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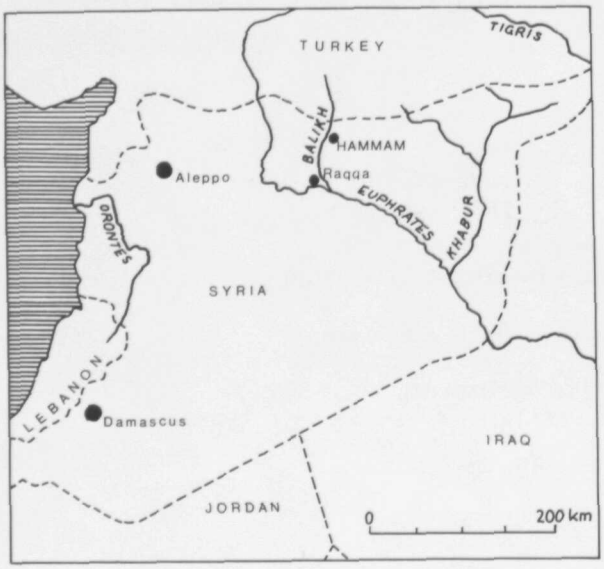
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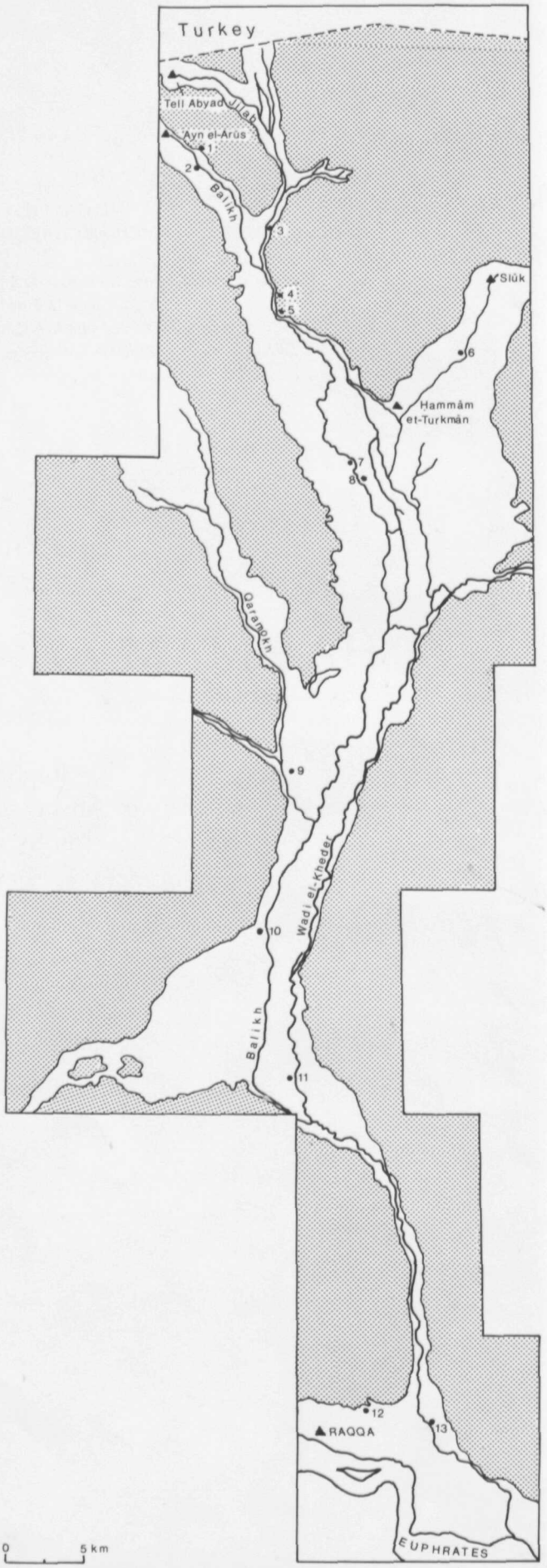
LXIII

HAMMAM ET - TURKMAN I

Report
on the University of Amsterdam's 1981-84 Excavations
in Syria

I





▲ modern settlement
● archaeological site

1. Ḥammâm (ibn Shehab)
2. Jidle
3. Shrey'ân
4. Ṣahlân
5. Aswad
6. Ḥajrân
7. Damishliyya
8. Ḥammâm et-Turkmân
9. Mefêsh
10. Semen
11. Merj Abu Sharib
12. Bi'a
13. Zaidân

N

BALIKH VALLEY,
NORTH SYRIA

Plate 1. Map of Balikh valley with (inset) its location in Syria.

HAMMAM ET - TURKMAN I

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on the University of Amsterdam's 1981-84 Excavations
in Syria

I

edited by

MAURITS N. VAN LOON



NEDERLANDS HISTORISCH-ARCHEOLOGISCH INSTITUUT
TE ISTANBUL
1988

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CHAPTER 7

THE PERIOD IV POTTERY

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INTRODUCTION

In 1981 a series of trenches, to be excavated in a number of steps, was laid out on the east slope of Tell Hammam. In 1982 and 1984 work on this stepped trench was continued. Since the main function of the stepped trench was to quickly gain an insight into stratigraphy and pottery sequence at the site from its earliest days, it was decided to confine the width of these trenches to two metres. It is obvious that in such narrow trenches possible vestiges of architecture may be traced only in a very limited manner. The fragmentary state of the various architectural remains makes it difficult to interpret architectural features, and consequently the artifacts found within them, at their true value. Any functional analysis remains difficult. Despite the limited extent of the trenches and the resulting inevitably low yield in significant architecture, we did achieve our main aim, which was: to set up a stratigraphy and a pottery sequence. Detailed information on stratigraphy and architecture is found in chapter 4.

At present, the Ubaid-related period IV strata at Tell Hammam are deeply buried. Although Tell Hammam was already an impressive mound at the end of period IV, the prehistoric mound is completely covered by an extensive overburden of later remains. The surface of Tell Hammam yielded only very few indications as to the presence of period IV strata. In a stratigraphically sound context, period IV pottery was found in square AK 16. Eleven strata are assigned to period IV (strata 2-12[1]), which comprise an accumulation of about 15 metres of occupational debris. Since virgin soil has not yet been reached, it is obvious that the earliest stratum uncovered at Tell Hammam is in fact not the oldest at the site. An extension backward of the Hammam IV sequence is expected. Besides, the repeated occurrence of out-of-context Halaf sherds within the various period IV strata at Tell Hammam points towards the presence of a Halaf settlement underneath the Hammam IV remains.

The various strata, defined on the basis of observations on stratigraphy and architecture, constitute the basic analytical framework of the present analysis. Each stratum yielded a coherent body of pottery[2], considered to be an independent

[1] "Stratum 1" is reserved for the occupation remains, ca. 1 metre thick, of which the presence below the "stratum 2" level was established by drilling. Strata 13 and 14 yielded too little pottery to allow any statistical analysis.

[2] All sherds which could not be properly assigned to a particular stratum were excluded from analysis.

analytical unit, but acting within a larger framework of pottery development. The manufacture of pottery is not a static phenomenon, but a dynamic procedure which changes through time by a variety of means. This dynamic procedure caused the pottery to take the form it did. The research strategy is based on a diachronic and a synchronic line of approach. The diachronic procedure emphasizes the functioning and development of a system, in this case: the manufacture of pottery, over a span of time. Closely related to the diachronic procedure is the synchronic approach, which provides an insight into the dynamics of pottery manufacture at a single point in time. In agreement with the limited intent of the operations in the stepped trench at Tell Hammam, the diachronic line of research is emphasized here.

Whereas the breakdown of the pottery into strata is based on stratigraphic arguments, a more meaningful division into larger units is made on typological grounds. In this larger division, primarily based on rim typology, and closely supported by the other variables investigated, the eleven strata of Hammam IV are regrouped into four phases, termed A, B, C and D (A being the earliest). The typological assignment of the recovered pottery to phases emphasizes long-term ceramic developments. Phase A consists of strata 2, 3, 4; phase B includes strata 5 and 6; phase C consists of strata 7 and 8; phase D comprises strata 9, 10, 11 and 12.

The analysis of the pottery from the stepped trench is mainly based on sherds. Complete vessels occur in a very limited number in the ceramic assemblages of the various strata (only seven complete vessels were found). Period IV pottery was retrieved exclusively from domestic deposits. All sherds recovered during excavation were processed along lines which are explained in detail in chapter 2. All sherds used in analysis were given a coded numerical description. Nineteen attributes were coded for, whereas the various states which each attribute possesses received their own numerical designation. An "attribute" is defined as an independent variable acting within a specific frame of reference and having two or more states. The "attribute state" describes the specific value of the attribute (Clarke 1978:152ff). Investigations into the chronological position and development of the period IV ceramics at Tell Hammam are based on the delineation of temporal changes in the ceramic attribute states (and combinations of these attribute states). In order to pin down any temporal variability in the pottery, the various attributes and their states will be investigated separately. The following attributes are subjects of discussion: vessel shape, manufacture, temper, firing, surface treatment, exterior, colour, decoration, rim shape and base shape. Of course, most of the attributes and their states used in analysis are liable to subjective interpretation, due to the nominal nature of the attributes. It is very difficult to define the various attributes in such a way that their extent and limits are clearly fixed. This imperfection in definition of the attributes may confuse the persons involved in coding. In the case of the Hammam IV (and Hammam V) pottery this confusion was largely avoided, since all the pottery was coded by only one person. A consistency in coding may therefore be assumed. The

detailed, quantitative analysis of the various attributes and their states is the basic framework of later comparative analysis.

Vessel shape includes the broad division of rim sherds into restricted and unrestricted categories (Shepard 1963). It refers to the complete shape of a vessel. In the case of the Hammam IV pottery three broad categories were defined: bowls, pots and jars. Of importance for the allotment of a piece to one of these categories is the ratio between height (h) and diameter (d) of the vessel. Of course, in the case of sherds this ratio is based on an estimation of height and diameter. Whereas the diameter can be measured by means of a diameter chart, the exact height is difficult to establish.

Table 17. Distribution of vessel shape by stratum (Hammam IV).

Count / Row % / Column % / Total %	stratum 2	3	4	5	6	7	8	9	10	11	12	total
BOWL	150	311	156	87	59	45	276	220	226	53	53	1438
	10.4	21.6	10.8	6.1	4.1	3.1	19.2	15.3	15.7	3.7	3.7	56.9
	70.4	61.1	61.7	65.9	78.7	52.3	56.3	86.3	59.9	75.7	80.3	
	5.9	12.3	6.2	3.4	2.3	1.8	10.9	8.7	8.9	2.1	2.1	
POT	31	125	52	29	9	28	134	22	101	8	12	551
	5.6	22.7	9.4	5.3	1.6	5.1	24.3	4.0	18.3	1.5	2.2	21.8
	14.6	24.6	20.6	22.0	12.0	32.6	27.3	8.6	26.8	11.4	18.2	
	1.2	4.9	2.1	1.1	0.4	1.1	5.3	0.9	4.0	0.3	0.5	
JAR	32	73	45	16	7	13	80	13	50	9	3	341
	9.4	21.4	13.2	4.7	2.1	3.8	23.5	3.8	14.7	2.6	0.9	13.5
	15.0	14.3	17.8	12.1	9.3	15.1	16.3	5.1	13.3	12.9	4.5	
	1.3	2.9	1.8	0.6	0.3	0.5	3.2	0.5	2.0	0.4	0.1	
TOTAL	213	509	253	132	75	86	490	255	377	70	66	2526
	8.4	20.2	10.0	5.2	3.0	3.4	19.4	10.1	14.9	2.8	2.6	100.

Table 18. Distribution of vessel shape by phase (Hammam IV).

%	phase IV A	IV B	IV C	IV D
BOWL	63.3	70.5	55.7	71.9
POT	21.3	18.4	28.1	18.6
JAR	15.4	11.1	16.1	9.8

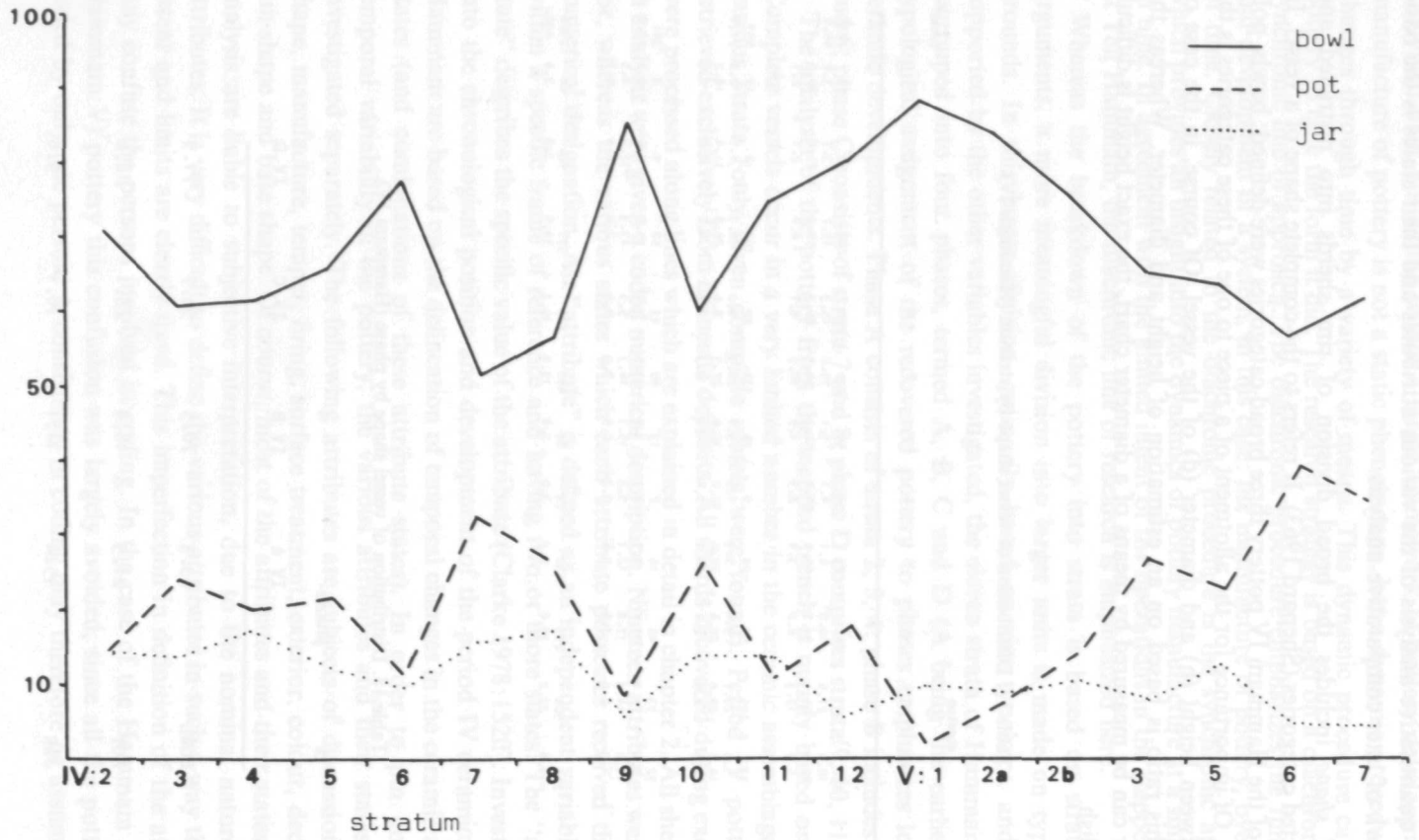


Table 19. Distribution of vessel shape by stratum (Hammam IV-V).

1. bowl: an unrestricted form, with the ratio: h = 1/2 d. Limit of category: h = 3/4 d.

2. pot: a restricted form, usually without a neck and with the ratio: h = d. Limit of category: h = 1 1/2 d.

3. jar: a restricted form, usually with a neck and with the ratio: h = 2 d.

The relative frequency of each shape category is tabulated in tables 17-18 and graphically depicted in table 19. Total number of sherds used in analysis: n = 2526.

Bowls are most common in all strata. Comparison of bowl frequency by phase indicates a strong internal variability. The Hammam IV bowl frequencies range between about 52% (stratum 7) and 86% (stratum 9) of the ceramic sample per phase. Peaks in the distribution of bowls are noted in the strata 2, 6, 9, 11 and 12, whereas particularly strata 7, 8 and 10 are marked by relatively low amounts of bowls.

The observed relative frequencies of pots are almost inversely proportional to those of bowls. An increase or decrease of bowls is accompanied by a reversed development of pot distribution. Jars seem to be only slightly influenced by changes in bowl or pot frequencies. Jars appear in low but rather consistent numbers throughout the Hammam IV sequence.

Generally, the distribution of the various shapes conforms to expected values. The overall differences in relative frequencies of bowls, pots and jars can be explained in terms of functional use and breakage rates (cf. Arnold 1985:144ff.). Vessel shape is related to the intended utility of a vessel. Bowls probably were used as serving vessels or in food production. Pots and small jars were demanded for food production or water carrying, whereas large jars acted as storage vessels. Consequently, the utilitarian factors which affected the shape of a vessel also defined the necessary numbers of that particular shape. Thus, while bowls are needed in large quantities in daily household activities, the presence of few large jars will satisfy the demand for storage capacity. The relative shape densities are also strongly affected by the breakage rate of the various vessels. Techniques of pottery manufacture and the mode and frequency of use underly the longevity of ceramics (Arnold 1985; DeBoer and Lathrap 1979). The movable and frequently used bowls will break faster than the heavy and more stationary storage jars, and considerable differences in relative frequencies between both shapes are expected to appear in an archaeological context. In this view, it should be stressed that the various jar types, which are expected to be found in small numbers, should not be considered as "uncommon" or "abnormal" types. Jars were produced in low quantities, but may be commonly distributed within a settlement or region.

In view of the above-mentioned factors influencing shape frequencies, it was expected to find the largest quantities of bowl fragments in refuse deposits. Surprisingly, the reverse was true. Stratum 8 solely consists of an accumulation of sloping refuse layers and yielded the smallest amount of bowls. On the other hand, stratum

6, which seems to represent a relatively undisturbed house context, yielded large numbers of bowls. A similar trend was noted in the distribution of Hammam V pottery shapes. The Hammam V strata 17 to 20 indicate a succession of debris layers; they yielded low quantities of bowls, whereas stratum 16.1, containing a house inventory burnt in situ, showed a very large amount of bowls. Although highly speculative for the moment, a correlation seems to exist between the frequencies of certain shapes and the open or closed character of the context. The present data suggest that a) if few bowls are found, the context is likely to be mixed and b) people apparently handled bowls with care (which seems self-evident, but may not always be so, e.g. in the case of the fourth-millennium bevelled rim bowls).

Additional features to shape are rare. Spouts do not occur. Handles appear in low quantities in the strata 2 to 8, but are not found in the later part of the Hammam IV sequence (Hammam IV D). Handles are also absent in the next, Hammam V period. Most Hammam IV examples are rounded, pierced loop handles, attached to a jar or pot. In stratum 8 a ledge handle was found.

Manufacture refers to the method of constructing a vessel. A distinction is made in hand-made and wheel-made pottery. All Hammam IV pottery is hand-made. No convincing evidence was found of the use of the fast turning wheel. Many of the rims, however, display more or less parallel finger streaks, suggesting the use of some kind of turning device. Small vessels, particularly hemispherical bowls, probably all were made by pinching. This simple technique involves the squeezing of clay between fingers and thumb or between the fingers of opposite hands (Rye 1981:70). Small bowls or pots can be shaped in the hand, whereas larger forms require the use of some kind of turntable. Other techniques used are drawing and coiling. Drawing is done by opening a lump of clay by forcing the fist into it. By squeezing the clay and simultaneously pulling or stretching it, the vessel is shaped (Rye 1981:72). Coiling refers to the technique of building up a vessel by laying a series of circular rolls of clay (coils) on top of each other (Rye 1981:67). Coiling is particularly used in shaping large pots or jars, which cannot be simply constructed in the hand. Coiling is a primary forming technique and requires further treatment. Usually the coils have been obliterated by subsequent finishing of the vessel. A clear example of vessels shaped by coiling is given by a group of wide bowls found in the next, Hammam V period (chapter 8, nos. 87-89).

Temper is defined as the non-plastic inclusions in the clay of a vessel, added by the potter in order to minimize shrinkage and to facilitate uniform drying by an increase of the porosity of the paste (Shepard 1963:25). Various states of temper were recognized; the main division refers to the vegetable or mineral nature of the inclusions. A list of attribute states and their relative distribution in time is presented in tables 20-21.

Table 20. Distribution of temper by stratum (Hammam IV).

Count / Row % / Column % / Total %	stratum 2	3	4	5	6	7	8	9	10	11	12	total
PLANT	0	1	1	1	1	12	74	11	119	13	16	249
	0	0.4	0.4	0.4	0.4	4.8	29.7	4.4	47.8	5.2	6.4	8.8
	0	0.2	0.3	0.7	1.0	10.2	12.4	10.4	28.3	14.9	22.2	
	0	0.0	0.0	0.0	0.0	0.4	2.6	0.4	4.2	0.5	0.6	
CALCITE	0	0	3	4	1	2	2	2	0	0	1	15
	0	0	20.0	26.7	6.7	13.3	13.3	13.3	0	0	6.7	0.5
	0	0	1.0	2.9	1.0	1.7	0.3	1.9	0	0	1.4	
	0	0	0.1	0.1	0.0	0.1	0.1	0.1	0	0	0.0	
LIME	74	239	117	95	72	55	182	5	42	7	5	893
	8.3	26.8	13.1	10.6	8.1	6.2	20.4	0.6	4.7	0.8	0.6	31.5
	27.0	37.9	40.1	68.3	71.3	46.6	30.4	4.7	10.0	8.0	6.9	
	2.6	8.4	4.1	3.3	2.5	1.9	6.4	0.2	1.5	0.2	0.2	
FINE SAND	157	331	142	30	22	13	51	8	15	0	0	769
	20.4	43.0	18.5	3.9	2.9	1.7	6.6	1.0	2.0	0	0	27.1
	57.3	52.5	48.6	21.6	21.8	11.0	8.5	7.5	3.6	0	0	
	5.5	11.7	5.0	1.1	0.8	0.5	1.8	0.3	0.5	0	0	
PLANT/COARSE SAND	0	0	0	0	0	0	2	0	1	0	0	3
	0	0	0	0	0	0	66.7	0	33.3	0	0	0.1
	0	0	0	0	0	0	0.3	0	0.2	0	0	
	0	0	0	0	0	0	0.1	0	0.0	0	0	
PLANT/CALCITE	0	0	0	1	0	0	0	2	4	0	1	8
	0	0	0	12.5	0	0	0	25.0	50.0	0	12.5	0.3
	0	0	0	0.7	0	0	0	1.9	1.0	0	1.4	
	0	0	0	0.0	0	0	0	0.1	0.1	0	0.0	
PLANT/LIME	0	1	5	2	3	30	226	54	194	66	49	629
	0	0.2	0.8	0.3	0.5	4.8	35.8	8.6	30.8	10.5	7.8	22.2
	0	0.2	1.7	1.4	3.0	25.4	37.8	50.9	46.2	75.9	68.1	
	0	0.0	0.2	0.1	0.1	1.1	7.9	1.9	6.8	2.3	1.7	
PLANT/FINE SAND	0	2	5	1	0	1	33	21	21	0	0	84
	0	2.4	6.0	1.2	0	1.2	39.3	25.0	25.0	0	0	3.0
	0	0.3	1.7	0.7	0	0.8	5.5	19.8	5.0	0	0	
	0	0.1	0.2	0.0	0	0.0	1.2	0.7	0.7	0	0	
NOT VISIBLE	43	57	19	5	2	5	29	3	24	1	0	188
	22.9	30.3	10.1	2.7	1.1	2.7	15.4	1.6	12.8	0.5	0	6.6
	15.7	9.0	6.5	3.6	2.0	4.2	4.8	2.8	5.7	1.1	0	
	1.5	2.0	0.7	0.2	0.1	0.2	1.0	0.1	0.8	0.0	0	
TOTAL	274	631	292	139	101	118	599	106	420	87	72	2839
	9.7	22.2	10.3	4.9	3.6	4.2	21.1	3.7	14.8	3.1	2.5	

The early strata 2-6 (Hammam IV A-IV B) are marked by an extensive use of mineral temper, particularly fine sand and lime. Over 90% of the total sample of investigated pottery in these strata exclusively showed mineral temper. Only a minute fraction (2.2%) of the pottery gave evidence of the use of solely vegetable temper.

Fine sand was most extensively used as a means of temper in stratum 2 (the earliest stratum yet uncovered), where about 57.3% of the pottery sample showed this kind of added inclusions. The following strata 3 and 4 show a slight decrease,

Table 21. Distribution of temper by phase (Hammam IV).

%	phase			
	IV A	IV B	IV C	IV D
PLANT	0.2	0.8	12.0	23.2
CALCITE	0.3	2.1	0.6	0.4
LIME	35.9	69.6	33.1	8.6
FINE SAND	52.6	21.7	8.9	3.4
PLANT/LIME	0.5	2.1	35.6	53.0
PLANT/FINE SAND	0.6	0.4	4.7	6.1
NOT VISIBLE	9.9	2.9	4.7	4.1

but a sharp decline takes place at the beginning of Hammam IV B: in stratum 5 the total amount of fine sand-tempered pottery is more than halved in comparison with the early strata. The use of fine sand temper is stabilised at this level in Hammam IV B, but the trend of diminishing use of fine sand as a means of temper continues with the beginning of Hammam IV C, until it finally disappears in Hammam IV D after stratum 10.

Closely connected to this obvious decrease in fine sand-tempered pottery is the rapid increase of lime-tempered ceramics. This steadily growing use of lime as a means of temper in phases IV A and IV B is inversely proportional to the decrease of fine sand temper. Lime temper reaches its peak in Hammam IV B, where almost 70% of the ceramic sample is lime-tempered. From the beginning of Hammam IV C exclusively lime-tempered pottery sharply decreases. However, in combination with vegetable material lime now becomes the most important state of temper.

Calcite appears in very low quantities throughout the Hammam IV period. Within the prehistoric pottery at Tell Hammam calcite never becomes an important state of temper until Hammam V B, where it occurs in connection with black-burnished cooking ware.

Throughout the Hammam IV sequence a small group of pottery appears which seems to contain no temper at all. This kind of ceramics is particularly common in

Hammam IV A, where it comprises about 10% of the pottery sample. Apparently the composition of the clay used in pottery manufacture at Tell Hammam did not always necessitate the addition of tempering material. Perhaps different sources of clay were in use, but since no petrological-chemical clay analyses have been undertaken yet, it cannot be said if this untempered clay is different in composition from the tempered variety.

The most important development in the use of tempering materials at Tell Hammam is the replacement of mineral temper by vegetable inclusions. Whereas the early phases IV A and IV B are mainly mineral tempered, a rapid change takes place at the beginning of Hammam IV C. Stratum 2, the earliest stratum yet excavated, gave no evidence of any vegetable temper, but from stratum 3 onwards a slight but steady increase is perceptible. However, from stratum 7 onwards the use of vegetable material, both solely and in combination with mineral temper (particularly lime) increases sharply. In Hammam IV C 52.6% of the pottery gives evidence of the use of vegetable material as a means of temper. In the next phase IV D the amount of vegetable tempered pottery has been increased to 83.5% of the ceramic sample. This trend of increasing use of vegetable temper continues into the following Hammam V period. It should be stressed that particularly the combined use of mineral and vegetable inclusions shows a spectacular rise. Solely vegetable tempered pottery also sharply increases in importance, but nevertheless remains a minority within the pottery sample.

Within the Hammam IV ceramics a trend towards diversity in temper materials is visible, which starts as early as Hammam IV A and reaches its peak in Hammam IV C. In phase IV C the pottery sample gives evidence of the presence of eight different states of temper. At the beginning of Hammam IV D this great variability in means of temper goes on, but from stratum 11 onwards a decrease in temper diversity is notable, a trend which continues into Hammam V. So simultaneously with the sharply increasing use of vegetable temper, a trend towards diversity in temper material reaches its climax in Hammam IV C (possibly indicating experiments in tempering).

Firing refers to the heating of pottery to a temperature high enough to cause permanent change of the clay minerals. Alteration of the physical state of the clay minerals by sufficient heating renders pottery hard and durable. The minimum temperatures of heating vary between 500 and 800°C, depending on the type of clay (Rye 1981:96 ff.; Shepard 1963:19ff.).

The various states of firing are described in a very general manner: low, medium, high.

1. low firing was coded for whenever the section of the vessel wall showed a "sandwich" pattern (e.g. orange-black-orange). A clearly visible, usually dark-coloured core is present.

2. medium firing was coded for whenever the section of the vessel wall showed a rather granular, light-coloured composition without a distinct core.

3. high firing was coded for whenever the section of the vessel wall showed a compact, usually greyish composition without traces of a core. This pottery often had a "metallic" sound. Included in this group is also the greenish and often crumbly pottery which indicates overfiring. The relative distribution in time of these three states of firing is presented in tables 22-23.

Table 22. Distribution of firing by stratum (Hammam IV).

Count / Row % / Column % / Total %	stratum 2	3	4	5	6	7	8	9	10	11	12	total
HIGH	30	53	17	6	4	3	7	3	4	3	0	130
	23.1	40.8	13.1	4.6	3.1	2.3	5.4	2.3	3.1	2.3	0	4.6
	10.9	8.4	5.8	4.3	4.0	2.5	1.2	2.8	1.0	3.4	0	
	1.1	1.9	0.6	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0	
MEDIUM	219	520	235	112	88	84	426	70	273	7	21	2055
	10.7	25.3	11.4	5.5	4.3	4.1	20.7	3.4	13.3	0.3	1.0	72.3
	79.9	82.5	80.5	80.6	87.1	71.2	71.1	66.0	64.8	8.0	28.8	
	7.7	18.3	8.3	3.9	3.1	3.0	15.0	2.5	9.6	0.2	0.7	
LOW	24	57	39	21	8	31	166	33	144	78	52	653
	3.7	8.7	6.0	3.2	1.2	4.7	25.4	5.1	22.1	11.9	8.0	23.0
	8.8	9.0	13.4	15.1	7.9	26.3	27.7	31.1	34.2	88.6	71.2	
	0.8	2.0	1.4	0.7	0.3	1.1	5.8	1.2	5.1	2.7	1.8	
TOTAL	274	630	292	139	101	118	599	106	421	88	73	2841
	9.6	22.2	10.3	4.9	3.6	4.2	21.1	3.7	14.8	3.1	2.6	100.0

Table 23. Distribution of firing by phase (Hammam IV).

%	phase IV A	IV B	IV C	IV D
HIGH	8.4	4.2	1.3	1.5
MEDIUM	81.4	83.3	71.1	53.9
LOW	10.0	12.1	27.5	44.6

In general, low-fired pottery was readily recognized by its dark core, but in case of medium and high firing the limits were much more gradual. It should be stressed that the division used is descriptive in nature; it does not indicate the temperature

actually used in firing, but defines, in a broad sense, the composition of the wall section of a vessel. Differences in section composition indicate various stages in firing conditions and, consequently, allow inferences on pottery manufacture (cf. Rye 1981; Shepard 1963; Franken 1974).

The Hammam IV ceramics were virtually all fired in an oxidizing atmosphere. Cross-sections of vessels containing no organic matter generally show uniform colouring. When organic material was present, a grey or black core was often noted, indicating incomplete oxidation (cf. Rye 1981:114-118). In stratum 4 a fragment of a black-burnished hole-mouth pot was found, giving evidence of intentional blackening by carbon deposition in a reducing atmosphere. This technique, however, is extremely rare within the Hammam IV sequence; it is a characteristic ceramic trait in the later part of the next, Hammam V period.

Low-fired pottery, i.e. ceramics showing a dark core, is found in all strata, although in clearly varying relative frequencies. Low firing does not necessarily indicate firing at low temperatures; the vessel involved may very well be fired at a high temperature but only during a short time, which also will produce a dark core (the firing time is then not sufficient to allow complete oxidation). By firing during a short time, a sufficiently hard vessel surface was produced and at the same time large quantities of fuel were saved. Besides, in the case of lime-tempered pottery, the risk of lime decomposition was reduced (Franken 1974:65-77). From stratum 2 onwards the Hammam IV sequence generally shows a slow but steady increase of low-fired ceramics[3]. The lower strata 2 to 6 (Hammam IV A-IV B) are marked by relatively small numbers of low-fired ceramics (ranging between 7.9% and 15.1%), but the later part of the Hammam IV sequence (Hammam IV C-IV D) shows a rapid increase of low-fired pottery (varying between 26.3% in stratum 7 to 88.6% in stratum 11). Particularly the last Hammam IV strata 11 and 12 gave abundant evidence of low-fired ceramics, thus anticipating a common Hammam V trait. This important change in firing conditions is accompanied by alterations in virtually all ceramic attributes coded for.

