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Byzantine Ceramic Productions and Organizational Aspects of Sixth Century AD Pottery Workshops at the Hippodrome of Jarash

Introduction

The exhaustive excavations from 1984 to 1996 of the Gerasa Hippodrome Project directed by Antoni Ostrasz and undertaken together with the writer, have turned out to be unexpectedly rich with, at times, unique and unparalleled copious material evidence (FIG. 1). Our resulting study of the building and the archaeological remains have chronicled the history of its architectural origin as a Roman circus in the 2nd century, its adaptations to different uses over time and the people it housed from the 3rd to the 7th century AD (Ostrasz 1989; Kehrberg and Ostrasz 1997; Kehrberg 2006).

Decisions of governments, whether by citizens of Gerasa, or by their overseas masters, popular trends, commercial enterprise and natural disasters are each attested at the site by their accumulated deposits left behind before and throughout the occupancies of the circus building. As the utilizations of the hippodrome shift and overlap, so are their associated artifacts a direct result of the mainstream cultural, economical and political events modifying successive communities of Gerasa and later Jarash.

The secondary history of the circus began almost simultaneously with its end as a chariot racing course: The process of transformation began sometime in the 3rd century when *cavea* chambers were equipped to suit pottery workshops and tanneries of that same century (Kehrberg and Ostrasz 1997). Traces of pottery kilns, extensive remains of workshop installations as well as simple dwellings, and even more so the expanse of pottery waste products and other artifacts discarded in the chambers and spilling onto the periphery, leave no doubt that the monument had become an industrial quarter (FIG. 2).

Evidence suggests that Gerasa probably devel-

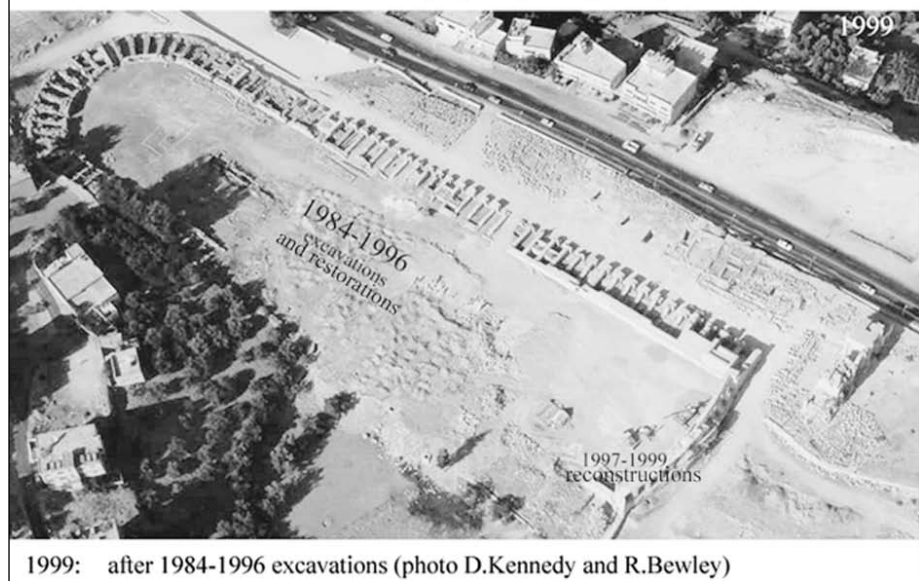
oped into the biggest centre of pottery production of the Decapolis cities (at least east of the Jordan). Parallel to this development, the hippodrome grew into the main compound or “*potters’ sūq*” from the later 3rd to the beginning of the 7th century, with scattered workshops co-existing inside the walled city from the same period on. The existence of a *sūq* within the hippodrome building was not only determined by its location outside the city walls suitable for large scale operations of pottery kilns and their workshops. A common requirement in antiquity was for larger pottery kilns or complexes to be situated away from the city centre because of fire hazards, smoke and industrial waste. That the monumental site became the industrial quarter is also manifested in the fact that the pottery manufacture at the hippodrome grew at an extraordinarily rapid pace, mass-producing vast amounts of ceramics that ranged from tiles and pipes, to storage ware, plain and decorated common and fine wares, as well as moulded objects like lamps and figurines. The ceramic waste products filling the *cavea* chambers and spilling onto the periphery metres high, blocking the original doorways to the chambers, are about 25-30% of the merchandise sold locally and exported. These huge quantities alone speak for the enormous output of the kilns over centuries.

The Hippodrome Potters

The subject of this paper does not permit going into details of the hippodrome workshops whose installations are represented here by two examples of west *cavea* chambers W2 and W6 (FIG. 2B, C). The workshops indicated on the ground plan (FIG. 2A) belonged to the tanneries and pottery ateliers of the Late Roman and Early Byzantine periods manufacturing their products from the later 3rd to



1995: excavations and restorations in progress (looking south)



1999: after 1984-1996 excavations (photo D. Kennedy and R. Bewley)

1. The extant excavated remains of the Gerasa / Jarash Hippodrome (photos A.A. Ostrasz; D. Kennedy and R. Bewley).

the 5th century AD (Kehrberg 2001).¹ In some instances the shops were recycled in the Late Byzantine period, but more often they were simply buried under successive mounds of discarded pottery waste and other rubbish produced by the Late Byzantine potters.

These last generations of hippodrome potters

(before they deserted their quarters at the beginning of the 7th century) and their wares are the subject of this paper. Many products of their prolific output must have dominated Jarash markets and export trade in the 6th century: the famous *Jerash Bowls* and *Jerash Lamps* — and in some cases including ordinary pots² — could be found as far as Petra and

¹ See also Kehrberg 2007, where I discuss the Late Roman tanneries and pottery workshops at the Hippodrome in specific regard to supplying frontier stations along the *limes* in Jordan with their commodities.

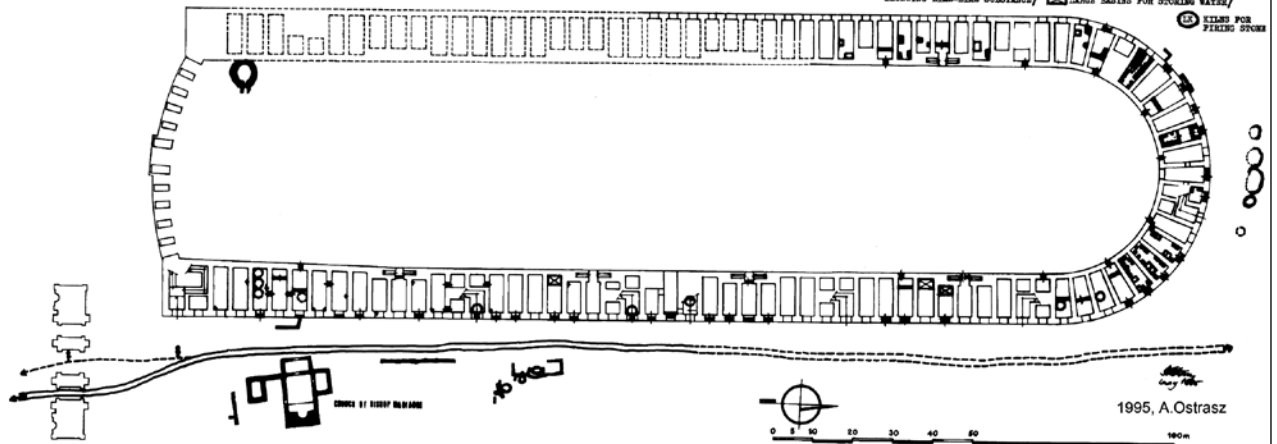
² When I examined pottery from the French /IF[A]PO-Damascus excavations at Bosra in 1997, I observed that when Late Byzantine deposits contained imported *Jerash Bowl* and *Jerash Lamp* fragments they were often accompanied by other non-local fragments

of what appeared to be typical 6th century cooking pot ware from the Jarash Hippodrome or other Jarash workshops. I remarked on that phenomenon to J.-M. Dentzer and P.-M. Blanc, directors of the excavation, suggesting the possibility that these pots could have been used as packaging of perishable goods bought at Jarash together with the *Jerash Bowls* and *Jerash Lamps*. Laboratory analyses would have to ascertain my proposition and their provenance.

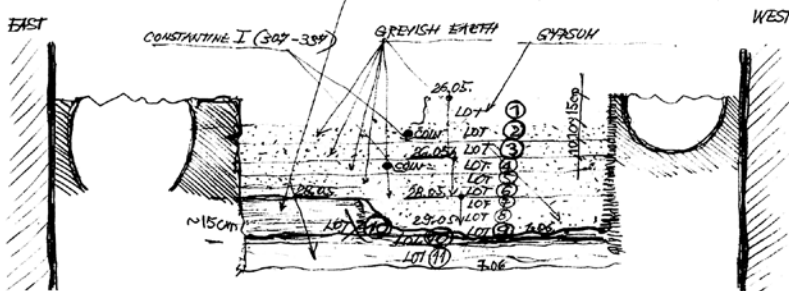
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REPERTOIRE OF ADAPTATIONS & INDUSTRIAL INSTALLATIONS: legend
 + FIREPLACES / DOORWAYS CUT IN ORIGINAL WALLS / INTERVALLUM
 DOORWAYS BUILT IN ORIGINAL DOORWAYS / SHOCKING AND DIVIDING WALLS /
 DIVIDING WALLS WITH DOORWAYS / POTTERY KILNS / VATS
 FOR STORING LIME-LIKE SUBSTANCE / BASINS FOR STORING WATER AND
 SLOWLY ALKALI-LIKE SUBSTANCE / LARGE BASINS FOR STORING WATER /
 STAIRS FOR
 PERKING STONE

A 3rd -begin.7th century AD ground plan



B Section W2 (1994 A.Ostrasz)

