Fabrics in Colour: Knidos.
The Hellenistic and Early Imperial Tableware

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A. Fabrics in Colour: Introductory Remarks

Current ceramic research is increasingly concerned with the economic, cultural and social aspects of Hellenistic and Imperial pottery. The ability to identify and determine the origin of ceramics based on specific properties of clay and coating is more than ever a sine qua non for every researcher in this field. The macroscopic analysis by the trained eye of the expert is still the most important method for assessing the sherd material. Although today it is possible to identify and classify pottery by means of archaeometric and chemical analyses, this can only be of secondary importance, as the corresponding methods are complex and expensive and therefore cannot be applied to the necessary extent to the enormous quantities of finds.

Hence, the knowledge about the properties and appearance of ceramics from different, specific production centres can best be acquired by studying corresponding, reliably identified sherd material, which, however, is usually not or only to a limited extent available within reach, i.e. at one's own research location. Isolated fragments, such as those kept in small university collections, only give a partial impression of the spectrum of a fabric. Suitable and sufficient illustrative material is available primarily at the place of production itself, which makes the study of fabrics very time-consuming due to the travel required. However, the exchange with colleagues on site and the expert discussions, in which the knowledge about fabrics is passed on – like a special secret science from druid's mouth to druid's ear – were and are irreplaceable.But here too, the possibilities were and are limited, because it is impossible to study even the most important and common fabrics in this way due to their large number and their wide distribution across the entire Mediterranean region and beyond.

In the end, the only means of identifying a fabric was and remains the use of verbal descriptions in relevant publications. However, this venture is doomed to failure in many cases because the descriptions of the characteristics of the coloured clays and coatings are usually illustrated exclusively with black-and-white photographs; sometimes isolated colour plates with the illustration of some – usually only the decorated – sherds are attached. However, this material is hardly sufficient to be able to open up the spectrum of a workshop in its full breadth. The main reason for not using the colour images, which are actually indispensable in this area of research, has so far been the high printing costs. Even today, as a result of the conservative adherence to the expensive offset printing, important material publications are still largely published without colour illustrations, although laser colour printing, which has

been developed in the meantime and is now very high quality, offers relatively inexpensive options.

In the past, the change of colour hues during the reproduction process was repeatedly used as an argument against coloured images, claiming that this would give a false impression of the appearance of the material. In this respect, too, thanks to modern reproduction methods, some things have improved and colour photos can now be reproduced authentically in print, with at most minimal colour deviations. Ultimately, in any case, the amount of material published in colour is a crucial factor in preventing distorted perception. For the ceramic specialist aware of these problems, colour photos are in any case more helpful than the black and white illustrations, which have no information whatsoever on the fabric characteristics.

With this in mind, ›Fabrics in colour‹ is a small project that invites you to publish ceramic finds extensively in colour. Any type of ceramic material is welcome – tableware and cooking utensils, transport amphorae, lamps, terracottas, etc. – that can come from central production facilities as well as from small regional workshops. The colour photographs can serve as a supplement to material that has already been published, illustrate archaeometrically analyzed finds, or present new material.

The series begins with the Hellenistic and early Imperial period fine ware from Knidos, presented in 2010 without colour photographs.

B. Fabrics in Colour: Knidos. The Hellenistic and Early Imperial Tableware

The publication of colour photographs of the tableware from Knidos represents a supplement to my dissertation published in 2010, to which no colour plates could be added for various reasons, ›Feinkeramik aus Knidos vom mittleren Hellenismus bis in die mittlere Kaiserzeit‹ (Fine Ceramics from Knidos from the mid-Hellenistic to the mid-Imperial Periods), henceforth ›Kögler 2010‹. In addition to the cost factor, the necessary processing of the photographic material played a role, which was not technically feasible at the time.

The material was collected in the 1990s as part of a small project set up by Hans von Steuben and Ramazan Özgan to process the pottery finds from Knidos from the American excavations of the 1960s and 1970s[1].

Basic conditions of documentation

The quality of any photographic documentation is directly dependent on the general conditions under which it has taken place. This applies above all to factors such as the local conditions and the technical and human resources. In this regard, the conditions for the documentation in Knidos and Bodrum within the framework of the small project with limited financial possibilities were anything but ideal: At first, due to the short duration of the Turkish excavation campaigns, work always had to be carried out under enormous time pressure. A professional photographer was not available, so the photographs were taken by more or less experienced amateurs – the archaeological staff[2]. In addition, due to the limited financial resources, the meagre possibilities had to be managed sparingly and things had to be improvised. The latter is probably most strikingly expressed in the background

1 The project was a cooperation between the Archaeological Institute of the Goethe-University in Frankfurt am Main (Prof. Hans von Steuben) and the Archaeological Institute of the Selçuk University in Konya, which has been continuing the excavations in Knidos under the direction of Prof. Ramazan Özgan since the 1980s. The American excavations were led by Iris Cornelia Love (Long Island University, New York), who died in April 2020 as a result of a SARS-CoV-2 infection.

2 The photographs were taken by Ursula Mandel, Achim Ribbeck, Ulrich Dotterweich, Gabriela Happel and myself. Unfortunately, it is no longer possible to assign individual photos to specific photographers, as no records were kept of this.

of the photographs, for which heavily grained wooden boards, pebble concrete slabs, large-fibre black-mottled textile and steel-grey metal shelves were used as a makeshift solution. Professional lighting equipment was not available, which also made it difficult to illuminate the sherds.

Depending on the location, the photos had to be taken under changing lighting conditions, but mostly in the blazing sun, with the shadows cast by the sherds varying in intensity depending on the position of the sun. In contrast to today's digital photography, which permits to assess the quality of the recordings on the spot, the result of the recordings made with an analogue single-lens reflex camera in the 90s could only be seen after the campaign once the film had been developed – and so often caused unpleasant surprises. A not inconsiderable part of the photos had to be rejected for this contribution due to over- or underexposure, resulting in colourdistortions. Incidentally, the cheaper slide films were used for the colour photos, from which photo prints could then be made as required, but this time, for a change, done by an experienced professional. High resolution scans of these photo prints are shown below.

From that part of the photographic documentation that can be used for further reproductions, an extensive selection was made to illustrate the characteristics of the Knidian fabric, which reflects the entire colour range of clay and coating of the locally produced vessels (**figs. 1–18**). For this purpose, mass-produced vessels were primarily used, including the well-known carinated cups, hemispherical bowls with rouletting, ordinary dishes and small bowls of different types, as they best reflect the characteristics of everyday tableware in Knidos. Some of these types also occur at other sites, which offer good opportunities for comparison. The aforementioned carinated cups are of particular importance, since they were the only Hellenistic vessel type that continued to be produced in the Imperial period, and the development of the fabric can be traced over a considerable time span (**figs. 3–4**). In addition, such categories of Knidian tableware should also be illustrated that were produced in significantly smaller quantities and sometimes only for a limited period, such as the ceramics with painting in the so-called West Slope style (**fig. 18**), the Hellenistic relief bowls (**fig. 17**) and the early Imperial thin-walled ceramics decorated in barbotine and sanded techniques (**fig. 15**).