The most important change in relation to firing is to be noted in tempering materials. Sand-tempered pottery, which prevailed in the lowest Hammam IV strata 2-4 (Hammam IV A), needs firing at high temperatures during a long time, which in turn requires large quantities of fuel and a well-built kiln without draught or leakage (Kalsbeek *apud* Franken 1969:76). Sand-tempered pottery has virtually always been completely oxidized; it rarely shows a dark core. In the course of time, lime-tempered pottery became increasingly important and replaced sand-tempered ware. Lime-tempered pottery needs to be fired at a relatively high temperature, but only

[3] At first sight, stratum 6 does not seem to conform to the general trend of increasing popularity of "low-fired" ceramics, but this can be explained on functional grounds. Stratum 6 is marked by an unusually large amount of fine, thin-walled and painted bowls, all carefully made. In view of this emphasis on a specific group of vessels, the stratum 6 sample seems to distort the overall view of development.

during a short time (in order to avoid lime decomposition and, consequently, complete destruction of the vessel involved). Organic tempering material (e.g. plant, dung) is relatively rare in the early part of the Hammam IV sequence, but its use sharply increases in the late Hammam IV strata 7-12 and finally reaches its maximum in the subsequent Hammam V period (Hammam V A). Vegetable temper materials require firing during a short time only. The plant inclusions act as fuel within the vessel, thus facilitating rapid firing. When compared to lime, plant temper has the advantage of being less sensitive to exposure to high temperatures during a long time (the risk of vessels wasted in production is reduced). Correlated to the increasing use of plant-tempered pottery is the rapid growth of pottery showing a dark core. The Hammam IV sequence indicates a trend towards reduction of firing time, thereby saving fuel and increasing the rate of production. This trend towards cheaper production at a larger scale is continued into the following Hammam V period.

The majority of Hammam IV pottery is medium-fired. Only in the last stage of the Hammam IV sequence (strata 11-12) does medium-fired ware constitute a minority; in these strata low fired pottery dominates. The distribution of medium-fired pottery is inversely proportional to that of low-fired ceramics or, stated in other words, the expansion of low-fired ceramics over the course of time took place at the expense of medium-fired ware. In general, the prevalent position of medium-fired pottery suggests firing under well-controlled conditions. The various types of pottery and particularly the states of temper require different treatments during firing. In this respect, it is interesting to point to the sharp increase of greenish and brittle pottery, indicating overfiring, in the later Hammam IV C-IV D phases. Since such overfired pottery is rare in the earlier phases, it may point to a decline in firing control in the later part of the Hammam IV period.

High-fired pottery is present in low quantities throughout the larger part of the Hammam IV period. It is most common in the lowest Hammam IV strata, but a steady decline is notable until high-fired ceramics finally disappear in the last Hammam IV strata 11-12. High firing is limited to small and thin-walled bowls.

Surface treatment and exterior refers to the final touches applied to the outside of a vessel by the potter before firing (Hole et al. 1969:110). While coding the sherds in the field, a distinction was made between "surface treatment" and "exterior", since the states of "exterior" (slip, wash, none) may appear in combination with one of the states of "surface treatment". The two were recorded separately in order to stimulate detailed investigation. Although "surface treatment" and "exterior" are closely connected, and although "exterior" may be considered as a part of "surface treatment", the original distinction is maintained in the present analysis.

Several states of both surface treatment and exterior may need explanation (cf. Shepard 1963; Hole et al. 1969):

slip: a coat of fine, well-cleaned clay applied to the surface of a vessel.

wash: a very thin watery slip; probably the effect of wet-smoothing.

wet-smoothing: the wiping of the surface of a vessel with wet hands or a piece of fabric before firing.

scraping: in order to make the vessel wall thinner and more even, the vessel wall is scraped by means of, e.g. a piece of flint.

burnish: the achievement of a lustrous vessel surface by rubbing the leather-hard vessel with an implement (which will close the surface pores of the clay). Several techniques of burnishing were recognized: overall burnishing (burnish on complete outer and/or inner surface of a vessel), ring burnishing (burnish in more or less horizontal bands), spiral burnish (burnish in a continuous spiral direction), other burnish.

The various states of surface treatment and their frequency are shown in tables 24-25, whereas the distribution of exterior is presented in table 26.

Table 24. Distribution of surface treatment by stratum (Hammam IV).

Count / Row % / Column % / Total %	stratum 2	3	4	5	6	7	8	9	10	11	12	total
SCRAPED	20	47	25	8	5	14	100	23	107	34	22	405
	5.0	11.6	6.2	2.0	1.2	3.5	24.7	5.7	26.4	8.4	5.4	14.2
	7.3	7.4	8.6	5.8	5.0	11.9	16.7	21.7	25.4	38.6	30.1	
	0.7	1.7	0.9	0.3	0.1	0.5	3.5	0.8	3.8	1.2	0.8	
SMOOTHED	253	581	266	130	95	99	493	81	312	52	49	2411
	10.5	24.1	11.0	5.4	3.9	4.1	20.4	3.4	12.9	2.2	2.0	84.9
	92.7	92.1	91.1	93.5	94.1	83.9	82.3	76.4	74.1	59.1	67.1	
	8.9	20.5	9.4	4.6	3.3	3.5	17.4	2.9	11.0	1.8	1.7	
BURNISHED	0	3	1	1	1	5	6	2	2	2	2	25
	0	12.0	4.0	4.0	4.0	20.0	24.0	8.0	8.0	8.0	8.0	0.9
	0	0.5	0.3	0.7	1.0	4.2	1.0	1.8	0.5	2.3	2.7	
	0	0.1	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1	
TOTAL	273	631	292	139	101	118	599	106	421	88	73	2841
	9.6	22.2	10.3	4.9	3.6	4.2	21.1	3.7	14.8	3.1	2.6	100

Some interesting trends in the development of surface treatment may be noted. Obvious indications are present within the Hammam IV pottery sample towards a two-fold chronological division in surface treatment:

— early phases IV A-IV B (strata 2-6): mainly smoothed pottery

— late phases IV C-IV D (strata 7-12): rapid increase of scraped vessels; decrease of smoothed pottery

Although the majority of pottery throughout the Hammam IV period remains smoothed, a steady decrease in smoothed ceramics is visible from the beginning of

Table 25. Distribution of surface treatment by phase (Hammam IV).

%	phase			
	IV A	IV B	IV C	IV D
SCRAPED	7.7	5.0	15.9	27.0
SMOOTHED	92.0	93.8	82.6	71.8
BURNISHED	0.3	0.8	1.5	1.2

Table 26. Distribution of exterior by stratum (Hammam IV).

Count / Row % / Column % / Total %	stratum											total
	2	3	4	5	6	7	8	9	10	11	12	
NONE	225	492	220	103	73	89	509	94	372	-	-	2177
	10.3	22.6	10.1	4.7	3.4	4.1	23.4	4.3	17.1	-	-	81.3
	82.1	78.1	75.3	74.1	72.3	75.4	85.3	88.7	88.2	-	-	
	8.4	18.4	8.2	3.8	2.7	3.3	19.0	3.5	13.9	-	-	
WASH	48	136	71	34	25	28	81	12	48	-	-	483
	9.9	28.2	14.7	7.0	5.2	5.8	16.8	2.5	9.9	-	-	18.0
	17.5	21.6	24.3	24.5	24.8	23.7	13.6	11.3	11.4	-	-	
	1.8	5.1	2.7	1.3	0.9	1.0	3.0	0.4	1.8	-	-	
SLIP	1	2	1	2	3	1	7	0	2	-	-	19
	5.3	10.5	5.3	10.5	15.8	5.3	36.8	0	10.5	-	-	0.7
	0.4	0.3	1.4	1.4	3.0	0.8	1.2	0	0.5	-	-	
	0.0	0.1	0.0	0.1	0.1	0.0	0.3	0	0.1			
TOTAL	274	630	292	139	101	118	597	106	422	-	-	2679
	10.2	23.5	10.9	5.2	3.8	4.4	22.3	4.0	15.8	-	-	100

phase IV C onwards. Simultaneously the amount of scraped pottery is increasing in the later strata 7-12. Scraping is indicated by sharp striations on the vessels' inner and outer surface, probably due to the use of a flint implement. It should be stressed that scraping in the present analysis refers to application of this state of surface treatment on the complete vessel (i.e. from rim to bottom). While coding the sherds in the field, it was noticed that many of the larger diagnostic pottery fragments gave evidence of scraping only on the vessels' lower part. In many instances, the vessel wall showed a carination; the part below this carination was scraped, the part above the carination was smoothed. Thus, the pottery sample used in analysis may be biased, since emphasis was given to rim sherds, which usually comprise only a small

part of the upper vessel wall. Whenever the upper vessel wall showed sharp striations on its surface, the application of scraping on the whole vessel was assumed.

Burnishing is a rather unimportant technique of surface treatment throughout the Hammam IV period. Although present in all strata except stratum 2, its relative frequency is very low. An overall burnish is most frequently applied; other types of burnish are extremely rare.

Exterior refers to the application of a wash or slip, or none of these, to a vessel. Table 26 clearly indicates that the majority of the Hammam IV pottery shows no treatment at all. A clear slip occurs sporadically; in a few strata of Hammam IV only does it surpass one percent of the pottery sample. In contrast to the low frequency of slip, a wash appears in rather large quantities within the Hammam IV sequence. After a steady increase in the appearance of a wash in the strata 2-6 (from 17.5% in stratum 2 to 24.8% in stratum 6), a slight decline is notable in stratum 7 (23.7%), followed by a sharp decrease in stratum 8 (13.6%). This trend of diminishing use of a wash continues in the later strata and into the Hammam V period.

Colour refers to the surface colour of a sherd or vessel. The range of colour of the Hammam IV pottery is limited to nine categories: cream, buff, orange, red, black, grey, green, white and brown. In the field a standard collection of sherds was used, which was assumed to comprise the main variations in colour. The range of colour of this standard collection was broadly defined by derivation from the Munsell Soil Color Charts (see chapter 2). By comparing a sherd to this standard collection, the state of colour was established in a general manner, based on the most obvious trend in colour visible on the sherd surface. The relative distribution in time of the nine colours distinguished is presented in tables 27-28.

Since colour, even on the same vessel, can vary considerably, due to various circumstances in the process of manufacture and subsequent preservation (Rye 1981:119), any interpretation of colour should be used with caution. The Hammam IV pottery allows only some broad inferences.

The majority of the pottery has either a buff or cream surface. These most widely distributed colour categories together comprise over 70% of the total ceramic sample. Although their relative importance is subject to change, both categories are rather uniformly distributed in time. A slight decrease in buff-coloured pottery may be noted in phase IV D (particularly strata 11-12).

The most important state of colour after cream and buff is orange, which includes about 20% of the total ceramic sample. From stratum 2 onwards a slight but steady increase in orange-coloured pottery is to be noted. In stratum 2 only 10.9% of the pottery had an orange colour. The next strata showed an increase up to 23% in stratum 5. After a decline in stratum 6 to 9.9%, an increase is once more visible

Table 27. Distribution of colour by stratum (Hammam IV).

Count / Row % / Column % / Total %	stratum 2	3	4	5	6	7	8	9	10	11	12	total
CREAM	111	199	82	66	35	43	144	32	114	31	24	881
	12.6	22.9	9.3	7.5	4.0	4.9	16.3	3.6	12.9	3.5	2.7	31.0
	40.5	31.5	28.1	47.5	34.7	36.4	24.0	30.2	27.1	35.2	32.9	
	3.9	7.0	2.9	2.3	1.2	1.5	5.1	1.1	4.0	1.1	0.8	
BUFF	96	260	143	38	53	51	278	45	172	22	20	1178
	8.1	22.1	12.1	3.2	4.5	4.3	23.6	3.8	14.6	1.9	1.7	41.4
	35.0	41.2	49.0	27.3	52.5	43.2	46.3	42.5	40.9	25.0	27.4	
	3.4	9.1	5.0	1.3	1.9	1.8	9.8	1.6	6.0	0.8	0.7	
ORANGE	30	118	53	32	10	15	129	19	115	30	24	575
	5.2	20.5	9.2	5.6	1.7	2.6	22.4	3.3	20.0	5.2	4.2	20.2
	10.9	18.7	18.2	23.0	9.9	12.7	21.5	17.9	27.3	34.1	32.9	
	1.1	4.2	1.9	1.1	0.4	0.5	4.5	0.7	4.0	1.1	0.8	
RED	7	6	1	1	0	1	0	0	2	0	0	18
	38.9	33.3	5.6	5.6	0	5.6	0	0	11.1	0	0	0.6
	2.6	1.0	0.3	0.7	0	0.8	0	0	0.5	0	0	
	0.2	0.2	0.0	0.0	0	0.0	0	0	0.1	0	0	
BLACK	0	1	1	0	0	0	12	2	4	0	1	21
	0	4.8	4.8	0	0	0	57.1	9.5	19.0	0	4.8	0.7
	0	0.2	0.3	0	0	0	2.0	1.9	1.0	0	1.4	
	0	0.0	0.0	0	0	0	0.4	0.1	0.1	0	0.0	
GRAY	5	0	1	0	1	1	13	1	9	2	0	33
	15.2	0	3.0	0	3.0	3.0	39.4	3.0	27.3	6.1	0	1.2
	1.8	0	0.3	0	1.0	0.8	2.2	0.9	2.1	2.3	0	
	0.2	0	0.0	0	0.0	0.0	0.5	0.0	0.3	0.1	0	
GREEN	16	23	7	1	1	4	20	5	3	0	3	83
	19.3	27.7	8.4	1.2	1.2	4.8	24.1	6.0	3.6	0	3.6	2.9
	5.8	3.6	2.4	0.7	1.0	3.4	3.3	4.7	0.7	0	4.1	
	0.6	0.8	0.2	0.0	0.0	0.1	0.7	0.2	0.1	0	0.1	
WHITE	0	0	0	0	0	0	0	0	1	3	1	5
	0	0	0	0	0	0	0	0	20.0	60.0	20.0	0.2
	0	0	0	0	0	0	0	0	0.2	3.4	1.4	
	0	0	0	0	0	0	0	0	0.0	0.1	0.0	
BROWN	9	24	4	1	1	3	4	2	1	0	0	49
	18.4	49.0	8.2	2.0	2.0	6.1	8.2	4.1	2.0	0	0	1.7
	3.3	3.8	1.4	0.7	1.0	2.5	0.7	1.9	0.2	0	0	
	0.3	0.8	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0	0	
TOTAL	274	631	292	139	101	118	600	106	421	88	73	2843
	9.6	22.2	10.3	4.9	3.6	4.2	21.1	3.7	14.8	3.1	2.6	100.0

from stratum 7 onwards. Particularly the strata 11-12 show large quantities of orange-coloured pottery (respectively 34.1% and 32.9%). This obvious increase in importance of orange-coloured pottery continues into the following Hammam V period (over 50% of the Hammam V pottery showed an orange surface colour). The rise of orange-coloured pottery during phases IV C and IV D to a peak in Hammam V can be correlated to the growing percentage of plant-tempered and/or low-fired ware, which is characterised by an orange surface colour.

The other states of colour (red, black, gray, green, white and brown) are present in

Table 28. Distribution of colour by phase (Hammam IV).

%	phase IV A	IV B	IV C	IV D
CREAM	24.4	42.1	26.0	29.2
BUFF	41.7	37.9	45.8	37.6
ORANGE	16.8	17.5	20.1	27.6
GREEN	3.8	0.8	3.3	1.6
BROWN	3.1	0.8	1.0	0.4

Table 29. Distribution of greenish and greenish brittle pottery by phase (Hammam IV).

Count / Row % / Column % / Total %	phase IV A	IV B	IV C	IV D	Total
GREENISH	42	2	9	4	57
	73.7	3.5	15.8	7.0	68.4
	91.3	100.0	37.5	36.4	
	42.8	2.4	10.8	4.8	
GREENISH-BRITTLE	4	0	15	7	26
	15.4	0	57.7	26.9	31.3
	8.7	0	62.5	63.6	
	4.8	0	18.1	8.4	
TOTAL	46	2	24	11	83
	55.4	2.4	28.9	13.3	100.0

very low quantities. Greenish pottery occurs throughout the Hammam IV sequence. Interesting to note is that 31.3% of the total number of greenish sherds recovered in excavation was rather soft and brittle in texture. The majority (84.6%) of these brittle sherds was found in the later phases IV C-IV D. Only a minute fraction of the

greenish pottery recovered in the early phases IV A-IV B gave evidence of a soft and brittle texture (cf. table 29). Brittleness is an effect of firing a vessel to the point of incipient vitrification (Shepard 1963:92) and may be considered a negative result of overfiring (indicating disintegration). The large amount of brittle ceramics in the later Hammam IV C-IV D phases, compared to the very low percentage of this overfired pottery in the early phases IV A-IV B, suggests a decline in firing control in the later stages of the Hammam IV sequence.

Decoration (pls. 68-71, 75-85, 87-91) refers to the use of paint, incision or application of clay (either separately or in combination) on the outer and/or inner surface of a vessel. The distribution in time of the various states of decoration on rim sherds is shown in tables 30-33[4].

Table 30. Distribution of painted and unpainted rim sherds by stratum (Hammam IV).

Count / Row % / Column % / Total %	stratum 2	3	4	5	6	7	8	9	10	11	12	total
UNPAINTED	160	422	226	120	61	75	471	94	379	81	67	2156
	7.4	19.6	10.5	5.6	2.8	3.5	21.8	4.4	17.6	3.8	3.1	89.6
	74.4	82.4	89.3	91.2	80.3	85.2	95.5	98.9	97.2	98.8	97.1	
	6.7	17.5	9.4	5.0	2.5	3.1	19.6	3.9	15.8	3.4	2.8	
PAINTED	55	90	27	13	15	13	22	1	11	1	2	250
	22.0	36.0	10.8	5.2	6.0	5.2	8.8	0.4	4.4	0.4	0.8	10.4
	25.6	17.6	10.7	9.8	19.7	14.8	4.5	1.1	2.8	1.2	2.9	
	2.3	3.7	1.1	0.5	0.6	0.5	0.9	0.0	0.5	0.0	0.1	
TOTAL	215	512	253	133	76	88	493	95	390	82	69	2406
	8.9	21.3	10.5	5.5	3.2	3.7	20.5	3.9	16.2	3.4	2.9	100.0

Table 31. Distribution of painted and unpainted rim sherds by phase (Hammam IV).

%	phase IV A	IV B	IV C	IV D
UNPAINTED	82.4	86.6	94.0	97.6
PAINTED	17.6	13.4	6.0	2.4

[4] The actual amount of painted pottery fragments recovered during excavation is much larger than shown in table 30. Unfortunately no counts of the total amount of excavated pottery fragments (both decorated and undecorated) are available and consequently the overall ratio between decorated and undecorated sherds is unknown. In order to avoid the use of a biased sample, all decorated body sherds are excluded from calculating relative frequencies. For various reasons, calculation of paint distribution has been based upon a smaller sample of rim sherds than generally used in this study. The overall distribution of painting, however, is not affected by this difference in sample size.

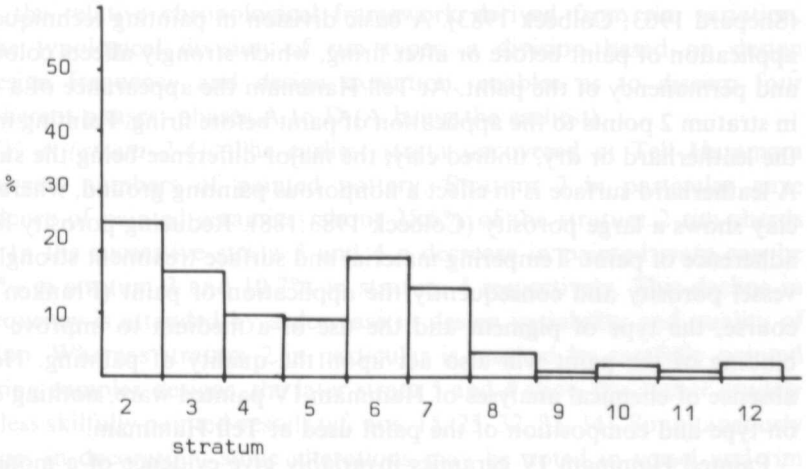


Table 32. Distribution of painted rim sherds by stratum (Hammam IV).

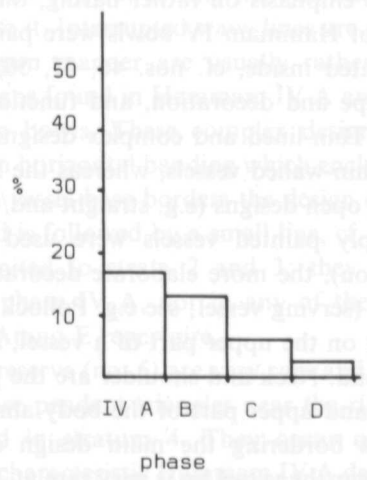


Table 33. Distribution of painted rim sherds by phase (Hammam IV).

The majority of the pottery in all strata is undecorated. Only a small part of the sample is painted and incision is hardly used as a technique of decoration in the Hammam IV period (0.1% of the total ceramic sample showed incision). Incised pottery appeared solely in the later stages of the Hammam IV sequence (strata 8-12).

Painting may be executed at several stages in the process of pottery manufacture

(Shepard 1963; Colbeck 1983). A basic division in painting techniques refers to the application of paint before or after firing, which strongly affects colour, consistency and permanency of the paint. At Tell Hammam the appearance of a painted waster in stratum 2 points to the application of paint before firing. Painting may be done on the leatherhard or dry, unfired clay, the major difference being the surface porosity. A leatherhard surface is in effect a nonporous painting ground, whereas dry, unfired clay shows a large porosity (Colbeck 1983:188). Reducing porosity hampers strong adherence of paint. Tempering material and surface treatment strongly influence the vessel porosity and consequently the application of paint (Franken 1969:173). Of course, the type of pigment and the use of a medium to improve spreading and binding of the paint will also act upon the quality of painting. However, in the absence of chemical analyses of Hammam IV painted ware, nothing can yet be said on type and composition of the paint used at Tell Hammam.

Painted Hammam IV ceramics invariably give evidence of a monochrome, matt paint, ranging in colour from red to black, brown being the most common. Generally, paint is thinly applied. In many instances the colour has faded or failed to adhere firmly to the vessel wall (nonpenetrating paint).

In general, painting seems to be limited to bowls. Only few pots or jars showed painted decoration. Interesting is the emphasis on rather flaring, thin-walled plain rim bowls; none of the other types of Hammam IV bowls were painted (except a special group of wide vessels decorated inside, cf. nos. 46, 47, 50). Obviously a correlation exists between vessel shape and decoration, and functional variability should be taken into consideration. Thin-lined and complex designs are generally limited to the smoothed and small, thin-walled vessels, whereas the large and wide bowls, often scraped, showed simple, open designs (e.g. straight and/or wavy lines). Whereas the undecorated and simply painted vessels were used in household activities (storage and food production), the more elaborate decorated bowls may have had a representational function (serving vessel; see e.g. Pollock 1983).

Painted decoration appears mainly on the upper part of a vessel, although some painted base fragments were also found. Neck and shoulder are the principal areas of complex decoration, whereas rim and upper part of the body almost invariably give evidence of one or more lines bordering the main design areas. Interior decoration other than a small band near the vessel lip is very rare at Tell Hammam. A few sherds decorated inside were found in Hammam IV A, where interior decoration seems to be limited to a particular shape of wide bowls (nos. 46, 47, 50).

The Hammam IV design repertoire is almost completely limited to geometric or nonrepresentational designs. Emphasis is on horizontal banding by means of straight or wavy lines, which may border more complex design elements. Only few designs may be viewed as representational, such as the bird design (no. 100). Within the Hammam IV ceramic sample, 73 different design entities were distinguished, the majority of which were represented by only one or two examples. Design distribu-

tion confirms the relative chronological framework derived from rim seriation. Parallel to the typological division of rim types, a division based on design variability, design frequency and design execution, enables us to discern four stylistically coherent phases: phases A to D (A being the earliest).

Hammam IV A (strata 2-4). The earliest strata uncovered at Tell Hammam yielded the largest numbers of painted pottery. Stratum 2 in particular gave abundant evidence of painted ceramics: about 25.6% of the stratum 2 rim sherds were painted. In the successive strata 3 and 4 a decrease in painted ware can be noted to 17.6% in stratum 3 and 10.7% in stratum 4 respectively. This decline in decoration frequency is attended by a decrease in design variability and quality of design execution. Whereas stratum 2 in particular is marked by carefully painted pottery rendering complex designs, the later strata 3 and 4 show few rather crudely and definitely less skilfully painted vessels (cf. nos. 15, 23, 32, 33, 34). Simultaneously to these changes in decoration, some alterations may be noted in vessel and rim shape distribution, e.g. the disappearance of bow rim jars and bell-shaped bowls in stratum 4.

Bands of straight and/or wavy lines are most often used in Hammam IV A decoration (nos. 27-40). In some cases the vessel was only decorated with a small line near the rim (no. 41), but usually this rim line is accompanied by at least one wavy line attached to it. Interrupted wavy lines are rare (no. 39). Vessels decorated in this simple and open manner are usually rather coarsely finished bowls. The more elaborate designs found in Hammam IV A are limited to the small, thin-walled and elegant flaring bowls. These complex designs cover the larger part of a vessel. Emphasis is on horizontal banding which encloses motifs in zones. Very often a wide band near the vessel base borders the design configuration (although in some cases this wide band is followed by a small line, cf. no. 21). Ladders and eye motifs (nos. 1, 43) are limited to strata 2 and 3; they were not found in the last stratum belonging to phase IV A, nor in any of the following strata. Close parallels are found in the Amuq E repertoire.

Designs in reserve (no. 5) are very rare and limited in distribution to strata 2 and 3. Also rare are pendent triangles near the rim (no. 44), which during phase IV A only appeared in stratum 4. They occur occasionally in later strata. A rather common and characteristic Hammam IV A design is a band of vertical lines near the rim (nos. 20-26).

Some designs, e.g. nos. 5, 7, 9, 11, 12, 24, 103, 105, closely resemble Halaf motifs, but their overall configuration and execution are definitely Ubaid-related. At Tell Hammam true Halaf pottery was found in limited numbers both on the surface and, clearly out of context, in the various trenches, which probably points to the presence of a Halaf settlement somewhere at our site. The Halaf-like decorated pottery found in the Hammam IV A ceramic sample may indicate a transitional stage between Halaf and Ubaid-related spheres of influence, but at present no such transition can

be proved with certainty. Except in some aspects of decoration, the Hammam IV A pottery is completely different from the known Halaf assemblages.

The use of the multiple brush technique in Hammam IV A is indicated by no. 105, a large jar fragment, busily painted with zigzags enclosed by solid triangles.

Hammam IV B (strata 5 - 6). The decline in decoration frequency per stratum observed in Hammam IV A continues into Hammam IV B. In stratum 5 only 9.8% of the total number of recovered rim sherds is painted. In the following stratum 6, however, a rather sharp increase in painted ware to 19.7% is notable. It should be stressed that this "revival" of painting in stratum 6 is accompanied by important architectural developments. Whereas stratum 5 is marked by few poorly preserved mud brick walls, possibly indicating an open area or courtyard, the following stratum 6 yielded rather extensive domestic architecture.

Bowls are still the most common vessels used for painting. The Hammam IV B decoration differs in many aspects from the preceding Hammam IV A design configuration. In contrast with the close-knit and intricate Hammam IV A design patterns, the Hammam IV B painted ware shows a bolder, more open and sweeping style of painting. Brush strokes are usually broad and uneven in width. In many instances the Hammam IV B painted ware gives the impression of rather carelessly applied decoration. The decline in design execution observed in the later part of Hammam IV A is sustained in Hammam IV B (cf. nos. 132-133).

The majority of Hammam IV A designs are not found any more in Hammam IV B. Early motifs still in use are mainly simple, open designs like straight and wavy or pendent lines (nos. 132-136). Interior decoration other than a simple line at the vessel lip is very rare. Designs in reserve are absent. Some new designs appear in Hammam IV B, such as solid pendent semi-circles (nos. 130, 131, 137) and broad pendent zigzags (nos. 128, 130. The last design is one of the few Hammam IV B motifs which covers the larger part of a vessel. Also new is the appearance of vessels with a solidly painted exterior (no. 160). Vessels of which the exterior is completely or for the larger part covered with paint are characteristic of the following Hammam IV C ceramic assemblage.

Hammam IV C (strata 7-8). The beginning of Hammam IV C is marked by a relatively high proportion of painted ware and may be viewed as the continuation of the revival of painting observed in the previous stratum 6. In stratum 7 about 14.8% of the total number of recovered rim sherds showed painting. In the following stratum 8, however, this amount of painted pottery is sharply reduced to 4.5%. From stratum 8 onwards painting, and consequently decoration as a whole, appears in very low numbers; it becomes a rather unimportant feature in late Ḥammam IV ceramics.

Some characteristic Hammam IV B traits are found in Hammam IV C painted ware. Vessels decorated in an open and sweeping manner occur frequently (nos. 165-

168). Decoration on these vessels mainly shows a wavy line enclosed by straight lines. Area of decoration is the upper part of the vessel. Pendent semi-circles, which appeared first in Hammam IV B, are also present in Hammam IV C (no. 178). In many aspects, however, the Hammam IV C pottery is different from its predecessors. Decoration changes are accompanied by important alterations in vessel shape and vessel manufacturing. Generally, vessels become large, showing wide diameters and thick walls. The emphasis in Hammam IV C decoration is on widely executed designs, consisting of broad lines and covering the larger part of a vessel. Ultimately this trend leads to the solid painting of the vessel interior (nos. 173, 174). Whereas Hammam IV B is marked by open design structures, one may notice in Hammam IV C decoration a return to the early Hammam IV A practice of covering the larger part of a vessel with paint. However, in contrast with the close-style patterned Hammam IV A decoration, the present Hammam IV C designs resemble the more sweepingly executed Hammam IV B motifs. In comparison with the Hammam IV B painted ware, the Hammam IV C pottery suggests a more carefully executed painting.

Interesting to note is the rather large variety in designs found in stratum 8. Pendent triangles or diamonds enclosed by horizontal lines appear (nos. 229, 238-240), sometimes surrounded by dots (no. 231). New are the rows of dots indicated by no. 232 and the circle surrounded by dots shown by no. 230. Decoration in panels is indicated by nos. 224, 230 and 234. Maltese crosses are present, but are executed in a totally different manner from those on the early examples found in Hammam IV A (compare nos. 4, 6 and no. 164). The paddle-like design shown by no. 233 resembles the dot-tipped star found on a bowl in Hammam IV A (no. 46)[5].

Hammam IV D (strata 9-12). Hammam IV D is marked by a very low amount of painted pottery. Only 2.4% of the rim sherds assigned to Hammam IV D showed traces of painting. The very low number of painted Hammam IV D pottery precludes any detailed investigation. Decoration closely resembles the Hammam IV C designs. Nos. 246, 247 show some vessels which are almost identical to vessels found in the previous Hammam IV C strata (cf. nos. 169-171). Other designs too, e.g. the open and solid triangles (nos. 245, 249, 256) and the dotted motif (no. 250)

[5] Unfortunately the stratum 8 pottery all comes from refuse deposits. Architectural vestiges were found only in the extreme west of trench AK 16 and none of the recovered pottery fragments could be definitely assigned to any of these features. In view of the possibly mixed nature of stratum 8 deposits, one should be careful when using its ceramics for chronological aims. In some aspects the stratum 8 pottery resembles the early Hammam IV A ceramics, e.g. in the frequent use of various horizontal lines bordering zones of design. However, no sherds were found in stratum 8 which could be definitely assigned to Hammam IV A. The overall composition of the stratum 8 ceramic assemblage shows some independent traits not found in other strata and does not indicate the mixing of pottery from several phases or strata. Therefore we consider the stratum 8 ceramics, despite the obvious deficiency in sound stratigraphic-spatial context, as reliable indicators of temporal change.

resemble earlier Hammam IV C traits. A design not found before is shown by no. 244: wide bands covering the larger part of a closed bowl. But in this case as well, the emphasis on broad bands suggests a close relationship to the Hammam IV C style of painting. Absent in Hammam IV D are the more sweepingly executed designs characteristic of the previous phase (cf. nos. 189-191, 198-200).