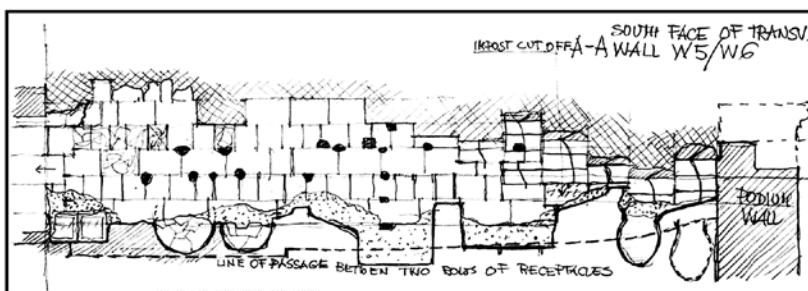


Lots 1-9: HCh94.W2.2(coins); lots 10,11: HCh94.W2.1(coin)
 the lots refer to loci of the tumbled remains of upper structure,
 skeletal remains, workshop and foundation



West cavea chamber W2 and W3

C



South face of transverse wall W5/W6, (A.Ostrasz 1994)



West cavea chamber W6, Nov.1996

2. A. Ground plan of the Hippodrome, occupancies; B. workshop in *cavea* chamber W2; C. workshop in *cavea* chamber.

Bosra, at Pella, Scythopolis, Bayt Rās, Philadelphia and Gadara, in short at the other Decapolis cities which also produced and sold their own wares.

Two *cavea* chambers serve as good representative examples. They contained the whole chronological range of particularly rich material evidence which not only wraps up the history of the monu-

ment, but also provides valuable insights into organisational aspects of pottery manufacture itself. The schematic stratigraphical and chronological chart of chambers W2 and W3 (FIG. 3) reflects the sequence of events and activities that took place at the hippodrome from its foundation to the last occupancies followed, after the site's abandonment,

Schematic stratification of the hippodrome as represented by the chronological sequence of archaeological contexts in west <i>cavea</i> chambers W2 and W3			
DATES	JARASH /GERASA	Events at the HIPPODROME	
13 th century	Massive earthquake destructions	Final collapse of remaining scalaria in the northern half	
AD749/50		collapse of <i>carceres</i> and <i>cavea</i> seating sealing the mass graves	
Mid-7 th cent.	Bubonic or pneumonic plague → (contemporary literary source)	Over 200 plague victims buried in <i>cavea</i> chambers W2 and W3 placed on top of abandoned workshops and Late Byzantine pottery kiln waste dump	
AD 636	Islamic conquest	Sporadic non-structured occupancies	
	End of Byzantine era	Potters community abandoned hippodrome site, their pottery workshops and associated dwellings	
6 th – early 7 th cent.	Reportedly mid-6 th century plague (literary source, but no archaeological evidence) Late Byzantine period	W2	W3
		Large pottery workshops waste with unfired forms, see FIGS 4 and 5a	Smaller dump of Late Byzantine pottery, spill-over from W2
Ca mid-4 th to end 5 th cent.	Early Byzantine period	Workshops continued	Transition of Late Roman to Early Byzantine pottery kiln dump and workshop installations
Ca mid-3 rd to mid 4 th cent.	Late Roman period	Workshop installations of potters and tanners See FIG. 2	
Later 2 nd & early 3 rd	Roman era-transition to Late Roman period	Chariot Racing (chariot race victor dedicated altar to Julia Domna/ Septemius Severus)	
From ca mid-2 nd to later 2 nd cent.	Roman era, Hadrianic plan of urbanization/ building monuments continued	Foundation and construction phases of the hippodrome Racing started	
Late 2 nd /1 st cent BC to early 2 nd cent. AD	Late Hellenistic Gerasa, gradual romanisation of Decapolis city, Hadrian's visit AD 129: expansion of urban Gerasa and building of city wall	Necropolis phase of site with hypogean temple tombs, closure of SW necropolis in beginning of 2 nd for building of the Arch and the Hippodrome	

3. Schematic chronological chart of the Hippodrome complex.

by the mass-burial of the mid-7th century plague victims, and finally by the earthquake tumbles (Ostrasz and Kehrberg 1994).

The wasters and misfired 6th century pottery on Figure 4a are only a sample of the large deposits found under the pile of human skeletal remains in chambers W2 and W3 which were in turn buried under the collapsed masonry that covered the others chambers of the east and west *cavea*. Not counting the two tower structures, the majority of the 106 chambers were designated as workshops and / or filled with accumulated waste from the workshops and domestic rubbish. A limited number, about 1/5th of the *cavea* chambers had been converted into simple dwellings and fitted out for domestic purposes (FIG. 2A).³ As already mentioned above, by the end of the 4th century the Late Roman tanneries had gone out of use; either simultaneously or a little later in the 5th century the Early Byzantine pottery kilns were demolished; the chambers were then either reoccupied by potters' families or filled with their domestic and mostly industrial waste which peaked together with their production in the 6th century.

A brief explanation is necessary to explain why so many of the Late Byzantine potters did not continue to make use of the earlier installations, or indeed did not continue as family concerns, some of which may have begun in the 3rd or early in the 4th century. A revivalist movement in the 5th century of Roman imperial institutions reclaimed the hippodrome as a public arena for games; as a result the industrial installations in many chambers of the *cavea*, including the kilns, were deliberately destroyed and one must conclude that the activities ceased. However, inscriptions on seat stones and other evidence attest that only the northern part of the circus had been reclaimed for more modest public games than chariot or horse racing. Pottery evidence from industrial waste in the chambers of the south-east *cavea* made it clear that the southern

half of the hippodrome was not used for games and continued to function as a potters' *sūq* in the 5th century. The difference was that kilns and workshops had now to be built on the outer periphery of the circus and no longer inside the *cavea* chambers.⁴

The Early Byzantine revival of games at the hippodrome was short-lived because by the beginning of the 6th century the whole building was again occupied by the potters demonstrated here mainly with finds from chambers W2 and W3 next to the main gate at the northern end of the *cavea* (Ostrasz 1994; Kehrberg and Ostrasz 1997; see FIG. 2B). Continuing from the 5th century edict, the Late Byzantine kilns and workshops were built around the periphery of the circus building but as before, the arena was left clear of permanent structures; while some chambers continued to function as dwellings the multitude absorbed the enormous by-products of waste (about 30% in the production process) a normal ratio in any large-scale manufacture of ceramics for local and export trade.

Misshapen and discoloured pottery from misfiring, wasters and slag are common and well known features at any excavated pottery kiln site, but the discovery of unfired pottery in *cavea* chambers W2 and W3 is a rare phenomenon due to its fragility. Exposure of unfired forms over such a long period of time usually leads to weathering and disintegration. So far the hippodrome is the only kiln site at Jarash that has provided us with a whole set of unfired pottery forms (albeit many perforated with worm holes) typical of the 6th century repertoire. We have also obtained a number of unfired sherds from earlier hippodrome kiln dumps, and there are known finds from Umayyad kilns in Jarash (inside the walled city) with unfired pottery, but the quantity and typologically complete range of the assemblage in the 6th century deposit of W2 and W3 are so far unparalleled in Jarash and elsewhere for this period.⁵

³ Two *cavea* chambers near the E-S tower of the *carceres* (Ostrasz 1995) had been refurbished and designated as rooms for the 'deacon' of the chapel or church of Bishop Marianos, dated by an inscription to 570AD (Gawlikowski and Musa 1986); Antoni Ostrasz was the architect of the Polish Mission which excavated these chambers and the church opposite in 1982-83 as part of the International Jarash Project. It was his pivotal role in this Polish (Warsaw University) excavation of the church and exploration of parts of the hippodrome which led to Ostrasz's own Hippodrome Project sponsored by the Department of Antiquities from 1984 until his untimely death in October 1996.

⁴ One is dealing with a restrictive measure rather than reclaiming

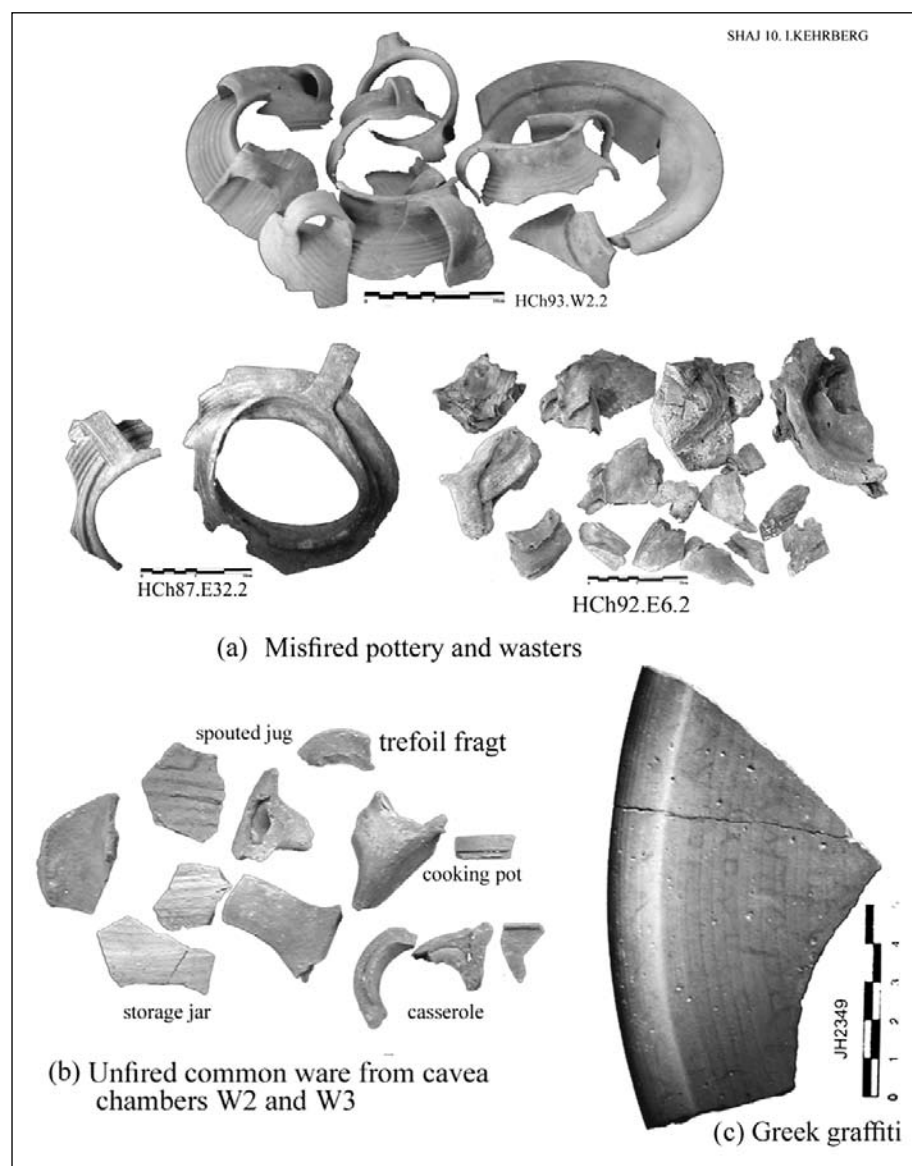
the whole hippodrome for public festivals; the restrictions by the authorities to the southern half of the building may have diminished the potters' output but it appears evident from the excavated deposits that this did not cause a gap in the flow of ceramic production, see Kehrberg 2001.

