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# **QUSEIR AL-QADIM 1978**

## **Preliminary Report**

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**Cairo**

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## PREFACE

The first season of excavations at Quseir al-Qadim took place from January through March, 1978. This work was sponsored by the Oriental Institute of the University of Chicago and funded by the Smithsonian Institution Foreign Currency Program and the National Geographic Society; this preliminary report is also funded by the Smithsonian Institution Foreign Currency Program. We gratefully acknowledge this financial assistance. The staff consisted of Donald S. Whitcomb (field director) and Janet H. Johnson (co-director), Martha Prickett (director of the regional survey), Richard Jaeschke (conservator and site supervisor), W. Raymond Johnson (draftsman and site supervisor), Ann Roth (recorder and site supervisor), Hanna Boulos Tadros (assistant draftsman and site supervisor), and Samir Ghobashi Omar (representative of the Egyptian Organization of Antiquities), all present for the entire season, and Haini el-Zeini (eastern desert consultant), Leila Wente (consultant on Roman archaeology), John Stubbs (consulting architect), Robert Giegengach (geologist), and Abdel Monem Sayed (historical consultant). Especial thanks are due to our Egyptian colleagues, particularly Samir Ghobashi and Haini el-Zeini, for the unstinting efforts they made on behalf of us and the expedition. Without their efforts, our season would have been much less successful.

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Donald S. Whitcomb  
Janet H. Johnson  
December, 1978

## NOTES:

The aim of this preliminary report is the presentation of the archaeological data discovered during the excavations and surveys of the first season. Many conclusions and speculations which might have been brought forth after this first short season have deliberately been postponed for presentation elsewhere. We are consciously making these data available to interested scholars in the many disciplines involved despite admonitions against "losing control" of the material, because we feel that this is the best way to make specialists aware of the possible contributions which Quseir al-Qadim can make and, at the same time, awaken their interest in this site and its problems.



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## CHAPTER 1: BACKGROUND

Donald S. Whitcomb and Janet H. Johnson

Quseir al-Qadim is the site of an ancient port eight km north of the modern town of Quseir on the Red Sea in Egypt. The port is located at the end of the Wadi Hammamat which connects the Luxor region of the Nile valley with the Red Sea. The port of Quseir al-Qadim lies at the head of a bay (or *mirsa*, literally an anchorage) on one arm of a coral lagoon. The mound itself is approximately ten hectares in area. The site and region of Quseir al-Qadim have been described by Sandford and Arkell:

In the vicinity of el-Kusair el-Kadim is a small inlet, behind which is a dry lagoon, probably an elevated part of the purely Pleistocene coral girdle. (1939: 36)

A few hundred yards south of el-Kusair el-Kadim is an embayment of the living reef (the port of the adjacent ruined and long abandoned town). Breaking through the gap with considerable force upon the shore, waves have built up a storm beach, on the landward side of which is a salt marsh evidently marking a local channel of greater age, that is, of the 25-foot stage. The submarine deposits of quiet water are to be seen here with faunal associations of considerable interest. The perpetuation of features along the coast, not only in outline but in small detail, from stage to stage and from Tertiary to Quaternary is remarkable. The 70- and 25-foot platforms dominate the foreshore to el-Kusair and beyond it southward for long distances. (*ibid.*: 67)

Butzer, in his study of the coastal strip near Mirsa Alam south of Quseir, found very similar terrace formations (1968: 420) and described the geomorphology of the coast. The present *sabkha* (mud flats) behind Quseir al-Qadim might have been a shallow lagoon suitable for naval utilization in historic times. Within the drainage area of the Wadi Quseir al-Qadim and the smaller tributary from the Bir al-Anz behind the lagoon of the littoral plain are bad-lands formed by terraces and raised beaches, such as described by Sandford and Arkell (1939) and Budel (1952: 116 and Bd. 2). Despite its proximity to the sea, it is a typical desert landscape with a mean average precipitation which is barely 4 mm annually (Jackson, 1961). The vegetation of the region was described by Klunzinger (1878b), who emphasized its sparsity and xerophytic nature. (See fig. 1.)