For the vessels reproduced in this article, the respective catalogue number under which they are listed in the 2010 publication is given in the figure captions; measurements, descriptions, chronological and typological classification can be found there.

Clay and coating of the Knidian fine ware

The fabric characteristics were described in detail in the 2010 publication[3], providing the basis for the following, slightly abridged version, with only a few minor changes and additions.

An extremely hard-fired, fine clay with a dense structure is characteristic of the Knidian fine ware of both the Hellenistic and Imperial periods; only occasionally a fine porosity can be determined. Accordingly, the sherds are difficult to break, and they break smoothly and without crumbling or splintering. The clay, which was assessed on fresh fractures, contains tiny black particles that can just about be seen with the naked eye, as well as small white lime inclusions that as larger grains (so-called ›Kalkmännchen‹) can crack the surface (see i.e. **fig. 2: G.70; fig. 12: G.54**). Mica particles, on the other hand, are usually not detectable in the clay. The colours of the clay include light to medium grey and pale pink-brown and pink-beige tones in finehues. Occasionally, there is also a pale brown colouration (**fig. 7: D.73**), which can have a bluish-violet undertone. Rarely, the vessel walls are completely fired through in one colour (i.e. **fig. 1: F.23; fig. 2: G.70**); with a normal wall thickness, the fracture generally shows a two-layer colouration, with the inner layer usually being fired grey, the outer pink-brown or pink-beige (**fig. 1: D.4** and **D.30; fig. 2: G.69**). Thicker parts of the wall (e.g. in the area of the

3 Kögler 2010, 24–26.

ring foot) show a grey core, which is surrounded by a differently coloured shell on the inside and outside of the vessel, while thin-walled vessel sections (e.g. in the area of the rim) can be uniformly coloured. The colouring of the clay is therefore more or less dependent on the wall thickness in addition to the firing in the kiln and can vary accordingly within a vessel (**fig. 1: D.65**).

Just as characteristic of the Knidian tableware is a matt to slightly reflective coating, which is applied by dipping the vessels in a diluted clay slip. In the case of open forms, only the inside or usage side is always covered, while on the outside a coating is only applied to the rim zone or to visible sections. Closed shapes are only dipped with the outside, usually limited to the mouth and shoulder area. The undersides of all shapes are without slip; here as well as inside closed shapes, the stripes of dripping clay slip and fingerprints testify to the dipping process used (**fig. 1: D.65; fig. 7: Aa.3, Ac.1** and **D.52**). Apart from a few exceptions within the wheel-made ware (i.e. some plates with broad rim, **fig. 9: E.77–78**), only the relief vessels (**fig. 17: D.107, F.121+124, G.160**) are completely covered.

The coating ties itself well to the clay base and adheres accordingly. Cracks in the coating or even flaking of it can only be observed in rare cases (**fig. 7: Ac.1**)[4]; loss of the coating over the centuries has usually been through abrasion. The application of the clay slip is generally uneven and thin, which makes it appear more or less transparent; in particularly thin areas, the shimmering clay body influences colour perception, whereby an actually black coating on a pink-brown clay body can appear reddish-brown. A dense, covering consistency is less common.

A specific characteristic of the coating – in contrast to the clay – is a proportion of fine mica particles. If you hold a partially coated sherd in the sun, you will see a fine sparkle on the coated section, while no reflection can be noticed on the surface of the clay body.

The colours appearing in the coating show a wide range, ranging from black, black-brown and dark brown through strong red and orange-brown to lighter beige tones. The entire range can be encountered on a single vessel (see i.e. **fig. 7: Ac.1**); the partially covered exterior sides in particular tend to show themselves as blotchy colourful. However, the manifold variations cannot be considered the rule, just like the bichrome effect with black inside and reddish/orange-brown outside noted in the specialist literature for the carinated cups (i.e. **fig. 4: J.1**), which can be traced back to the stacking process in the kiln. In addition, the influence of stacking is particularly evident in the simple Hellenistic plates, which, as evidenced by misfired pieces from the Southern Necropolis (**fig. 8: F.85**), were placed one inside the other without spacers. As a result of the impaired oxygen circulation, a circular discolouration appears on the inner mid-section of the plate, namely the part corresponding with the interior of the base-ring on the underside. However, there is no uniform colour scheme here either and there are a large number of variations, such as the composition on **fig. 7** shows: A black circle can be surrounded by red-brown, a red-brown or grey circle by black, or a red-brown circle by orange-brown. The carinated cups, in which the inside and outside can appear in different or matching colours, show a corresponding wealth of variants, as the examples on **figs. 3–4** demonstrate.

A tendency towards a uniform black coating can be observed in the vessels painted in the West Slope style, since the light colours and the clay body incisions of the decoration stand out better against the dark background (**fig. 18: C.51; D.102–104**). However, colourfully coated specimens also occur within this category, especially in the case of the large late Hellenistic reversible lids (**fig. 18: Kn.184**). It should be emphasized that the clay slip was also applied to the vessels of the early Imperial period in the tradition of Hellenistic ceramics and that coloured and spotty as well as partially black coatings occur; even thin-walled ceramics are not exempt (**fig. 15**).

4 However, this seems more likely to be the result of modern storage conditions and massive contact with rat urine.

A certain negligence in craftsmanship can also be seen as a characteristic feature of Knidian fine ware. It is particularly evidenced by the uncoated undersides of the vessels, in the numerous fine grooves and holes left behind by particles carried along when turning (see i.e. the small bowls on **fig. 10**). Nevertheless, a careful reworking of the clay surface with a smoothing stick can also be seen here, which has left a faceted stripe profiling on the clay surface. This usually feels velvety to almost smooth, in contrast to the coating, which has a slightly rough surface. Thus, the haptic perception is also a criterion of the product characteristics.

The preceding description clearly demonstrates that it is not possible to classify the Knidian vessels according to the popular genera black and colour-coated due to the variety of hues that can appear on a single vessel. Furthermore, the term Knidian grey ware, established in the literature and probably derived from the grey Knidian lamps, is incorrect. In fact, in Knidos only a few, very specific vessel shapes or types are consistently fired grey throughout and coated black, namely essentially a service of bowls, plates and jugs with a hanging lip, some of which imitate types of the Arretine sigillata (**fig. 16**; – **G.96** is the only exception fired red). In addition, there are Hellenistic inkwells and small bowls with spouts, as well as small jugs with barbotine spikes, also from the early Imperial period (**fig. 15: G.152**). In any case, these are types of vessels that were only produced in small numbers and over a short time span.