⁵ In fact, the discovery was fortuitous: as our pottery washer was needed in the excavation, I washed the pottery in our quarters at the Jarash Archaeological Camp. The first sherds I rinsed were *Jerash Bowl* fragments and instead of seeing the familiar red burnished slip and painted decoration emerge, they began to dissolve between my fingers!

After identifying and counting the unfired fragments I realized that the survived deposit may have belonged to one unfired kiln load. There were several thousand small and larger unfired pottery fragments among a much larger quantity of misfired pottery from the same workshop (FIGS. 4b and 5a). The forms of the unfired ceramic made up the same range of types as the fired waste, among them the most distinctive *Jerash Bowl* and *Jerash Lamp* fragments. The finds are particularly interesting because they show the fabric before being tempered through firing⁶ and inform on methods of manufac-

ture: all decoration had been applied before firing and the colours did not change with firing: the motifs were painted on the wet body for adherence and impressed designs were stamped at the leather-hard stage (FIG. 5a).

The other unfired pottery types range from cooking pots to jars, bowls, casseroles, lids, jugs, including pipe segments and tiles. They are the same range of wares as the discarded fired forms with which they were found. Whilst the fired pottery dump had accumulated over time, the disposal of the unfired lot was clearly a single action and represents one

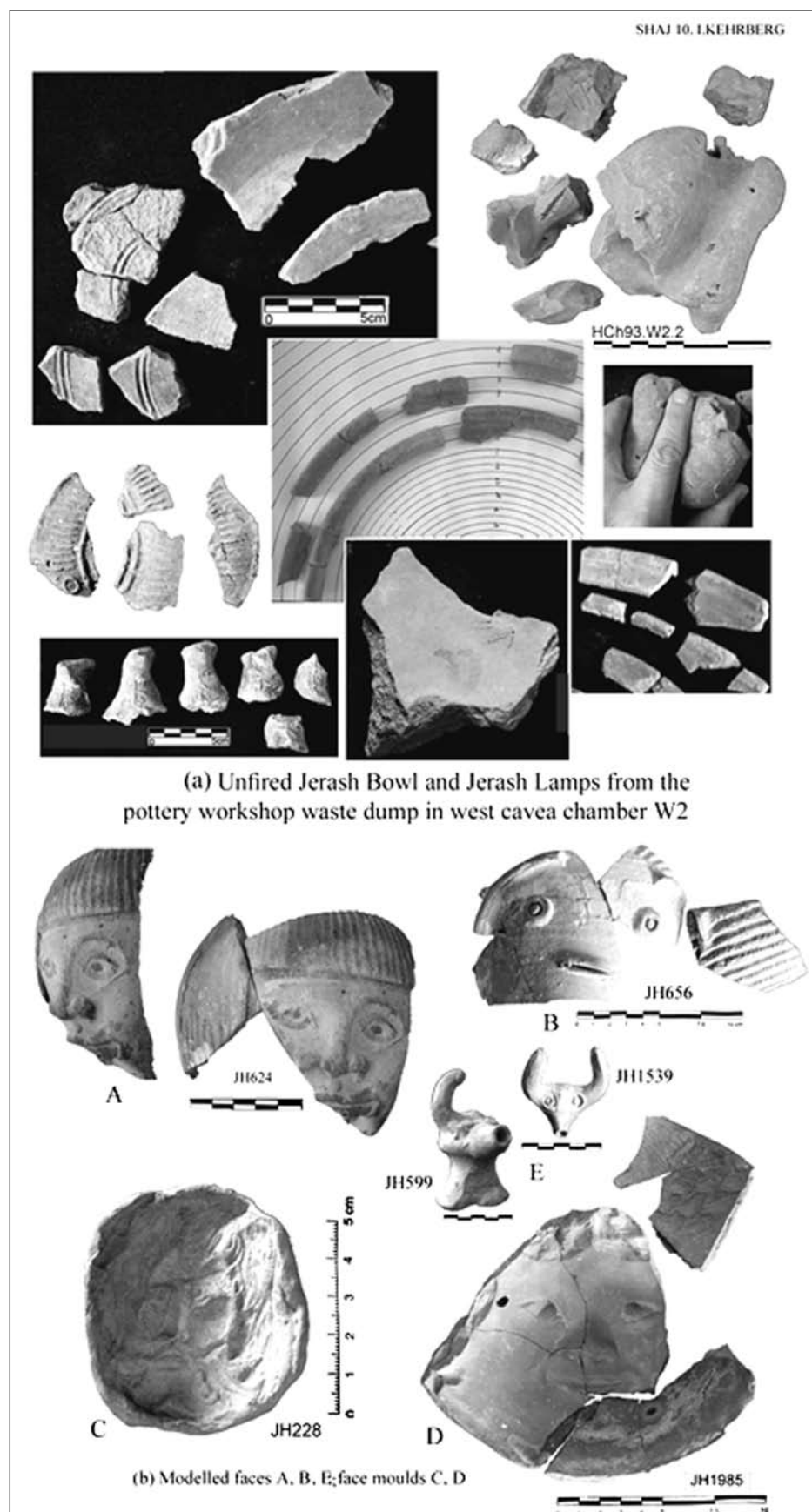


4. Discarded pottery (a, b); *Jerash Bowl* sherd with Greek cursive writing (c).

⁶ We asked Eric Lapp to carry out a laboratory examination of our unfired Jarash Bowls. Lapp's analysis proved what could only be supposed with the naked eye: the hippodrome Jarash Bowls were

not made from tempered clay; the clay was pure and had only natural stray inclusions from the clay site and preparation floor (see Lapp 2001).

POTTERY WORKSHOPS AT THE HIPPODROME OF JARASH



5. Unfired *Jerash Bowl* and *Jerash Lamp* fragments (a); discarded moulds, pyxis lid and zoomorphic vases (b).

assemblage from the same workshop. That the lot was ready and had been prepared for one firing by a single workshop is also evident from the entirety of the assortment of types, the same fabrics and their leather-hard (ready for firing) state of preservation. The understandable frustration of the potter at having lost one big kiln load (evident by the number of fragments) was expressed by one find: he had squeezed one pot into a tight ball with one fist before he threw it onto the heap (FIG. 5a).

The unfired group enables us to estimate the composition of one kiln load with some accuracy. It consisted of all standard ceramic goods that were stacked in a kiln according to their volume. Perhaps more importantly, this discovery proves beyond doubt that individual workshops at the hippodrome did not specialize in particular wares but manufactured the whole range of ceramic products in demand. It puts to rest also speculations that Fine Wares like the *Jerash Bowls* and mould-made objects like figurines and lamps required greater skill and specialized workshops.⁷

Lastly, the massive amounts of discarded pottery, the wasters and the unfired pottery leave no doubt that the hippodrome potters were the main producers and that Jarash was indeed the centre where the *Jerash Bowls* originated together with the *Jerash Lamps* and from whence they were exported.⁸

The Corpus

The following presents examples of the 6th century pottery from the hippodrome workshops which have put Byzantine Jarash at the forefront of pottery trade across Jordan. The figures illustrate some of the extraordinary quality that was characteristic of the hippodrome potters and not uniquely confined to one workshop.

Jerash Bowls (FIG. 6)

For want of space only a few select scenes and im-

ages painted on the bowls are shown on Figure 6; the subjects are manifold and were often accompanied by floral motifs and linear patterns which can be seen on some fragments. The majority of the bowls carry motifs painted in darker shades of red with some white and pale yellow painted details applied directly on a burnished bright red slip or onto a white painted tondo in the centre of the bowl (FIGS. 5a and 6). A variation of the rim can signal a variation of a browner fabric and burnished slip, but with the same dark red to brown and white painted decoration. Some bowls have only impressed linear (FIG. 5a) or stamped figurative decoration, often a cross or a bird, in the centre. A smaller number are hybrid productions combining the decorative variants on one bowl; one sherd (FIG. 6a) illustrates the application of different techniques of painted and impressed decoration.⁹

The Hippodrome potters' scenes range from natural presentations of flora and fauna, like the palm fond and partridge, the lion flanking a kalix crater, to linear and symbolic motifs like the cross (FIG. 6a) and other biblical references like baskets filled with bread or fish. A unique find has been an incomplete bowl providing, however, an almost complete narrative (FIG. 6b: JH631): it shows a scene in an amphitheatre¹⁰ in which two Christians are about to be killed by a lion. The depiction of the scene itself and the rendition of emotions captured in the facial and bodily expressions is remarkable (not to say melodramatic). The sketchy yet accurate detail applied to the figures and such features as the gate (entrance from the corridor into the arena) behind which one Christian is hiding from the lion is equally skilful. The partridge on bowl JH 634 reveals the same professional skill and artistic flair which is replicated on most bowls from different hippodrome workshops.