Rim and base shape (pls. 68-96)

Hammam IV pottery typology is mainly based on rim and base shape. Rim shape in particular is liable to variability. The various rim and base sherds found during excavation have been ordered according to similarity in profile. Generally a particular rim shape is associated with a particular vessel shape (i.e. bowl, pot, jar) and therefore vessel form is included in the typology. The combination of both rim shape and vessel shape defines a "type". Table 35 lists, for each Hammam IV type, the numbers on pls. 68-96 that illustrate this type.

When coding the sherds in the field, we generally had few difficulties in assigning a rim shape to a specific vessel shape. However, a subdivision of some of the types thus derived was difficult due to the often minute size of pottery fragments recovered in excavation. This prevented any reliable quantitative analysis based on counts of well-defined types. This explains why some common types like "plain rim bowls", which no doubt show great internal variability, are only minimally subdivided in the present analysis.

In order to obtain an insight into temporal development in Hammam IV ceramics, the pottery was seriated by use of the Wilkinson AXIS method (Wilkinson 1974; Marquardt 1978). An incidence matrix was compiled, based on presence/absence data of pottery types. The present seriation assumes 1) a true chronological order in the stratigraphically defined strata and 2) a true chronological order in the pottery types. Originally all pottery types were taken into account (table 34), but in order to emphasize specific chronological traits, the most common types (i.e. those types present in all or virtually all strata) were next eliminated from seriation (table 35). By referring to this incidence matrix, it was decided to divide the Hammam IV ceramic sample into four phases, termed A, B, C, and D (A being the earliest). However, it should be stressed that Hammam IV pottery shows an internal development along gradual lines. No major breaks appear in the Hammam IV deposits, either in stratigraphy or ceramics, and the various phases are closely connected.

A. Rim shape

Hammam IV A (strata 2-4). Hammam IV A comprises the pottery found in strata 2, 3 and 4, the earliest strata uncovered at Tell Hammam. Hammam IV A is marked

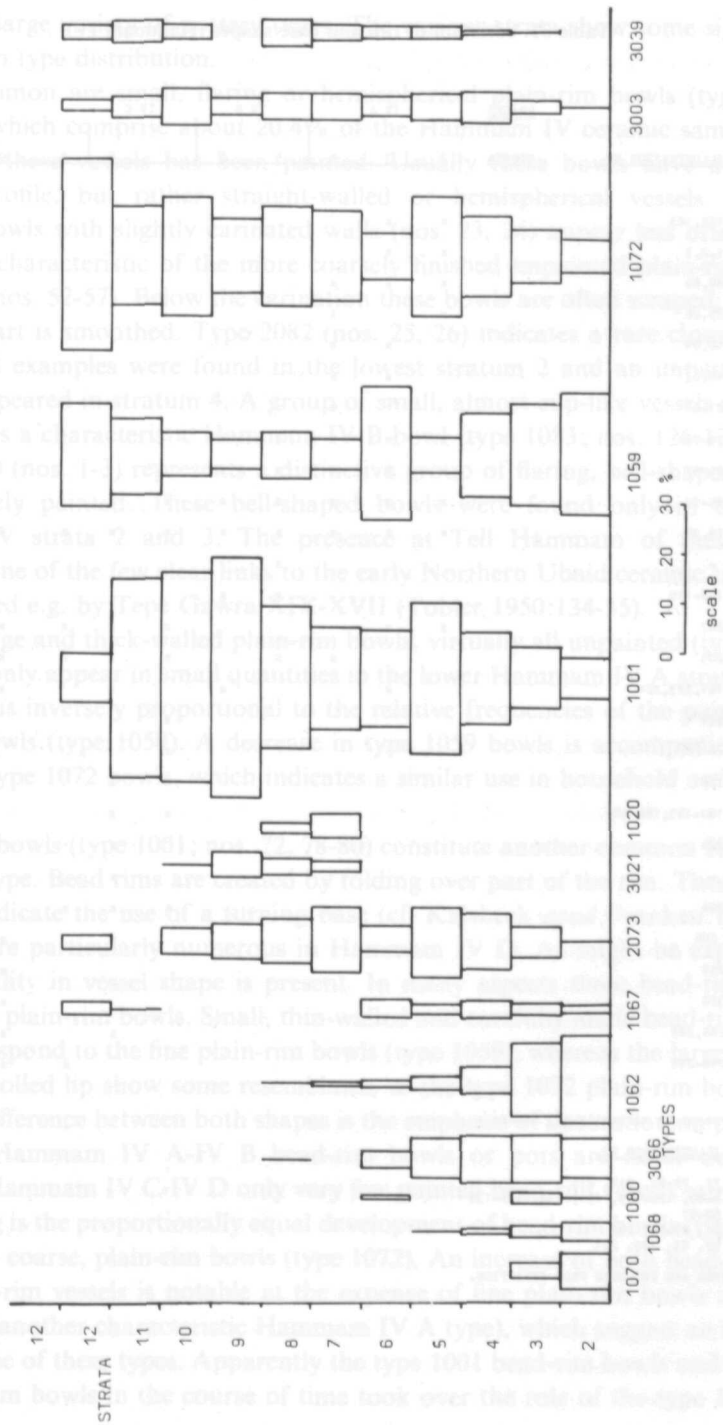


Table 34. Relative frequencies of major Hammam IV pottery types.

Table 35. Seriation of rim and base shapes (Hammam IV).

		PHASES	IV A			IV B		IV C			IV D		
TYPE	ILLUSTRATION NO.	STRATA	2	3	4	5	6	7	8	9	10	11	12
3071	102,103		x	x									
1070	1,2,3		x	x									
3068	88,89		x	x	x								
2082	25,26		x		x								
3075	90,94			x	x								
1080	46,51			x	x								
1084	61-64				x								
2001	76-78		x	x	x	x	x						
3066	85-87		x	x	x	x	x						
1062	65-70		x	x	x	x	x	x	x				
2073	74,75		x	x	x	x	x	x	x	x	x		
2065	-					x							
1083	108-110					x	x						
3061	202		x	x				x	x	x	x		
3021	205				x	x		x	x	x	x		
4060	161,223,224			x			x		x		x		
2077	221							x					
2069	-							x					
2074	166							x	x				
1020	180-183,186-189							x	x				
3078	201								x				
1079	-								x				
3023	204							x	x	x		x	
2063	206								x		x		
1015	259										x		
2076	300										x		
3081	284,285								x		x	x	
3045	295-298									x	x	x	

Types present in virtually all strata :

TYPE	ILLUSTRATION NO.
1001	72, 78-80, 214, 215
1059	4-40, 126-129, 131, 134, 137-139
1072	52-57
3003	91, 95-98, 292
3039	82, 83, 290, 291

THESE TYPES ARE EXCLUDED FROM SERIATION.

by a rather large variety of pottery types. The various strata show some significant differences in type distribution.

Most common are small, flaring or hemispherical plain-rim bowls (type 1059; nos. 4-40), which comprise about 20.4% of the Hammam IV ceramic sample. The majority of these vessels has been painted. Usually these bowls have a smooth S-shaped profile, but rather straight-walled or hemispherical vessels are also common. Bowls with slightly carinated walls (nos. 23, 24) appear less often; these profiles are characteristic of the more coarsely finished unpainted plain-rim bowls (type 1072; nos. 52-57). Below the carination these bowls are often scraped, whereas the upper part is smoothed. Type 2082 (nos. 25, 26) indicates a rare closed shape. Few painted examples were found in the lowest stratum 2 and an unpainted rim fragment appeared in stratum 4. A group of small, almost cup-like vessels (nos. 17, 19) resembles a characteristic Hammam IV B bowl (type 1083; nos. 126-128).

Type 1070 (nos. 1-3) represents a distinctive group of flaring, bell-shaped bowls, all elaborately painted. These bell-shaped bowls were found only in the early Hammam IV strata 2 and 3. The presence at Tell Hammam of these bowls constitutes one of the few clear links to the early Northern Ubaid ceramic tradition, as represented e.g. by Tepe Gawra XIX-XVII (Tobler 1950:134-35).

Rather large and thick-walled plain-rim bowls, virtually all unpainted (type 1072; nos. 53-57) only appear in small quantities in the lower Hammam IV A strata. Their distribution is inversely proportional to the relative frequencies of the painted fine plain-rim bowls (type 1059). A decrease in type 1059 bowls is accompanied by an increase of type 1072 bowls, which indicates a similar use in household activities of both types.

Bead-rim bowls (type 1001; nos. 72, 78-80) constitute another common Hammam IV pottery type. Bead rims are created by folding over part of the rim. These folded rims may indicate the use of a turning base (cf. Kalsbeek *apud* Franken 1969:81). Bead rims are particularly numerous in Hammam IV D. As might be expected, a large variability in vessel shape is present. In many aspects these bead-rim bowls resemble the plain-rim bowls. Small, thin-walled and carefully made bead-rim bowls closely correspond to the fine plain-rim bowls (type 1059), whereas the larger vessels with an outrolled lip show some resemblance to the type 1072 plain-rim bowls. An important difference between both shapes is the emphasis of decoration on plain-rim vessels. In Hammam IV A-IV B bead-rim bowls or pots are never decorated, whereas in Hammam IV C-IV D only very few painted bead-rim vessels were found.

Interesting is the proportionally equal development of bead-rim bowls (type 1001), compared to coarse, plain-rim bowls (type 1072). An increase of both bead-rim and coarse plain-rim vessels is notable at the expense of fine plain-rim bowls and type 1062 bowls (another characteristic Hammam IV A type), which suggest an identical functional use of these types. Apparently the type 1001 bead-rim bowls and the type 1072 plain-rim bowls in the course of time took over the role of the type 1059 fine

plain-rim bowls and type 1062 vessels. Throughout the Hammam IV period, the types 1001, 1072 and 1059 are closely related to each other. Bead-rim vessels reached their peak in relative frequencies in the Hammam IV D strata 9, 10 and 11. In stratum 12 (the last Hammam IV stratum) a sharp decline in bead-rim distribution is notable, correlated to a rapid increase of plain-rim vessels. In the subsequent Hammam V A period, coarse plain-rim vessels (Coba bowls) are extremely abundant. The present data suggest an origin of these Hammam V A plain-rim bowls in the Hammam IV D stratum 12.

Bead rims seem to constitute a basically western Syrian feature. In the Amuq, bead-rims appear in low numbers in the phase E assemblage, contemporary to the Hammam IV A material (cf. Braidwood and Braidwood 1960:184). In northeastern Syria and northern Iraq, however, bead-rims appear in a later stage.

Type 1080 (nos. 46-51) represents a group of wide, carinated bowls with outrolled (sometimes slightly flattened) lips. These bowls are closely related to the type 1001 bead-rim vessels, but differ from these by their low and open shape, marked by a sharp carination. Furthermore, some of the type 1080 bowls were painted, a trait never observed on the early type 1001 bead-rim bowls. Type 1080 bowls are a late Hammam IV A shape, appearing only in the strata 3 and 4. In the following Hammam IV B phase a plain-rim variant was found (no. 136). Comparisons to this late Hammam IV A type are found in the Amuq, where, however, these vessels are rare and probably restricted in distribution to the early Amuq E levels (*ibid.*:184).

Another characteristic late Hammam IV A shape is indicated by the type 1084 bowls (nos. 61-64), which were found only in stratum 4. These rather wide, plain-rim bowls are marked by a sharply incurving or carinated vessel wall. They are all undecorated. In the Amuq E assemblage a similar, although much smaller, vessel was found in the upper half of the phase E range (*ibid.*:184). An example, identical in shape but painted, was also found at Gawra XVIII. This shape was rare at Gawra but persisted into later strata (Tobler 1950:135).

A common early Hammam IV A group of bowls is represented by type 1062 (nos. 65-70). These vessels are marked by a sharply inturning vessel wall just underneath the rim, thus producing a pinched or inrolled lip. Usually these bowls have a hemispherical shape, but sometimes they are low and wide. Bowls of this type are particularly numerous in the lowest strata 2 and 3 (cf. table 34), where they comprise 17% and 14.5% of the ceramic sample respectively. In the later part of Hammam IV A a sharp decline is notable (to 4.5% in stratum 4), a trend which continues into the following strata. Very few examples were found in Hammam IV B and IV C. Comparisons to these type 1062 bowls are found in the Amuq E ceramic assemblage, where, however, these vessels are rare and considered to represent an "abnormal" lip profile (Braidwood and Braidwood 1960:188). The Amuq E examples are Ubaid-style painted, whereas the Hammam IV vessels are all undecorated.

Few miniature bowls were found (nos. 59, 60). One of these miniature vessels showed a ring base. Miniature vessels are rare throughout the Hammam IV sequence.

The majority of the Hammam IV A rim fragments indicate bowl types. Pots and jars are much less numerous, which can be explained in terms of use and breakage rates (Arnold 1985:151ff.).

The most common Hammam IV pot shape is represented by type 2073 (nos. 73, 74). Generally these restricted vessels show an outrolled or slightly flattened lip. Near the rim the vessel wall is sharply incurving, thus forming a slightly sloping shoulder. In some cases, this shoulder is almost flat (no. 217). Towards the base the vessel wall is tapering. Bases were probably flat or slightly rounded. In the lowest Hammam IV A stratum these pots were very rare (only two rim fragments were found in stratum 2). In the following strata, however, they sharply increased in frequency, until they reached their peak in stratum 5 (where they comprised about 13.8% of the ceramic sample). After this stratum a slow but steady fall of type 2073 pots is perceptible (see table 34). The type 2073 pots resemble in shape the so-called "New cooking-pot ware" of the Amuq (Braidwood and Braidwood 1960:178), which was there first found in phase D and became increasingly common in the subsequent phase E. In the Amuq, outrolled rims, comparable to the Hammam IV examples, are characteristic of the phase E pots.

Another hole-mouth pot shape is indicated by type 2001 (nos. 75-77). These vessels are characterized by an ovoid shape and an outrolled rim. In some cases a slight neck is indicated. Type 2001 pots are common in Hammam IV A-IV B. In the later phases (Hammam IV C-IV D) these pots seem to be replaced by more open, large spheroid vessels. Like the type 2073 pots, these type 2001 bead-rim pots are probably related to the Amuq E "New cooking-pot ware".

Some plain-rim hole-mouth pots (type 2042; no. 99) were found in very low numbers in Hammam IV A contexts. Throughout the Hammam IV sequence, plain-rim hole-mouth vessels remain rare. In stratum 4 a black-burnished example was found. Since the section through the vessel wall is also completely black, firing in a reducing atmosphere is supposed. As a technique in pottery manufacture, intentional blackening of a vessel by carbon deposition was commonly done in late Hammam V times, but extremely rare in the Hammam IV period. It is possible that the stratum 4 black-burnished sherd is intrusive in that stratum.

In contrast with the pots, which show only few types, collared jars indicate a large variability in rim shape (nos. 82-98, 101-102). Jar fragments comprise about 15.4% of the Hammam IV A ceramic sample. Eight major rim types can be discerned, each of which shows a rather strong internal diversity. Jars with horizontally pierced lug handles are present in very low quantities (nos. 94-95). Handles are only found in the Hammam IV A to IV C strata; they do not appear in Hammam IV D or in the subsequent Hammam V period. A limited proportion of the Hammam IV jars is painted, a trait never observed on pots. Painting is limited to small vessels.

Low-collared plain-rim jars (nos. 96-98) constitute an intermediate type between pots and tall-collared jars. Some of these low-collared jars are very wide in diameter (nos. 97-98).

Plain-rim angle-necked jars (type 3003; nos. 91, 95-98) appear in rather low but constant proportions throughout the Hammam IV sequence, except in the lower Hammam IV A strata 2 and 3, where these vessels seem to be rare. Particularly in stratum 2 very few plain-rim angle-necked jar fragments were found (see table 34). In a few cases pierced handles were attached to these plain-rim jars (nos. 94-95).

Bead-rim angle-necked jars (type 3039; nos. 82, 83) are present in even lower quantities than their plain-rim counterparts. In Hammam IV A these jars are very rare and appear only in the later strata 3 and 4. Bead-rim angle-necked jars become more numerous in the later part of the Hammam IV sequence (Hammam IV C-IV D).

A common early Hammam IV jar shape is represented by type 3066 (nos. 84-86). These generally tall-collared jars are marked by an inrolled lip. All type 3066 jars are undecorated. These jars are preponderant throughout the early Hammam IV strata 2 to 6. They are not found in the subsequent Hammam IV C-IV D strata (in Hammam IV C only few bowls with inrolled lips were found). Until now few parallels to this characteristic early Hammam IV jar type have been found in western Syria. Excavations yielded a close parallel at Qal'at el-Mudiq IV, dated by its excavators in the late Northern Ubaid period (Collon et al. 1975:34). Few related examples were also found during archaeological surveys in the Qoueiq area (Mellaart 1981) and in the Sajur region (de Contenson 1985).

Type 3068 represents a jar shape with a rather complex rim (nos. 87, 88). Probably these rims were shaped out of thick rims by an additional inwards-directed pressing of surplus clay by a spatula or sherd. Some of these type 3068 vessels are very wide in diameter. The vast majority of these vessels is undecorated, but in stratum 4 a painted fragment was found, showing broad bands of brown paint. Probably the peculiar rim shape characteristic of type 3068 vessels is not restricted to jars only. No. 71 indicates a large, straight-walled pot, showing a coarsely finished variant of the type 3068 rim. The type 3068 vessels constitute a characteristic Hammam IV A pottery type. They are particularly common in the lowest stratum 2 and decrease in frequency in the subsequent strata. One example was found in stratum 5 (the beginning of Hammam IV B). No parallels to this early Hammam IV type were found.

The vast majority of the Hammam IV jars is marked by flaring necks. However, in the later part of Hammam IV A a few jar fragments were found which indicated a straight neck with a rounded lip (nos. 89, 93). Vessels of this shape are very rare within the Hammam IV sequence, but appear frequently in the following Hammam V period. Jars with vertical collars are common within the Amuq E range (Braidwood and Braidwood 1960:181). At Tepe Gawra jars of this type are found only in stratum XIX (Tobler 1950:136).

Interesting is the appearance of two bow-rim jar fragments (type 3071; nos. 101, 102) in the lower Hammam IV A strata 2 and 3. Bow-rim jars are considered to be a transitional Halaf-Ubaid shape (cf. Davidson 1977). The Tell Hammam examples, however, fit completely within the local Ubaid-related Hammam IV A ceramic tradition, both in manufacture and decoration.

Hammam IV B (strata 5-6). Hammam IV B includes the pottery found in the strata 5 and 6. This material is closely connected to that of the preceding Hammam IV A phase. The majority of the Hammam IV A pottery types is still found in phase IV B. Some characteristic Hammam IV A rim types, however, are not attested in Hammam IV B, whereas other shapes do appear, but in steadily diminishing numbers. At the same time virtually no new rim types are introduced in Hammam IV B. Thus, the most important alteration in matters of rim shape consists of a reduction in rim-type variability.

Plain-rim bowls are still very common. In stratum 5, at the beginning of Hammam IV B, fine plain-rim bowls (type 1059; nos. 126-129, 131, 134, 137-139) appear in relatively small numbers, thereby confirming a trend that started in Hammam IV A (see table 34). In the subsequent stratum 6, however, a sharp increase is perceptible (from 7.2% in stratum 5 to 26.3% in stratum 6). This noteworthy change is mainly due to an increase of small painted vessels and can probably be explained for the larger part in terms of functional use and spatial distribution. Since stratum 5 and stratum 6 are closely tied to each other, both in pottery types and in time, it is unlikely that any major typo-chronological developments gave rise to the obvious difference in type 1059 bowl frequencies. Painted vessels probably were highly valued goods (in view of the energy invested in their production) and one can expect to find them in limited numbers within a given household context. Between stratum 5 and stratum 6 an important alteration took place in the local residential pattern, which may explain the differences in artifact distribution. Stratum 5 shows a poorly built-up area and few painted vessels are expected. In contrast with the flimsy architectural remains of stratum 5, the following stratum 6 is marked by consistent, well-developed architectural remains (traces of wall paintings were found) and larger quantities of painted ware could be anticipated. This expected correlation between spatial context and artifact distribution seems to be confirmed by the present data.

Bead-rim vessels appear in larger numbers. Hemispherical bowls are most common, but a new variant was found, indicating a flaring, thick-walled and straight-sided bowl (no. 149). This shape becomes particulary numerous in the later Hammam IV C-IV D phases.

Some characteristic early shapes, e.g. the type 1062 bowls and type 3066 jars were found in limited quantities (see table 34). They are virtually absent in the succeeding strata. A type 1062 bowl with inrolled lip showed a red-slipped and burnished exterior, a very unusual surface treatment within the Hammam IV context (no. 143).

Nos. 161, 162 indicate some very wide vessels. No. 162 shows a large pot with an

outrolled lip and a diameter of 34 cm. No. 161 probably indicates a large storage jar, comparable to those found in the subsequent Hammam IV C-IV D phases (cf. nos. 285, 286).

Hammam IV C (strata 7-8). Hammam IV C consists of the pottery found in the strata 7 and 8. The Hammam IV C pottery is readily distinguished from that of the previous phases and seems to represent a period of important innovations in pottery production at Tell Hammam. Some remarkable changes took place in tempering and firing techniques. Vegetable temper, which is rare in the early Hammam IV phases, sharply increases in use. At the same time, a rapid increase of pottery with a dark core is notable. Decoration shows an emphasis on broad bands of solid paint and is quite different in style from the Hammam IV A-IV B tradition of painting. During the later part of Hammam IV C decoration decreases in use. As for rim shape, several new types appeared in Hammam IV C. However, many early Hammam IV shapes are still found in Hammam IV C, indicating a continuous and gradual development.

Bowls are very common in phase IV C. Various forms were represented, most often showing simple plain or beaded rims. Generally, the Hammam IV C bowls are rather large vessels, indicating wide diameters and thick walls. Relatively closed bowls (cf. nos. 165-168, 170) are characteristic. These closed shapes are not found in the lower Hammam IV phases. Most Hammam IV C bowls probably had simple rounded or flattened bases (cf. nos. 168, 215). The hemispherical bowl shown by no. 168 and decorated in a characteristic Hammam IV C manner, carries a potter's mark consisting of a short straight incision. Potters' marks are very rare within the Hammam IV sequence.

For the first time in the Hammam IV sequence, decoration is not limited to plain-rim bowls only. Now, also vessels with an outrolled lip (no. 171) or a closed rim bevelled inwards (no. 165) are painted, although they appear in minute quantities.

A characteristic Hammam IV C shape is represented by a group of flaring, S-shaped bowls (type 1020; nos. 179-182, 185-188). Generally these bowls have a very smoothed appearance. They show an extremely large variability in rim diameter, ranging from about 12 to 35 cm; No doubt, differences in functional use underlie this broad range, which suggests that, despite the similarities in vessel shape, this type 1020 bowl represents a heterogeneous class of vessels. Few painted examples were found. A very wide bowl (no. 188) showed a band on the interior lip, whereas a small cup-like bowl indicated a very open, interrupted "houndstooth" design. These cup-like vessels display some resemblance to the Hammam IV B type 1083 bowls (nos. 126-128).

Bead-rim bowls (type 1001; nos. 214, 215) are common and also the type 2073 bead-rim pots (nos. 216, 217) appear in large quantities. Few bowls with inrolled lips were found (nos. 218, 219), which closely resemble the Hammam IV B bowls with an interior bead rim.

Absent in Hammam IV C are the typical Hammam IV A-IV B type 2001 bead-rim pots. They are apparently limited in distribution to the early phases.

Few burnished, low-collared vessels with rounded necks appeared, probably indicating cooking-pots (nos. 201, 202). Burnishing appears sporadically within the Hammam IV sequence. Rounded necks are also rather rare. Usually collared vessels show a sharply angled junction between shoulder and neck (cf. nos. 192-196). Low and tall-collared jars and pots are common in Hammam IV C. Most often they display a plain or beaded rim and strongly recall the preceding Hammam IV A-IV B collared vessels. The collars are straight (nos. 192, 193) or slightly flaring at the lip (nos. 195, 196). Few sherds carried rounded, pierced handles, which were attached to angle-necked jars. In stratum 8 a ledge-handle appeared, a very rare feature in Hammam IV ceramics. No. 197 indicates a narrow-necked bottle, which appears only few times within the Hammam IV sequence.

Few new jar shapes were found in Hammam IV C. No. 200 represents a flaring, beaked-rim jar (type 3078) of which only one example was found. A new jar shape wich appeared in larger quantities (although still very few when compared to either the plain-rim or bead-rim jars), and which was also found in the next Hammam IV D phase, is represented by type 3023 (no. 203). These invariably low-collared vessels are marked by a rather square and bevelled, ridged rim. They are intermediate in shape between pots and jars and probably represent cooking ware. No. 204 shows a type of very large and tall-collared storage jars (type 3021), which are also found in the following Hammam IV D phase. Nos. 220, 221 represent some rare Hammam IV C rim shapes. Both types occur only once and probably indicate very large pots. The diameter of these vessels could not be established.

Hammam IV D (strata 9-12). Hammam IV D includes the pottery found in the late Hammam IV strata 9 to 12. The Hammam IV D ceramics closely resemble those of the preceding Hammam IV C phase, indicating clear links between both phases. Most trends in Hammam IV D pottery (rim shape, decoration, manufacture) originated in Hammam IV C. In the case of rim shape, however, Hammam IV D is marked by a decrease in rim type variability (see table 34). Very few new rim types were introduced in Hammam IV D, whereas many of the Hammam IV C shapes are not found any longer in Hammam IV D. Hardly any of the rim types which were new in Hammam IV C persisted into Hammam IV D. Particularly the last Hammam IV D strata 11 and 12 show very few different pottery types. Small sample size may partly account for the discrepancy observed in rim type distribution between the early Hammam IV D strata 9-10 and the late strata 11-12, but functional variables should also be taken into consideration. Unfortunately these strata were excavated on a very limited scale, which hampers any detailed insight into the spatial context of the ceramics recovered.

Bowls are found in large quantities in Hammam IV D. In strata 9, 10 and 11 particularly bead-rim bowls are preponderant. Several variants may be noted.

Hemispherical bowls are common (nos. 276, 280). This group of vessels constitutes a characteristic shape throughout the Hammam IV sequence and persists into the subsequent Hammam V period. Numerous also are the flaring, thick-walled and straight-sided bead-rim bowls (nos. 275, 277, 278). These vessels show pronounced outrolled lips and often indicate wide diameters. New are the low bowls with slightly rounded walls and pronounced bead rims (nos. 274, 275). A distinct and well-developed bead rim seems to characterize the majority of the Hammam IV D bowls. In the last Hammam IV D stratum a sharp decline in bead-rim bowls is notable, accompanied by an increase of plain-rim bowls. In the next Hammam V A phase plain-rim bowls are extremely abundant and replace the bead-rim vessels for the larger part.

Plain-rim bowls (nos. 259, 261, 264, 268) include various shapes. Hemispherical or rather small, steep-sided bowls (nos. 259, 260) are common. They sometimes indicate a slightly closed shape (no. 261). A characteristic Hammam IV D shape is represented by nos. 264-267. These deep vessels have a flaring appearance and usually show a slight carination in the lower vessel wall (an exception is shown by no. 267).

None of the typical Hammam IV C type 1020 bowls (cf. nos. 185-188) were found in the Hammam IV D strata. Some Hammam IV D vessels (e.g. nos. 269, 271), however, show some resemblance and may be developed out of the Hammam IV C type 1020 vessels.

No. 258 indicates an exceptional shape. Only one example was found in stratum 10. This large and wide bowl showed an inward-thickened rim, whereas the lower interior part of the body had been incised. This incised pattern is identical to an incision found on a stratum 8 base sherd (no. 226). Incisions are very rare within the Hammam IV sequence.

Type 2073 pots are still found in Hammam IV D. These vessels belong to the most characteristic Hammam IV shapes. The outward appearance of these pots remained unchanged through time. They are not found anymore in the next, Hammam V period.

The type 2021 jars or pots are found only in the lower Hammam IV D strata 9 and 10. They constitute a typical Hammam IV C-early IV D shape.

Bead-rim angle-necked jars (type 3039; nos. 290, 291) are relatively common. They usually show a pronounced outrolled lip, a feature also noted on the bowls. New in Hammam IV D are the type 3081 bead-rim jars (nos. 283, 284). This type represents a group of very large, thick-walled storage jars with tall collars and flaring necks. Very thick outrolled rims are typical. The diameter indicates a range between 26 and 38 cm. One complete example was found, showing a rounded body and a slightly flattened base (no. 283). In stratum 8 (Hammam IV C) possibly a fragment was found of these type 3081 jars. These vessels are definitely present from stratum 10 onwards and persist into the next Hammam V period. They constitute a late Hammam IV (strata 10-12)-early Hammam V (strata 15-17) type, indicating a link

between both periods. The type 3081 bead-rim jars are closely related to the type 3021 jars. These very large vessels also show tall, flaring collars and pronounced lips (nos. 285, 287). They were first found in stratum 4 and disappeared in stratum 9. Apparently the type 3021 jars were replaced by the type 3081 bead-rim jars.

Plain-rim angle-necked jars (type 3003; no. 292) are also rather numerous. Towards the end of Hammam IV D a slight decrease in plain-rim jars is notable. A few plain-rim jars with a rounded junction between neck and shoulder were found (nos. 293, 297, 298), but angle-neck jars are by far the most common jar shape. No. 298 indicates a grey-burnished and plant-tempered plain-rim jar with rounded neck. In all aspects of manufacture this vessel represents a late Hammam IV type.

Large, low-collared jars and pots (nos. 294-299) appear in small numbers and resemble the Hammam V A storage vessels. Within the Hammam IV sequence the wide, low-collared vessels clearly are a late pottery type. Comparable vessel shapes are found e.g. in the Amuq F and Leilan V assemblages (Braidwood and Braidwood 1960; Schwartz 1982).

B. Base shape

The sample of base sherds (n = 77) is much smaller than the sample of rim sherds (n = 2273). This is mainly due to the scarcity of vessels with clearly demarcated bases. The gradually curving bases of many pottery types made it difficult to separate base fragments from body sherds. Also the coarse finish of several types hampered a reliable separation of base sherds from body sherds.

Three types of base shape are distinguished: flat base, round base and ring base. Only 14 round bases were recognized. However, based on negative evidence, i.e. the absence of sufficiently large numbers of recognizable base sherds in comparison with the number of rim sherds recovered, it is assumed that rounded bases were by far the most common Hammam IV base shape.

Flat bases were found in low numbers throughout the Hammam IV sequence (n = 47). In most cases the diameter could not be established, but it seems to range between 4.6 and 12 cm. The thickness varies between 4 and 22 mm. This large range may indicate that flat bases are not limited to a particular vessel shape (bowl, pot, jar), but that all shapes may include some types with flat bases. Very rare is the small, flat base illustrated by no. 224. Only one example was found, unfortunately in the debris of stratum 8. A close parallel is found in the early Northern Ubaid ceramic assemblage of Leilan VI A (Schwartz 1982, fig. 49:19). Further east, Abada I yielded some close parallels (Jasim 1985, fig. 203:E). At Gawra a base fragment found in Area A possibly bears some resemblance to this shape (Tobler 1950, pl. LXVIII a-18).

Ring bases appeared in very small quantities in all Hammam IV phases (n = 16).

They range in diameter between 5 and 10 cm, whereas the thickness ranges between 4 and 12 mm. Ring bases seem to be limited in distribution to bowls (no. 60) and, particularly, to small jars (nos. 160, 222, 223, 300, 302). In stratum 10 a possibly wheelmade ring base was found.

Chronology and comparisons (table 36)

Before discussing the comparative chronology of the Hammam IV ceramics, it seems useful to summarise the prehistoric sequence at Tell Hammam et-Turkman.