The in-depth study not only of the carinated cups, but of the Knidian tableware production as a whole, documented from about 200 BCE to about 150 CE, reveals some development tendencies not only in typological terms, but also in relation to the fabric properties, which allow a division into four phases (I–IV):

Phase I (approx. 225–150 BCE; contexts **A–D,** part of **F**): The vessels of this earliest phase are usually carefully modeled and tend to have noticeably thin walls. The inclusions of lime in the clay are generally extremely small and only present in modest quantities. ›Kalkmännchen‹ are rarely seen here, and the number of surface grooves caused by rotating particles is also manageable. The coating is relatively thick and evenly applied, often covers well and tends to have a slight, sometimes metallic sheen (**fig. 3: D.1; fig. 6: Kn.284**). Particularly on early pieces such as the plates from the rock chamber tombs of the 3rd century BCE, imprints on the interior of the vessels indicate that the coating was additionally spread with the help of small sponges. Black is the predominant colour of coating; it can turn out particularly strong and stands in clear contrast to the pale pink of the clay body on the underside of the vessel, which is only partially coated (**fig. 1: F.23; fig. 7: Aa.3** and **Ac.1**). However, even at this early stage of development, there are numerous vessels with colourful coverings, as the above-mentioned plates from the chamber graves clearly show (**fig. 7: Ac.1**).

Phase II (approx. 150–50 BCE; contexts **E** and **F**): Compared to the vessels of phase I, those of the late Hellenistic stage of development tend to be much larger and have thicker walls, which is occasionally reflected in the fine porosity of the clay. The modelling is more careless, correspondingly the number of wheel-turning grooves and clinging lumps of clay on the surface as well as the number of calcareous inclusions increases. These are also becoming noticeably larger and, as ›Kalkmännchen‹, regularly crack the surface. The coatings are applied much thinner and more irregularly than on the pieces of the previous phase. Vessels with black coating are still common, but reddish-brown, orange-brown and beige tones in many hues, now predominate. The heavily stained coating usually appears matt and semi-transparent due to its sparse application, but contrasts less with the pale clay surface, which increasingly appears in pink-beige tones.

Phase III (Augustan-Tiberian period; contex **G**, early part): Compared to phase II, a general refinement can be seen in the vessels of phase III, which is reflected in careful modelling, thin

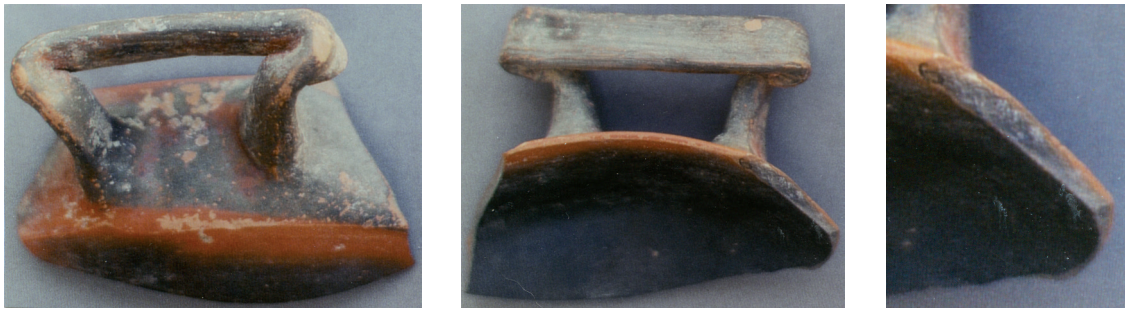
vessel walls, dense clay structure, small inclusions and correspondingly few lime figures. The vessels decrease in size and volume. The clay surfaces are mainly coloured in pink-brown and pink-beige, pale tones. However, there is an increase of pieces fired entirely grey, yet at the same time this material property is limited to certain types of vessels (see above; **fig. 16**). Regarding the colours of the coating, two directions are being pursued in Phase III. On the one hand, the stained-coloured coatings of phase II continued, with further thinning and fading of the colours observed (see i.e. the small bowls on **fig. 13**). On the other hand, the black coatings experienced a renaissance in Augustan-Tiberian times, sometimes in combination with grey-fired clay (i.e. **fig. 13: G.64**). Another generally characteristic feature of phase III vessels is the often greenish-grey tinted interior, especially in the wide open shapes, as well as a striking, silvery metallic shimmer of the coating, which sometimes reflects so strongly that the actual colour of the coating cannot be determined (**fig. 4: G.4, G.6, G.14** and **G.18**).

Phase IV (approx. 50–150 CE; contexts **H** and **J**, later part of context **G**): Noticeable are the continuously growing carelessness in the production as well as the coarsening of the material. Adhering lumps of clay and numerous, sometimes distinct grooves on the surface, together with carelessly designed parts of the vessel are becoming increasingly typical. The number of lime inclusions and lime figures in these vessels is just as enormous as their size, which easily can approach a grain of rice. The colours of the clay surface and the coating, which were initially quite intense, are increasingly fading. Eventually, the clay body usually reaches a lifeless beige (i.e. **fig. 4: J.1; fig. 13: G.77**) with a barely perceptible pink nuance. The coatings, some of which are extremely thin and allow the clay surface to shine through, are mainly concentrating on orange-brown and beige tones. They are still blotchy, but as far as can be determined on the basis of the body of the sherd, they can now be quite uniformly coloured. In addition, the coating is almost without exception matt in this phase.

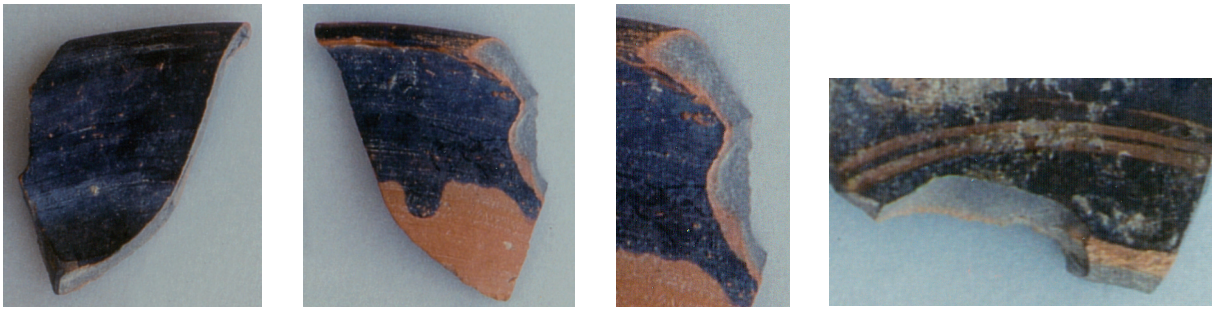
Comments on the illustrations

As mentioned above, the following 18 figures show a selection of Knidian vessels that characterize the fabric and illustrate its entire range of variations. The vessels and wares are deliberately not arranged in chronological order. Rather, Hellenistic and Imperial vessels of a typological group were consciously placed next to each other in order to demonstrate the continuation of Hellenistic traditions and techniques across the epochal boundaries. Likewise, within a type/ware, representatives with black and multicolored coatings were deliberately grouped together to show that this duality applies to almost every category of Knidian tableware: Hellenistic and imperial, decorated and undecorated, mass-produced and rare.