The higher elevations of the drainage area are complex hills of Miocene marls, shales, and sandstones with basal igneous and metamorphic rocks to the north and south (Said, 1962: fig. 16). West of the Quseir al-Qadim drainage is the alluvial plain of the Wadi Nakheil. A major fault line runs along the eastern edge of this plain, one of many fault lines which occur in this part of the Red Sea hills and which are often associated with wells and springs (Barron and Hume, 1902: 255 and pl. III; this association has been well exemplified by Larsen [n.d.] dealing with fault lines and springs on Bahrein island).

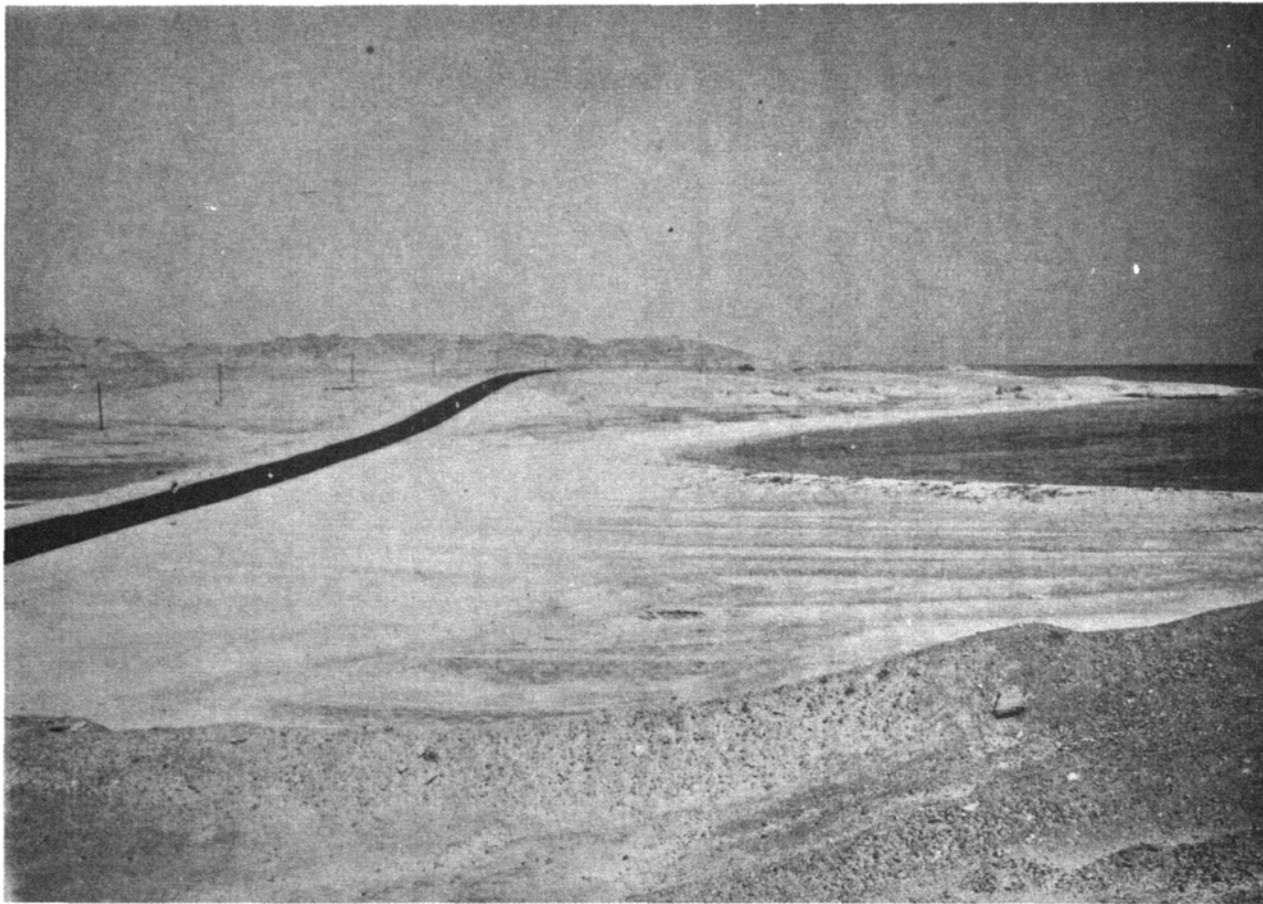


Figure 1: Panorama of Quseir al-Qadim from the South across the Wadi Quseir al-Qadim