That the fragments on Figure 6 come from various hippodrome workshops is identified by their

⁷ In contrast to Gerasa and later Jarash, pottery workshops in the western provinces are well known for their specialisation in wares like terra sigillata and lamps like the *'fabrica'* both of which were exported and further disseminated by the Roman garrisons who bought them. A hallmark of specialization is often the signature or 'label' and the above products could be traced by the potters' stamp. This was not the case in Jordan but one can discern qualitative differences in execution of styles and in fabrics between the potters of the hippodrome and other 6th century pottery made at Jarash, for instance the pottery from kilns at the Zeus Sanctuary (Rasson and Seigne 1989) and the Macellum (Uscatescu 2001). Lacking a signature, this has significant implications with regard to identifying workshops and their clients or trade mentioned later on.

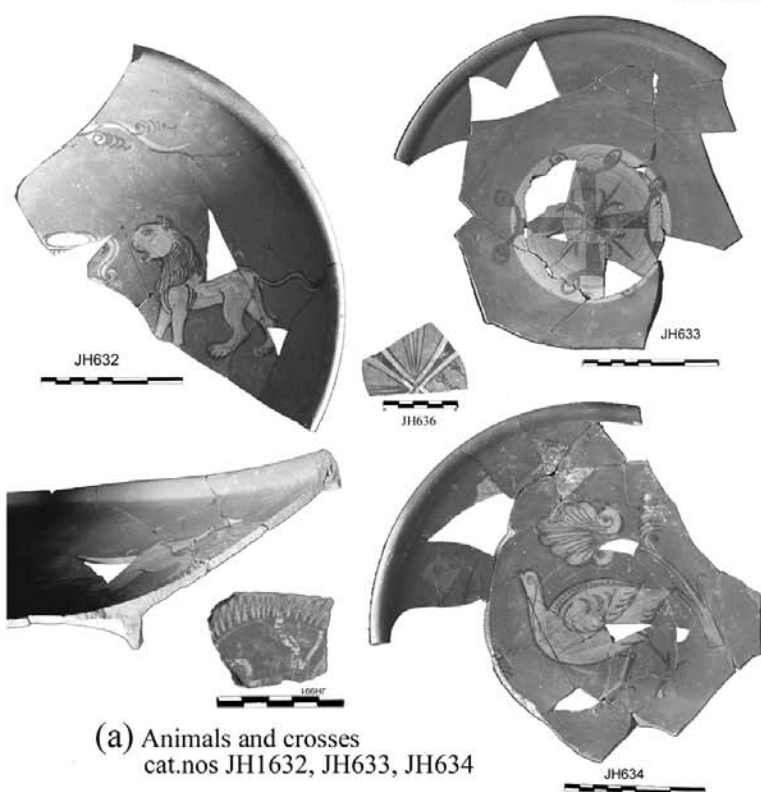
⁸ The bowls, their origins and styles have first been studied in detail by P. Watson (1989) in whose footsteps A. Uscatescu (2001) closely followed. Both scholars undertook their theses before our finds in chambers W2 and W3 during the 1992/3 excavations, and we can now provide the missing archaeological evidence.

⁹ I will publish the complete corpus of *Jerash Bowls* with the corpus of the other pottery in the second volume of the Gerasa Hippodrome publications; a concise version will appear in my chapter in volume one on the architecture of the Gerasa Hippodrome, by A.A. Ostrasz.

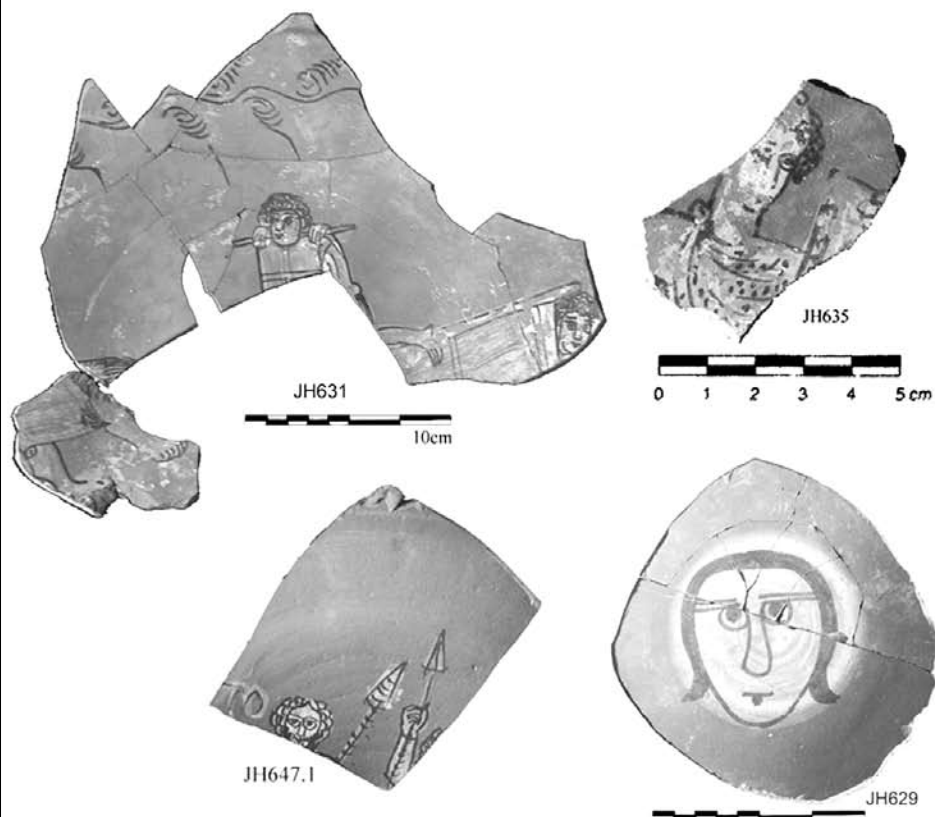
¹⁰ Perhaps the picture alludes to other known depictions on mosaics since there were no amphitheatres in the Decapolis cities of Jordan, the nearest was in Scythopolis.

POTTERY WORKSHOPS AT THE HIPPODROME OF JARASH

SHAJ 10. I.KEHRBERG



(a) Animals and crosses
cat.nos JH1632, JH633, JH634



(b) The human figure, cat nos JH629, JH631, JH635, JH 647.1

6. *Jerash Bowls* from various Hippodrome workshops (a, b).

separate find spots and their distinctive styles but the superb craftsmanship is manifest in each example. Each of the human faces on figure 6 show different styles but they have in common the Byzantine facial features of heavy brows and narrowly set large protruding eyes characteristic of sculptures and mosaics of this period: the style alone could date the bowls. The facial expressions range from the sketchy realism on JH631, to a caricature on JH647 and almost abstract on JH629, contrasted by the classicism of the likely portrait of a Greek hero on fragment JH635. These images are often accompanied by Greek inscriptions painted in red and often highlighted with white lines identifying the figures and scenes which allude to their Classical origin; two Greek letters ...TO are still visible on fragment JH647.

Face Moulds and Modelled Vases (FIG. 5b)

The human figure and often only the face occur not only frequently on *Jerash Bowls* but are also favourite subjects for other objects shown on figure 5b. Like the bowls, the moulded, modelled and painted pyxis lid JH624 and moulds JH228 and JH1985 share their stylistic renditions with figures in contemporary mosaic floors of 6th century churches at Jarash which were no doubt familiar to the potters. Mould JH228 depicts a miniature $\frac{3}{4}$ view of the bearded head of mature Dionysos encircled by vines. The image is a close copy of the same head shown in scrolls framing several 6th century mosaic floors at Jarash and elsewhere in Jordan. The hippodrome potter has undoubtedly replicated the design he saw on the mosaic floor of a local church.¹¹ We are similarly reminded of mosaics in the hippodrome potters' depictions of Greek heroes, saints, ethnic clothing, animals, floral and other motifs.

The allusions seem obvious and intentional and portray a certain erudition among the artisans whether they worked from copybooks or other sources. This should not be surprising, and it is not totally irrelevant to consider the Classical Greek heritage re-emerging in pottery such as the 6th cen-

tury AD *Jerash Bowls* where narrative was important and the vase surface treated as a canvas. The hippodrome is the manufacturing site and cannot provide evidence about the patrons, whether they were the clergy or civilians, or both. But a study of workshops analyzing the fabrics and styles of their wares does not only identify their exports elsewhere but could also help determine the buyers by examining the context of the exported finds.

Zoomorphic vases have been a continuous part of ceramics in Jordan for millennia and are not missing in the hippodrome workshops.¹² They range from elaborately decorated fish vases to the most commonly rendered bull vase found in some quantity (FIG. 5b: B, E). They have also been found in Byzantine levels at other excavations in Jarash. The hippodrome examples, as are all the finds shown here, are directly associated with their place of manufacture and only a clay analysis and stylistic predilections could determine whether vases found elsewhere had been bought at the hippodrome shops.