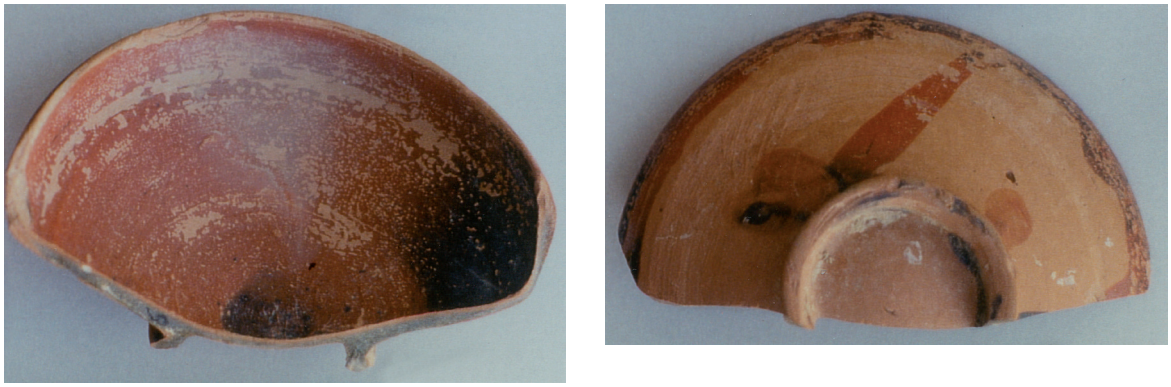
The vessels are not shown to scale. However, when comparing vessels of the same type, an attempt was made – wherever possible – to place them side by side in the correct proportions. The catalogue and true-to-scale profile drawings in Kögler 2010 provide information on dimensions and proportions.