The earliest mention of the name "Quseir" appears in the 13th century under the rule of the Bahri Mamlūk sultans. In spite of the assertion of Plessner that Quseir flourished in the Abbasid period (EI<sup>1</sup>: 1158), neither the writings of the geographers of that period nor the artifactual evidence from the site confirm an early Islamic port at Quseir al-Qadim. The most important port on the Egyptian coast of the Red Sea during the early Islamic period was Aidhab, located far to the south of Quseir near the modern Sawakin on the Sudanese border. Aidhab was unquestionably the chief Egyptian port for the eastern trade until its destruction in the 15th century. It was visited by numerous medieval writers, including Ibn Battuta, Nasir-i Khosraw, and Yaqut (Heyd, 1885, I: 380; Garcin, 1976). The primacy of the port of Aidhab may be due to its initial character as the port of Aswan, the first early Islamic center in Upper Egypt, to its proximity to Jedda, the port of Mecca, and to the fact that the monsoon winds will reliably carry trading ships only as far north as that latitude (U.S.H.C., 1976).

Quseir, on the other hand, is described by Arab geographers as the port of Qus, the capital of Upper Egypt from the Fatimid period onwards. Garcin, in his recent extensive study of the medieval city of Qus (1976), has a detailed discussion of this description of Quseir as the "port of Qus" in view of the obvious primacy of the port of Aidhab and the caravan route connecting Aidhab with Qus. He explains this description of Quseir as meaning the *port naturel* or *port le plus proche*, rather than a reflection of any economic or political importance. He attributes the numerous recurrences of this description to medieval writers' tendency to rote repetition of previous descriptions (1976: 6, n. 1), although some doubt remains in the cases of Abu'l Fida and Nuwayri (1976: 228).

It seems clear that Quseir functioned as a port for Qus in the 13th and 14th centuries. Accounts of an expedition against pirates in 1265 mention the utilization of Quseir; the ships had been built in Qus, transported to the port in pieces and reassembled, precisely as had been done in Pharaonic times (Garcin, 1976: 209, n. 2, and 210). Garcin argues that the prosperity of Red Sea trade in the Mamluk period had its roots in the policies of the Ayyubid dynasty (1171-1250 A.D.), when the unity of the Sunni Islamic world was restored and the Red Sea re-opened to commerce. It was the Ayyūbids and then the Mamlūks who repeatedly reaffirmed their hegemony over the Hijaz and occasionally Yemen (Garcin, 1976: 135, 203). This Mamlūk military expansion was a result of a combination of religious, political, and economic factors. In addition to the protection of the Holy Cities (mainly Mecca), they watched over the annual pilgrimage and the shipping

of the eastern trade. The pilgrimage was not only an important trading activity but, through the institution of the *mahmal*, an act of political legitimization (Jomier, 1953). During this period a number of regions in the Nile valley, such as Nagada, were *waqfs* to the tomb of the Prophet; this resulted in a yearly shipment of grain to the Hijaz, a trade which continued into the 19th century and may have been far older than the Islamic institution (Klunzinger, 1878a: 271ff.).

The eastern trade (the "spice" trade as it was later to be known) was also greatly facilitated under the rule of the Mamlūk sultans. Documents describing this trade from the 11th century onwards have been found in the Cairo *geniza* (Goitein, 1963). Qalqashandi, writing in the 14th century, recorded the participation of Quseir in this trade:

al-Quseir is on the northern side of Aidhab and some of the ships frequent it; it is near to Qus and Aidhab is far from Qus. The merchandise is carried from Quseir to Qus, then from Qus to the warehouse of al-Karim in Fustat (1913: 465).