Jarash Lamps (FIG. 7)

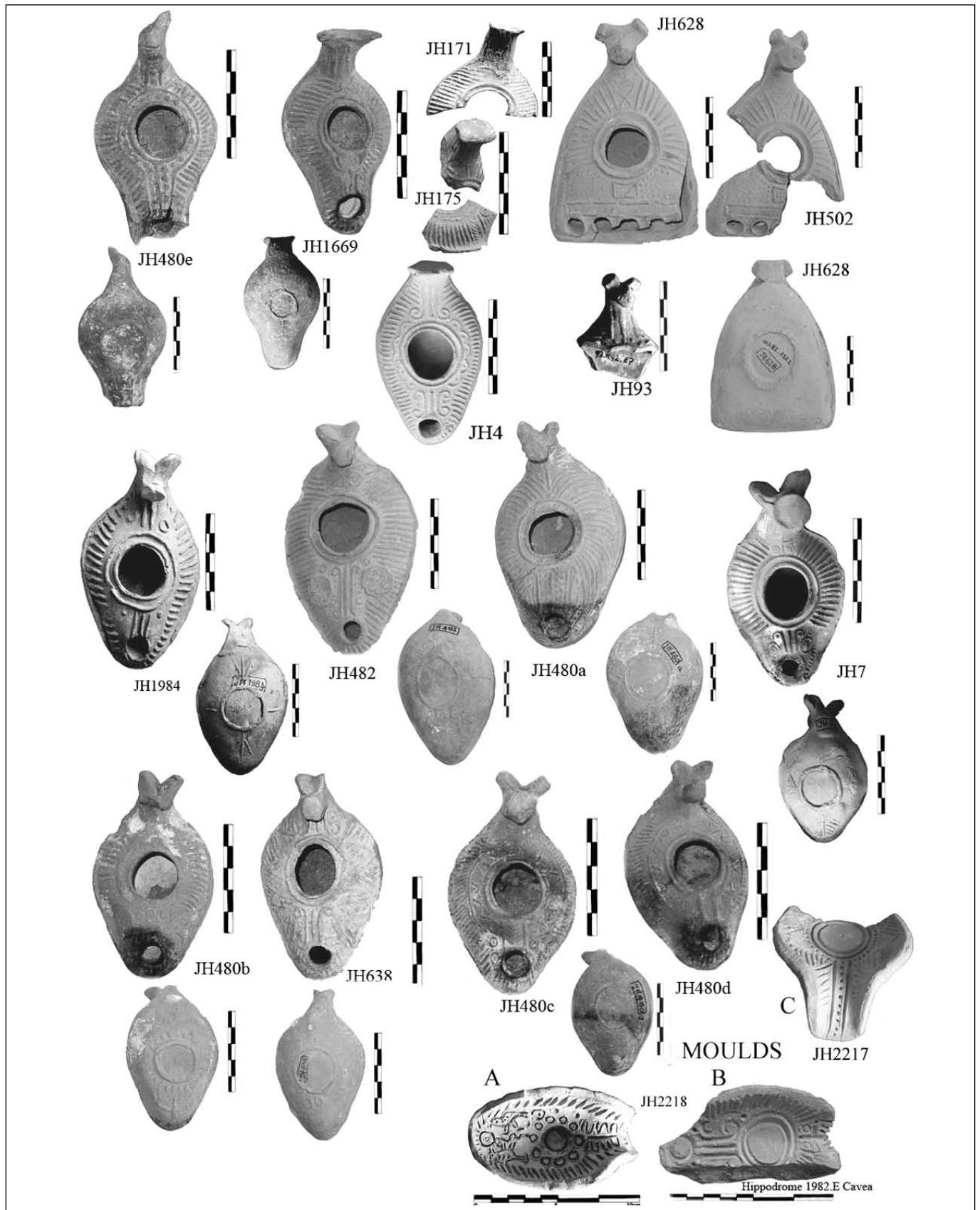
The identification of workshops and their local and export trade is made easier with regard to lamps, in this case the mould-made Late Byzantine *Jerash Lamp* which so often accompanies finds of *Jerash Bowls* (*supra*). In the absence of fabric analysis examinations are helped a great deal by small faults, irregularities and the state of wear of the ceramic moulds with which the lamps are made. Occasionally the cast is further decorated with additional features stamped on top of the moulded décor (see lamp JH482, FIG. 7). A stamp may bear equally distinctive marks, not unlike keys of a typewriter. Minor faults or impurities of the mould and stamp negative leave unmistakable positive impressions which are a "DNA" that can trace the lamps back to the workshop. Selecting lamps by their fabric alone is not a sufficiently strong criterion by which to isolate workshops because several workshops at the hippodrome may share one or several clay sources. A potter may use a buff and red ware fabric for

¹¹ Or taken from a mosaicist's copybook. One such border is on a grand mosaic floor in the 6th century church of Bishop Isaiah immediately west of the North Theatre (Clark 1986: 310, fig.4). But since the church suffered severe damage from the iconoclasts the face and other images have been removed. They would have been of the same generic type as those on the mosaics of the Chapel of Elias, Maria and Soreg in Jarash, or at the Church of the Apostles in Mādabā (Piccirillo 1993: photo 99, p.296 photo

570). The churches date to the first half or around the middle of the 6th century AD. The mask of Dionysos usually occupied the corners of the border.

¹² The earliest locally wheel-made animal vases, 3 camel models, at Gerasa come from the mid-2nd century BC tomb discovered during our city wall excavations in the 2001 season, cf. Kehrberg and Manley 2002: 197-199, Fig. 2.

POTTERY WORKSHOPS AT THE HIPPODROME OF JARASH



7. Mould-made *Jerash Lamps* and their moulds (A, B, C) from various Hippodrome workshops.

one mould, but at the same time it is not surprising that groups of lamps made from the same mould are made more often than not, made from the same fabric.

A third and distinctive “marker” of the potter’s hand is the so-called zoomorphic handle of the *Jerash Lamp*. A piece of clay is attached to the lamp’s original tongue handle, illustrated by three moulds (FIG. 7: A, B, C) after the two lamp halves have been joined. The clay is then pinched and pushed into shape by three simple movements of thumb, index— and middle finger. The unfired handle fragments (FIG. 5a) show that the heads all bear the same tilt towards left. This is the result of multi-repetitive movements when making dozens of lamps in one batch and is the mark of a potter’s ‘hand’; it could probably also indicate whether the potter was right- or left-handed. In addition, the ‘animal heads’ appear to be of the same peculiar style.¹³ Other such family groups of lamp handles frequently match the mould pattern, type and size: Multiple nozzle lamps JH628, JH502 and fragment JH93 at the top, and lamps JH480a and JH480d at the bottom on Figure 7 are the most obvious and classic examples combining the listed criteria which can pinpoint the place of manufacture.

In addition one could examine the lamps by their fingerprints. This type of study has already been done on Alexandrine lamps (Dzierżykray-Rogalsky and Grzeszyk 1991), but in view of the hippodrome potters’ vast output related securely to their original contexts, a forensic examination appears not essential for the basic grouping of lamps. However, looking further afield, the hippodrome *Jerash Lamps*, as indeed the preceding products, provide the necessary data to intensify a lychnological study including fingerprints which may ultimately lead to identifying family members of or relationships between workshops, how many ‘hands’ were working in one workshop and trace

lamps back to their actual maker.¹⁴

Other Common and Coarse Ware Ceramics (FIGS. 8-10)

The following presents a selection of ordinary common and coarse ware pottery made by the same workshops that produced the *Jerash Lamps*, *Jerash Bowls* and other objects shown above (FIGS. 4-7). As outlined earlier (‘The Hippodrome Potters’) the unfired fragments match the types of the misfired and discarded pottery shown here and with which they were found. The waste deposit of one workshop has demonstrated conclusively that the repertoire prepared for one firing consisted of all forms and wares current in 6th century Jarash.

Jugs, Juglets, Dipper Juglets and Cups (FIG. 8)

One of the most frequently occurring forms of the common table ware are jugs; most hippodrome potters focused on two basic forms: one type continues with a variant of the earlier standard trefoil mouth as a pouring device (Kehrberg 2007: Fig. 9); the other, and more common 6th century form shown on Figure 8 has a circular mouth with an accentuated everted lip and a tubular spout attached at the shoulder opposite the handle.¹⁵ The second type occurs also without an added spout and like contemporary jars, has occasionally large white circles painted on their red ribbed bodies (FIG. 8: A, B). The slim collar off-setting the neck and shoulder are shared by both and occasionally the trefoil-mouthed jug. The jugs are usually finished with a thin slip or slip-wash or slurry, and like the body mostly in red but occasionally in a semi-transparent creamy wash. The rounded base is omphalous-shaped like other closed vessels and bowls of this period (*infra*).