Until now Hammam IV A constitutes the earliest ceramic complex at Tell Hammam. Hammam IV A shows a large variability in vessel forms, several shapes being limited in distribution to this phase only. Simple bowls and jars predominate. The pottery is almost entirely mineral-tempered,fine sand and lime being the most common states of temper. Fine sand is particularly common in the early Hammam IV A strata, but is gradually replaced by lime (lime becomes the predominant state of temper in the following phase IV B). Plant-tempered ceramics are also found, but in very low quantities (never more than a few percent). In general, the Hammam IV A pottery is carefully made and well-fired (dark cores are virtually absent). Most vessels have a smoothed appearance; scraped pottery is present in low quantities (scraping becomes a characteristic late Hammam IV trait). The vast majority of the Hammam IV A vessels is undecorated. Painting is the only technique of decoration used and is limited in application to small, thin-walled bowls and jars. About 17.6% of the Hammam IV A rim sherds were painted. Hammam IV A decoration is marked by intricate, close-style patterns, which show a large variability in design. The majority of the Hammam IV A design elements is limited in temporal distribution to this particular phase.

The subsequent Hammam IV B phase is closely connected to Hammam IV A. Many of the Hammam IV A pottery types continue into Hammam IV B. Nevertheless, a reduction in rim shape variability is notable. Some of the Hammam IV A shapes are not found anymore, whereas others appear in decreasing numbers. Only very few new types are introduced. Mineral-tempered pottery is predominant in Hammam IV B. Particularly lime is abundantly used as a means of temper (almost 70% of the Hammam IV B ceramics is lime-tempered). Lime has replaced fine sand as the most important state of temper. Inclusions of organic origin (plant, dung) are rare. Decoration slightly decreases in use (about 13.6% of Hammam IV B rim sherds are painted). In contrast with the complex, close-knit Hammam IV A design patterns, Hammam IV B painted ware is marked by an open and more sweeping style of painting. The majority of Hammam IV A designs are not found anymore, but some characteristic new designs are introduced, e.g. broad solid semi-circles, pendent zigzags and solidly painted exterior vessel walls. Generally, Hammam IV B painted ware is readily distinguishable from that of the preceding phase.

With the start of the Hammam IV C phase, important changes take place in the period IV ceramic development. Hammam IV C represents a period of innovation in pottery production. The continued presence of several characteristic early Hammam IV traits, however, indicates an uninterrupted and gradual development. Many of the early Hammam IV pottery types are still found, but at the same time many new types are introduced. Generally, vessels are large, showing thick walls and wide diameters. Decoration sharply decreases in Hammam IV C. In comparison with the previous phase, decoration frequency in Hammam IV C is more than halved (about 6% of the Hammam IV C rim sherds are painted). Emphasis in decoration is on broad, simple designs which cover the larger part of a vessel. The most important changes at the beginning of Hammam IV C are to be noted in tempering materials and firing techniques. Plant temper, which is rare in the early phases, sharply increases in use. Simultaneously, a rapid growth of "low-fired" ceramics (i.e. pottery with a dark core) is visible. Plant temper has several advantages in comparison with other states of temper, the most important of which are the short firing time required and the little special care needed in firing. Plant inclusions facilitate rapid firing since the plant fibres act as fuel within the vessel. Pottery with a dark core points to a short firing time (incomplete oxidation). Both observations indicate a trend toward cheaper production at a larger scale (reduction of firing time saves fuel and increases the production capacity). Additional evidence for this trend is found in the decrease of time-consuming decoration already noted and in the steady increase of rather coarsely finished scraped vessels. Apparently less attention is given to the outward appearance of a vessel.

Hammam IV D is a direct outgrowth of the previous Hammam IV C ceramic assemblage. Both in shape and decoration the Hammam IV D pottery closely resembles the Hammam IV C ceramics. The trends, starting in Hammam IV C, towards large-scale pottery production are intensified in Hammam IV D and finally culminate in the next, Hammam V ceramic assemblage. Although the majority of Hammam IV D pottery remains smoothed, scraping steadily increases. "Low-firing" indicates a sharp increase, particularly in the last Hammam IV D strata. At the same time, decoration becomes an unimportant feature in pottery manufacture. Only 2.4% of Hammam IV D rim sherds are painted. Only very few new vessel types are introduced in Hammam IV D. Large jars and pots are common. This phase IV D is marked by a reduction in rim type variability, as was the case in Hammam IV B. Important is the rapid increase of rather large, plain-rim bowls in the last Hammam IV D strata. These vessels may anticipate the so-called Coba bowls, which become an extremely abundant bowl type in the following Hammam V A phase.

The Hammam IV ceramic sequence indicates a continuous and uninterrupted local development. This continuity can be traced in vessel shape, techniques of manufacture and decoration. The various phases should be considered as arbitrary divisions along a *continuum* and point to gradual sets of transformations.

In relating the Hammam IV sequence to the assemblages of adjacent sites and regions, it is important to distinguish between decorated and undecorated pottery. Generally, comparisons are most easily found for decorated ceramics, whereas it is much harder to find parallels for undecorated ware. This may be partially due to the limited nature of most comparable excavations and to the emphasis that some reports put on decorated pottery, thereby virtually neglecting plain wares. Mostly though, it can be explained by the strongly local character of Hammam IV pottery. At this time, Tell Hammam, and the Balikh valley as a whole, seem to constitute a cultural unity, strongly protected from external influences. At first sight, Hammam IV pottery seems to form part of the Northern Ubaid ceramic tradition as evidenced by its type site, Tepe Gawra, but it should be stressed that this is only true for the painted pottery. Painted ware is found in limited numbers throughout the Hammam IV sequence and is virtually limited to small, thin-walled, plain-rim bowls. Only few painted jar or pot fragments were found. Both in shape and design Hammam IV painted pottery to some extent resembles the northern Iraqi sites of Tepe Gawra, Arpachiyah and Telul eth-Thalathat, which have all yielded an extensive amount of Northern Ubaid ceramics and are considered to be the type sites of the Northern Ubaid ceramic tradition. The undecorated Hammam IV pottery, however, which constitutes the vast majority throughout the present sequence, has yielded only very few comparisons to these northern Iraqi sites. Besides, at these sites unpainted pottery is only present in low quantities. The best parallels to some of the undecorated vessel shapes are found in western Syria, e.g. Amuq E. At present, the Hammam IV sequence indicates a well-developed local ceramic tradition, which adopted external (i.e. Northern Ubaid) elements on a limited scale. Interesting is the absence of other than Ubaid-related painted wares; no independently developed style of decoration was found. Apparently the Northern Ubaid style of painting was adopted for creating highly valued and probably status-related pottery.

Within the northern range of the Ubaid tradition only few sites have been excavated. In northern Iraq the sites of Tepe Gawra, Arpachiyah and Telul eth-Thalathat have all yielded large quantities of Northern Ubaid ceramics. Tepe Gawra has provided a lengthy sequence of Northern Ubaid pottery and is until now the most important site for the Ubaid period in northern Iraq. The chronological positioning of the pottery from both Arpachiyah and Telul eth-Thalathat is less clear than that of Tepe Gawra. Although Ubaid house remains were excavated at Arpachiyah (TT 1-4), all of the published Ubaid ceramics stem from the nearby cemetery. According to its excavators, this pottery reflects only little temporal change (Mallowan and Rose 1935:70). At Telul eth-Thalathat the Japanese excavations yielded an important corpus of Northern Ubaid ceramics (Egami 1959; Fukai et al. 1970), but the chronological correlation between pottery from the Ubaid strata excavated in various trenches by different teams is rather vague. No detailed analysis regarding the internal variability of the Ubaid ceramics from this site is available yet.

Recent excavations at Tell Leilan, situated in the upper Khabur region in northeastern Syria, have yielded an important sequence of Northern Ubaid ceramics (Schwartz 1982). This pottery shows close affinities to that found at the northern Iraqi sites. The upper Khabur area seems to be closely oriented towards the east, i.e. northern Iraq. Although Hammam IV ceramics resemble the Leilan VI-V pottery, the many differences between both sites should be stressed. In our opinion, clear differences exist between the upper Khabur Ubaid pottery found at Tell Leilan and Balikh Ubaid as evidenced by the period IV ceramics of Tell Hammam.

Ubaid-related painted wares were also found in excavations in western Syria and southeastern Anatolia. In the Amuq plain the soundings at Tell Kurdu yielded large numbers of Ubaid-like monochrome painted pottery (Braidwood and Braidwood 1960). Pottery from three other Amuq mounds (Karaca Khirbet 'Ali, Tell esh-Sheikh and Tabara al-Akrad) is related to this Kurdu ware, but their chronological positioning is vague (cf. Watson 1965:72). Further south, Ubaid-related painted pottery was found e.g. at Hama L (Fugmann 1958) or Ras Shamra IIIB (Courtois 1962). In Anatolia Ubaid-like painted ware was found e.g. at Tarsus (Goldman 1956), Mersin XIVA-XV (Garstang 1953) and Sakçe Gözü (du Plat Taylor et al. 1950).

The distribution and formal appearance of Ubaid-related pottery throughout the northern fringe of the fertile crescent indicates a clear geographical heterogeneity. Based on the Hammam IV sequence a broad partition of the Northern Ubaid ceramic tradition into two main areas is possible, with northern Iraq and northeastern Syria on the one hand and western Syria and southeastern Analtolia on the other hand. The Hammam sequence fills the gap between both areas. Tell Hammam is situated in an intermediate region between various areas which, despite some affinities, clearly give evidence of different cultural developments.

The Hammam IV A pottery shows some close affinities to that of Gawra XIX-XVII, Arpachiyah and Amuq E. Tepe Gawra provided a lengthy sequence of Northern Ubaid ceramics. Comparisons between Gawra XIX-XVII and Hammam IV A are mainly found in bell-shaped bowls and hemispherical bowls. At Gawra bell-shaped bowls were only found in these lower strata. These bowls are marked by a flaring S-shaped profile and rounded bases. These bowls are virtually always painted. Characteristic is the wide band near the base, sometimes followed by a thin line. It should be noted that at Tell Hammam this kind of decoration is not limited to bell-shaped bowls only (as is the case at Tepe Gawra; cf. Tobler 1950:185), but found on the majority of decorated bowls. Near the base the design configuration is always bounded by a wide band. At Tell Hammam bell-shaped bowls appeared only in the lower Hammam IV A strata 2 and 3; they were not found in any of the later strata. Simple hemispherical bowls are common both at Tepe Gawra and Tell Hammam. At Tepe Gawra these bowls are said to bear "less distinctive painted decoration, the best patterns apparently being reserved for the more graceful bell-

shaped bowls" (*ibid.*:135). The Hammam evidence only partially confirms this qualitative statement. Simple designs consisting of straight or wavy lines (cf. nos. 27-40) are common, but at the same time large numbers of flaring or straight-walled hemispherical bowls showing complex and intricate designs were found. Beside the painted bell-shaped and hemispherical bowls very few comparisons exist between Gawra XIX-XVII and Hammam IV A. A characteristic late Hammam IV A bowl with sharply incurving vessel wall (no. 61) compares with a rare shape found at Gawra XVIII. This type persisted at Gawra into later strata (*ibid.*:135).

Close parallels to the Hammam IV A pottery are also found at the Arpachiyah cemetery (Mallowan and Rose 1935). All of the published Ubaid pottery from Arpachiyah stems from the cemetery and not from the Ubaid levels TT 1-4 at the tell itself (*ibid.*:34ff.). Since each Ubaid burial seems to have respected other burials nearby, a close temporal relationship is suggested. According to its excavators (*ibid.*:43), the cemetery indicates an Ubaid occupation of only short duration at Tell Arpachiyah. Nevertheless, some stylistic diversity was noted and the pottery was divided into an early and a late period. Mallowan favored a late date for the Ubaid pottery from the Arpachiyah cemetery in view of some close parallels to Eridu 7-6 and Gawra XIII, although several vessels (e.g. bell-shaped bowls) point to the use of the cemetery already at an earlier date (Mallowan 1970:398-401).

Here we correlate the Ubaid cemetery at Arpachiyah to Gawra XVII-XIII, Leilan VI A-early VI B, Telul eth-Thalathat XIV-XIII and, ultimately, late Hammam IV A-Hammam IV C. The majority of the Arpachiyah pottery consists of simple plain-rim bowls. A few grooved or flat rims were found, which can be compared to Leilan VI A or Telul eth-Thalathat XIV examples. Curvilinear patterns constitute the most commonly appearing design, but also zigzags, cross-hatching, ladders, chevrons and solid pendent triangles are found. In the deep graves (early period) several bell-shaped bowls were found, which closely resemble the Gawra XIX-XVII and Hammam IV A bell-shaped vessels. The Arpachiyah bell-shaped bowls are described by their excavators as "delicate bowls with minute designs, done on a small scale with carefully executed thin brush strokes; distinctive in treatment from the bolder, sweeping designs of the late group" (Mallowan and Rose 1935:68). This description exactly covers the difference noted at Tell Hammam between the Hammam IV A painted pottery and the painted wares from the later ceramic phases. The pottery ascribed to the late period at Arpachiyah closely resembles the Hammam IV C ceramics by their sweeping designs and broad bands of paint. The bell-shaped bowls and the flat-based bowls with flat or grooved rims indicate an early date, e.g. the early part of the Gawra sequence (strata XIX-XVII), Leilan VI A, Telul eth-Thalathat XIV and Hammam IV A. The diagonally slashed painted pattern indicated by one bowl (*ibid.*, fig. 30:3) is a characteristic Leilan VI A design (Schwartz 1982:271). Other vessels, i.e. the beaker (Mallowan and Rose 1935, fig. 33:10), and flat-based bowls with bold designs (*ibid.*, fig. 32:1-4) indicate a close

connection to Gawra XIII, whereas simple hemispherical bowls with sweeping bold designs (*ibid.*, fig. 31:3-4) compare to Hammam IV B-IV C pottery.

The Hammam IV A pottery displays the closest affinity to the Amuq E ceramic assemblage. Large quantities of locally produced, Ubaid-related monochrome painted pottery were recovered during excavations at Tell Kurdu (Braidwood and Braidwood 1960:175ff.). In many aspects, this painted pottery resembles the Hammam IV A painted ware. Most of the intricate, close-knit Hammam IV A designs are found within the Amuq E repertoire (e.g. ladders, "eyes", bands of vertical lines near the rim). Beside similarities in design, close parallels to shape are also found. Bead-rim vessels are common throughout the Hammam IV sequence. Only in stratum 2, the lowest Hammam IV A stratum yet uncovered, are bead rims rare, but in the subsequent strata they rapidly increase in importance. Bead-rim vessels appear in low numbers in the Amuq E assemblage. An important difference between the Hammam IV A and Amuq E vessels lies in the fact that the Hammam examples are never decorated, whereas the Amuq bead-rim vessels often have been painted. The Hammam IV A bead-rim pots (nos. 73, 74) probably correlate to the "New cooking pot ware" of the Amuq (Braidwood and Braidwood 1960:78). Bead rims probably are a characteristic western Syrian ceramic trait. In northeastern Syria and northern Iraq bead rims appear in small numbers in a later part of the Northern Ubaid period (Leilan VI B; Schwartz 1982, fig. 54). Beside simple flaring plain-rim bowls, other parallels between Hammam IV A and Amuq E are constituted by the type 1062 bowls (e.g. nos. 65-68) which at Tell Hammam are a characteristic early shape, but are considered to be a rare shape in the Amuq (Braidwood and Braidwood 1960:188).

The Amuq E ceramics only correlate to Hammam IV A pottery. None of the characteristic vessel shapes and designs of the later Hammam IV ceramic phases were found at Tell Kurdu and therefore we must assume a considerable hiatus in the Amuq sequence. Such a gap was already suggested by the Braidwoods when discussing the pottery from Karaca Khirbet 'Ali (*ibid.*:201-204). At this site Ubaid-like painted pottery was found which did not fit within the Amuq E assemblage. Comparisons with Tell Hammam suggest that the Karaca Khirbet 'Ali sherds are contemporary to the Hammam IV C ceramics. The Amuq F pottery which until now was placed directly above the Amuq E pottery in chronological terms, shows but little resemblance to the preceding pottery tradition (*ibid.*:226). The Amuq F ceramics correlate to Hammam V B pottery, which indicates a hiatus of almost 1000 years between the Amuq phases E and F.

An interesting question is whether or not the Hammam IV A pottery throws light on the supposed Halaf-Ubaid transitional period. The Gawra sequence may give evidence of such a transitional stage (Tobler 1950:131) and in Syria this transition was recognized e.g. at Tell Agab (Davidson 1977) and in the Amuq phase D (Braidwood and Braidwood 1960). In the Balikh valley, excavations at Tell Mefesh

(Mallowan 1946), situated about 20 km south of Tell Hammam, yielded pottery which was closely related to the Hammam IV A ceramics. At Mefesh bowls were found identical to the bell-shaped bowls of Hammam IV A, which indicate a close temporal connection between both sites. Mallowan considers these vessels as being a "hybrid" variety of both Halaf and Ubaid ceramic tradition (*ibid.*:140). Supposedly this pottery indicated Ubaid-like shapes and manufacture, but showed Halaf-like decoration.

In our view, however, the Mefesh bell-shaped bowls and their Hammam IV A counterparts completely fit within the local Ubaid-related ceramic tradition. Shape and techniques of manufacture, as well as design and design configuration, clearly differ from true Halafian ware. In view of some of the motifs of decoration this pottery resembles Halaf painted ware, but it should be noted that the design configuration as a whole differs from the Halafian design structure (for a discussion of "design structure" see e.g. Hole 1984). Only the main motif is sometimes identical, but its arrangement and place on the vessel is different. We feel uncomfortable with the term "transitional", since at present a true transition, indicating a development of Ubaid ceramics or ceramic traits out of Halaf pottery cannot be firmly demonstrated.

Excavations at Tell Abada in the Hamrin area, eastern Iraq, have indicated a coexistence of both Halaf and Ubaid ceramics (Jasim 1985:171). The Gawra strata XX-XVII probably point to a similar development. Apparently both ceramic traditions flourished beside each other and no doubt an interaction existed. The exact nature and scale of this interaction remains vague. It is incorrect to describe Hammam IV A pottery and its counterparts at other sites as "final Halaf" (Davidson 1977:340) or "decadent Halaf" (Mellaart 1981:150).

The origins of the Hammam IV ceramics are not yet clear. The Hammam IV sequence is not yet complete, but we do not expect future work in the stepped trench at Tell Hammam to extend the present sequence considerably. The lowest stratum unearthed (stratum 2) is about two metres underneath the level of the surrounding fields and a drilling suggested only a limited depth of earlier occupation levels underneath. At the moment,the Amuq sequence probably provides the best framework for explaining the origins of Hammam IV pottery. The Amuq E pottery, which is closely related to Hammam IV A ceramics, develops out of the preceding Amuq D wares. In our opinion, the development of E plain simple ware and cooking wares in particular out of phase D wares is important. The nature of the introduction of Ubaid-like decorated pottery is not yet clear. Painted Ubaid-related pottery appears only in the uppermost metre of the Amuq D range (Braidwood and Braidwood 1960:106) and may be the result of cultural interaction and exchange of ideas between western Syria and northern Iraq. At present, an equivalent to the Amuq D assemblage is missing at Tell Hammam.

During the Hammam IV A phase the ties between Tell Hammam and the eastern

sites (northeastern Syria-northern Iraq) were not strongly developed. At the time of Hammam IV B, the affinities towards the east become even weaker. Comparisons are merely found in the motifs used in decoration, not in vessel shape.

The Hammam IV B pottery compares to Gawra XVI-XV, Leilan VI A and Telul eth-Thalathat XIV-XIII. At Gawra XVI-XV bell-shaped bowls are no longer found. A new group of undecorated pottery appears, which is not found in the early strata. This undecorated pottery resembles Gawra XVI-XV painted wares in shape, but is said to be of technically inferior quality (Tobler 1950:137). The painted ceramics are marked by a reduction in shape and design variability, but in technical aspects this pottery closely equals the ceramics of the lower strata (*ibid.*:138). The most common bowl shape at Tepe Gawra is a rather closed vessel, marked by a contracted rim forming a slightly sloping shoulder. Bases are always round. This shape is very rare at Tell Hammam, where open and flaring or straight-walled vessels predominate. At Gawra XVI-XV open bowls seem to be uncommon (*ibid.*:139). The only new type introduced in Gawra XVI-XV is a cup-like vessel characterized by rather pointed bases and contracting rims. These cups are either undecorated or rather simply painted. Of some of these cups the exterior is solidly painted, a design which at Tell Hammam appears for the first time in Hammam IV B. At Tell Hammam also a cup-like vessel was introduced in Hammam IV B (nos. 126-128), although a predecessor was found in Hammam IV A. These cup-like vessels or goblets are not found at Tepe Gawra.

The majority of the jars at Gawra XVI-XV are characterized by globular bodies, rounded bases and wide necks with splayed rims. These shapes are rare at Tell Hammam; particularly the splayed character of the Gawra shapes is missing. The Hammam IV B jars are marked by flaring straight necks.

The Hammam IV B decoration is marked by bold, sweeping designs, which are often coarsely executed. This style of painting is clearly different from that of the Hammam IV A strata. Some new designs were introduced in Hammam IV B, e.g. the broad pendent zigzags (nos. 128, 130) or solidly painted pendent semi-circles in combination with an undulating line (nos. 131, 132, 137). At Gawra these designs were already found in stratum XVII. At Tepe Gawra, an important early motif which persisted into the Gawra XVI-XV strata is represented by the "ladder" pattern. At Tell Hammam this motif is limited to Hammam IV A.

The Ubaid pottery from Telul eth-Thalathat shows connections to the Gawra XVII-XV and particularly to the Gawra XIII ceramics. The closest parallels between Telul eth-Thalathat and Tell Hammam are found in Hammam IV C, but Hammam IV B and perhaps the end of Hammam IV A may already be correlated to stratum XIV of Telul eth-Thalathat. Bell-shaped bowls are present at Telul eth-Thalathat (Fukai et al. 1970:34, 40), but these vessels are definitely different from the Gawra XIX-XVII, Mefesh and Hammam IV A bell-shaped bowls. At these sites, the term "bell-shaped bowl" refers to a class of thin-walled, flaring bowls with a slightly

S-shaped profile, rounded base and intricate decoration. These vessels are "Leitfossils" for the early Northern Ubaid period. We should avoid an inflationary use of the term "bell-shaped bowl" and apply it only to vessels identical to those of Mefesh, Hammam IV A and other contemporary sites.

During the 1956-57 soundings at Telul eth-Thalathat Ubaid material was recorded in trenches M and IX (Egami 1959). The pottery found in trench M was divided into three groups, termed I (subdivided into a and b), II and III. In trench IX twelve strata were recognized (I-XII); the potery from VIIb to XII is ascribed to the Ubaid period. The 1964 excavations at Telul eth-Thalathat extended the sequence of trench IX further downward and two Ubaid strata (XIII-XIV) were added to the known sequence (Fukai et al. 1970). According to its excavators, stratum XIV in trench IX corresponds to Ubaid Ia in trench M, whereas Ib is tentatively placed between strata XIII and XIV (*ibid.*:41). Comparisons to Tell Hammam partly confirm this temporal assignment; Ia at Telul eth-Thalathat yielded comparisons to Hammam IV A, whereas Ib indicated close resemblances to Hammam IV B. However, stratum XIV at Telul eth-Thalathat compares both to Hammam IV A-IV B, and thus to Ubaid Ia-Ib in trench M of Telul eth-Thalathat (see table 36).

In stratum XIV at Telul eth-Thalathat some closed vessels with inverted rims were found, which correlate to Gawra XVII and Leilan VI A. At Tell Hammam this type of pottery was found only in the last Hammam IV A stratum. Particularly in design some parallels exist between Hammam IV B and Telul eth-Thalathat XIV-XIII, although in general the pottery from the latter site is quite different from the Hammam IV B repertoire. Ladders are found in the stratum XIV pottery of Telul eth-Thalathat. At Tepe Gawra the ladder motif is mainly found in the early strata XIX-XVII, but is still present in the subsequent strata XVI-XV where it is considered to be an important "survival" of earlier times (Tobler 1950:138). At Tell Hammam the ladder motif is limited to Hammam IV A. Other designs found at Telul eth-Thalathat, e.g. solidly painted exteriors or pendent semi-circles, are first introduced at Tell Hammam in phase IV B. Generally the Ubaid pottery from Telul eth-Thalathat confirms the broad change in style of decoration between Hammam IV A and Hammam IV B. Emphasis at Telul eth-Thalathat is on simple open and sweeping design configurations comparable to Hammam IV B-IV C.

Leilan VI A is compared to Gawra XVII-XVI by its excavator (Schwartz 1982:271) and here we follow this chronological assessment. Leilan VI A is marked by diagonally slashed and undulating line motifs on open flat or pinched rim shapes. Also closed vessels with inverted lips are characteristic (*ibid.*:271). At Tell Hammam, undulating lines are a common design throughout the Hammam IV period, but vertical or diagonal slashes between horizontal lines are virtually limited to Hammam IV A. Only very few examples were found in Hammam IV B. The Leilan VI A flat rims are absent at Tell Hammam, whereas the closed vessels with inverted rims are limited to the last stratum of Hammam IV A. Thus, the Leilan VI A

ceramics correlate to the later part of Hammam IV A. Schwartz (*ibid.*:259), however, also notices clear parallels to Gawra XVI-XV and Telul eth-Thalathat XIV-XIII, which suggest a chronological correlation to Hammam IV B.

Hammam IV C is marked by considerable changes in techniques of manufacture, vessel shape and decoration. In many aspects, however, the Hammam IV C pottery resembles the preceding Hammam IV B ceramics. Hammam IV C is correlated to Gawra XIII, Leilan VI B, Telul eth-Thalathat XIII and the late graves at the Arpachiyah cemetery.

At Tepe Gawra some important alterations took place at this time. Gawra XIII is said to have yielded the best Ubaid wares until now, both in technical and artistic respects (Tobler 1950:140). No sharp break with the preceding strata is noticed, although many new vessel shapes and motifs of decoration appear. A close relationship towards Iran is suggested (*ibid.*:141). Beside painting some new decorative techniques appear, e.g. ribbing, incision and applique. These new techniques are rather rare. At Tell Hammam also very few incised sherds were found in phase IV C.

New at this time are also the very wide, straight-sided and flat-based bowls of which, however, only one example was found in Gawra XIII (*ibid.*, pl. CXXVII-179). This shape was rather common at the Arpachiyah cemetery, where it was found in the late burials only (Mallowan and Rose 1935:46). Similar vessels were also found at Telul eth-Thalathat XIII (Fukai et al. 1970, pl. LXXI:1-11) and Leilan VI B (Schwartz 1982, fig. 50:6). At Hammam IV C also a category of very wide, flaring bowls with probably flat bases appeared (nos. 185, 188). One painted example was found, indicating a simple band at the interior vessel lip. Although the Hammam IV C bowls clearly differ from the vessels from Gawra XIII and other contemporary sites, there may be some general connection between both shapes.

The characteristic Gawra XIII beakers are absent at Tell Hammam. At Tepe Gawra these beakers are described as "the most distinctive and one of the most common ceramic products (...). These graceful vessels are found only in stratum XIII" (Tobler 1950:142). Comparable beakers were found at Telul eth-Thalathat XIII and Leilan VI B.

The closest parallels between Hammam IV C and the sites in northeastern Syria and northern Iraq are found in simple, deep round-based bowls. In Hammam IV C rather large and hemispherical bowls became common. Decoration is limited to simple designs, e.g. undulating lines or solid black areas. Broad bands of paint are common. Both in shape and decoration these closed bowls resemble vessel forms at Gawra XIII or Telul eth-Thalathat XIII.

A new bowl type in Hammam IV C, indicating a closed shape and interior bevelled rim (no. 166) compares to shapes found in Gawra XIII and Leilan VI B. In Hammam IV C also a jar fragment with a flaring, beaked rim was found (no. 201). This type is very rare at Tell Hammam, but at Tepe Gawra it was the principal jar shape in the strata XVI-XV. An example was also found in Gawra XIII (*ibid.*:143).

Generally, the comparisons between Hammam IV C and the contemporary sites in the east are not very numerous. The ceramic assemblages from Hammam IV C and its eastern counterparts differ strongly. This emphasizes the local development of the Hammam IV pottery and suggests that in the course of time the influences from the east on Hammam IV pottery become weaker (a tendency already noted in Hammam IV B).

Hammam IV D is the least well-defined ceramic phase of the period IV sequence at Tell Hammam. The pottery closely resembles the Hammam IV C ceramics. The Hammam IV D pottery is correlated to Gawra XIIA- XII and to the later part of Leilan VI B.

At Tepe Gawra a remarkable increase of undecorated pottery is noted, although painted vessels remain by far the larger group (Tobler 1950:147). The strata XIIA-XII are the last levels at Tepe Gawra in which painted pottery predominates. Many new shapes are introduced and particularly large pots and jars (storage vessels) become popular. At Tell Hammam large vessels also increase in frequency at this time. Ring bases, which were first introduced in the preceding stratum XIII, become extremely abundant in Gawra XIIA-XII. At Tell Hammam ring bases are found in very low numbers throughout the Hammam IV period.

At Tepe Gawra a few vessels with outrolled rims were found in strata XII-A-XII (cf. *ibid.*, pl.LXXIX-f), a common trait throughout the Hammam IV sequence but apparently a late feature in northern Iraq.

Interesting are the undecorated and roughly shaped flat-based bowls found in Gawra XII (*ibid.*:148). These bowls are rather rare in Gawra XII, but become extremely common in the succeeding stratum XIA. At Tell Hammam similar vessels appear in very large numbers in Hammam V A, but predecessors of this type were found in Hammam IV D. Both at Tepe Gawra and Tell Hammam the important changes in pottery manufacture which occur in the next period (Hammam V) are already foreshadowed by ceramic developments in the last period IV strata.

In general, very few comparisons exist between Gawra XII A-XII, Leilan VI B and Hammam IV D. Both in vessel shape and decoration the ceramic assemblages from these sites are completely different, indicating separately developed regional ceramic traditions.

Few radiocarbon dates are available for the Hammam IV period (see appendix 1). Two samples from Hammam IV B suggest a date around 4200-4100 B.C. for this phase, which seems to be in accordance with the radiocarbon evidence from other sites. This would indicate a date around 4400-4200 B.C. for the preceding phase IV A.

A date around 3700/3600 B.C. is suggested for the end of the Hammam IV period. A radiocarbon date of 3837 ± 72 B.C. from stratum XII at Tepe Gawra also points in this direction (Lawn 1973:371-72). Gawra XII is correlated here to the later part of Hammam IV D.

Table 36. Relative chronology, Hammam IV.