The nature and practices of the great mercantile family of the Karimi have been the subject of several studies (Fischel, 1937; Wiet, 1955; Goitein, 1958). Artifacts from the surface of the site of Quseir al-Qadim confirm the trade in Chinese porcelains and celadons and other imported wares, all of which may be securely dated to the 13th and 14th centuries. European maps from the 14th century begin to mark Quseir as an important spice port, sometimes confounding it with Qus (Garcin, 1976: 225, n. 2). Thus both documentary and archaeological evidence indicate an important port of the period of the Bahri Mamlūks, although overshadowed by its southern contemporary, Aidhab.

During the Ptolemaic and Roman periods, too, trade with the spice lands (in this case south Arabia, Africa, and India) via the Red Sea was an important element in Egyptian foreign trade (Tarn, 1929; Charlesworth, 1924: 19, 60). One of the Red Sea ports mentioned by the classical geographers was Leucos Limen or, as it was called in Latin, Albus Portus (Murray, 1925: 141), located at Quseir al-Qadim. Although it is not the best natural harbor on the western side of the Red Sea, it is, as has been noted above, the terminus of the shortest route through the eastern desert. The Nile valley terminus during this period was Quft (Coptos), just north of Qus, whence the goods were shipped up the river to Alexandria for consumption or further shipment across the Mediterranean. The Wadi Hammat has approximately twelve fortified Roman watering stations (called *wekala* 'caravanserais' by the Arabs) between Quft and Quseir al-Qadim and the "system of intervisible beacons or signal towers...may also very probably have

been used for signalling to the custom-house at Coptos the arrival of ships at Albus Portus" (Murray, 1925: 139, 145). In addition, there are many graffiti from the Greco-Roman period in the Wadi Hammamat (Bernand, 1972), many of which were written by people involved in mining operations while others may have been left by caravaneers. Thus this road seems to have been used extensively during this period. (Blocks from a Ptolemaic temple were found by Weigall being reused in houses in modern Quseir; on one is mentioned the town of *dw3w* which, although otherwise unattested, may well be the earlier name of the port [Porter and Moss, 1952: 337-38].)

However, as in the Islamic period, this port was not the major Red Sea port during the Greco-Roman period. Myos Hormos, almost opposite Assiut in Middle Egypt, to which a road led from Qena just north of Quft, was important for a short time (Meredith, 1952: 104). But the major port during the entire period was Berenice, almost opposite Aswan at the first cataract. Berenice was presumably the preferred port because it was fairly difficult for ships to sail up the Red Sea against the prevailing north wind. This, however, left the caravans a long march of approximately 370 km across the eastern desert to the terminus at Quft. Although the road was provided with watering stations similar to those in the Wadi Hammamat, it cannot have been an easy trip.

In addition to using the caravan routes and Red Sea ports for the spice trade, the Romans extensively exploited the gold mines and stone quarries in the mountains of the eastern desert. The gold mines of the Wadi Fawakhir, which branches off the Wadi Hammamat, and the stone quarries at Mons Claudianus and Mons Porphyritae, off the road to Myos Hormos, were the most extensively worked; dwellings for the men working the mines have been preserved at all three sites.

In the Pharaonic period, as in the Greco-Roman period, extensive use was made of the gold mines and stone quarries of the eastern desert. There are numerous graffiti, especially in the Wadi Hammamat, left by members of mining expeditions. But there are also Pharaonic graffiti in the part of the Wadi Hammamat between the gold mines and the Red Sea, and there are graffiti which mention expeditions to the spice land of Punt; both are evidence that, as in later periods, foreign trade was being conducted through a Red Sea port at the end of the Wadi Hammamat. Two Middle Kingdom (ca. 2000 B.C.) stele were found many years ago in the Wadi Gasus about 60 km north of Quseir, in one of which the stele owner mentions returning from Punt with his expedition and his fleet. There is also a Middle Kingdom graffito in the Wadi Hammamat left by a man who crossed the desert,

built ships and sailed to Punt. The University of Alexandria expedition to Wadi Gasus and the nearby Wadi Gawasis, directed by Abdel Monem Sayed, has found another stele recording an expedition to Punt as well as what they think was the campsite used by this expedition. Thus the Pharaonic expeditions to the spice lands seem to have gone via the Wadi Hammamat and a Red Sea port.