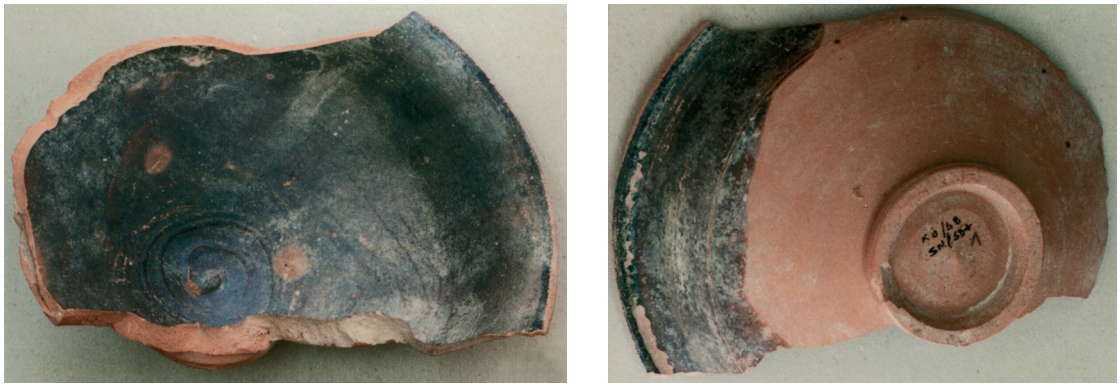
D.4



D.30 D.31

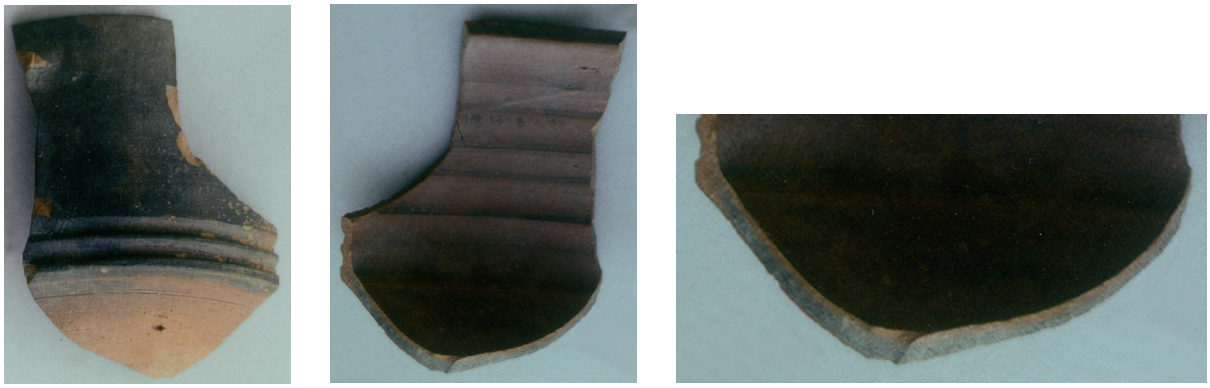


D.65

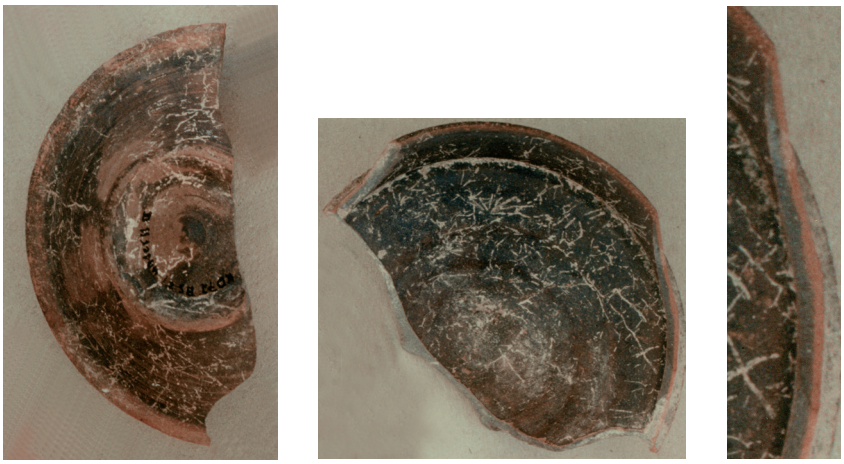


F.23

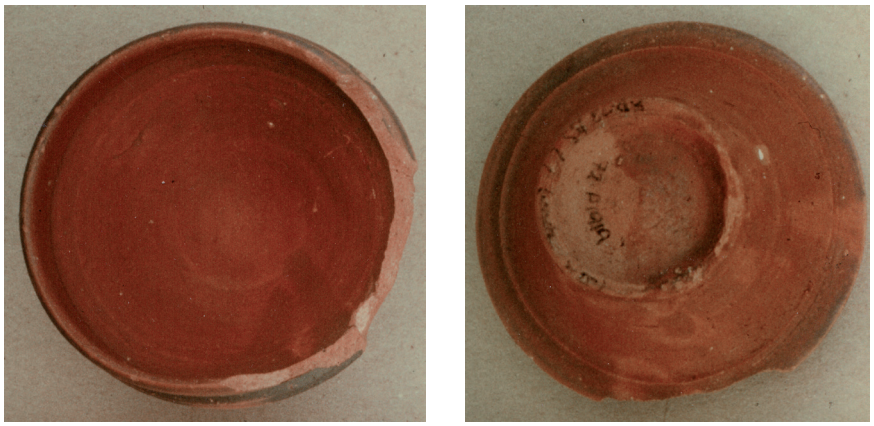
Fig. 1 : Examples of Knidian clay, Hellenistic Period.



G.37

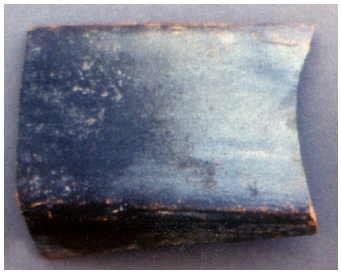


G.69

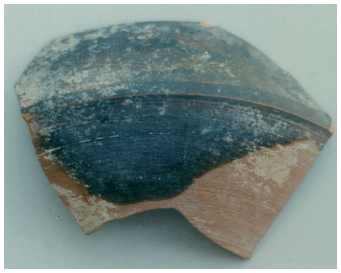
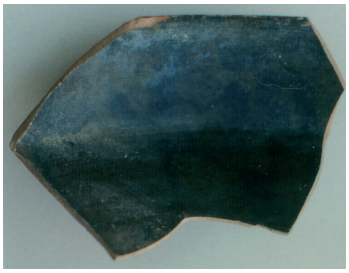


G.70

Fig. 2 : Examples of Knidian clay, Imperial Period.



D.1



D.6


D.5


E.2


E.3


F.12


F.13


F.15


F.3


F.4


F.5


F.6


F.8

Fig. 3 : Knidian carinated cups, Hellenistic period.

G.4 G.6 G.18

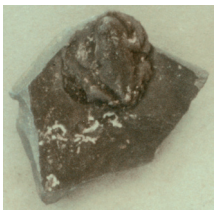
G.14 J.1 J.2

Fig. 4 : Knidian carinated cups, Imperial period.

Kn.196

Kn.202

Kn.209



Kn.255

Kn.263

Kn.273

Kn.278

Fig. 5 : Carinated cups, interior decoration, Hellenistic period.

Kn.284

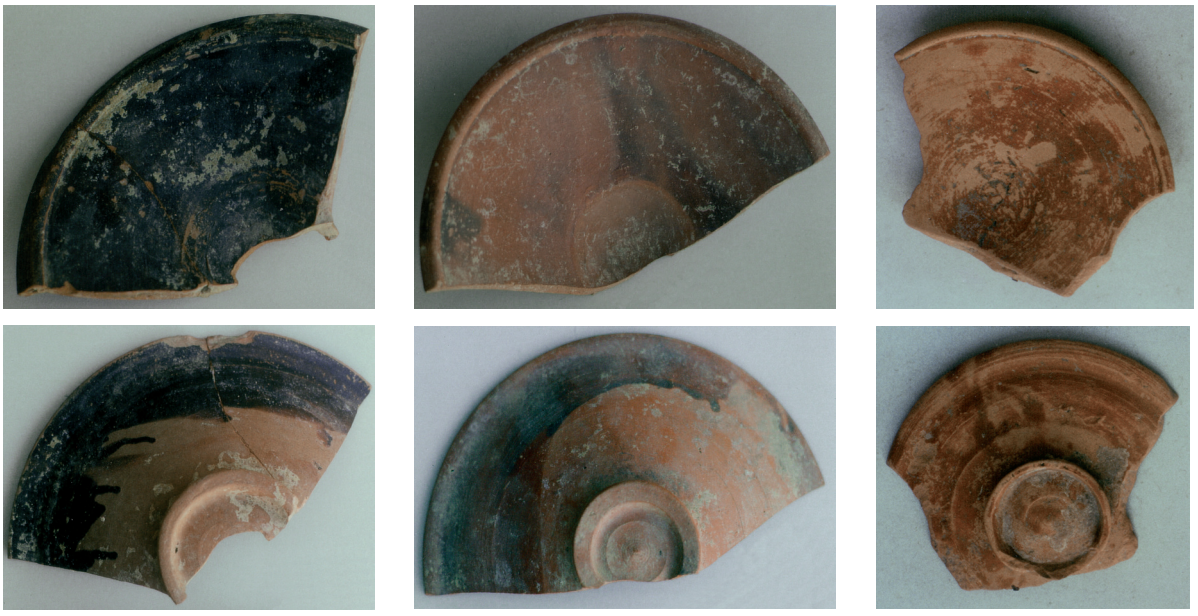
Kn.291

Kn.285

Kn.292

Fig. 6 : Drinking cups and lamps, applied decoration, Hellenistic period.