B.C.	Hammam		Leilan	Gawra	Thalathat	Arpachiyah	Amuq	Other
3600		12		XII	VII b			
		11						
	IV D							
		10		XII-A				
		9	VI B		XII			
	IV C	8		XIII	XIII	Cemetery: late graves		
		7						
4100							hiatus	
	IV B	6		XV				
		5	VI A	XVI	XIV			
4200								
		4		XVII				
	IV A	3		XVIII		deep graves	E	Mefesh
4400		2		XIX				

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
1	153:39	AK 16	IVA			hand	sand	medium	smooth	buff	painted	Gawra 2, pl.CXX-CXXI: 83-92 Arpachiyah, fig.29:1, 2,4	XIX-XVII cemetery deep burials
2	144:87	AK 16	IVA		11.0	hand	nvt	medium	smooth	cream	painted	Gawra 2, pl.CXX-CXXI: 83-92 Arpachiyah, fig.29:1, 2,4	XIX-XVII cemetery deep burials
3	163:61	AK 16	IVA		16.0	hand	sand	medium	smooth	cream	painted	Gawra 2,pl.CXX-CXXI: 83-92 Arpachiyah fig.29:1, 2,4 Mefesh, fig.7:3	XIX-XVII cemetery deep burials
4	159:39	AK 16	IVA		15.0	hand	lime	low	smooth	red	painted	Gawra 2,pl.LXXIV.a.9	XVII
5	149:69	AK 16	IVA		15.0	hand	nvt	medium	smooth	buff	painted	Amuq, fig.154:26	E
6	150:98	AK 16	IVA		14.0	hand	lime	medium	smooth	buff	painted		
7	150:68	AK 16	IVA		12.0	hand	nvt	medium	smooth	buff	painted	Gawra 2, pl.LXXVII. b.17	XVI
8	163:54	AK 16	IVA		15.0	hand	sand	medium	smooth	cream	painted		
9	159:43	AK 16	IVA		13.0	hand	lime	medium	smooth	buff	painted	Mefesh, fig.7:5	
10	157:40	AK 16	IVA		10.0	hand	lime	medium	smooth	buff	painted	Gawra 2, pl.LXIX.b.3 Mefesh, fig.7:5	XIX
11	157:41	AK 16	IVA		15.0	hand	sand	medium	smooth	buff	painted		
12	159:40	AK 16	IVA		15.0	hand	nvt	medium	smooth	cream	painted		

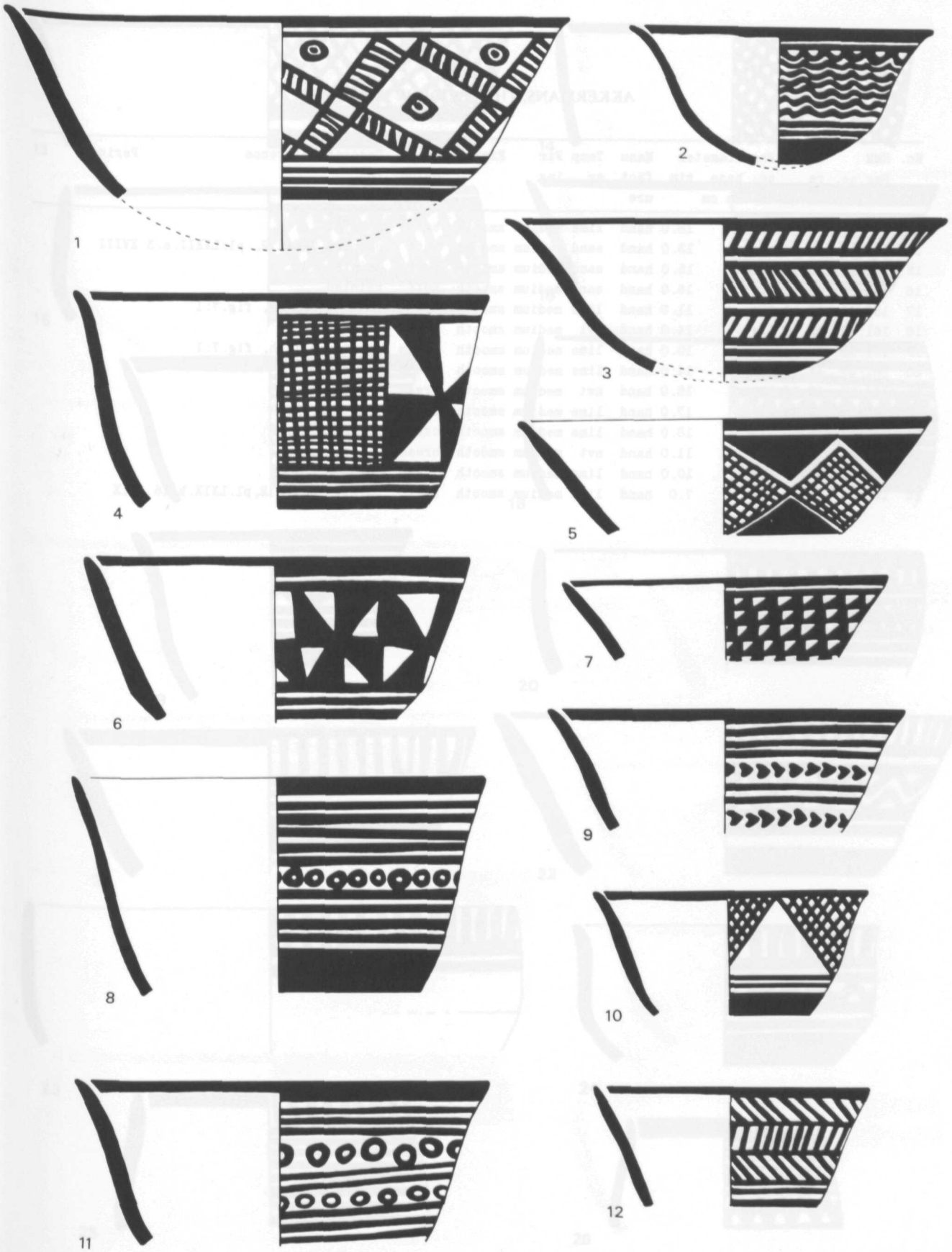


Plate 68. Hammam IVA painted bowls (scale 1:2).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
13	149:70	AK 16	IVA		18.0	hand	lime	medium	smooth	buff	painted		
14	163:60	AK 16	IVA		13.0	hand	sand	medium	smooth	buff	painted	Gawra 2, pl. LXXII. a. 3	XVIII
15	156:27	AK 16	IVA		15.0	hand	sand	medium	smooth	buff	painted		
16	163:52	AK 16	IVA		15.0	hand	sand	medium	smooth	buff	painted		
17	157:68	AK 16	IVA		11.0	hand	lime	medium	smooth	green	painted	Mefesh, fig. 7:1	
18	161:42	AK 16	IVA		14.0	hand	nvt	medium	smooth	cream	painted		
19	161:38	AK 16	IVA		10.0	hand	lime	medium	smooth	cream	painted	Mefesh, fig. 7:1	
20	161:47	AK 16	IVA		14.0	hand	lime	medium	smooth	cream	painted		
21	144:76	AK 16	IVA		15.0	hand	nvt	medium	smooth	cream	painted		
22	145:74	AK 16	IVA		17.0	hand	lime	medium	smooth	buff	painted		
23	153:69	AK 16	IVA		18.0	hand	lime	medium	smooth	cream	painted		
24	156:28	AK 16	IVA		11.0	hand	nvt	medium	smooth	cream	painted		
25	159:61	AK 16	IVA		10.0	hand	lime	medium	smooth	cream	painted		
26	165:39	AK 16	IVA		7.0	hand	lime	medium	smooth	buff	painted	Gawra 2, pl. LXIX. b. 16	XIX

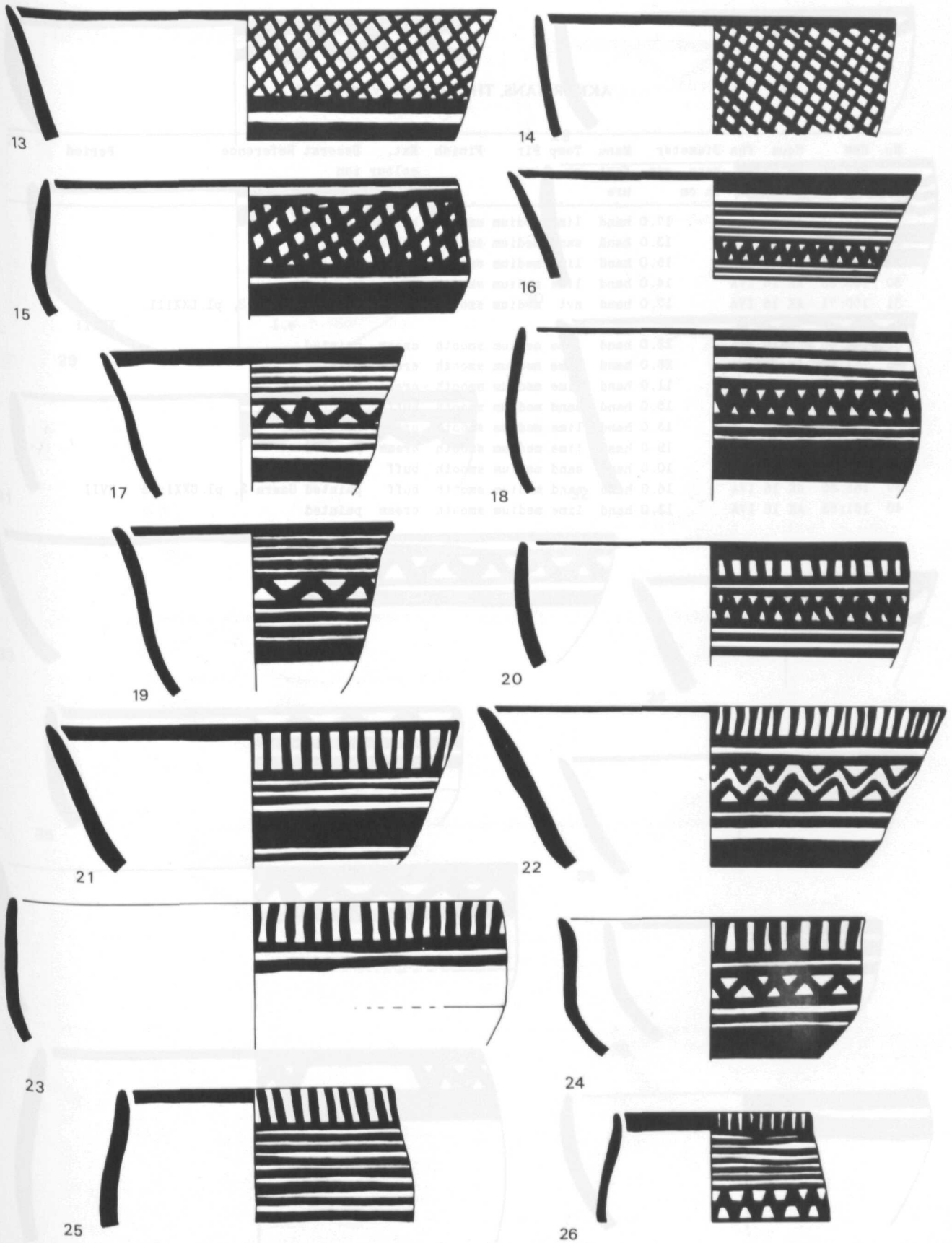


Plate 69. Hammam IVA painted bowls and goblets (scale 1:2).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
27	158:24	AK 16	IVA		17.0	hand	lime	medium	smooth	buff	painted		
28	158:23	AK 16	IVA		13.0	hand	sand	medium	smooth	cream	painted		
29	150:76	AK 16	IVA		15.0	hand	lime	medium	smooth	orange	painted		
30	165:33	AK 16	IVA		14.0	hand	lime	medium	smooth	cream	painted		
31	150:71	AK 16	IVA		17.0	hand	nvt	medium	smooth	cream	painted	Gawra 2, pl.LXXIII. e.1	XVIII
32	146:60	AK 16	IVA		13.0	hand	lime	medium	smooth	cream	painted		
33	151:67	AK 16	IVA		23.0	hand	lime	medium	smooth	cream	painted		
34	145:75	AK 16	IVA		11.0	hand	lime	medium	smooth	cream	painted		
35	153:68	AK 16	IVA		15.0	hand	sand	medium	smooth	buff	painted		
36	165:31	AK 16	IVA		13.0	hand	lime	medium	smooth	cream	painted		
37	151:66	AK 16	IVA		19.0	hand	lime	medium	smooth	cream	painted		
38	159:41	AK 16	IVA		10.0	hand	sand	medium	smooth	buff	painted		
39	165:30	AK 16	IVA		16.0	hand	sand	medium	smooth	buff	painted	Gawra 2, pl.CXXI:95	XVII
40	161:63	AK 16	IVA		13.0	hand	lime	medium	smooth	cream	painted		

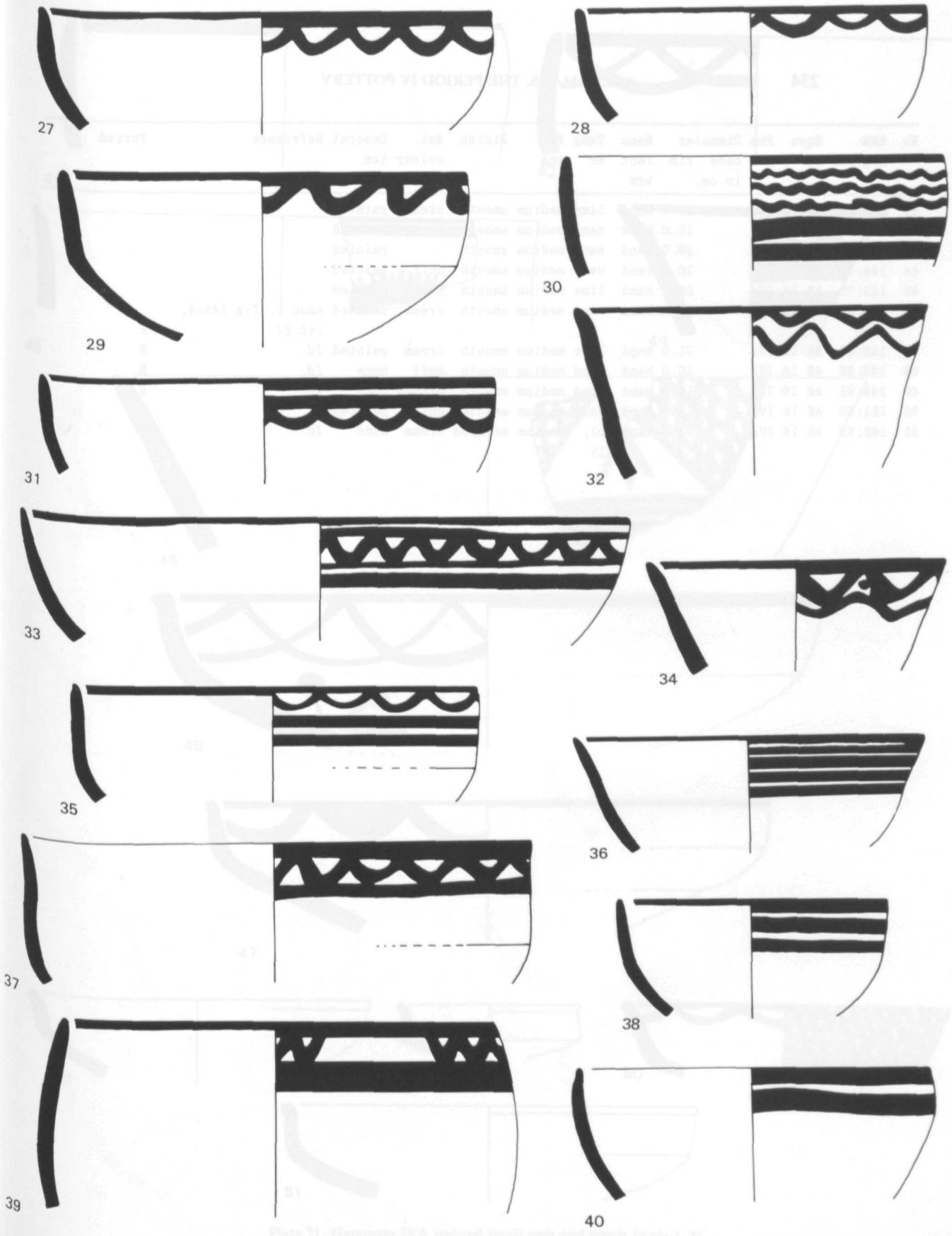


Plate 70. Hammam IVA painted bowls and small pots (scale 1:2).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
41	165:24	AK 16	IVA		16.0	hand	lime	medium	smooth	cream	painted		
42	165:37	AK 16	IVA		15.0	hand	sand	medium	smooth	orange	painted		
43	161:44	AK 16	IVA		19.0	hand	sand	medium	smooth		painted		
44	144:74	AK 16	IVA		10.0	hand	nvt	medium	smooth	buff	painted		
45	149:73	AK 16	IVA		28.0	hand	lime	medium	smooth	cream	painted		
46	152:36	AK 16	IVA		25.0	hand	sand	medium	smooth	cream	painted	Amuq 1, fig.145:4, 146:22	E
47	149:68	AK 16	IVA		21.0	hand	lime	medium	smooth	cream	painted	*Id.*	E
48	146:25	AK 16	IVA		10.0	hand	sand	medium	smooth	buff	none	*Id.*	E
49	144:61	AK 16	IVA		19.0	hand	sand	medium	smooth	orange	none	*Id.*	E
50	151:69	AK 16	IVA		12.0	hand	sand	medium	smooth	buff	painted	*Id.*	E
51	145:69	AK 16	IVA		23.0	hand	pl, li	medium	scraped	cream	none	*Id.*	E

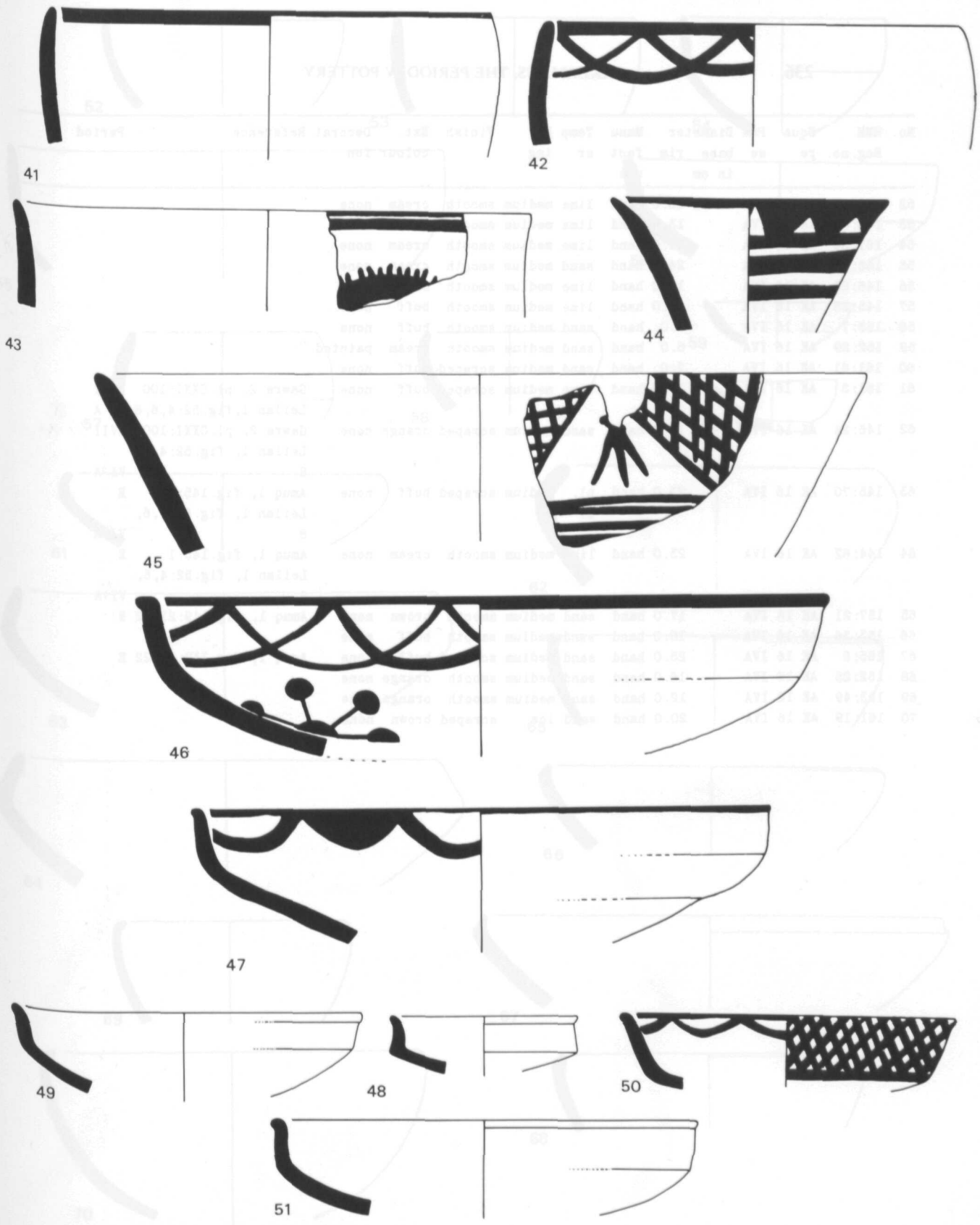


Plate 71. Hammam IVA painted small pots and bowls (scale 1:2).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
52	158:1	AK 16	IVA		13.0	hand	lime	medium	smooth	cream	none		
53	153:8	AK 16	IVA		13.0	hand	lime	medium	smooth	buff	none		
54	161:34	AK 16	IVA		11.0	hand	lime	medium	smooth	cream	none		
55	165:19	AK 16	IVA		24.0	hand	sand	medium	smooth	cream	none		
56	146:23	AK 16	IVA		17.0	hand	lime	medium	smooth	orange	none		
57	145:28	AK 16	IVA		10.0	hand	lime	medium	smooth	buff	none		
58	153:7	AK 16	IVA		9.0	hand	sand	medium	smooth	buff	none		
59	152:29	AK 16	IVA		8.0	hand	sand	medium	smooth	cream	painted		
60	161:61	AK 16	IVA		7.0	hand	sand	medium	scraped	buff	none		
61	151:3	AK 16	IVA		17.0	hand	lime	medium	scraped	buff	none	Gawra 2, pl. CXXI:100 Leilan 1, fig. 52:4,6,8	XVII VI A
62	146:24	AK 16	IVA		17.0	hand	sand	medium	scraped	orange	none	Gawra 2, pl. CXXI:100 Leilan 1, fig. 52:4,6, 8	XVII VI A
63	145:70	AK 16	IVA		23.0	hand	pl, li	medium	scraped	buff	none	Amuq 1, fig. 145:1 Leilan 1, fig. 52:4,6, 8	E VI A
64	144:62	AK 16	IVA		23.0	hand	lime	medium	smooth	cream	none	Amuq 1, fig. 145:1 Leilan 1, fig. 52:4,6, 8	E VI A
65	157:21	AK 16	IVA		17.0	hand	sand	medium	smooth	brown	none	Amuq 1, fig. 149:21,22	E
66	153:36	AK 16	IVA		18.0	hand	sand	medium	smooth	buff	none		
67	155:5	AK 16	IVA		25.0	hand	sand	medium	scraped	buff	none	Amuq 1, fig. 149:21,22	E
68	152:25	AK 16	IVA		16.0	hand	sand	medium	smooth	orange	none		
69	153:49	AK 16	IVA		12.0	hand	sand	medium	smooth	orange	none		
70	161:19	AK 16	IVA		20.0	hand	sand	low	scraped	brown	none		

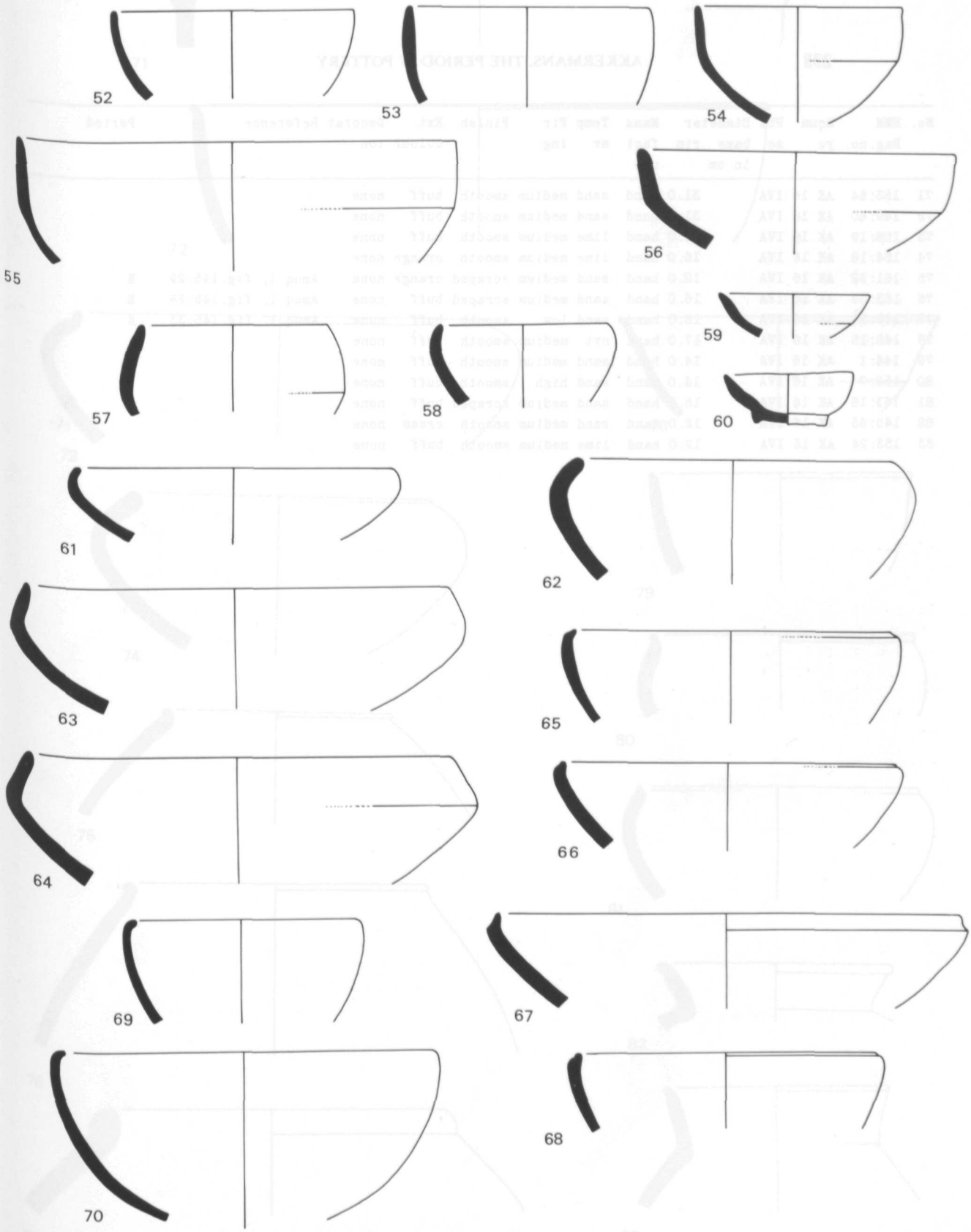


Plate 72. Hammam IVA unpainted bowls (scale 1:3).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
71	153:64	AK 16	IVA		31.0	hand	sand	medium	smooth	buff	none		
72	149:60	AK 16	IVA		31.0	hand	sand	medium	smooth	buff	none		
73	158:19	AK 16	IVA		22.0	hand	lime	medium	smooth	buff	none		
74	154:18	AK 16	IVA		16.0	hand	lime	medium	smooth	orange	none		
75	161:32	AK 16	IVA		12.0	hand	sand	medium	scraped	orange	none	Amuq 1, fig.145:29	E
76	163:37	AK 16	IVA		16.0	hand	sand	medium	scraped	buff	none	Amuq 1, fig.145:28	E
77	149:38	AK 16	IVA		18.0	hand	sand	low	smooth	buff	none	Amuq 1, fig.145:33	E
78	145:15	AK 16	IVA		17.0	hand	nvt	medium	smooth	buff	none		
79	144:1	AK 16	IVA		14.0	hand	sand	medium	smooth	buff	none		
80	158:7	AK 16	IVA		14.0	hand	sand	high	smooth	buff	none		
81	163:18	AK 16	IVA		15.0	hand	sand	medium	scraped	buff	none		
82	145:63	AK 16	IVA		12.0	hand	sand	medium	smooth	cream	none		
83	153:24	AK 16	IVA		12.0	hand	lime	medium	smooth	buff	none		

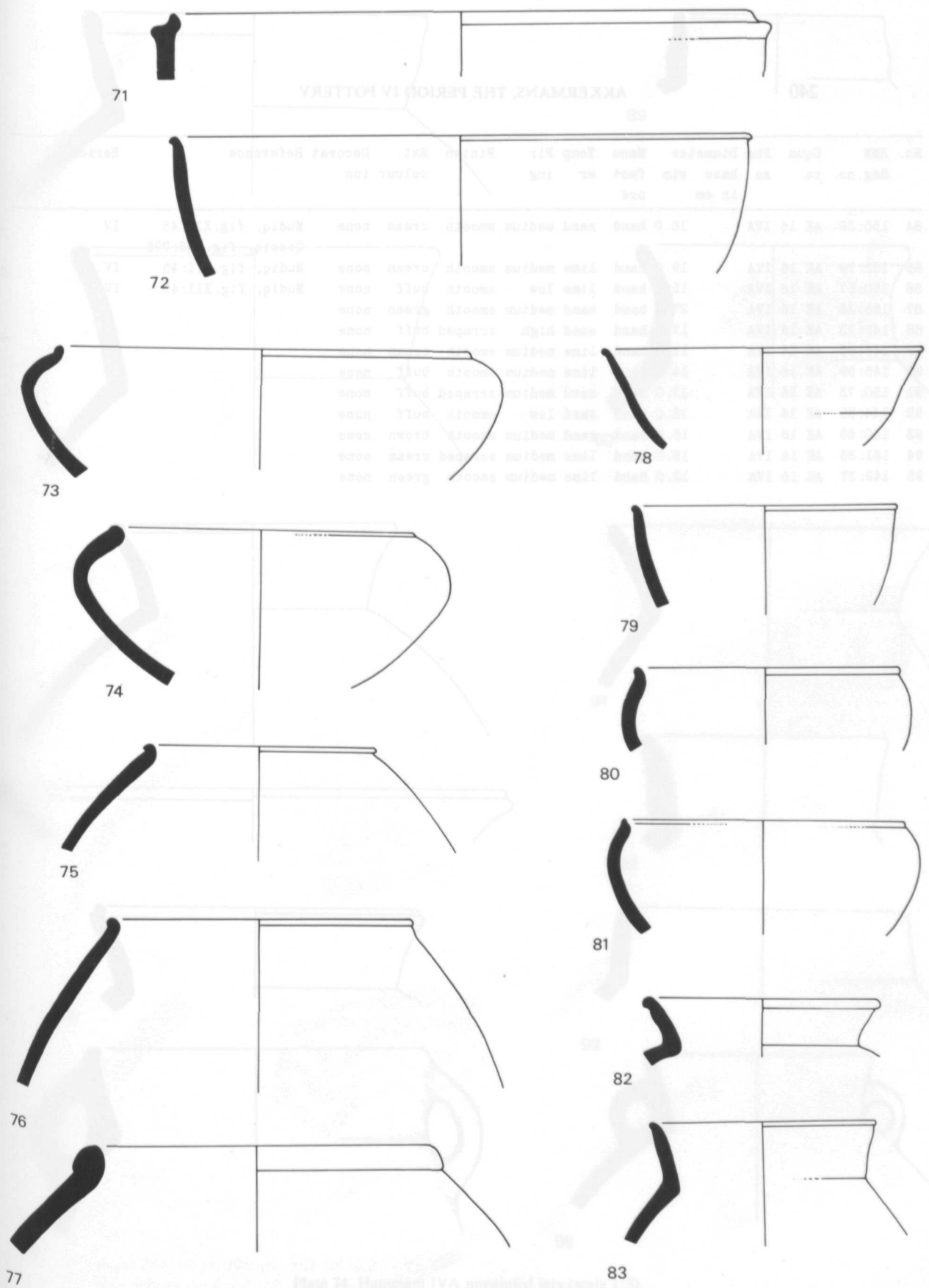


Plate 73. Hammam IVA unpainted bowls, pots and jars (scale 1:3).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
84	150:38	AK 16	IVA		18.0	hand	sand	medium	smooth	cream	none	Mudiq, fig.XII:45 Qoueiq, fig.148:775	IV
85	163:79	AK 16	IVA		19.0	hand	lime	medium	smooth	cream	none	Mudiq, fig.XII:45	IV
86	150:57	AK 16	IVA		15.0	hand	lime	low	smooth	buff	none	Mudiq, fig.XII:45	IV
87	155:38	AK 16	IVA		27.0	hand	sand	medium	smooth	green	none		
88	145:73	AK 16	IVA		17.0	hand	sand	high	scraped	buff	none		
89	145:60	AK 16	IVA		11.0	hand	lime	medium	smooth	cream	none		
90	145:59	AK 16	IVA		14.0	hand	lime	medium	smooth	buff	none		
91	150:73	AK 16	IVA		17.0	hand	sand	medium	scraped	buff	none		
92	144:59	AK 16	IVA		13.0	hand	sand	low	smooth	buff	none		
93	150:60	AK 16	IVA		15.0	hand	sand	medium	smooth	brown	none		
94	161:33	AK 16	IVA		18.0	hand	lime	medium	scraped	cream	none		
95	149:37	AK 16	IVA		12.0	hand	lime	medium	smooth	green	none		