There is much less information about Predynastic (pre-3000 B.C.) habitation in or use of the eastern desert. A lower palaeolithic implement was found on the high 70-foot terrace directly behind Quseir al-Qadim (Sandford and Arkell, 1939: 91). Similar implements were found "in the gravels below Gebel Duwi inland from el-Kuseir" (Sandford and Arkell, 1939: 65), Gebel Duwi being the mountain which bounds the plain of Wadi Nakheil on the west. Along the coast, middle palaeolithic artifacts were found within the gravels of the 3- to 4-meter terrace south of Quseir al-Qadim in the Wadi Ambagi and north of Quseir al-Qadim in the Wadi Hamrawein (Butzer, 1968: 397). Single Gerzean (late Predynastic of Upper Egypt, not the Delta) burials have been identified on the Red Sea at Ras Samadai (Murray and Derry, 1923) and in the Wadi Hammamat (Debono, 1951: 88). It was suggested almost 25 years ago (Kantor, 1954) that the Wadi Hammamat and even Quseir may have played an indirect but influential role in the transition from Predynastic to Pharaonic civilization. There are several Mesopotamian influences, especially artistic motifs and pottery and small objects, which have been observed in late Gerzean Egypt (Frankfort, 1951: appendix) and which are often considered catalysts spurring Predynastic civilization to develop into Pharaonic. It was originally assumed that the contacts were indirect, the motifs and objects having spread up the Euphrates to Syria and thence to the Delta and only finally up the Nile to Upper Egypt where the Gerzean culture incorporated them. Because these elements are found largely in Upper Egypt and not to any great degree in the Delta or, in such purity and numbers, in Syria-Palestine, it has been suggested, however, as noted above, that these influences came rather around Arabia and across the eastern desert into Upper Egypt directly.

Increasing attention has been paid in recent years to classical ports, their archaeology and social organization (for example, the port of Piraeus has been clearly delineated by Ward [1976], the harbor of Carthage by Hurst [1976; Yorke and Little, 1975]). The basic structure of classical harbors, the quays and associated fora, and associated material culture, are less well known for smaller ports, particularly where the "Mediterranean" patterns may be mixed with elements stemming from other traditions. Near the harbor should be at least one forum



where goods were sold and stored and prepared for shipment either inland or abroad. It may also be suggested that, in the Near East, it was the classical forum, with its attendant religious identification, that may have served as the architectural model for sanctuaries such as Mecca in which religious and economic functions intermingle.

The recent excavations at Fustat have inaugurated the application of modern excavation techniques to Islamic remains so that concerns larger than the artifactual (e.g., seeking information on social organization) are playing a significant part (Scanlon, 1970, 1971, and reports in *Journal of the American Research Center in Egypt*). But, although Fustat contained Mamlūk materials, there had never been an excavation of an archaeological site of the Mamlūk period. Despite the literature of the Cairo *geniza* and studies of the Karimi merchants, which make the Mamluk period one of the best documented periods of mercantile activity in the Red Sea, as in the preceding classical period, the archaeology of commercial establishments is poorly known. Given the intense Mamlūk interest in controlling the Hijaz (Little, 1977), this town may have been typical of small trading ports which flourished in the Red Sea during this period.

Each period of mercantile activity in the port of Quseir corresponds to a period of strong, imperial government with mercantile impulses based on an urban center in the Nile valley. In the Pharaonic period, there was Luxor; in the Ptolemaic and Roman period, Coptos; in the Mamlūk, Qus; and, in the modern day, Qena, each city in close proximity to its predecessors. The urban center had to exhibit a number of functions: first, it was generally responsible for the initial establishment of the port; secondly, the maintenance of the port was completely dependent on continual support from the urban center; and thirdly, the preservation of the port under conditions of radical sociopolitical and economic change was directly dependent on the commitment of urban resources. This last function takes into account factors of political stability, allocation of agricultural surpluses, and cultural expansiveness (which may range from simple curiosity to imperial ambitions). For Islamic Quseir the study of port-urban hinterland relationships was greatly facilitated by the recent publication of the history of Qus by Garcin (1976).