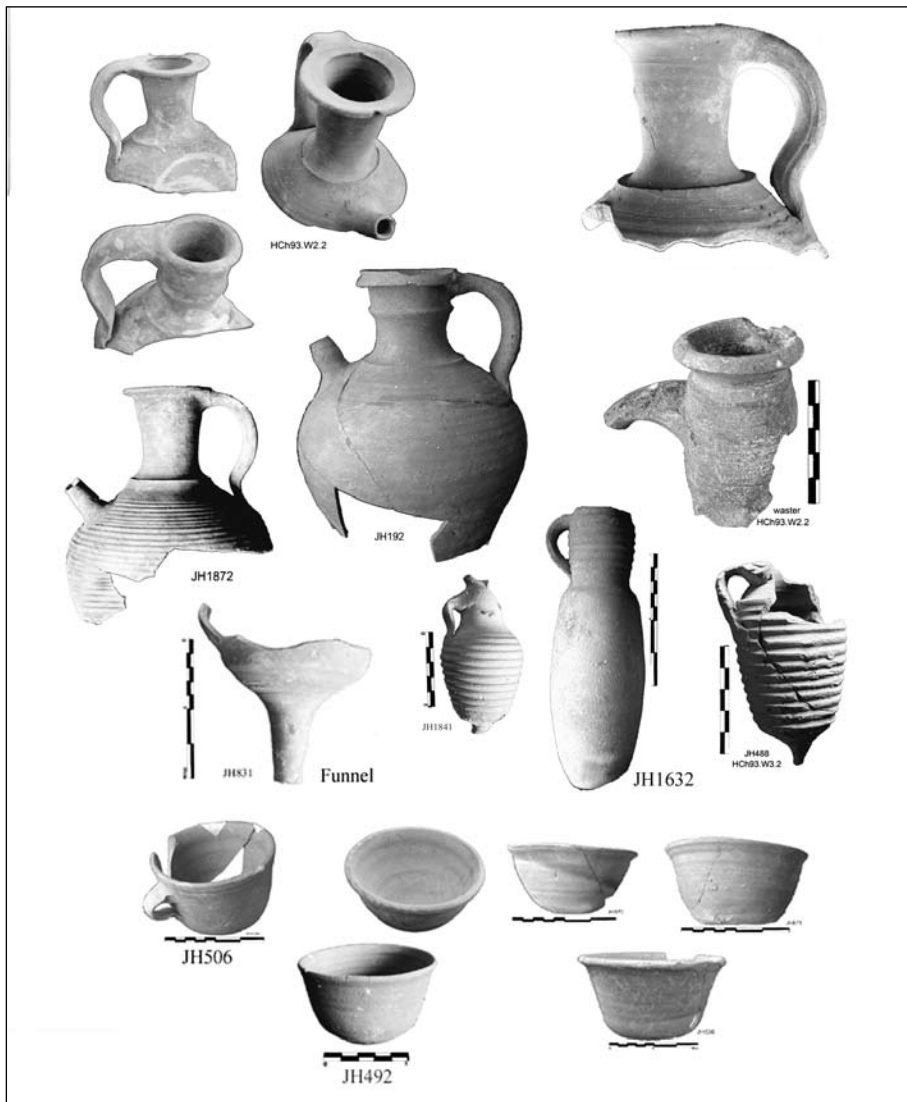
Some miniature juglets are copies of larger jugs with the difference that their bases are pinched and that they were probably carried on a belt or put on

¹³ In my study of lamps from the North-Theatre complex (Austrian Excavations 1982-83), I have first noted these features peculiar to groups of Jarash Lamps in conjunction with casts from particular moulds, and 2nd generation mould-copies made from lamps (Kehrberg 1986). I was able to build a cluster of 1st and 2nd generation lamps from diverse loci. On the lamps from the hippodrome workshops see also Kehrberg 2008, in the press.

¹⁴ Establishing a fingerprint database would not only isolate individuals, whether adults or children, but could be an appropriate alternative to spectrographic analyses of lamps as well as other mould-made objects when one cannot extract samples for fabric analyses. It is also useful in regard to the one or two *Jerash Lamp*

moulds having been found outside Jarash. They may have been 2nd generation moulds made from imported lamps; alternatively they could have been left behind by an itinerant potter from Jarash because it is doubtful that a potter would sell his mould which is the patented blueprint for his trade.

¹⁵ The latter is still the standard water jug in Jordan today with the difference that pottery jugs are less popular and mould-made plastic models dominate in any *sug*; they are especially used in outdoor activities away from the table like farming (or excavations); the water is poured directly, but without touching the lips from the shoulder spout into the mouth.



8. Common table wares: jugs, juglets and cups - 'humus bowls'.

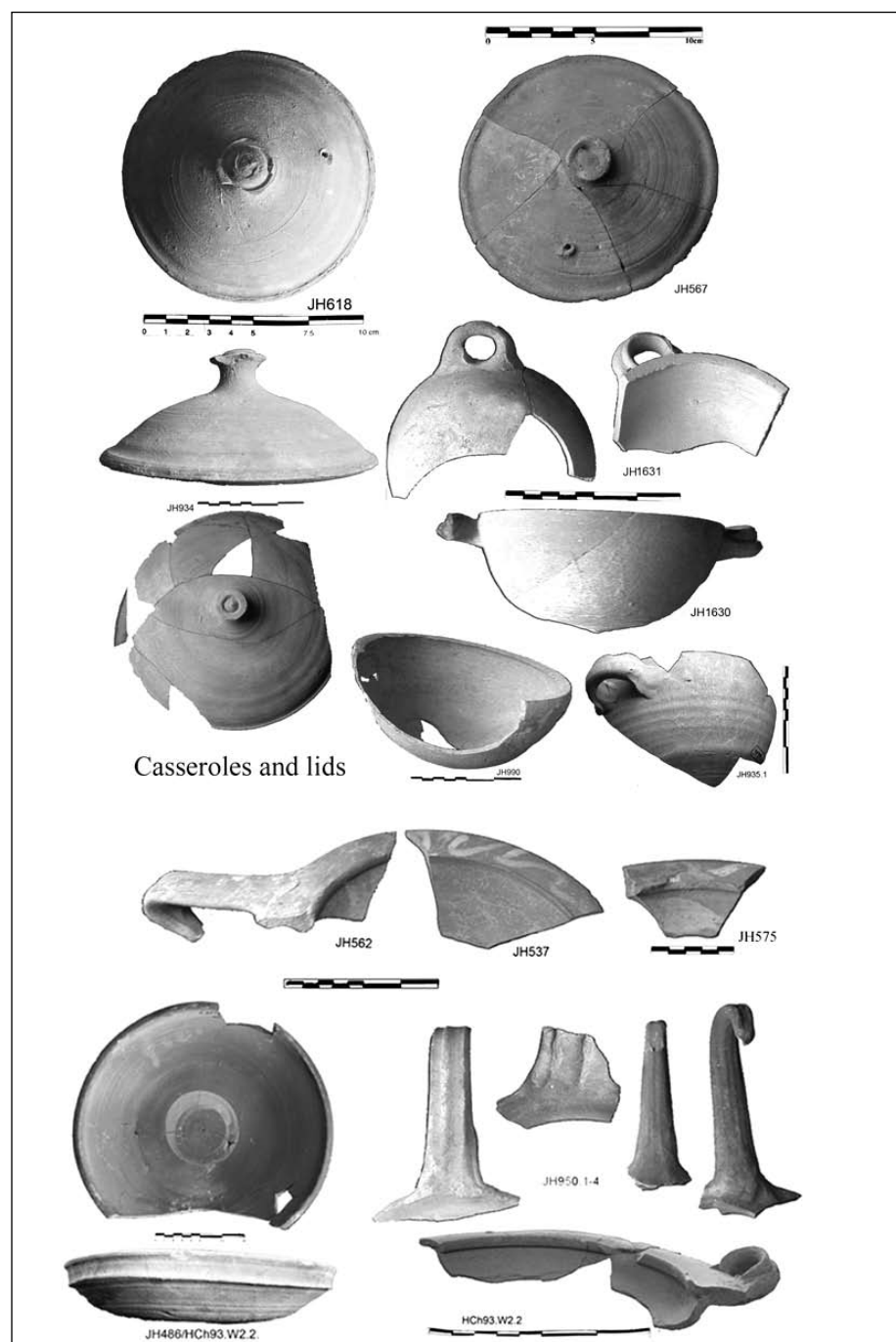
a stand. Two examples of a variety of these small vessels, JH1841 and JH488 represent popular types and, not unlike perfume bottles, their small size seems to advertise a precious content. A larger form is the 'dipper juglet' JH1632 which, like the large jugs, has an omphalous base or occasionally a conical base, but the ribbing is usually reversed: here it is the neck that is ribbed and the body left plain. This reversal of plain and ribbed surfaces harks back to the small filler— or strainer-jugs with a wide ribbed neck and plain body produced

by Hippodrome potters of the Late Roman period (see Kehrborg 2007: 42, Fig. 9).¹⁶

The dipper juglets are not infrequently found together with larger jars which may have contained liquid, indicating their primary use which also gave them their name. Less frequently identified are funnels like JH831 which may be partly due to their similarity with contemporary bowls: one could not distinguish between rim and body sherds of a funnel or a bowl. On the other hand, like in modern households, funnels occur singularly and they were

¹⁶ Variants of this strainer jug continue into the Early Byzantine period at the hippodrome. It is not surprising that the Late Byzantine potters at the hippodrome and elsewhere in Jarash continued in general with the Roman to Early Byzantine trefoil mouth jug form, dictated by function as well as tradition. Selective features emerging in later variants are the distinctive chronological

breaks with earlier traditions. This could undoubtedly be said about most basic forms used in the kitchen and at table, excepting omissions of some types like the Late Roman-Early Byzantine bottle (Kehrborg 2007, Fig. 9) which had disappeared by the 6th century and was probably replaced by the miniatures.



9. Common kitchen ware and serving dishes: casseroles, frying pans and platters.

much less likely to have been produced in large quantities even for shops or eateries.

Figure 8 does not represent a complete range of jug variants, but judging by their quantitative occurrence these types are the most commonly produced and used forms in Byzantine Jarash. The same may be said about the cups or small bowls on Figure 8. The small bowls come with a plain rounded bottom or an omphalous base like the large version of a similar type bowl made from the same ware (see

above comments on the funnel); occasionally one may find a cup with a ring foot and these rare examples tend to be accompanied by a more slender bell-shaped cup. The fabric varies from the standard ware, like the jugs and juglets, fired in grades of red, and a softer buff ware ranging from light orange to pastel brown (also preferred for the larger bowls); both wares occur often with a darker thin red to orange slip running over the outer rim; others have white irregularly painted bands running or

‘dripping’ down the inner side of the bowl.¹⁷ Their ware and slip as well as the style, and it is a deliberate style of sketchily painted application, are the same as on the larger vessels. It characterizes the generic type as well as differentiating workshops. It also denotes mass-production of the cheaper everyday table ware.