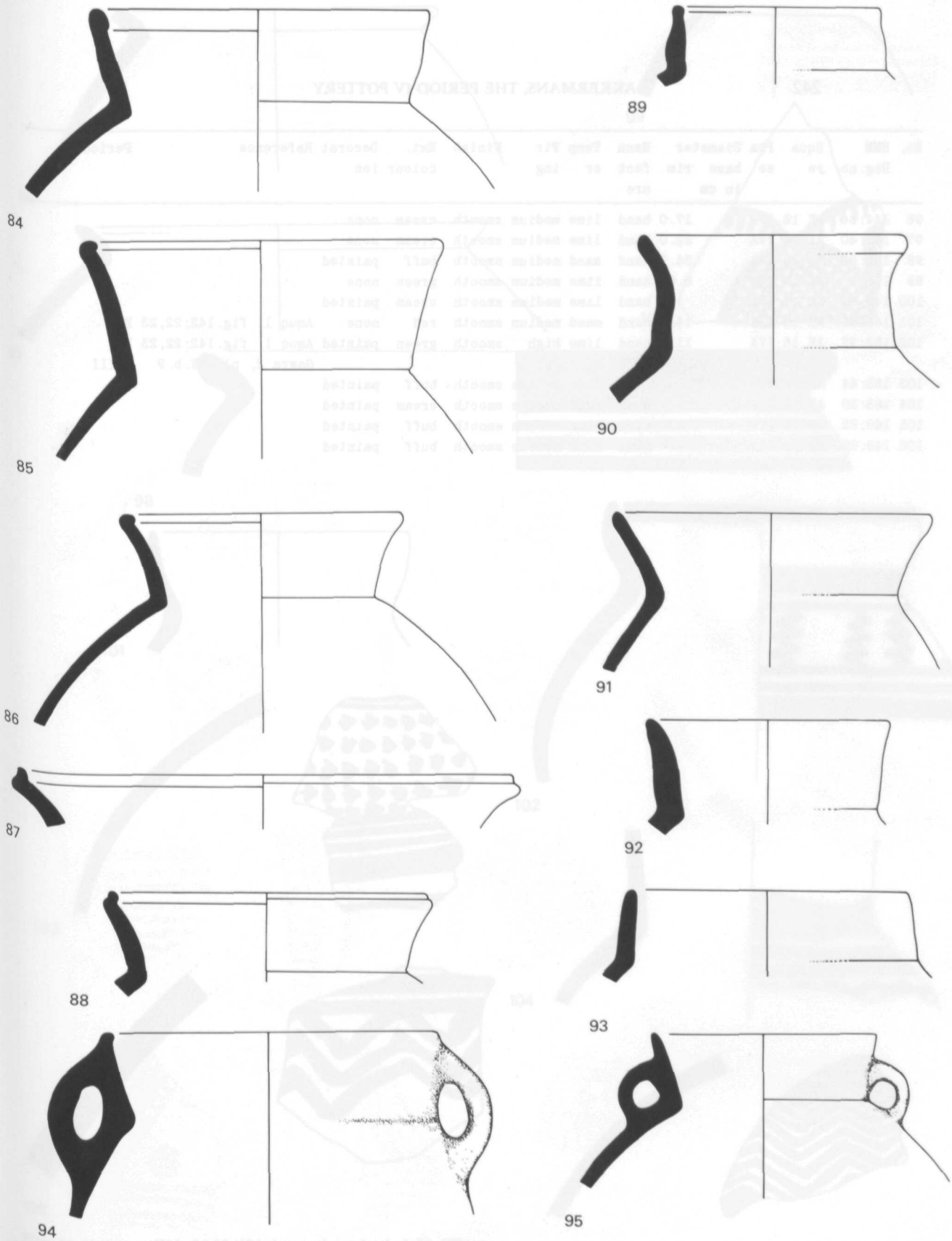


Plate 74. Hammam IVA unpainted jars (scale 1:3).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
96	144:56	AK 16	IVA		17.0	hand	lime	medium	smooth	cream	none		
97	149:40	AK 16	IVA		22.0	hand	lime	medium	smooth	cream	none		
98	149:81	AK 16	IVA		34.0	hand	sand	medium	smooth	buff	painted		
99	157:1	AK 16	IVA		8.0	hand	lime	medium	smooth	green	none		
100	149:80	AK 16	IVA			hand	lime	medium	smooth	cream	painted		
101	163:45	AK 16	IVA		14.0	hand	sand	medium	smooth	red	none	Amuq 1, fig.142:22,23	E
102	153:97	AK 16	IVA		11.0	hand	lime	high	smooth	green	painted	Amuq 1, fig.142:22,23 Gawra 2, pl.LXX.b.9	E XVIII
103	155:44	AK 16	IVA			hand	lime	medium	smooth	buff	painted		
104	158:20	AK 16	IVA			hand	sand	medium	smooth	cream	painted		
105	149:82	AK 16	IVA			hand	lime	medium	smooth	buff	painted		
106	145:89	AK 16	IVA			hand	sand	medium	smooth	buff	painted		

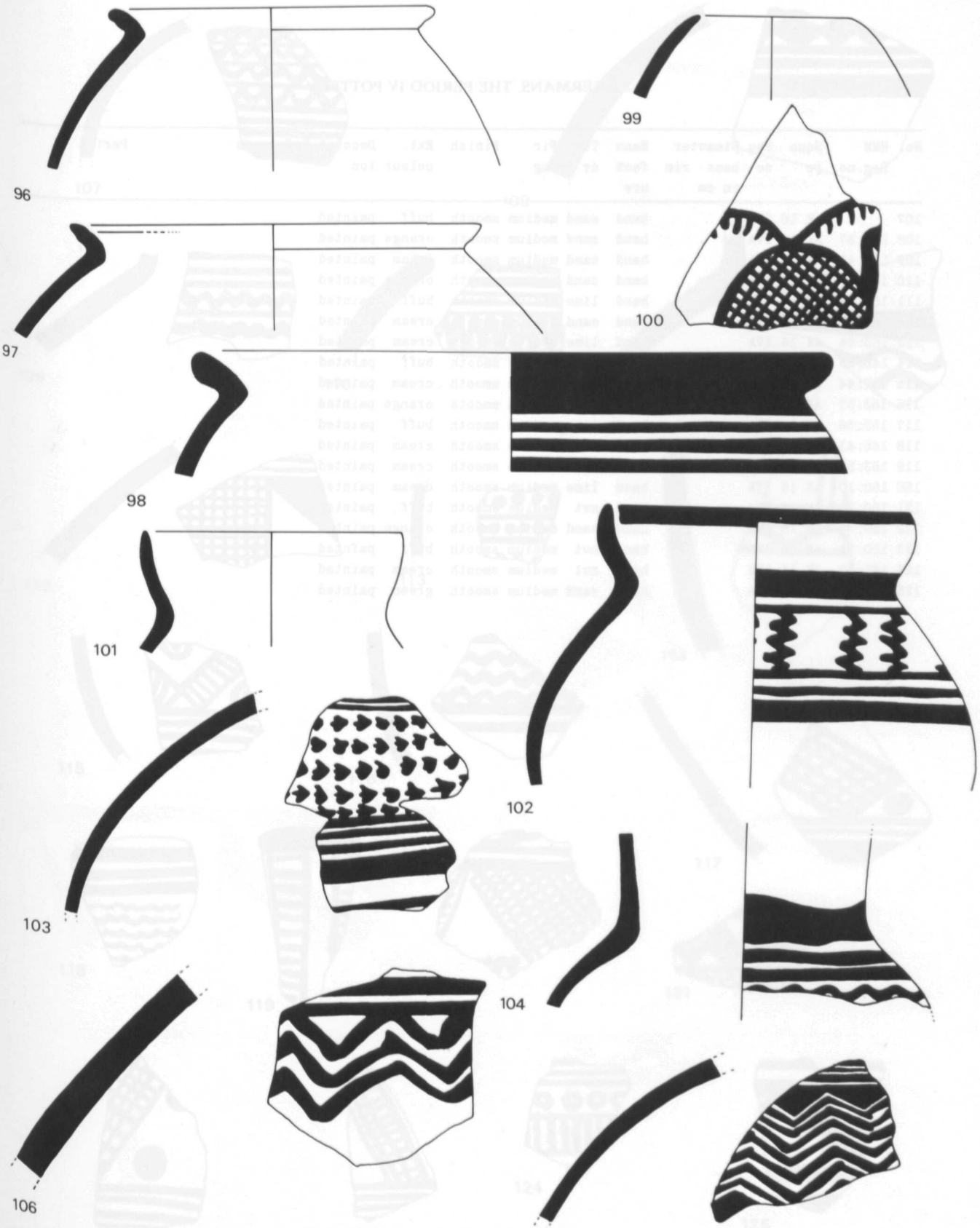


Plate 75. Hammam IVA. 96-99, 101: jars and pot (scale 1:3); 100, 102-106: painted jar and sherds (scale 1:2).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
107		AK 16	IVA			hand	sand	medium	smooth	buff	painted		
108	144:87	AK 16	IVA			hand	sand	medium	smooth	orange	painted		
109	161:41	AK 16	IVA			hand	sand	medium	smooth	cream	painted		
110	153:77	AK 16	IVA			hand	sand	medium	smooth	orange	painted		
111	150:97	AK 16	IVA			hand	lime	medium	smooth	buff	painted		
112	161:45	AK 16	IVA			hand	sand	medium	smooth	cream	painted		
113	163:66	AK 16	IVA			hand	lime	medium	smooth	cream	painted		
114	146:59	AK 16	IVA			hand	sand	medium	smooth	buff	painted		
115	157:44	AK 16	IVA			hand	lime	medium	smooth	cream	painted		
116	163:57	AK 16	IVA			hand	lime	medium	smooth	orange	painted		
117	153:56	AK 16	IVA			hand	lime	medium	smooth	buff	painted		
118	165:41	AK 16	IVA			hand	nvt	medium	smooth	cream	painted		
119	163:56	AK 16	IVA			hand	lime	medium	smooth	cream	painted		
120	150:104	AK 16	IVA			hand	lime	medium	smooth	cream	painted		
121	150:105	AK 16	IVA			hand	nvt	medium	smooth	buff	painted		
122	150:74	AK 16	IVA			hand	sand	medium	smooth	orange	painted		
123	150:75	AK 16	IVA			hand	nvt	medium	smooth	buff	painted		
124	161:52	AK 16	IVA			hand	nvt	medium	smooth	cream	painted		
125	161:56	AK 16	IVA			hand	sand	medium	smooth	green	painted		



Plate 76. Hammam IVA painted designs (scale 1:2).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
126	122:8	AK 16	IVB		10.0	hand	lime	medium	smooth	buff	painted		
127	138:16	AK 16	IVB		11.0	hand	lime	medium	smooth	cream	painted		
128	138:14	AK 16	IVB		11.0	hand	sand	medium	smooth	buff	painted	Gawra 2, pl. CXXIV:134	XVI
												Gawra 2, pl. LXXIV. b. 13	XVII
129	142:60	AK 16	IVB		11.0	hand	lime	medium	smooth	buff	painted	Gawra 2, pl. CXXIV:132	XV
130	139:29	AK 16	IVB		23.0	hand	lime	medium	smooth	green	painted	Gawra 2, pl. LXXVII. a. 17	XVI
131	128:80	AK 16	IVB		15.0	hand	sand	medium	smooth	buff	painted		
132	122:1	AK 16	IVB		16.0	hand	sand	medium	smooth	buff	painted		
133	142:61	AK 16	IVB		26.0	hand	lime	medium	smooth	cream	painted		

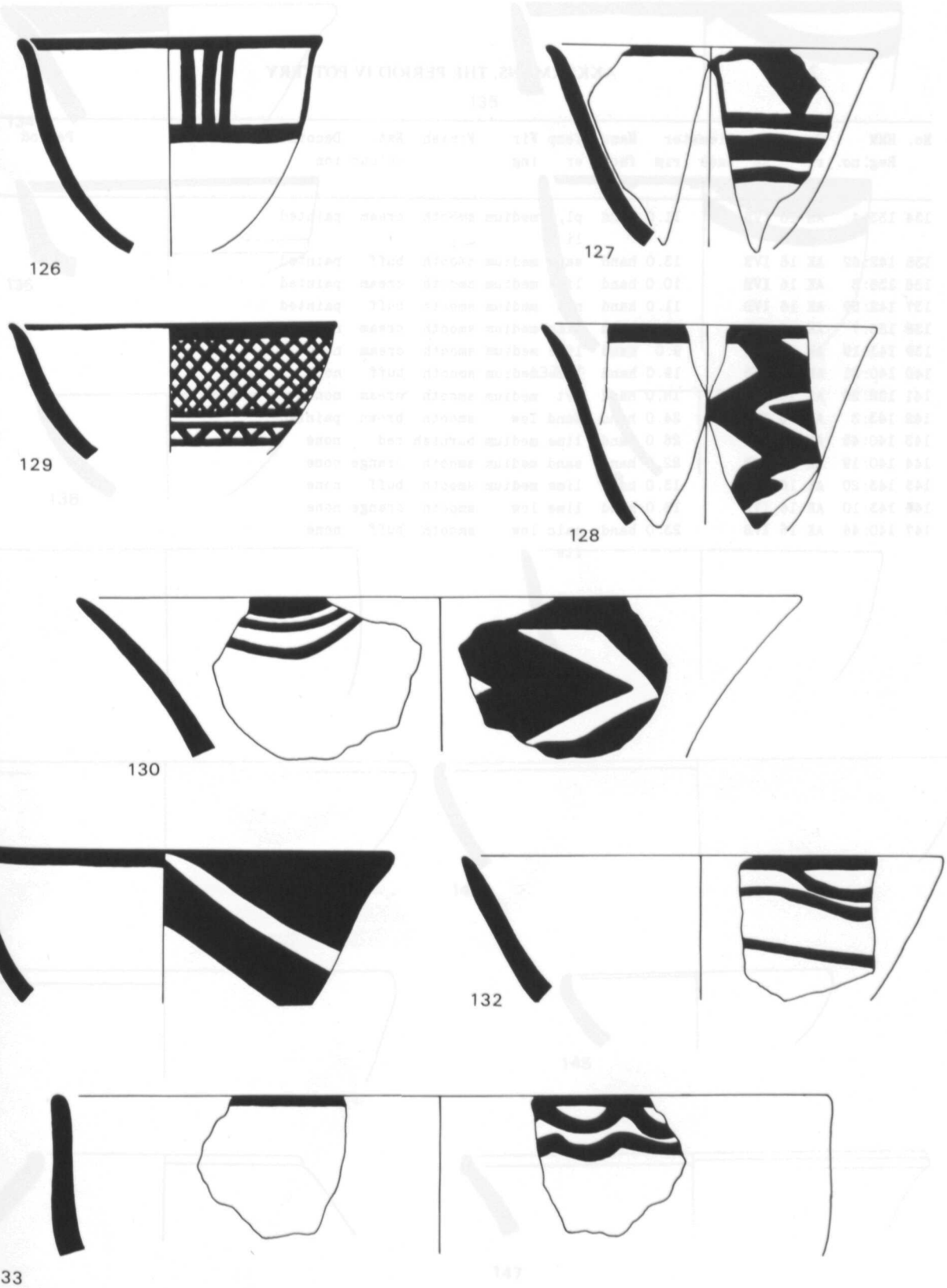


Plate 77. Hammam IVB painted bowls (scale 1:2).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
134	133:4	AK 16	IVB		11.0	hand	pl, li	medium	smooth	cream	painted		
135	142:62	AK 16	IVB		13.0	hand	sand	medium	smooth	buff	painted		
136	138:8	AK 16	IVB		10.0	hand	lime	medium	smooth	cream	painted		
137	142:59	AK 16	IVB		11.0	hand	nvt	medium	smooth	buff	painted		
138	138:7	AK 16	IVB		13.0	hand	lime	medium	smooth	cream	none		
139	143:19	AK 16	IVB		9.0	hand	lime	medium	smooth	cream	none		
140	140:21	AK 16	IVB		19.0	hand	lime	medium	smooth	buff	none		
141	132:20	AK 16	IVB		18.0	hand	nvt	medium	smooth	cream	none		
142	143:3	AK 16	IVB		24.0	hand	sand	low	smooth	brown	painted		
143	140:45	AK 16	IVB		26.0	hand	lime	medium	burnish	red	none		
144	140:19	AK 16	IVB		22.0	hand	sand	medium	smooth	orange	none		
145	143:20	AK 16	IVB		13.0	hand	lime	medium	smooth	buff	none		
146	143:10	AK 16	IVB		13.0	hand	lime	low	smooth	orange	none		
147	140:46	AK 16	IVB		23.0	hand	calcite	low	smooth	buff	none		

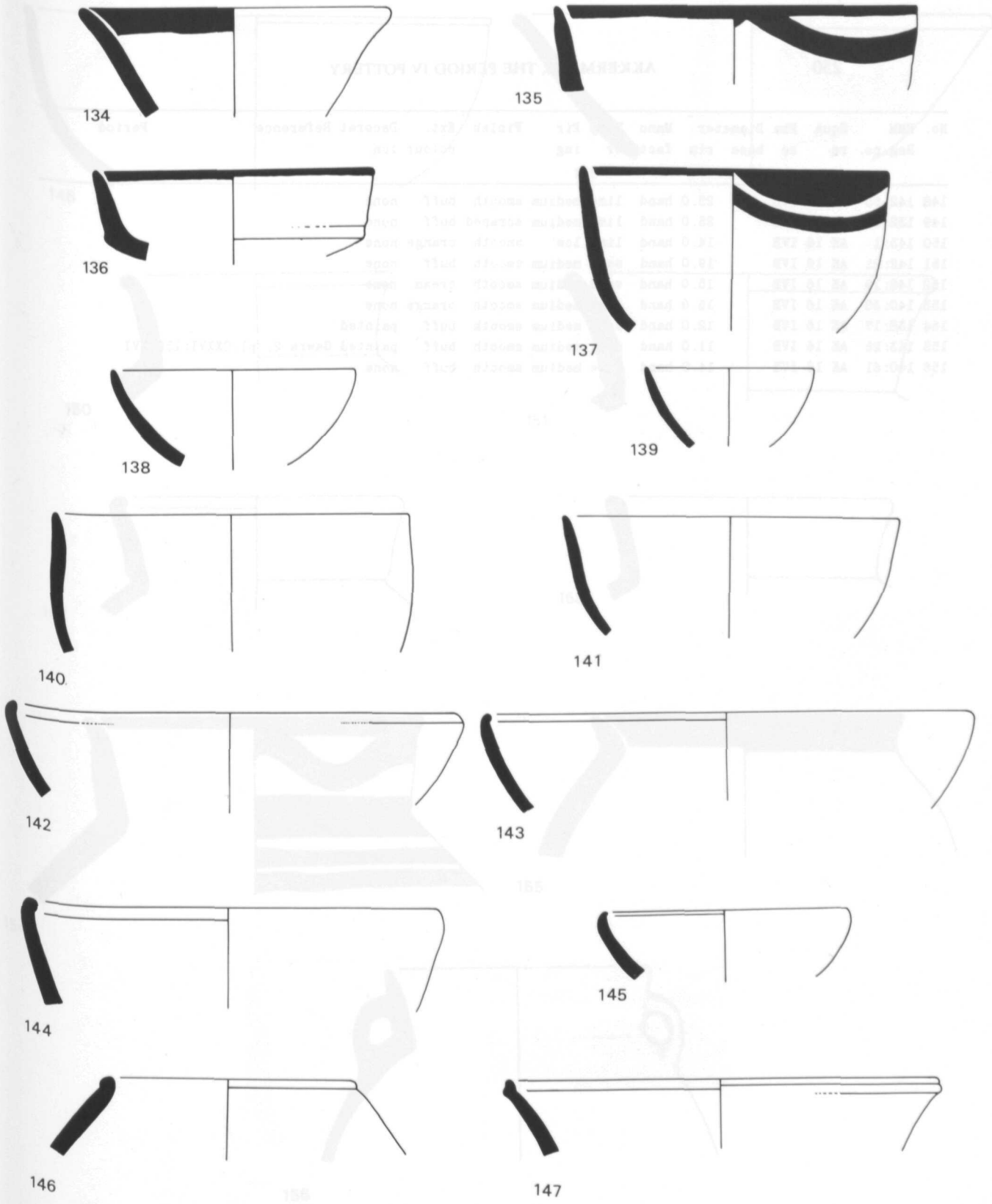


Plate 78. Hammam IVB painted bowls (scale 1:2); unpainted bowls (scale 1:3).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
148	142:55	AK 16	IVB		25.0	hand	lime	medium	smooth	buff	none		
149	132:19	AK 16	IVB		25.0	hand	lime	medium	scraped	buff	none		
150	143:1	AK 16	IVB		14.0	hand	lime	low	smooth	orange	none		
151	142:21	AK 16	IVB		19.0	hand	sand	medium	smooth	buff	none		
152	142:19	AK 16	IVB		15.0	hand	sand	medium	smooth	cream	none		
153	140:38	AK 16	IVB		15.0	hand	lime	medium	smooth	orange	none		
154	138:17	AK 16	IVB		12.0	hand	sand	medium	smooth	buff	painted		
155	143:25	AK 16	IVB		11.0	hand	nvt	medium	smooth	buff	painted	Gawra 2, pl. CXXVI:155	XVI
156	140:61	AK 16	IVB		14.0	hand	lime	medium	smooth	buff	none		

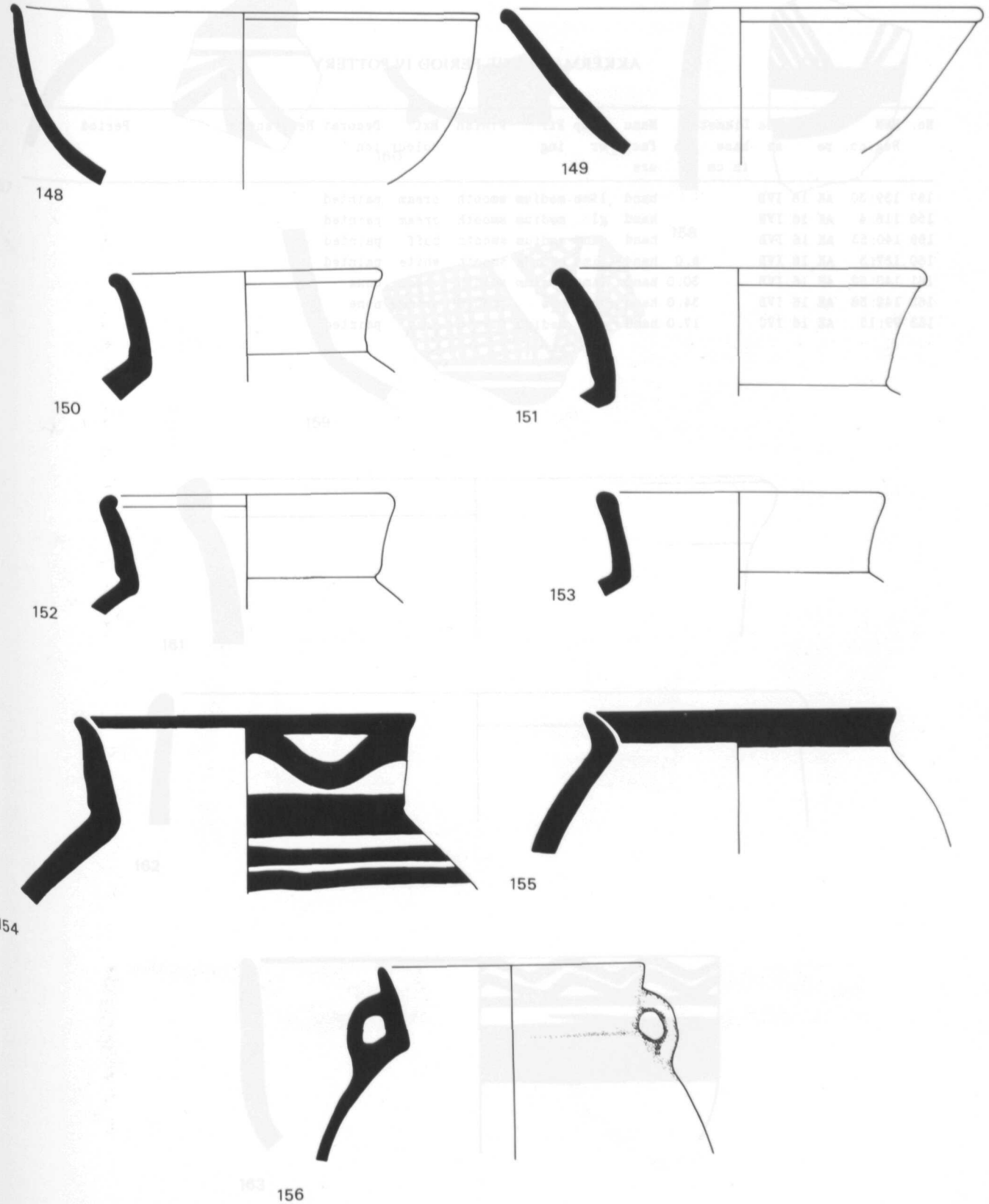


Plate 79. Hammam IVB unpainted bowls and jars (scale 1:3); painted jars (scale 1:2).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
157	139:30	AK 16	IVB			hand	lime	medium	smooth	cream	painted		
158	116:4	AK 16	IVB			hand	gl	medium	smooth	cream	painted		
159	140:53	AK 16	IVB			hand	sand	medium	smooth	buff	painted		
160	137:3	AK 16	IVB		5.0	hand	lime	medium	smooth	white	painted		
161	140:52	AK 16	IVB		30.0	hand	lime	medium	smooth	cream	none		
162	142:58	AK 16	IVB		34.0	hand	sand	low	smooth	orange	none		
163	99:15	AK 16	IVC		17.0	hand	pl, li	medium	smooth	gray	painted		

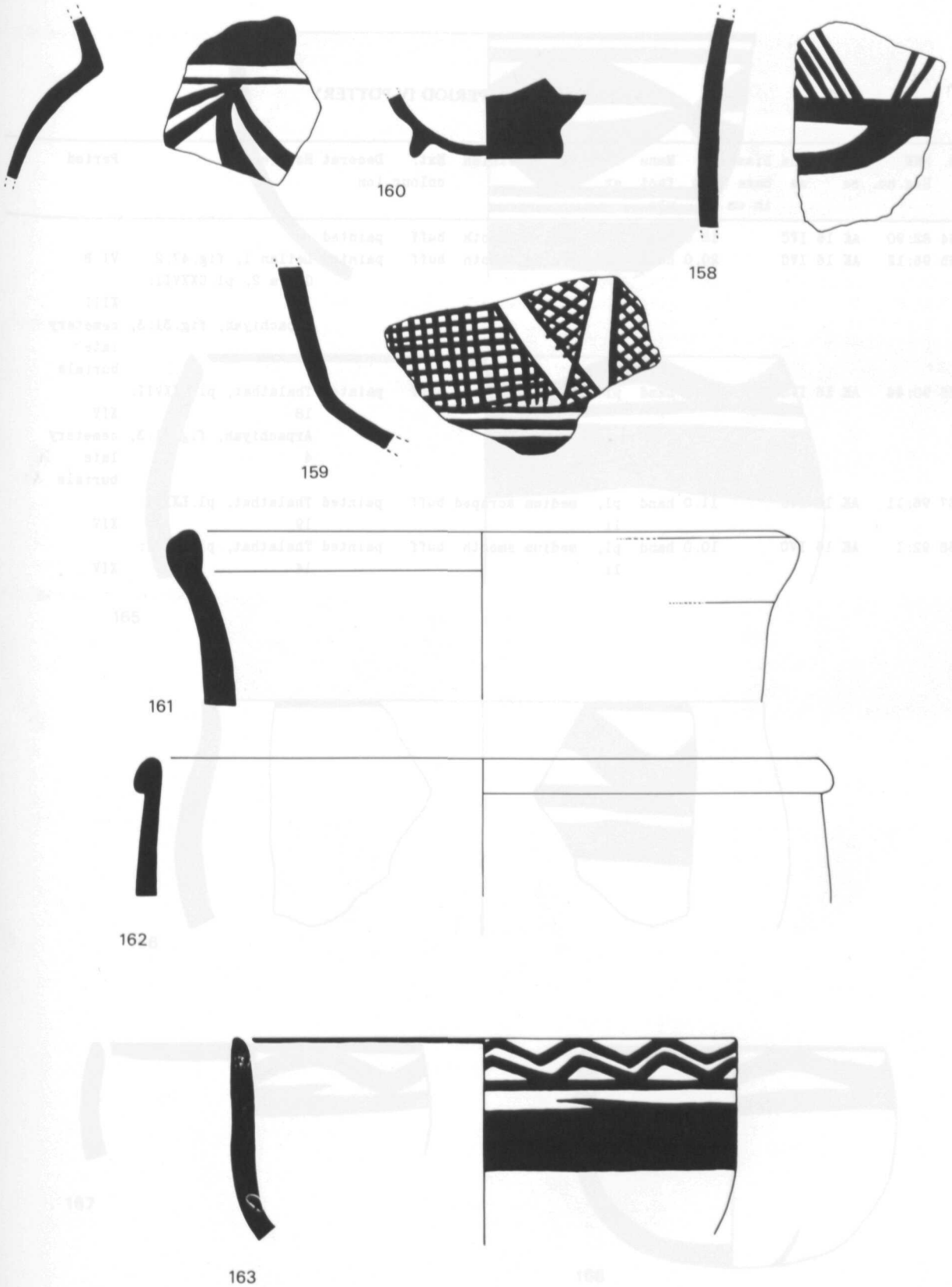


Plate 80. 157-162: Hammam IVB painted designs (scale 1:2); unpainted jar and pot (scale 1:3); 163: Hammam IVC painted bowl (scale 1:2).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
164	82:90	AK 16	IVC		18.0	hand	sand	medium	smooth	buff	painted		
165	96:12	AK 16	IVC		20.0	hand	lime	medium	smooth	buff	painted	Leilan 1, fig.47:2 Gawra 2, pl.CXXVII: 172 Arpachiyah, fig.31:3, 4	VI B XIII cemetery late burials
166	90:44	AK 16	IVC		19.0	hand	pl	medium	smooth	buff	painted	Thalathat, pl.LXXVII: 18 Arpachiyah, fig.31:3, 4	XIV cemetery late burials
167	96:11	AK 16	IVC		11.0	hand	pl, li	medium	scraped	buff	painted	Thalathat, pl.LXXVI: 19	XIV
168	92:1	AK 16	IVC		10.0	hand	pl, li	medium	smooth	buff	painted	Thalathat, pl.LXXVI: 14	XIV

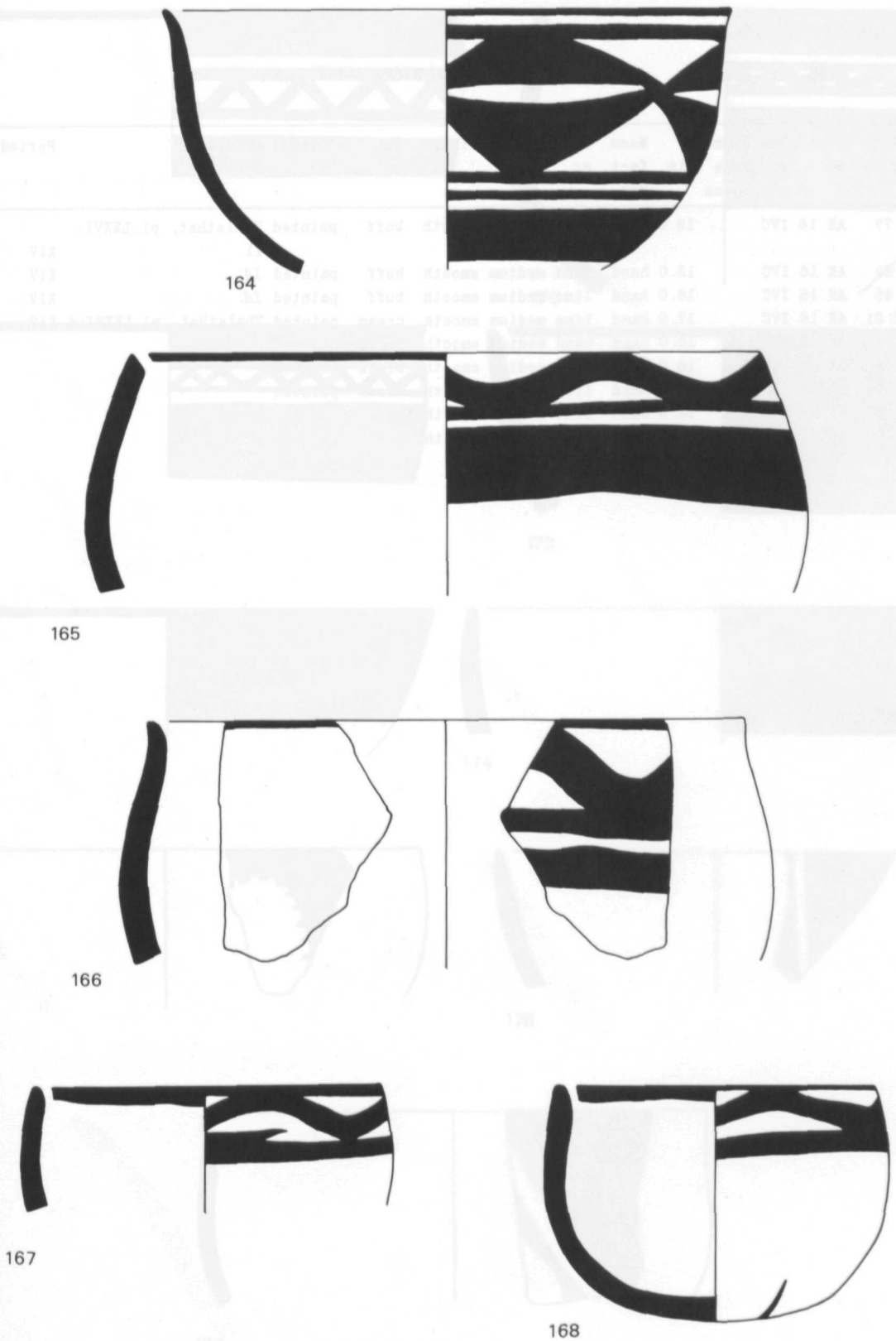


Plate 81. Hammam IVC painted bowls (scale 1:2).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
169	80:77	AK 16	IVC		18.0	hand	sand	medium	smooth	buff	painted	Thalathat, pl.LXXVI: 11	XIV
170	82:89	AK 16	IVC		12.0	hand	sand	medium	smooth	buff	painted	*Id.*	XIV
171	95:45	AK 16	IVC		16.0	hand	lime	medium	smooth	buff	painted	*Id.*	XIV
172	102:21	AK 16	IVC		17.0	hand	lime	medium	smooth	cream	painted	Thalathat, pl.LXXVI:4	XIV
173	75:24	AK 16	IVC		15.0	hand	sand	medium	smooth	black	painted		
174	95:42	AK 16	IVC		16.0	hand	lime	medium	smooth	black	painted		
175	95:15	AK 16	IVC		16.0	hand	lime	medium	smooth	cream	painted		
176	102:25	AK 16	IVC		14.0	hand	lime	medium	smooth	cream	painted		
177	75:20	AK 16	IVC		16.0	hand	sand	medium	smooth	buff	painted		