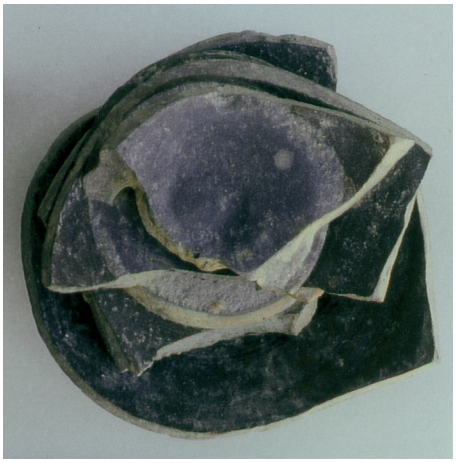
Aa.3 Ac.1 D.50



D.52 D.54 E.65

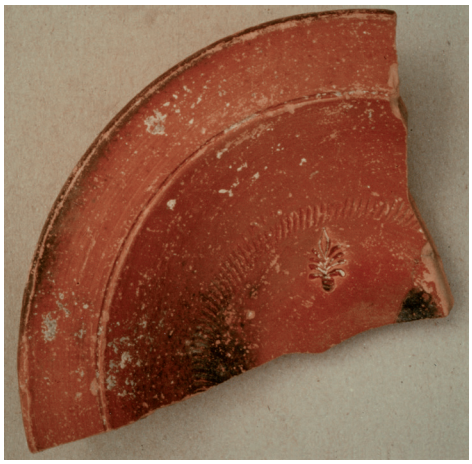
D.73 D.74

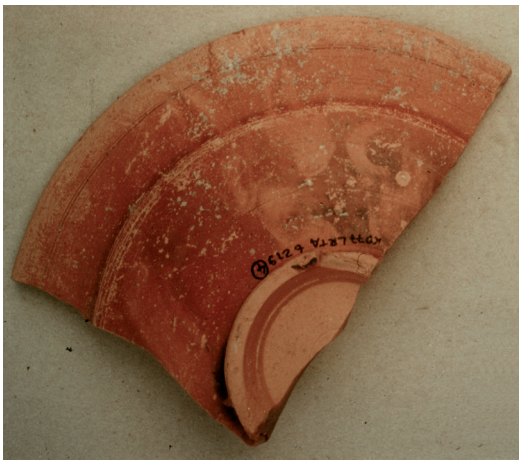
Fig. 7 : Plates, Hellenistic period.



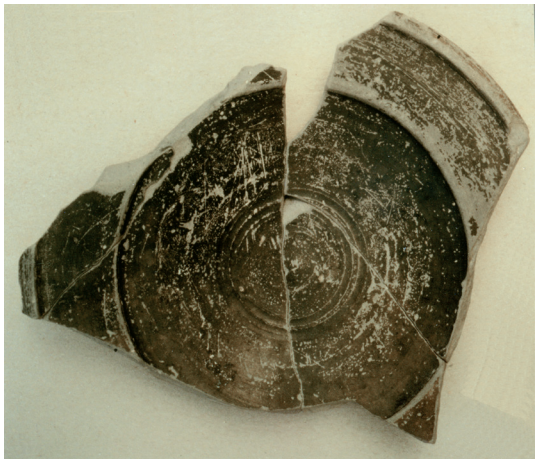
F.85

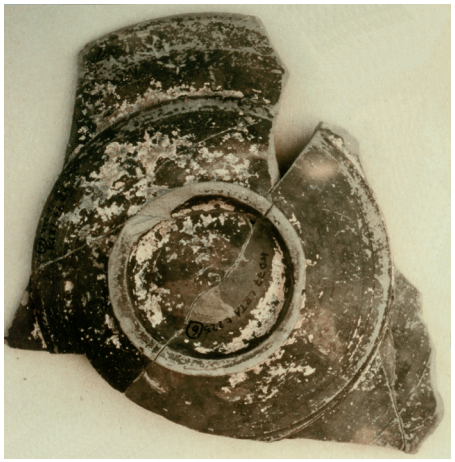
Fig. 8 : Stacked plates, misfired, Hellenistic period.





E.77





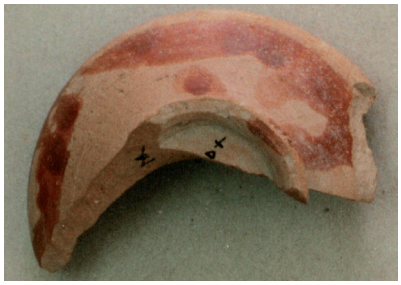
E.78

Fig. 9 : Plates with broad rim, Hellenistic period.

C.33

F.54

F.55



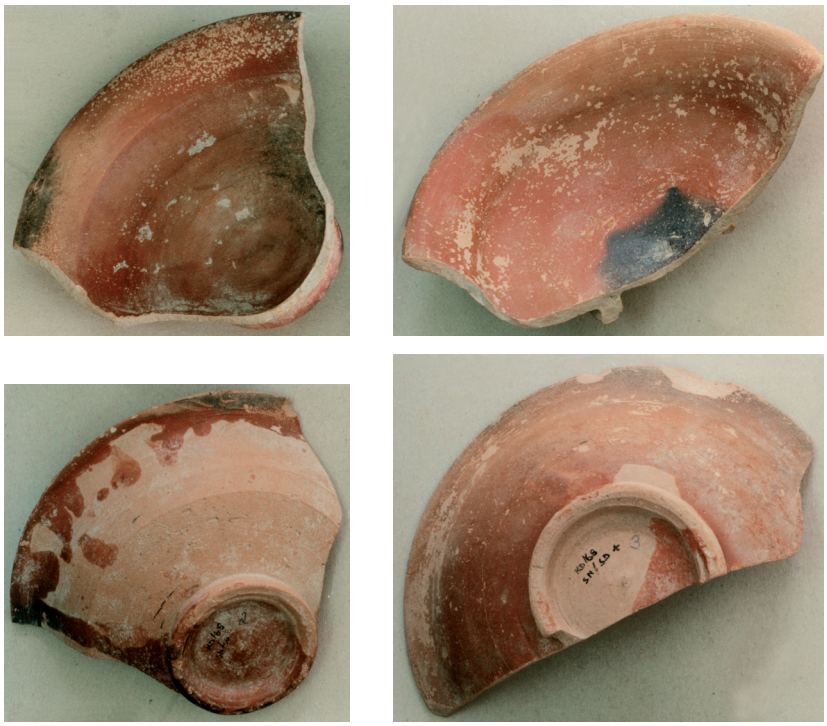
F.51

F.58

F.60

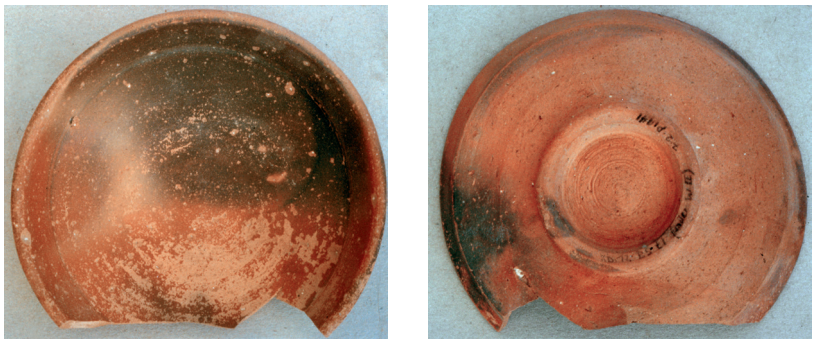
Fig. 10 : Bowls with incurved rim, Hellenistic period.

