, internal development.

The most obvious explanation, however, seems to be that the changes reflect changes in the pottery industry that provided the inhabitants of the site with their vessels. In Late Bronze phase D some of the shapes typical of the later phases already appear, suggesting that there is no gradual evolution from Late Bronze to Iron Age shapes, but rather the introduction of new shapes, which eventually replace the older ones.

In the transition from Late Bronze phase E-F to G the opposite is found: changes in the functional repertoire of the pottery, while manufacture and morphotypology remain basically the same, suggesting a change in economy (but not necessarily in population): 'luxury' and ceremonial vessels, like chalices and dippers virtually disappear; household vessels like cooking pots, deep bowls, large open bowls become more common. The number of storage jars is extremely low, but storage may have largely taken place in storage bins, a lot of which were found in these phases. These differences are probably best explained by the disappearance of the temple in phase G. From the distribution of the household vs. ceremonial pottery Franken has ascribed a storage or household function to the rooms west of the cella. Most of the storage jars were found here, as well as the three registered cooking pots. Dippers, chalices, small bowls and jugs, as well as kraters, were found both east and west of the cella, suggesting that, although not strictly ceremonial, they may have been used in the service of the temple.

The next break, between Late Bronze Age phase H and the earliest Early Iron Age phases, is again mainly in the functional repertoire, with a sharp increase in storage jars as the most notable change. Apparently the Early Iron Age settlers had different storage methods from their predecessors. At the same time the numbers of small bowls, small jars and kraters, three functional groups most likely connected with eating and drinking habits, decrease sharply.

Pottery manufacture remained virtually the same from Late Bronze Age phase E into the Iron Age, with the exception of one

major technological change, seen mostly in the larger vessels: the folding out of the rim, found occasionally in Late Bronze phase E and F . Some morphological types disappeared, like biconical jars and bowls, a new type made its appearance, the jar with bichrome decoration on the neck, but most types remained practically unchanged. The continuing types only differed in the production of the rim.

According to Franken, potters do not change their mode of production, unless forced to do so (1982:142). This may be because their basic material changes, or because their market changes. By the end of the Late Bronze Age new types (technological and morphological) of vessels were introduced in the Dayr 'Allā region, possibly by newly arriving potters. There is no reason to assume that the old production centres simply disappeared, but now they had to compete with the new potters. In this scenario rapid changes in the production of vessel types are possible, such as are seen in the transition from Late Bronze phase D to E. It may also explain some of the changes that occurred later, like the second fold in the rim of the larger vessels, and the appearance of a new morphological type of jar, suggesting that this influx of new pottery techniques was a gradual process, continuing into the beginning of the Iron Age.

In Late Bronze Age phases E and F the second fold in the rim is seen occasionally, in phase G-H 16 out of a total of 95 rims or one-fifth is folded, in Iron Age phase A and B it is more or less general.

There may have been a time span of 25 or 30 years between the last destruction of the sanctuary and the appearance of the Iron Age occupants, but not much more. The rim of a pot is usually the most vulnerable part. A heavier, and therefore stronger rim would be an important improvement. But only if there were a certain amount of competition would potters go through the extra trouble: a thicker rim takes longer to dry, and there is the extra risk of it cracking during firing because of the difference in thickness. The fact that an extra ridge below the rim on the outside becomes accentuated in certain types (kraters, jars) suggests that it may have been a mark of quality.

Franken has proposed to ascribe the locally produced pottery of Late Bronze phases E and F to two different workshops (Franken 1992:107-108). He distinguished two locally produced wares, A and B.

About two-thirds of the locally produced pottery was ware A. Both centers produced all functional groups, but there are some typological differences: Small bowls from workshop B have an S-shaped profile with a thickened rim (Iron Age type 4g). Large bowls were generally made in workshop A, and the few exceptions have a different profile.

These morphotypological differences support Franken's suggestion of (at least) two different workshops in the Late Bronze Age. As no comparable ware analysis was done for the Early Iron Age, nothing explicit can be said about workshops in that period.

London (in Herr *et al.* 1991:403) has demonstrated the existence around al-'Umayrī of regional production centers for pottery in the Early Bronze and Late Iron Ages. In these centers a limited repertoire was produced, which was traded in the region. London was able to distinguish different workshops by their potter's marks.

If there was regional production in the Dayr 'Allā region in the transitional period, it was less specialized. Only in the case of the cooking pots is there specialization (Vilders 1993).