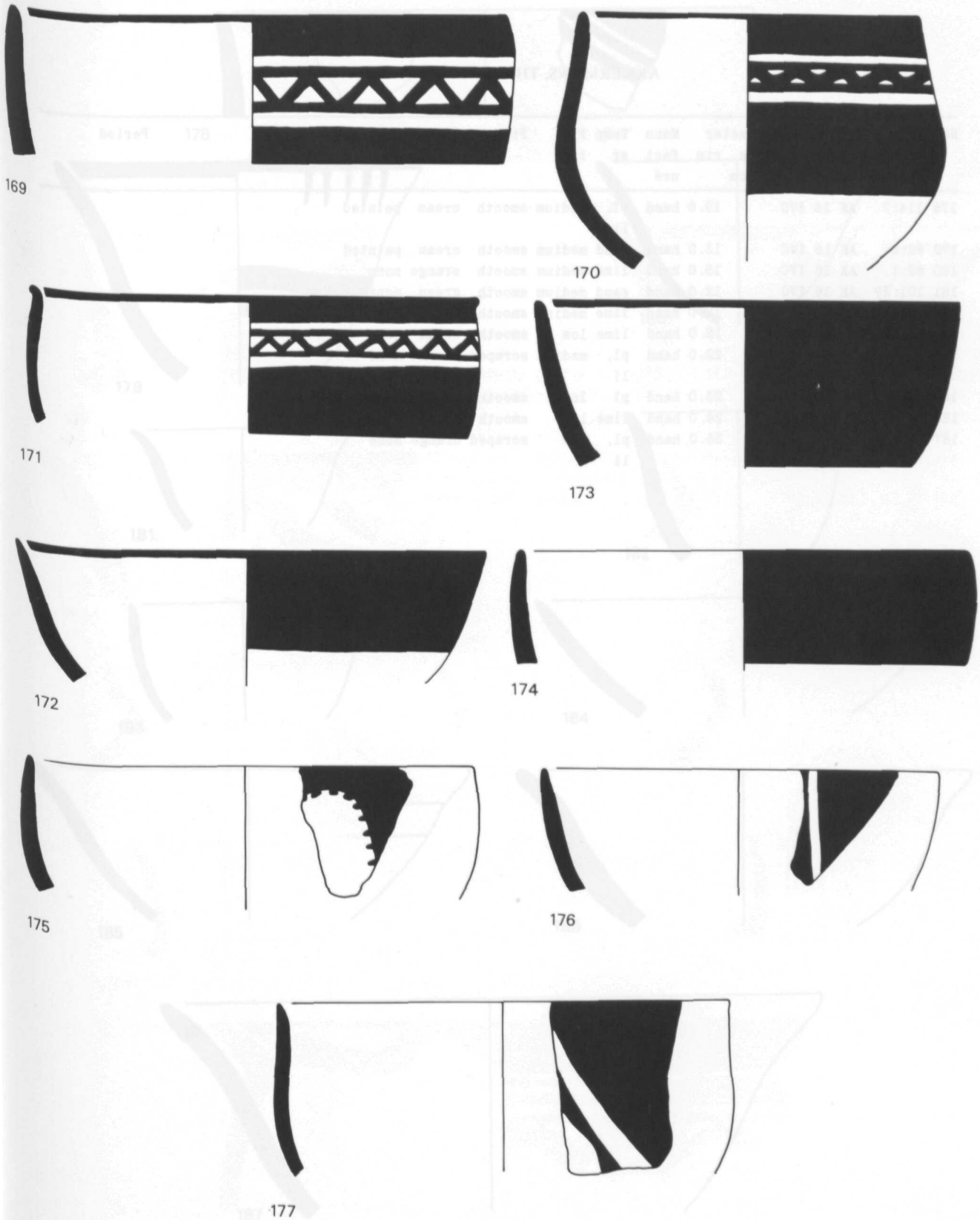


Plate 82. Hammam IVC painted bowls and goblet (scale 1:2).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
178	114:7	AK 16	IVC		19.0	hand	pl, li	medium	smooth	cream	painted		
179	98:8	AK 16	IVC		13.0	hand	sand	medium	smooth	cream	painted		
180	82:1	AK 16	IVC		15.0	hand	lime	medium	smooth	orange	none		
181	101:29	AK 16	IVC		12.0	hand	sand	medium	smooth	green	none		
182	113:12	AK 16	IVC		12.0	hand	lime	medium	smooth	cream	none		
183	95:19	AK 16	IVC		12.0	hand	lime	low	smooth	cream	none		
184	71:1	AK 16	IVC		22.0	hand	pl, li	medium	scraped	cream	none		
185	101:2	AK 16	IVC		23.0	hand	pl	low	smooth	orange	none		
186	107:1	AK 16	IVC		24.0	hand	lime	low	smooth	cream	none		
187	75:1	AK 16	IVC		35.0	hand	pl, li	low	scraped	orange	none		

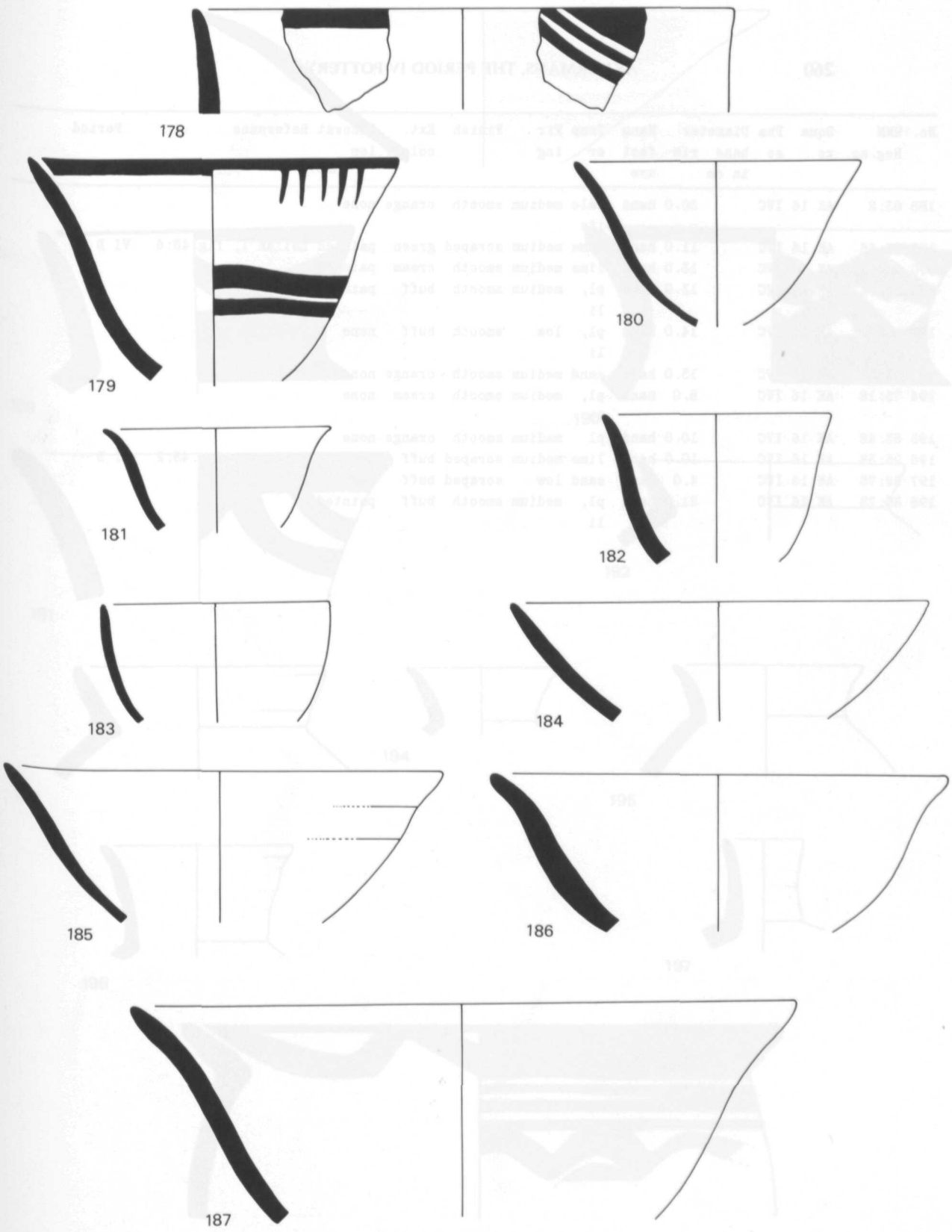


Plate 83. Hammam IVC painted bowls (scale 1:2); unpainted bowls (scale 1:3).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
188	83:2	AK 16	IVC		30.0	hand	calcite	medium	smooth	orange	none		
189	95:46	AK 16	IVC		11.0	hand	lime	medium	scraped	green	painted	Leilan 1, fig. 48:6	VI B
190	113:11	AK 16	IVC		13.0	hand	lime	medium	smooth	cream	painted		
191	83:54	AK 16	IVC		13.0	hand	pl, li	medium	smooth	buff	painted		
192	106:11	AK 16	IVC		14.0	hand	pl, li	low	smooth	buff	none		
193	95:33	AK 16	IVC		13.0	hand	sand	medium	smooth	orange	none		
194	75:18	AK 16	IVC		8.0	hand	pl, li	medium	smooth	cream	none		
195	83:48	AK 16	IVC		10.0	hand	pl	medium	smooth	orange	none		
196	95:38	AK 16	IVC		10.0	hand	lime	medium	scraped	buff	none	Leilan 1, fig. 48:2	VI B
197	82:75	AK 16	IVC		4.0	hand	sand	low	scraped	buff	none		
198	80:78	AK 16	IVC		21.0	hand	pl, li	medium	smooth	buff	painted		

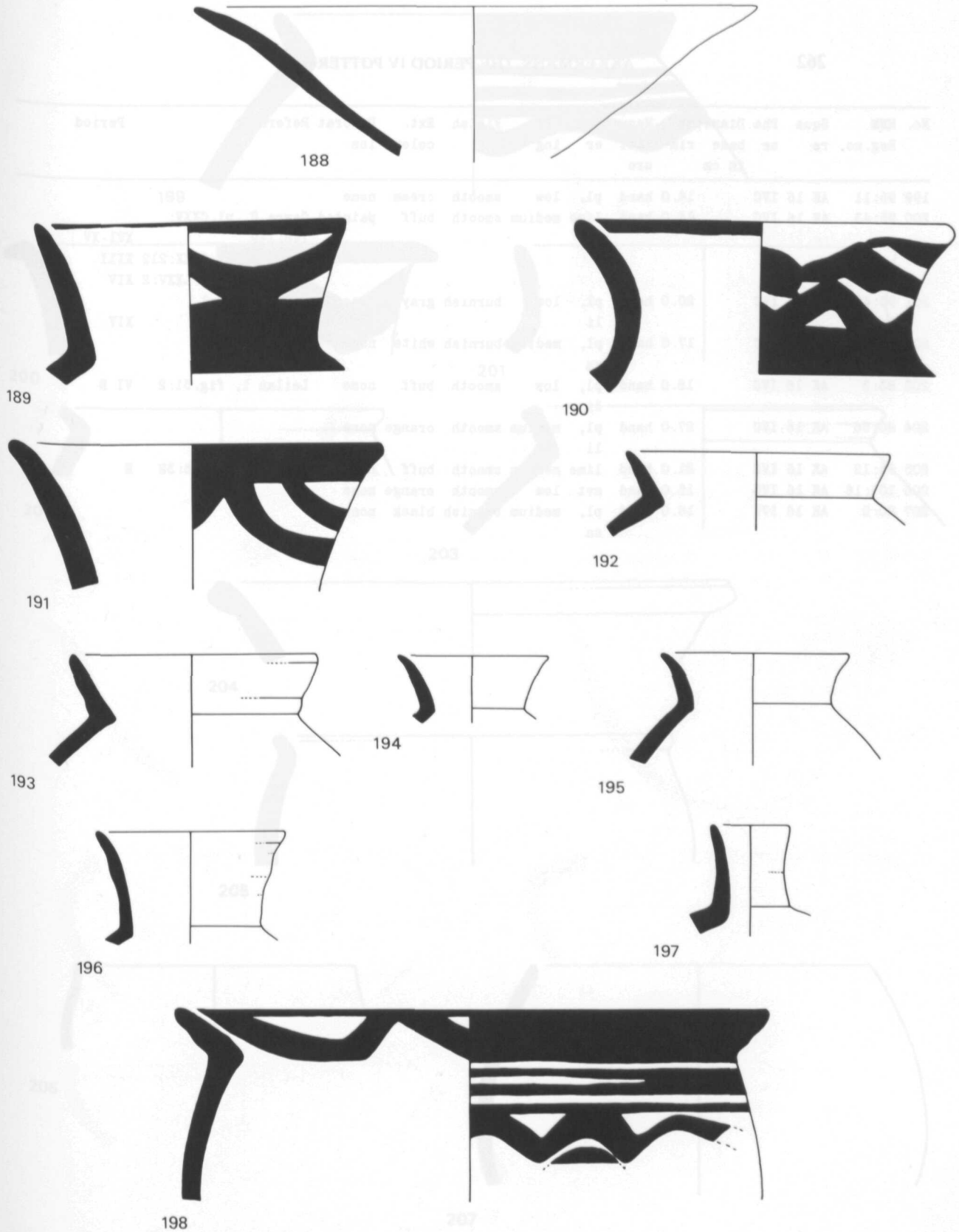


Plate 84. Hammam IVC unpainted bowl and jars (scale 1:3); painted jars and pot (scale 1:2).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
199	95:11	AK 16	IVC		14.0	hand	pl, li	low	smooth	cream	none		
200	95:43	AK 16	IVC		14.0	hand	lime	medium	smooth	buff	painted	Gawra 2, pl. CXXV: 148,149	XVI-XV
												Gawra 2, pl. CXXX: 212	XIII
												Thalathat, pl. LXXV: 2	XIV
201	90:40	AK 16	IVC		20.0	hand	pl, li	low	burnish	gray	none	Thalathat, pl. LXXVIII: 16	XIV
202	71:36	AK 16	IVC		17.0	hand	pl, sa	medium	burnish	white	none		
203	83:3	AK 16	IVC		18.0	hand	pl, li	low	smooth	buff	none	Leilan 1, fig. 51:2	VI B
204	80:56	AK 16	IVC		27.0	hand	pl, li	medium	smooth	orange	none		
205	95:12	AK 16	IVC		21.0	hand	lime	medium	smooth	buff	none	Amuq 1, fig. 145:32	E
206	101:16	AK 16	IVC		15.0	hand	nvt	low	smooth	orange	none		
207	80:2	AK 16	IVC		18.0	hand	pl, sa	medium	burnish	black	none		

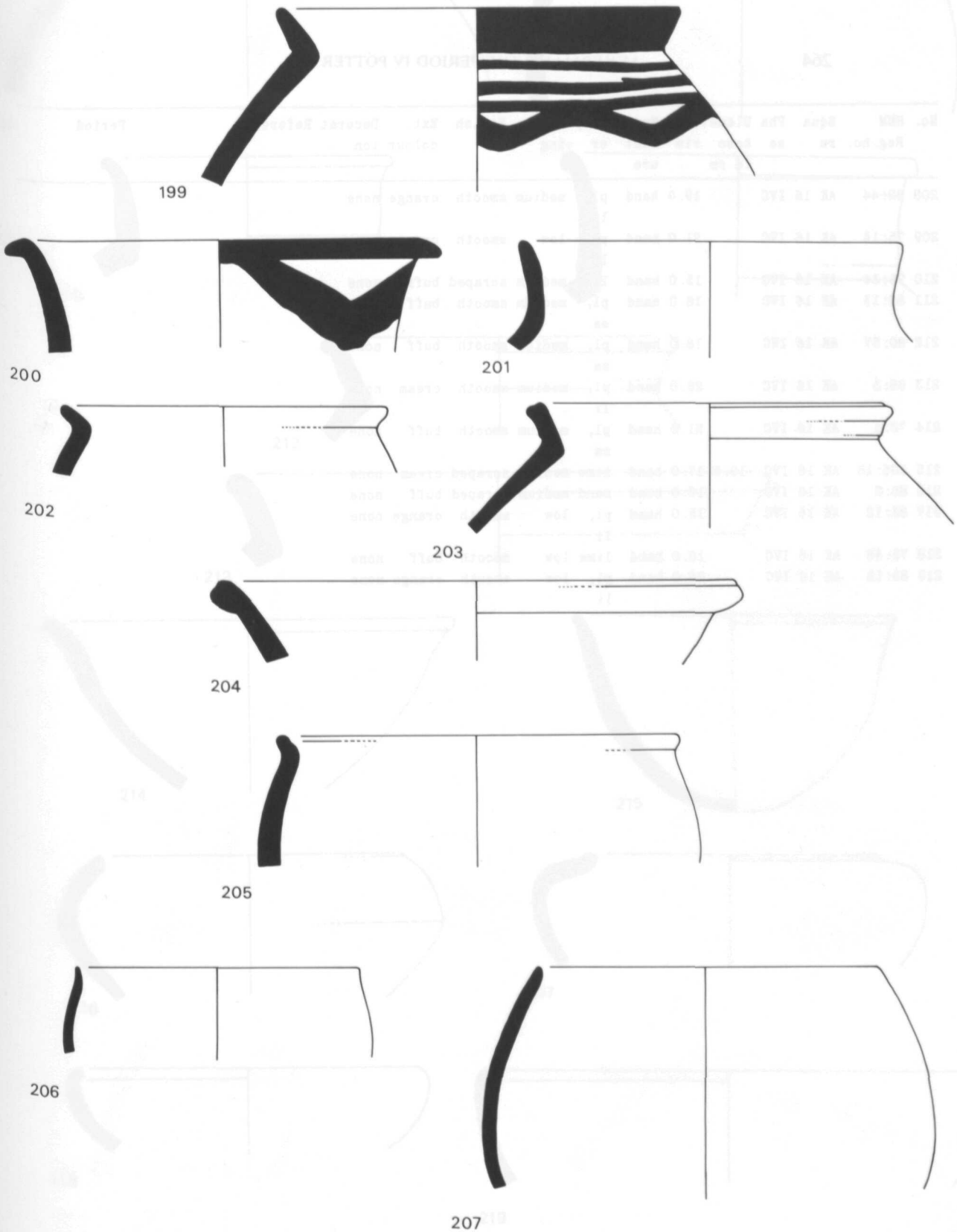


Plate 85. Hammam IVC painted jars (scale 1:2); unpainted pots and jars (scale 1:3).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
208	82:44	AK 16	IVC		19.0	hand	pl, li	medium	smooth	orange	none		
209	75:14	AK 16	IVC		21.0	hand	pl, li	low	smooth	cream	none		
210	95:34	AK 16	IVC		15.0	hand	lime	medium	scraped	buff	none		
211	82:13	AK 16	IVC		18.0	hand	pl, sa	medium	smooth	buff	none		
212	80:57	AK 16	IVC		18.0	hand	pl, sa	medium	smooth	buff	none		
213	88:3	AK 16	IVC		28.0	hand	pl, li	medium	smooth	cream	none		
214	72:1	AK 16	IVC		21.0	hand	pl, sa	medium	smooth	buff	none		
215	106:16	AK 16	IVC	10.5	17.0	hand	lime	medium	scraped	cream	none		
216	85:2	AK 16	IVC		16.0	hand	sand	medium	scraped	buff	none		
217	83:12	AK 16	IVC		15.0	hand	pl, li	low	smooth	orange	none		
218	73:48	AK 16	IVC		18.0	hand	lime	low	smooth	buff	none		
219	83:18	AK 16	IVC		26.0	hand	pl, li	low	smooth	orange	none		

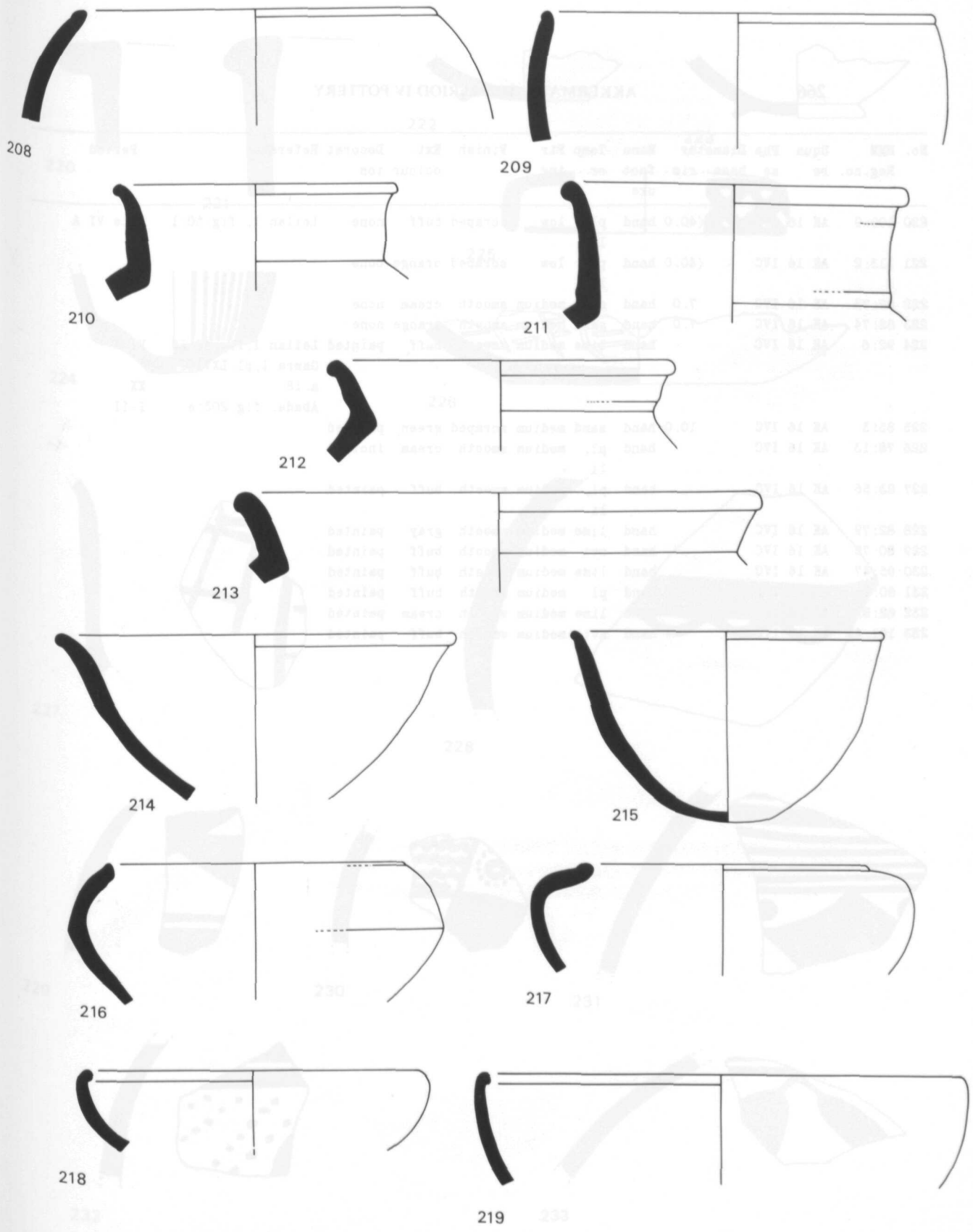


Plate 86. Hammam IVC unpainted pots, jars and bowls (scale 1:3).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
220	109:9	AK 16	IVC		<40.0	hand	pl, li	low	scraped	buff	none	Leilan 1, fig.50:1	late VI A
221	113:2	AK 16	IVC		<40.0	hand	pl, li	low	scraped	orange	none		
222	82:73	AK 16	IVC		7.0	hand	sand	medium	smooth	cream	none		
223	82:74	AK 16	IVC		7.0	hand	sand	medium	smooth	orange	none		
224	92:6	AK 16	IVC			hand	lime	medium	smooth	buff	painted	Leilan 1, fig.49:19	VI A
												Gawra 1, pl.LXVIII. a.18	XX
												Abada, fig.203:e	I-II
225	85:3	AK 16	IVC		10.0	hand	sand	medium	scraped	green	painted		
226	78:13	AK 16	IVC			hand	pl, li	medium	smooth	cream	incised		
227	83:56	AK 16	IVC			hand	pl, li	medium	smooth	buff	painted		
228	82:79	AK 16	IVC			hand	lime	medium	smooth	gray	painted		
229	80:75	AK 16	IVC			hand	nvt	medium	smooth	buff	painted		
230	95:47	AK 16	IVC			hand	lime	medium	smooth	buff	painted		
231	80:71	AK 16	IVC			hand	pl	medium	smooth	buff	painted		
232	82:81	AK 16	IVC			hand	lime	medium	smooth	cream	painted		
233	101:43	AK 16	IVC			hand	nvt	medium	smooth	buff	painted		

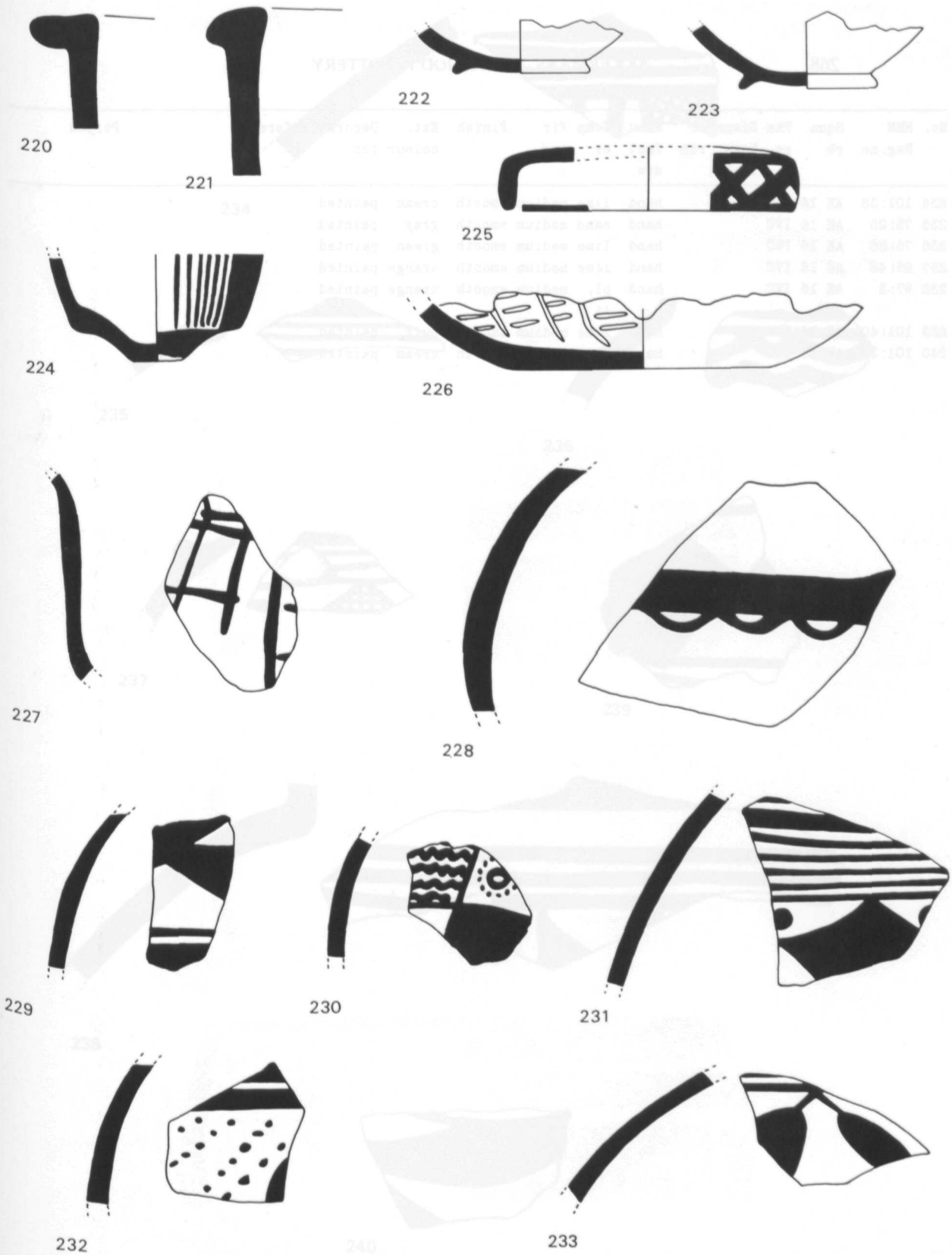
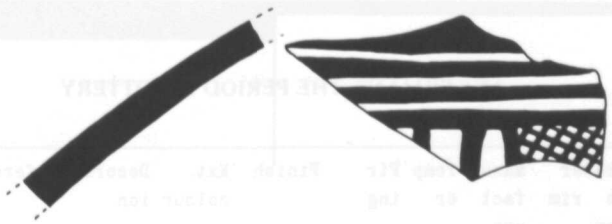
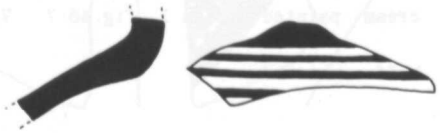


Plate 87. Hammam IVC undecorated pots and bases (scale 1:3); decorated lid, bases and sherds (scale 1:2).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
234	101:38	AK 16	IVC			hand	lime	medium	smooth	cream	painted		
235	75:25	AK 16	IVC			hand	sand	medium	smooth	gray	painted		
236	75:26	AK 16	IVC			hand	lime	medium	smooth	green	painted		
237	95:48	AK 16	IVC			hand	lime	medium	smooth	orange	painted		
238	97:3	AK 16	IVC			hand	pl, li	medium	smooth	orange	painted		
239	101:40	AK 16	IVC			hand	lime	medium	smooth	buff	painted		
240	101:39	AK 16	IVC			hand	nvt	medium	smooth	cream	painted		



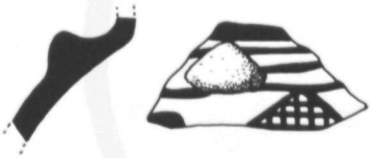
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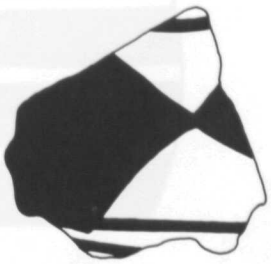
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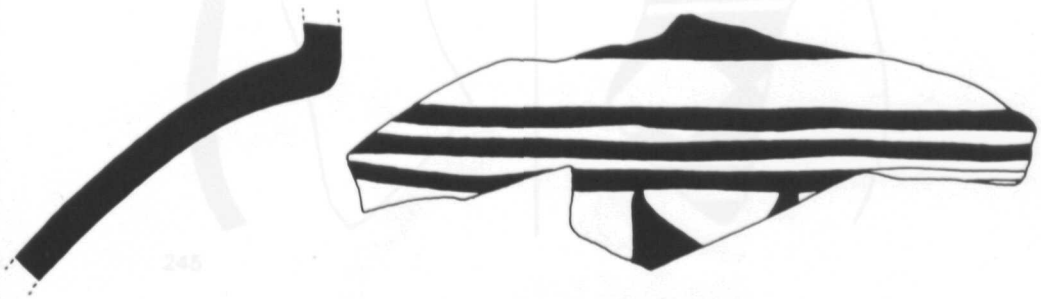
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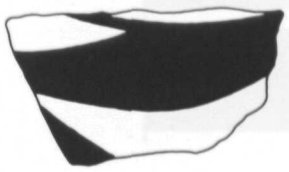
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239



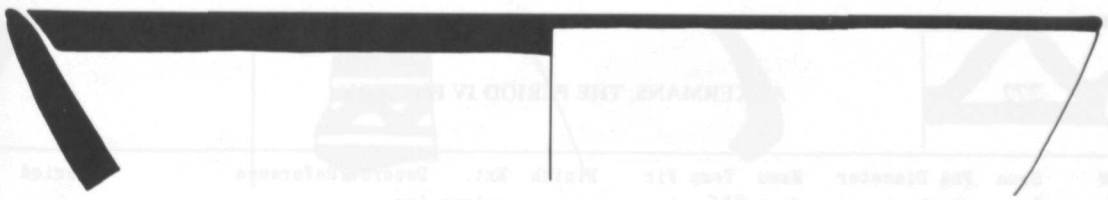
238



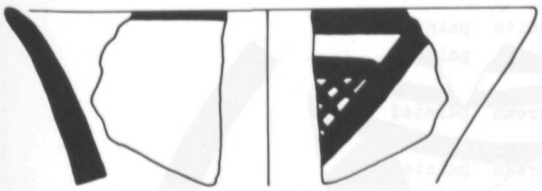
240

Plate 88. Hammam IVC painted designs (scale 1:2).