From Stove to Table: Cooking and Serving Dishes (FIGS. 9 and 10a)

The flat-bottomed platters like JH486 on Figure 9 are easily distinguishable from the *Jerash Bowls* (FIGS. 5a and 6) with which they occur at the hippodrome workshops. The common ware dish belongs to the same group of red fabric as the jugs shown on Figure 8: depending on the firing, the platter has usually a thin red to orange to pastel slip and is decorated with a white painted circle or a number of circles in the centre of the flat dish. The brush strokes and perfect circle reveal that the painted tondo is applied while the dish is being turned on the wheel. The sparse design and sketchy application speak again of quick mass-produced pottery already noted for the jugs (*supra*) and other bowls; their large numbers at the hippodrome and frequent occurrence at other sites mark them out as the regular serving dish in Jarash throughout the 6th century. The form evolved recognizably from earlier dishes, but the platter also represents deliberate stylistic changes breaking with the Early Byzantine tradition of flat bottomed dishes; the simple white-painted decoration remains the same throughout their production.¹⁸

The other pots on figure 9 illustrate some of the kitchen and serving dishes. The casseroles with their lids and the ‘frying pans’ had as today dual

functions, at once for food preparations in the kitchen and serving dishes. These forms in particular have a longevity going back to the Roman kitchen. Small changes in their appearances are more due to generational adaptations by potters than intentional style changes. The string-cut method of separating the rims of casserole bowls from lids or another bowl, and not removing the often untidy bits, remains the same with the earlier thicker walled and the later larger and thinner variety. This in itself is a clear indication of the rudimentary level of the dish in the repertoire of kitchen and table crockery. The other feature is the simple slurried surface on the fabric ranging from reddish to pastel brown often leaving messy finger impressions where the knob has been attached as seen on lid JH618. The lids are usually plain with one small hole, see JH 618 and JH567, pierced from either side with little or no attempt of tidying the piercing, another carelessness of execution where only functional aspects and speed are essential. The hole serves as air-vent while cooking, there may be two depending on the size of the lid and pot (quantity of the content); the rounded base of the casserole is adapted to fit the stove rather than the table.

The massive output of the hippodrome workshops from the 3rd to 6th century has shown that with the majority of pots their function remained the main criterion for form tradition, associated with food storage, preparation in the kitchen, serving at table and the meal itself.¹⁹ The painted decoration on the broad rims of frying pans JH562 and JH537 shows that they were also designated as serving dishes. The shallow flat-bottomed saucepan from Chamber W2 which has two horizontal handles like the casseroles but the same type of folded over

¹⁷ The red body and drip-painted white bands inside the bowls recall the traditional pottery bowls used today when serving a meza, especially for humus and other dips. In fact, the running streaks of superfluous humus and tahineh after dipping appear to be copied in the painted decoration. Like the spouted jug, this bowl is nowadays made in plastic including the decoration, bearing witness to the survival of an old form tradition which may also reflect on conservatism of dietary habits. I have called the cups shown on Figure 8 ‘humus bowls’ in my Jarash pottery corpus to express this strict adherence to tradition where modern materials like plastic, invented for use with simpler moulded forms, is applied to conform strictly to the original pottery model; this does not rule out multiple uses for the modern plastic copies or indeed for the ancient prototypes.

¹⁸ While continuing 4th/5th century or even earlier Late Roman local and/or workshop traditions many of the 6th century forms were ultimately derived from attempted copies of or were inspired by imported pottery. This cannot be discussed here but

will be examined in my final publication of the hippodrome corpus. In previous publications on pottery I have, however, already remarked on early Gerasa’s internationalism with regard to local pottery manufacture by its adherence to main trends in ceramics (see e.g. Kehrberg 2007). Watson traced the relation between these common ware bowls and the Fine Ware *Jerash Bowls* in her thesis, cf. esp. the rim form (Watson 1989).

¹⁹ Quantitative seriation or ‘fashion charts’ of types produced by generations of hippodrome potters demonstrate a lack of innovation and clear preference not to alter the forms intentionally for non-functional purposes. This dominance of functional aspects in household vessels also reflects on the clients and cultural-cum-culinary habits of the society in general. On the latter see especially the study on Tel Anafa pottery by Andrea Berlin (Berlin 1997). The charts and other tables and aspects of pottery workshops and their markets will be part of the final publication, see note 15, above.

and everted rim (reminiscent of large glass dishes of the same period) as the long-handled pans belong to the common ware repertoire as the platter JH486 and can generally be described as table ware. The frying pan with its long hooked handle and deeper bowl and smaller lip first appears in the Late Roman workshops, but their popularity peaks in the Byzantine period at least at the hippodrome workshops.

The small painted jars on Figure 10a join the above group of decorated common table ware. Their red fabric and slip with circular white painted decoration group them together with the jugs and platters (FIGS. 8 and 9). The small size and thin-walled delicate make seem to suggest careful handling and like other amphoriskoi, may indicate a prized dry or liquid content like a special sauce or herb. The other two-handled jars and cooking pots are not as precious; their plain fabric is essentially the same as the jugs ranging from red to shades of orangey and pastel brown usually with a slurried surface. The middle row shows typical 6th century smaller jars churned out by the dozens at any one firing of one of the hippodrome workshops. The greater part are slightly thicker walled, especially the softer buff ware jars of the pastel coloured range; the thin-walled larger cooking pots or containers are usually of the harder red ware and sometimes decorated like the amphoriskoi and jugs.²⁰

The rims and necks of the 'cooking pots' and smaller jars tend to vary in their accentuation of the inverted 'S' or '?' curve; some are almost flat like JH1625 and JH1623, others have deeply indented curved necks and rims like JH1493. A large number, represented by the large cooking pot or jar JH1918 characteristic for the period, have the rims completely rolled over or folded outward and pressed into a sharp edge again reminiscent of techniques for glass vessels (FIG. 5 wasters and unfired fragment).²¹ It is important to note the diversity of rims found together at the same workshop dumps. At other sites in Jarash or somewhere else where the jars are found in contexts in which they were

employed (after purchase), rim variants occur necessarily at random. This may lead to over-classifying the same generic type due to unawareness of the irregular quality of production. There is no chronologically appreciable difference between the various inversed s-curves of 6th century cooking pots; at most there are slight differences between hippodrome potters. Other irregularities are due to drying and firing processes, sizes and thicknesses of the jars and necks/rims which can be shown statistically. Coming from their place of manufacture at the hippodrome workshops and in large quantity has enabled me to eliminate artificial typological groupings based on rim variations. I was able to observe that small differences occur mostly haphazardly and can vary from one firing to the next.

The lighter two-handled jars or cooking pots probably had dual or multiple uses in the household or shop. The thin walls of the larger jars were economical and it did not seem to matter that many were not very well turned out: like their rounded bottoms they made cooking much faster having to use less heat (and fuel). They were also easily breakable, but judging by the masses that were produced or rather thrown away, the jars seem to have been inexpensive. The jars may also have been used as packaging for the transport of perishable dry goods like herbs (and dried yoghurt?); this would explain why these basic Jarash pots were found together with the main exported items — the *Jerash Bowls* and *Jerash Lamps* — at sites like Bosra (*supra*, and nn. 2) which produced their own everyday common or plain wares. According to the quantity of waste produced by the hippodrome kilns — in average a 25-30% loss per load prepared for firing — their number outweighed by far the demand of jars by 'thermopolia' and other public kitchens.²² The jars are too small and too fragile for long-term use and as permanent storage containers in retail shops. In fact, they could be compared with modern plastic containers or plastic bags used for carrying certain goods and recycled within the household or shop. The unusually large number of same-sized smaller

²⁰ The white painted Byzantine decoration on jugs and jars developed into pendant loops and spirals in the Umayyad period when decoration increases with more pronounced carinated shoulders and stronger accentuated profiles in general. A similar trend can be observed with painted wavy lines which became often parallel pendant lines and criss-crossing the ribbed surface.

²¹ The rim is made by the technique used for glass vessels as noted above for the frying pan rims. The mode of 3x folding for a vari-

ety of rims is more suitable for pliable glass than being thrown on a potter's wheel; like other smaller cups and the rarer stemmed pottery goblet, glass seems to have provided occasional models at the height of the Byzantine era.

²² Excavated by R. Parapetti and his team at the north cardo (cf. Parapetti 1998: 366, Figs 8, 9) I examined the pottery and other finds of the public eatery or kitchen.

jars could also indicate their use as quantity indicators of their contents, bought at a shop. At the pottery workshops broken pots were recycled by grinding them finely for inclusions in the clay fabric prepared for another batch of manufacture. Ground pottery particles were found in most fabrics of the hippodrome wares.

Pipes, Tiles and Large Storage Jars (FIG. 10b)

Ceramics often overlooked but equally important are the pipes and tiles for substructures of buildings and the infrastructure of industries, public water supply and drainage. Pipes such as JH617 and JH491 (FIG. 10b) were produced in great numbers at the hippodrome and of these many were dumped after failed firings. The pipes are fairly thin-walled and usually reddish brown (JH617) or mottled grey (JH491) due to misfiring or stacking in the kiln; many pipes are somewhat overfired evidenced by slightly warped shapes, small bubbles and hairline cracks in the fabric, but many were still used for installations. The same pipes have been excavated still encased in mortar in the ground in various parts of the civic centre of Jarash which incidentally attests to the maintenance of previous Roman public water supply systems like public fountains and baths. To these were added new pipelines for private houses and new baths in the Byzantine period. Sewage was undoubtedly another use for pottery pipes not yet uncovered by excavations.