A General Hypothesis

By the end of the Late Bronze Age pottery production in the Dayr 'Allā region seems to have been regional: several workshops produced pottery for the region. They do not seem to have specialized in certain

types of vessels, but produced the complete repertoire that was needed, except cooking pots, which were produced in a separate workshop. The domestic pottery that was used on Dayr 'Allā was produced in these workshops.

During this period potters from elsewhere entered the region and started competing with the older workshops. The result was a rapid change in the technological and morphological repertoire, which started in phase E, or perhaps already at the end of phase D, and continued into the Early Iron Age.

After Late Bronze phase F a monumental structure was set in the place of the sanctuary, and later replaced by a tower. The pottery repertoire suggests a change to more domestic functions.

This period did not last long, and the site was abandoned for a while, before it was reoccupied.

The new population may have been newcomers to the region. At least they had different storage and eating and drinking habits from the Late Bronze Age population, as the functional pottery repertoire shows. However, just like their predecessors they acquired their pottery from the regional workshops. Because of a continuing process of selection some pottery shapes had by now disappeared, like the biconical jar, which seems to have been replaced by the jar with painted bichrome bands on the neck. Or perhaps it was the people themselves who preferred this type of jar. The second fold of the rim on larger vessels had become ubiquitous, even on cooking pots.

A Historical Reconstruction

In earlier studies (van der Steen 1994, 1995, 1996) it has been suggested that the Dayr 'Allā region at the end of the Late Bronze Age was part of an Egypt-controlled trade network (also Franken 1992:166), which also included, among others, the al-Baq'a valley around 'Ammān, with Saḥāb as regional centre. Egyptian objects were found here, double pithos burials, and a large number of metal objects (Ibrahim 1972, 1974,1987). Seal impressions on collared-rim jars from the 12th century BC show Syrian as well as Egyptian influence (Ibrahim 1987:78).

Pottery shows affinities with the north (Dorneman 1983:31ff.; Hendrickson 1995), as well as with Dayr 'Allā Late Bronze phase E and later (notably S-shaped bowls and bowls type 15; also Franken 1969: 20). This and other archaeological evidence suggests that the al-Baq'a area may have been Egypt's link to the north. The struggle between Egypt and Hatti for hegemony in this region may not have stood in the way of profitable trade relations (see also Singer 1977). At the same time the presence of multiple burial caves in Canaanite tradition (such as at Jabal an-Nuzha, Saḥāb, Khirbat Umm ad-Dananīr caves B3 and A4; see Gonen 1992:6) suggests the presence of Canaanites. McGovern has suggested a symbiotic relationship between the settled population and groups of transhumants who would have migrated through the az-Zarqā' valley to and from the Jordan Valley (McGovern 1986:6). They may have been involved in the trade network. Population density was high (McGovern 1992). At the end of the Late Bronze Age this society collapsed and broke down into a pattern of more dispersed, small settlements. Hübner (1992) sees this collapse as the direct result of the disintegration of the economic structures in the west, as the result of the coming of the Sea Peoples, the retreat of Egypt and the collapse of international trade. McGovern (1986) uses Renfrew's Dark Ages Model (Renfrew 1982:114) to describe the new society that emerged in the al-Baq'a Valley after this disintegration:

- gradual crumbling of the complex society around Saḥāb, and shrinking of the main centre itself;
- a transition to a more egalitarian society;

- dispersal of the population into small settlements in the marginal areas.
  One of these areas was the Dayr 'Allā region, and especially the western part of the az-Zarqā' valley, still largely uninhabited in the Late Bronze Age (see map 2 in van der Steen 1995:154), but visited regularly by the transhumant element of the population, who may even have claimed territorial rights.
- Craftsmen came along with the mixed group of herders and farmers, bringing technologies like pottery production techniques and metalworking to this region. The potters had to compete with the local production centres, and, judging from the rapid changes in pottery repertoire, did so with considerable success.

Somewhere during this process, an earthquake struck the Dayr 'Allā sanctuary. During the rebuilding, a second earthquake struck. The rebuilders may have seen this as a divine curse on the place. Meanwhile the Egyptian superstructure crumbled as a result of international developments. The inhabitants of the site may have tried to hold on to it by building a stronghold, but since their whole world was crumbling around them, they also had to abandon the place. After a while a new population with a different background and different habits settled on the tall. All these people, however, used the same pottery, which was produced by the regional workshops, an amalgamation of the skills of local and immigrant potters.

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