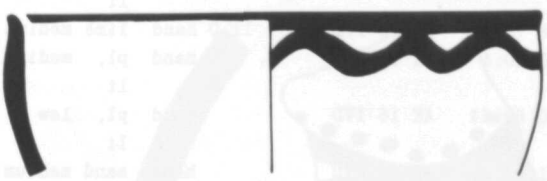
No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
241	61:20	AK 16	IVD		29.0	hand	pl	low	scraped	orange	painted		
242	63:4	AK 16	IVD		14.0	hand	sand	medium	smooth	buff	painted		
243	69:40	AK 16	IVD		14.0	hand	lime	high	smooth	cream	painted		
244	20:1	AK 16	IVD		17.0	hand	lime	medium	smooth	buff	painted	Leilan 1, fig.47:5,9	VI B
245	39:9	AK 16	IVD		17.0	hand	pl, li	medium	smooth	cream	painted	Leilan 1, fig.48:7	VI B
246	70:7	AK 16	IVD		18.0	hand	pl, li	medium	smooth	buff	painted		



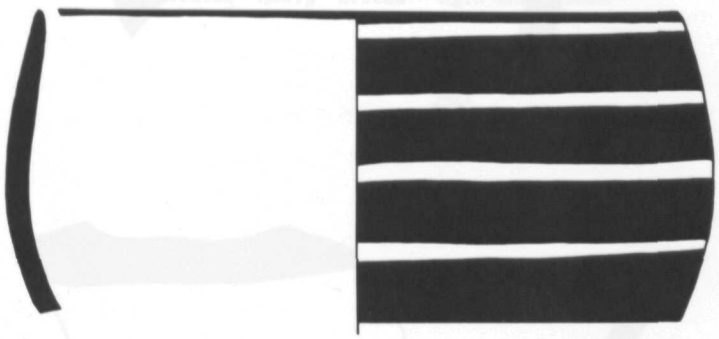
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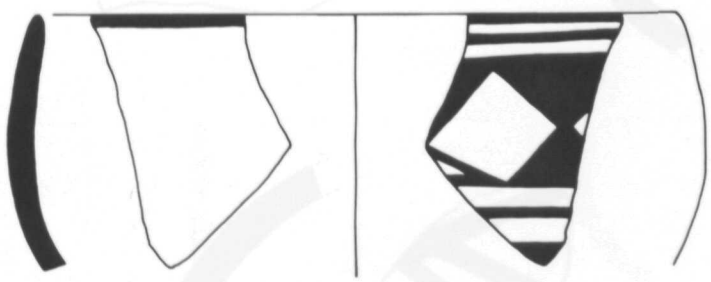
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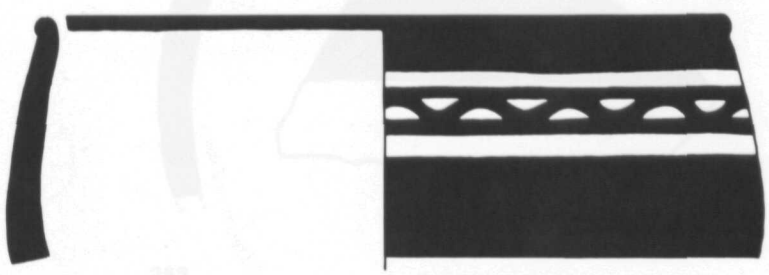
243



244



245



246

Plate 89. Hammam IVD painted bowls (scale 1:2).

No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
247	55:25	AK 16	IVD		14.0	hand	pl, li	medium	smooth	buff	painted		
248	70:22	AK 16	IVD		11.0	hand	lime	medium	smooth	white	painted		
249	20:4	AK 16	IVD			hand	pl, li	medium	smooth	buff	painted		
250	69:64	AK 16	IVD			hand	pl, li	low	smooth	cream	painted		
251	57:36	AK 16	IVD			hand	sand	medium	smooth	cream	painted		
252	34:16	AK 16	IVD			hand	pl, li	medium	smooth	cream	painted		
253	63:13	AK 16	IVD			hand	sand	high	smooth	green	painted		



Plate 90. Hammam IVD painted pot, jar and sherds (scale 1:2).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
254	69:66	AK 16	IVD			hand	sand	medium	smooth	buff	painted		
255	20:2	AK 16	IVD			hand	pl, li	medium	smooth	cream	painted		
256	53:54	AK 16	IVD			hand	pl, sa	medium	smooth	buff	painted		
257	57:37	AK 16	IVD			hand	pl	medium	smooth	buff	painted		
258	43:48	AK 16	IVD		25.0	hand	pl, li	medium	smooth	cream	incised		
259	44:58	AK 16	IVD		16.0	hand	pl, li	medium	smooth	orange	none		
260	44:13	AK 16	IVD		13.0	hand	pl, li	medium	smooth	cream	none		
261	69:27	AK 16	IVD		18.0	hand	pl, li	low	smooth	buff	none		
262	53:48	AK 16	IVD		7.0	hand	pl, li	low	scraped	orange	none		
263	56:19	AK 16	IVD		10.0	hand	lime	medium	smooth	buff	none		
264	56:7	AK 16	IVD		15.0	hand	lime	medium	smooth	orange	none		

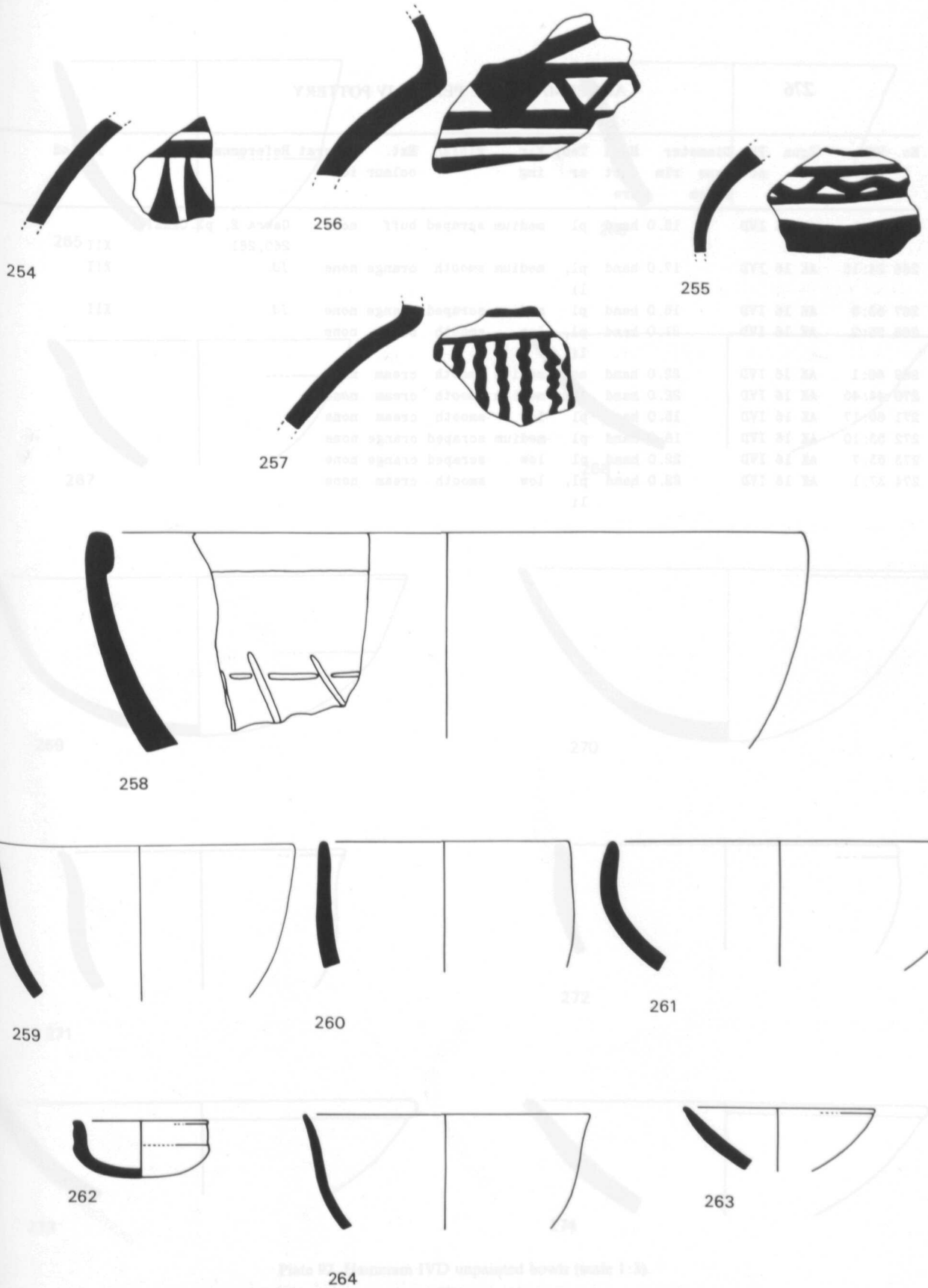


Plate 91. Hammam IVD painted sherds (scale 1:2); unpainted bowls and small pot (scale 1:3).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
265	67:1	AK 16	IVD		15.0	hand	pl	medium	scraped	buff	none	Gawra 2, pl. CXXXIV: 260, 261	XII
266	24:15	AK 16	IVD		17.0	hand	pl, li	medium	smooth	orange	none	*Id.*	XII
267	53:5	AK 16	IVD		16.0	hand	pl	medium	scraped	orange	none	*Id.*	XII
268	55:2	AK 16	IVD		21.0	hand	pl, li	low	smooth	buff	none		
269	68:1	AK 16	IVD		22.0	hand	sand	medium	smooth	cream	none		
270	44:40	AK 16	IVD		22.0	hand	lime	medium	smooth	cream	none		
271	69:17	AK 16	IVD		15.0	hand	pl	low	smooth	cream	none		
272	53:10	AK 16	IVD		18.0	hand	pl	medium	scraped	orange	none		
273	53:7	AK 16	IVD		22.0	hand	pl	low	scraped	orange	none		
274	37:1	AK 16	IVD		22.0	hand	pl, li	low	smooth	cream	none		

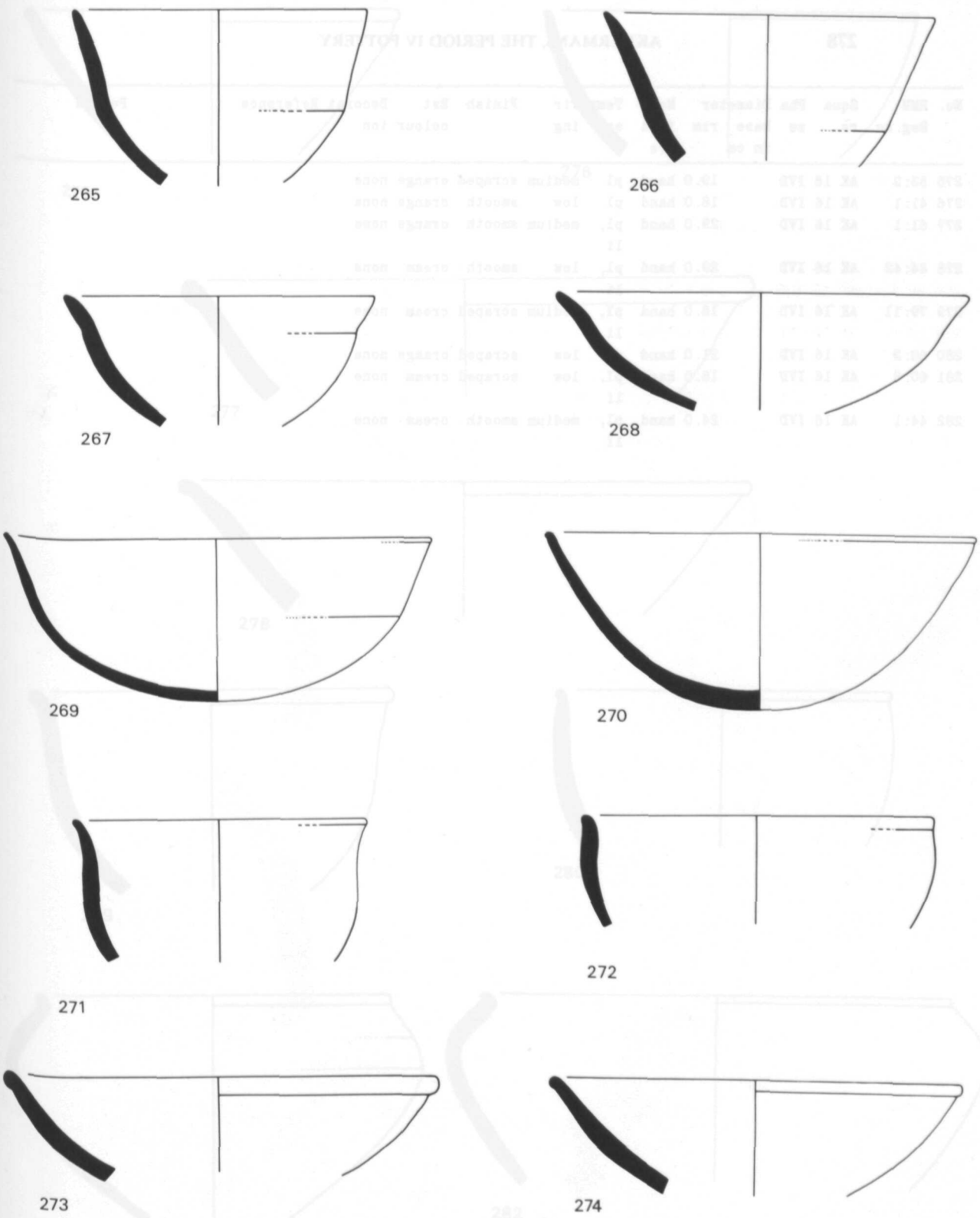


Plate 92. Hammam IVD unpainted bowls (scale 1:3).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
275	53:2	AK 16	IVD		19.0	hand	pl	medium	scraped	orange	none		
276	41:1	AK 16	IVD		18.0	hand	pl	low	smooth	orange	none		
277	61:1	AK 16	IVD		29.0	hand	pl, li	medium	smooth	orange	none		
278	44:42	AK 16	IVD		29.0	hand	pl, li	low	smooth	cream	none		
279	79:11	AK 16	IVD		18.0	hand	pl, li	medium	scraped	cream	none		
280	60:2	AK 16	IVD		21.0	hand	pl	low	scraped	orange	none		
281	60:8	AK 16	IVD		18.0	hand	pl, li	low	scraped	cream	none		
282	44:1	AK 16	IVD		24.0	hand	pl, li	medium	smooth	cream	none		

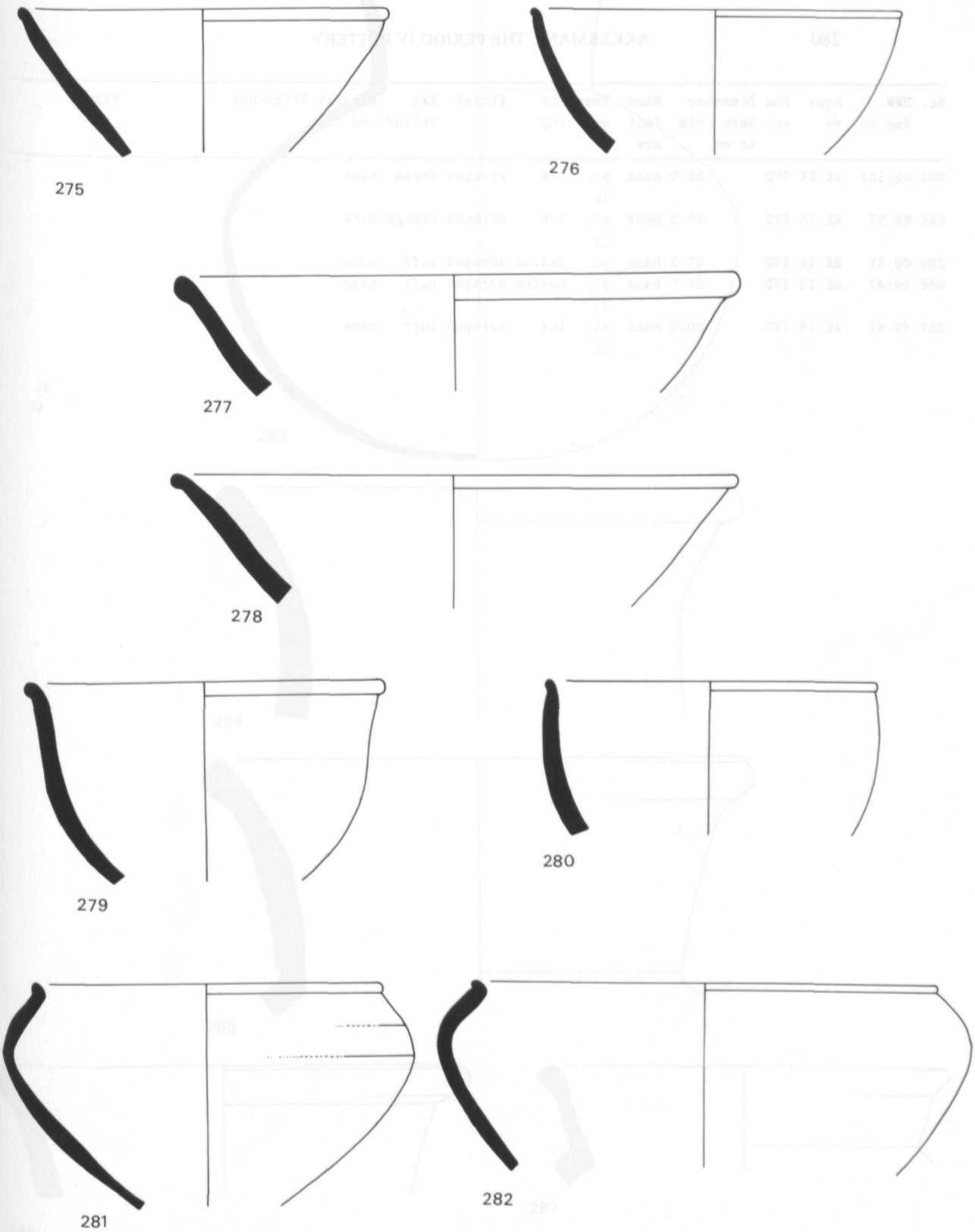


Plate 93. Hammam IVD unpainted bowls and pots (scale 1:3).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
283	82:133	AK 16	IVD		28.0	hand	pl, li	low	scraped	cream	none		
284	56:37	AK 16	IVD		26.0	hand	pl, li	low	scraped	orange	none		
285	68:16	AK 16	IVD		27.0	hand	pl	medium	scraped	buff	none		
286	69:47	AK 16	IVD		24.0	hand	pl, li	medium	scraped	buff	none		
287	69:61	AK 16	IVD		20.0	hand	pl, li	low	scraped	buff	none		

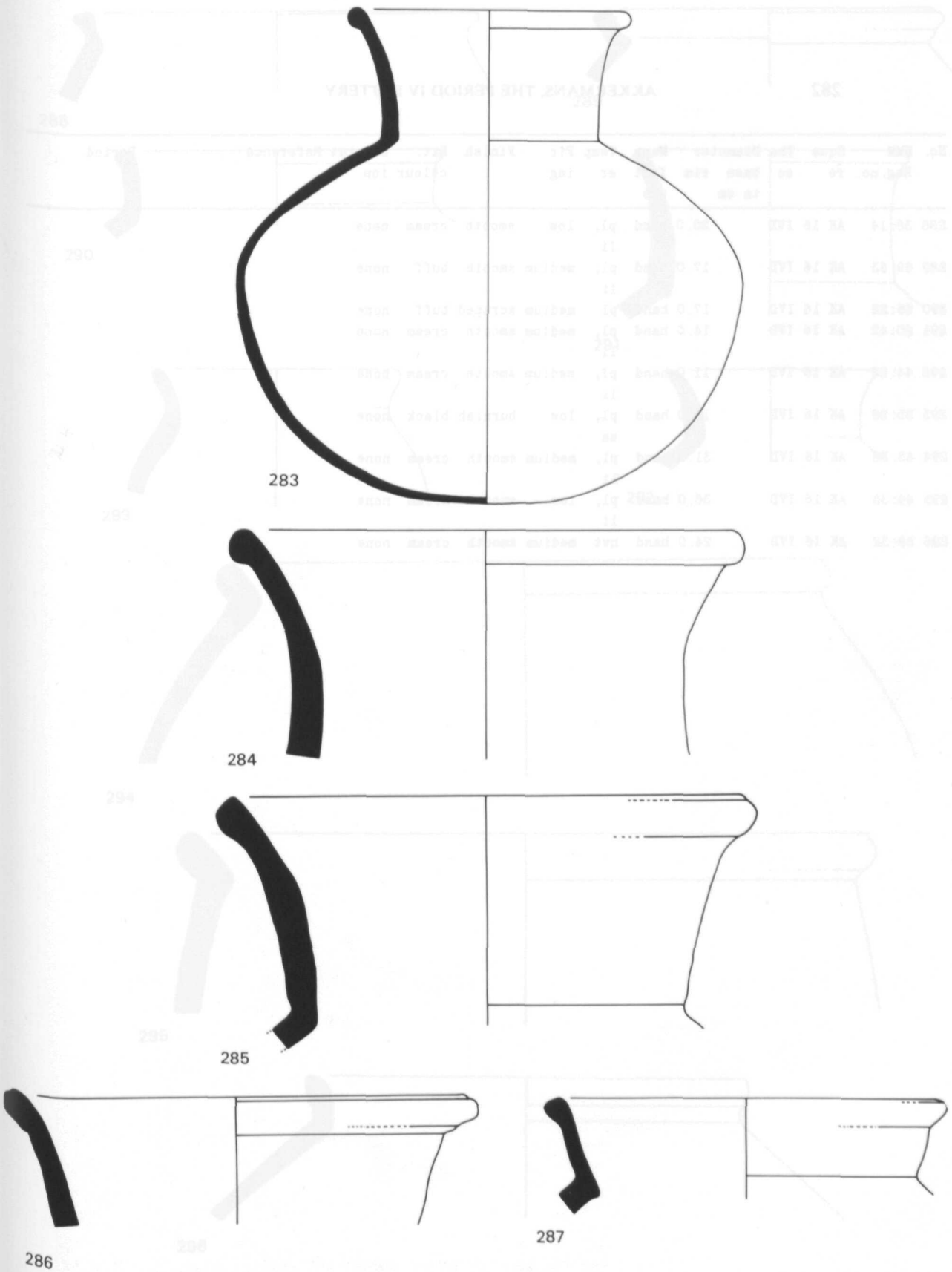


Plate 94. Hammam IVD unpainted jars (scale 1:3).

No.	HMM Reg.no.	Square	Phase	Diameter base in cm	Diameter rim in cm	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
288	38:14	AK 16	IVD		20.0	hand	pl, li	low	smooth	cream	none		
289	69:63	AK 16	IVD		17.0	hand	pl, li	medium	smooth	buff	none		
290	55:22	AK 16	IVD		17.0	hand	pl	medium	scraped	buff	none		
291	20:42	AK 16	IVD		14.0	hand	pl, li	medium	smooth	cream	none		
292	44:23	AK 16	IVD		11.0	hand	pl, li	medium	smooth	cream	none		
293	55:26	AK 16	IVD		13.0	hand	pl, sa	low	burnish	black	none		
294	43:36	AK 16	IVD		31.0	hand	pl, li	medium	smooth	cream	none		
295	44:35	AK 16	IVD		36.0	hand	pl, li	low	smooth	cream	none		
296	69:32	AK 16	IVD		24.0	hand	nvt	medium	smooth	cream	none		

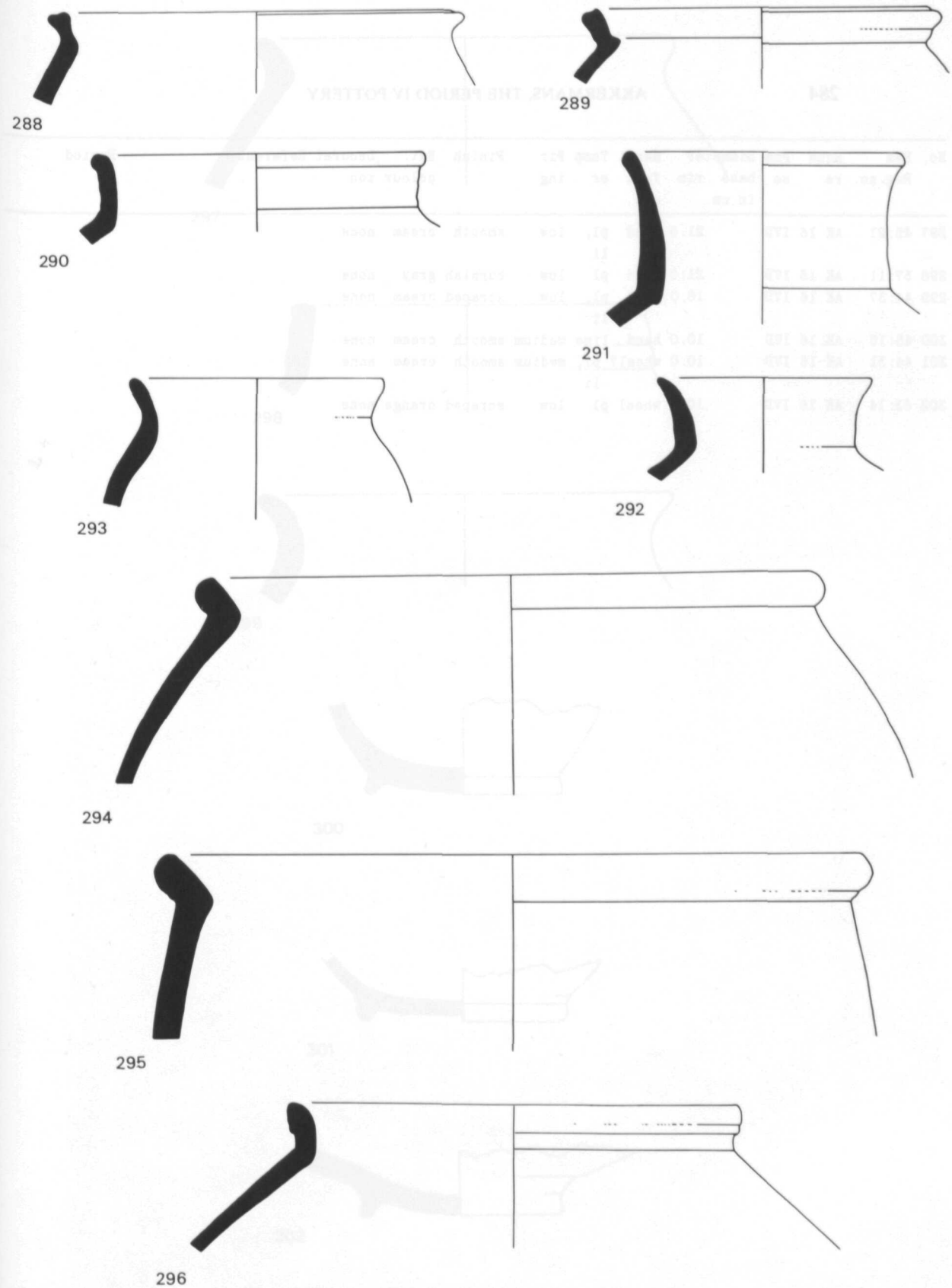
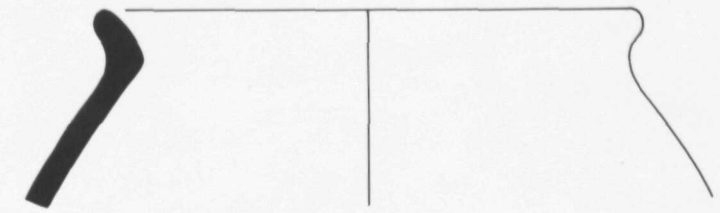
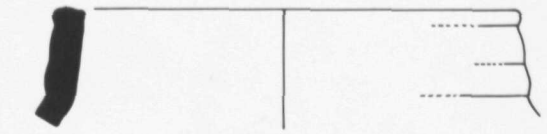


Plate 95. Hammam IVD unpainted jars and pots (scale 1:3).

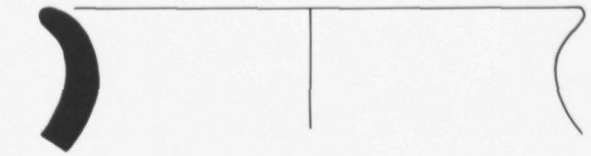
No.	HMM Reg. no.	Square	Phase	Diameter base in cm	Diameter rim	Manufacture	Temper	Firing	Finish	Ext. colour	Decoration	Reference	Period
297	45:21	AK 16	IVD		21.0	hand	pl, li	low	smooth	cream	none		
298	57:11	AK 16	IVD		21.0	hand	pl	low	burnish	gray	none		
299	44:37	AK 16	IVD		18.0	hand	pl, li	low	scraped	cream	none		
300	45:15	AK 16	IVD		10.0	hand	lime	medium	smooth	cream	none		
301	44:31	AK 16	IVD		10.0	wheel?	pl, li	medium	smooth	cream	none		
302	63:14	AK 16	IVD		10.0	wheel	pl	low	scraped	orange	none		



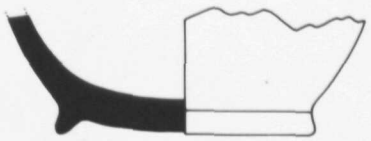
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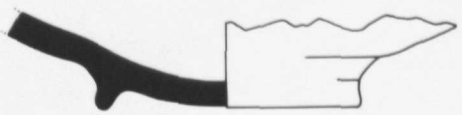
299



300



301



302

Plate 96. Hammam IVD unpainted jars and bases (scale 1:3).