E.78



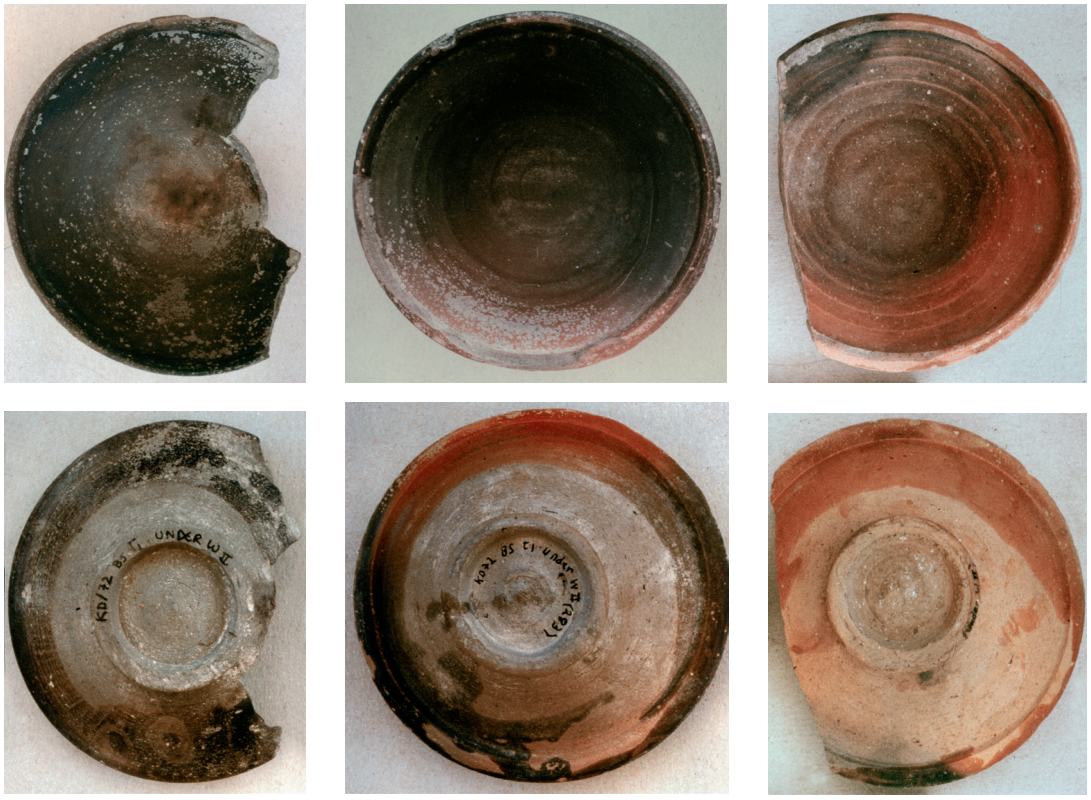
F.24 F.25

Fig. 11 : Large and small bowls with outturned rim, Hellenistic period.

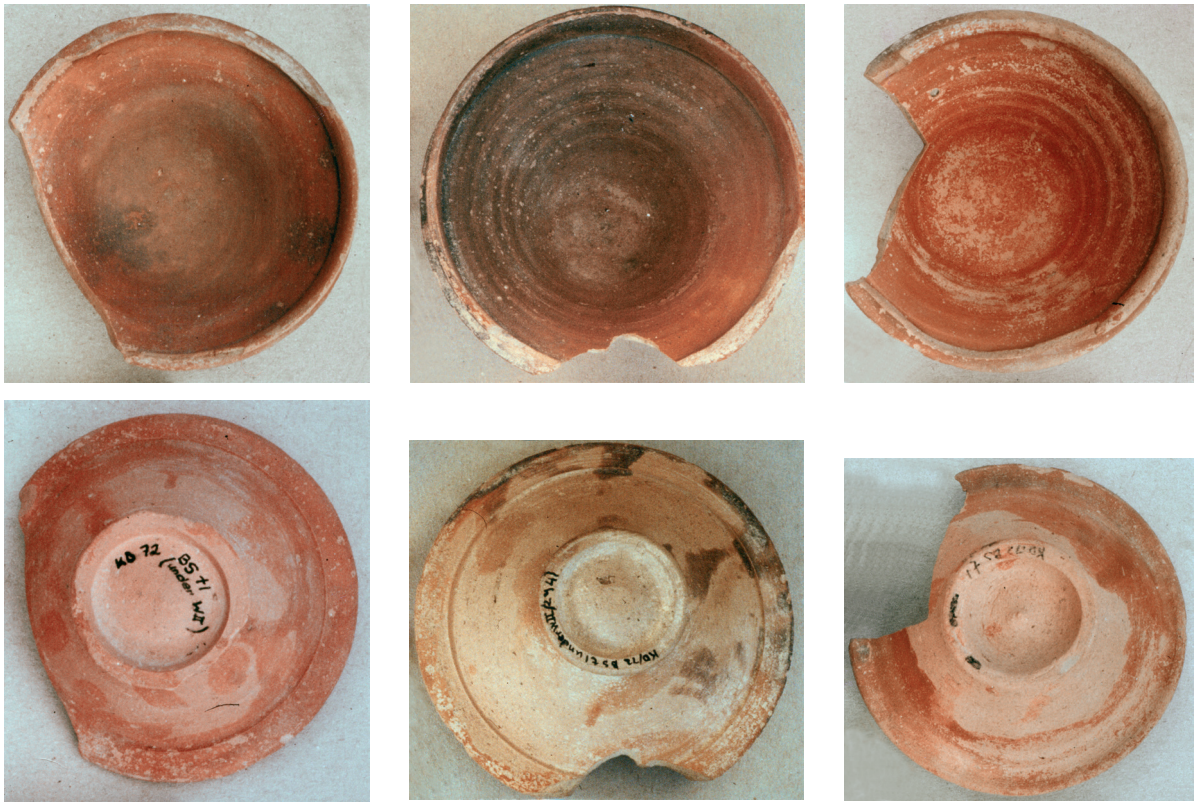


G.54

Fig. 12 : Plate, Imperial period.



G.64 G.66 G.68



G.71 G.77 G.79

Fig. 13 : Small Bowls, Imperial period.

G.36

G.44

Kn.60

Kn.57

Kn.309

Kn.310

G.46

G.39

Kn.321

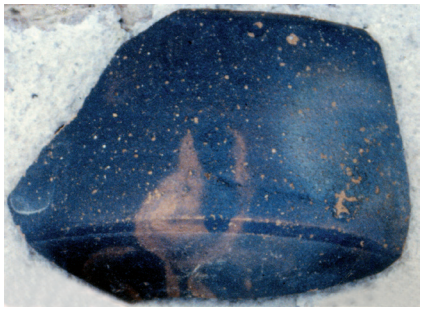
G.39

Fig. 14 : Skyphoi/Kantharoi with applied decoration, Imperial period.