The small block-like tiles JH2009 with finger markings on the obverse (FIG. 10b) were used for hypocaust structures and for kilns. The striated wood grain impression on the upright sides shows that the tiles were prepared in a wooden frame, probably a set of squares, which was removed after casting, aerating the tiles left to dry for firing; the bottom side of the tiles show that the frame rested on a dirt floor when it was filled with clay.²³ The clay is the same as that used for *Jerash Bowls* but

with added inclusions making the fabric coarser and heat resistant. The tiles and the *Jerash Bowls* and other unfired fragments (FIG. 4b and 5a) came from the same workshop dump.

The large storage jar JH2334 is the common form in the Late Byzantine period (see e.g. Rasson and Seigne 1989: 7, Fig. 11) throughout the Levant and is not only used by merchants transporting their wine and oil, but also found in shops and eateries (*supra*; Parapetti 1998). Larger households also kept large jars in their kitchens or larders, in particular if they harvested their own produce at their farms situated in the surrounding countryside.²⁴ The hippodrome was a major producer of these jars, also attested by unfired fragments with preserved standard decoration of white painted thin horizontal lines on the main body (FIG. 4b). The ware is usually buff fired either beige or pastel brown to grey.

6th Century Greek Graffiti on a Jarash Bowl Sherd (FIG. 4c)

Under the section on *Jerash Bowls* and face moulds (*supra*) I briefly portrayed the skill of the Hippodrome potters whose sophistication is revealed in the rendition of painted scenes and moulded objects. It is also evident that some (probably a good number), were able to write. I have also posited that this was not an alien concept if one considered Gerasa's artisanal history as part and parcel of the transmitted Hellenistic and Roman cultures whose contemporary artisans had often been literate.

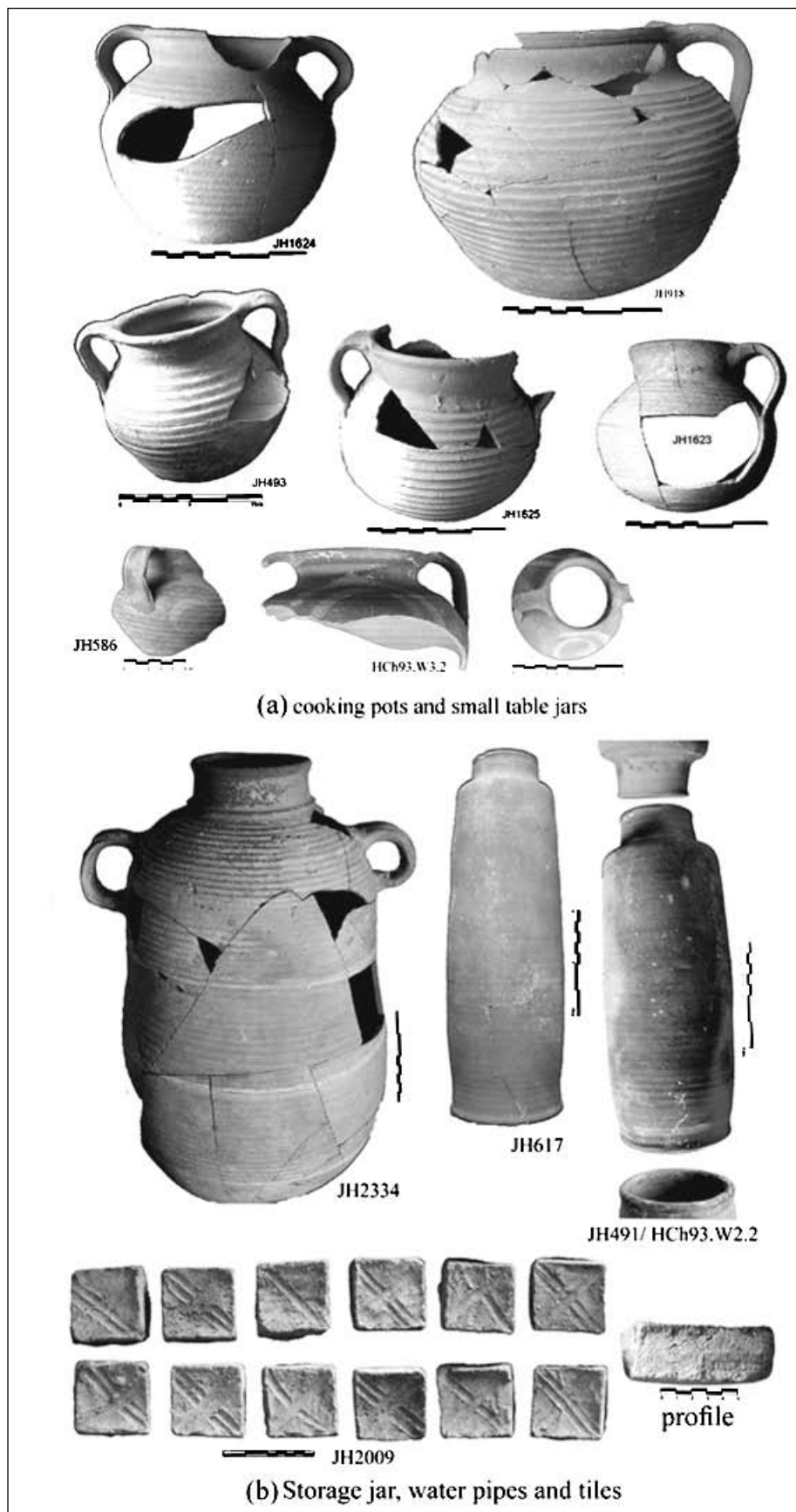
It is not entirely improbable to suggest that some of earlier Gerasa's potters could have been immigrants encouraged by their current governments to settle in the newly acquired territories.²⁵ Like retired soldiers and engineers, craftsmen accompanying the Greek and Roman armies respectively could equally have settled in the Hellenised and Romanised Levant; it was after all a policy that was

²³ I have noted the same method in brick making in Egypt at Saqqara in 1978.

²⁴ See the Umayyad house complex with its kitchen larder fitted out with a shelf to hold large jars. Antoni Ostrasz, architect of the excavations and restorer of the building maintained that the house began as a residence or villa in the Late Byzantine period which expanded into a substantial complex in the Umayyad period (pers. Comm.). 1980s surveys in areas between the Sūf village in the north and the southern end of the Zarqā' valley (Wādī Jarash) brought to light evidence of substantial Late Roman and Byzantine farmsteads including olive presses. We explored the areas east and west of Jarash and the road towards 'Ajlūn initially looking for quarries for the hippodrome and found installations

dating from the Roman to the Byzantine period. The 3rd century was prominently represented as a possible result from Gerasa's trade with the Roman frontier stations, see Kehrberg 2007.

²⁵ One is reminded of the deliberate policy of early Greek settlements abroad and especially potters who were encouraged to move to the new colonies in the 8th and 7th centuries BC. The settlements in southern Italy were invigorated in the late 5th and 4th century BC by new waves of potters from Greece resulting in the famous red-figure South-Italian pottery. Among Romans were artisans from Greece who could also have been brought to the Decapolis cities like Gerasa and ultimately settled there, establishing guilds of 'western-style' artisans.



10. Common kitchen ware and coarse ware ceramics: cooking pots, and jars (a); storage jar, tiles and pipes (b).

for a while actively pursued by Alexander and by the Roman Senate for their western provinces. Importing ideas and ideals, as Hadrian and Antiochus before him had had clearly in mind, can also mean importing the people necessary for their grass-root implementation and material expression.

However speculative this may seem, we did find irrefutable proof that at least one of the hippodrome potters was able to write and others able to read cursive Greek. A cursive Greek text had been written with a fine paintbrush in red dye on both sides of a large *Jerash Bowl* sherd after firing, obviously taken from a broken bowl; it was the same red dye and brush he had used for decoration on the bowls before firing. The script is well written but faint because it was not fired and had been exposed to elements in the dirt and was washed by our well-meaning pot washer with a little too much vigour. It is a miracle that any of it survived.

The inscribed sherd was found among discarded pottery waste of other *Jerash Bowls* shown on Figure 6 and other pottery, and the text provides a glimpse into a potter's life. Papyrologists and epigraphists²⁶ examined the writing and suggested that the text could constitute some form of contract in a formula common to the Byzantine period. Unfortunately, too much is missing or too faint to be precise and on the other side one can barely make out letters, but it was stipulated that the possibility of a simple contract like a marriage contract could not be ruled out. The piece must have held some personal significance because the sherd or what is left of it (the broken-off text indicates a larger piece) had been decorated by the scribe: a zigzag pattern had been carefully painted on the plain rim of the bowl to frame the text. If this was so, it gives the piece a personal touch suitable for a marriage contract that could have been drawn up between two potter families working and living side by side at the hippodrome. The practised hand shows that the person was an experienced writer and not merely a copy artist as one may have otherwise suggested for the Greek painted inscriptions on the *Jerash Bowls* (*supra*).

The Byzantine pottery made by 6th century Hippodrome potters goes far beyond the repertoire of pottery types and their decorations shown in this

paper. Having kept count of the entire quantity of the excavated pottery masses, and instead of separating wares, having retained the pottery finds together with the whole assemblage related to their contexts, has given us valuable clues to manufacturing methods and workshop organizations. This will ultimately allow the possibility to trace their commercial activities. The hippodrome excavations and the finds have also offered glimpses into a potter's domestic life and his education, reflecting in general on the township of 6th century Byzantine Jarash.

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²⁶ We owe our thanks to T. Gagos and others of the ACOR papyrology team who are examining the Nabataean Byzantine papyri found by P. M. Bikai's team in the excavation of the Petra

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