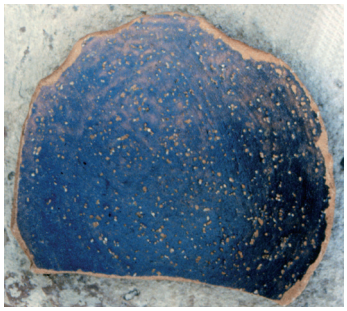
G.152

Kn.400

Kn.406



Kn.382



Kn.389

G.144

G.146

Kn.397

Kn.399

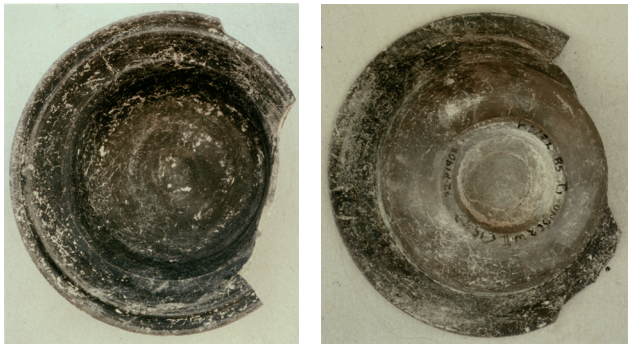
G.149

Kn.416

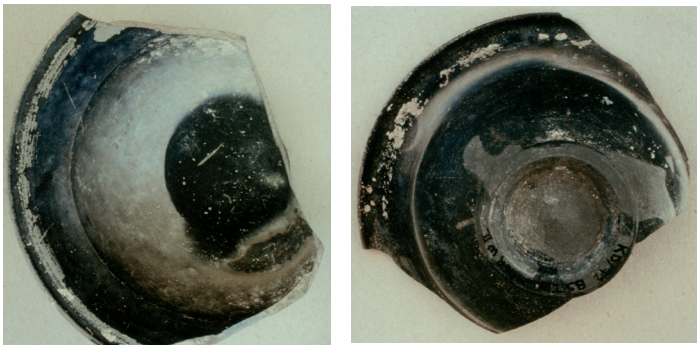
Kn.439

Kn.446

Fig. 15 : Thin-walled pottery, barbotine and sanded decoration, Imperial period.



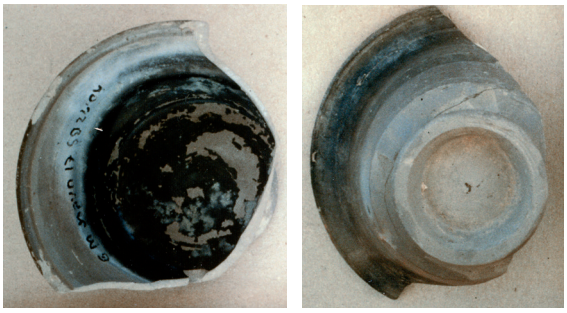
G.31



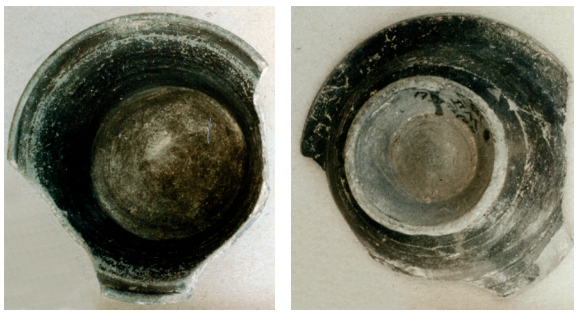
G.32

G.61

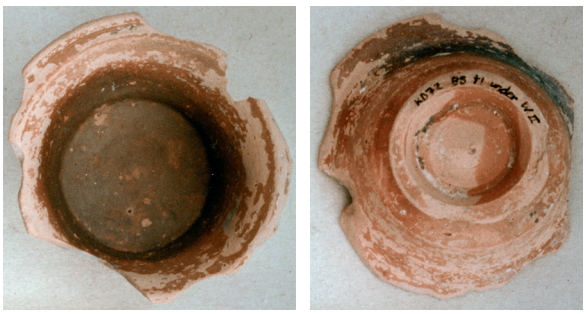
G.86



G.89



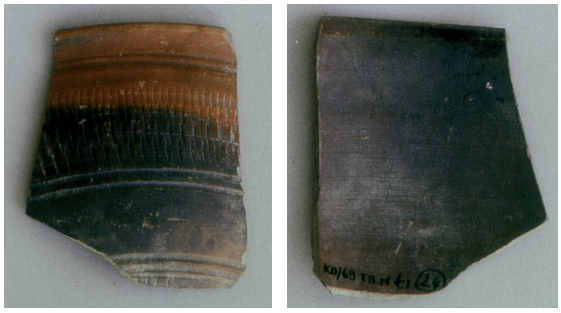
G.92



G.96

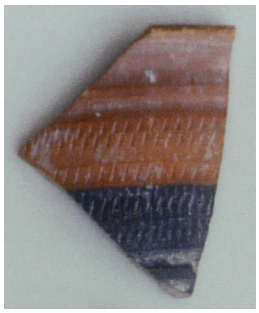
Fig. 16 : Plates and bowls with hanging lip, Augustan-tiberian period.

B.15



B.16

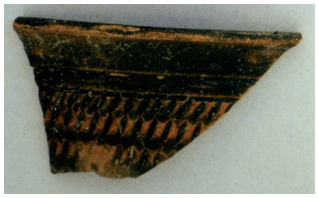
B.18



D.41

D.40

C.17



E.41

C.22

D.107

G.160

F.121

F.124

Fig. 17 : Hemispherical bowls with rouletting, moldmade bowls, moldmade skyphos.

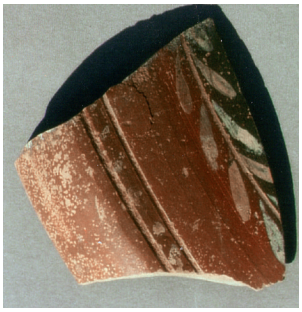
C.51

D.104

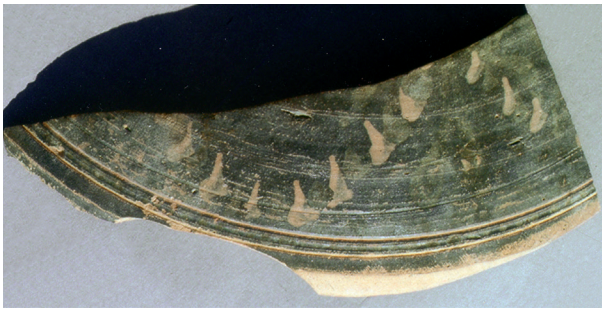
D.102

D.103

Kn.183



Kn.184



Kn.187

Fig. 18 : Overpainted pottery, West Slope style.