It was felt that this site offered an excellent opportunity to investigate aspects of the mercantile and social history of Egypt since the study of a region dominated by such a port should provide evidence both of foreign contacts and of the maintenance of the port and its interaction with the Nile valley, the latter accomplished by investigating the utilization of natural resources and the

distribution of sites in an intensive archaeological survey of the region within 15 km of the port. The importance of Quseir al-Qadim stemmed not only from the value of investigation of the specific historic periods present (Islamic of the Mamluk period and Roman), but from the fact that this ancient port offered an opportunity to explore new questions of cultural interaction--patterns of contact between the Nile valley and the Red Sea dealing with long-range trade, and patterns of local adaptation and land utilization. Clarification of the economic and political patterns and constraints on these relatively well-documented periods would ultimately provide hypotheses for reconstruction of earlier periods.

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## CHAPTER 2: TRENCH SUMMARIES

Donald S. Whitcomb

This chapter will present the excavations conducted at Quseir al-Qadim from February 4 to March 2, a total of 24 workdays. The work force consisted of 20 workmen from Quseir and three experienced pickmen from Quft (Hamid Mohammed Aboudi, Qa'ud Abd el-Rahman Mohammed, and Ata Mohammed Mahmoud). The trenches were placed in a variety of surface features throughout the site in an effort to gain a general knowledge of the cultural periods and functional attributes of this settlement. The size and proportions of the individual trenches were flexible, depending on expected depth, difficulties in digging, and architectural or cultural evidence discovered; the range was from 2.5 x 2.5 m test pits (e.g., F10a) to horizontal clearance (P7-P8), which latter was excavated in increments units which never exceeded 5 x 5 m.

The trench designations follow the basic site grid of 20 x 20 m squares, numbered from west to east and lettered north to south. These squares are subdivided into four units, a, b, c, and d (a in the northwest, b in the northeast, c in the southwest, and d in the southeast). Thus the unit F10a, for example, refers to a 10 x 10 m square within which there are theoretically an infinite number of loci. The locus is the basic unit of excavation, being a discrete and indivisible volume of soil (or any other material, e.g., ash, stone scree, wall). The descriptions of each trench are thus largely in terms of loci and their interpretation; the position and relationship of the loci are depicted in plan and section and in a matrix diagram.

While the general results of each area are briefly sketched, the presentation of the excavation data is the primary concern. Each trench is described with plans and sections in which a number of artistic conventions may be noted: Walls are either stone (solid), mud-brick (hatched), or combinations of stone, brick, or simply mud (hatched with alternate lines filled in); ash concentrations are indicated by dot patterns; soils with heavy concentrations of fibrous material (including rope, matting, basketry, etc., and often approaching a peat-like consistency) are shown with patterns of broken lines. Layers of stones, and other soil distinctions including color indications, must await more specialized analytic treatment. The number of each locus is placed in brackets in the text but not on the plans; numbers without parentheses on the plans are the loci typically associated with the walls and other features drawn. With the exceptions of the S11-S12 trenches and those in the peripheral areas, all trenches were excavated down to bedrock. Finally all plans are oriented with the north toward the top of the illustration.

The intention of this report is a presentation of data, the primary information recovered during the 1978 season. It will be obvious that numerous aspects, especially analytic techniques, have not been undertaken; some will appear in the final report, others were not attempted due to staff and other limitations during the first season. Rather, an effort has been made to provide a general indication of the overall results and to provide specialists with corpuses of artifactual materials arranged by trench and locus, an attempt to present associations of materials from specific contexts. Artifactual typologies and detailed analyses will be reported after the next season. Likewise, historical and cultural interpretations, some of which are suggested in this report, demand separate carefully researched studies, a goal which is held to be properly a subsequent activity to this preliminary report.

We began work by laying out a 20 x 20 m grid over the entire site, which is approximately 10 ha in area. See fig. 2 for a view of the surface of the north-central part of the site before the grid was laid out. We then took contour

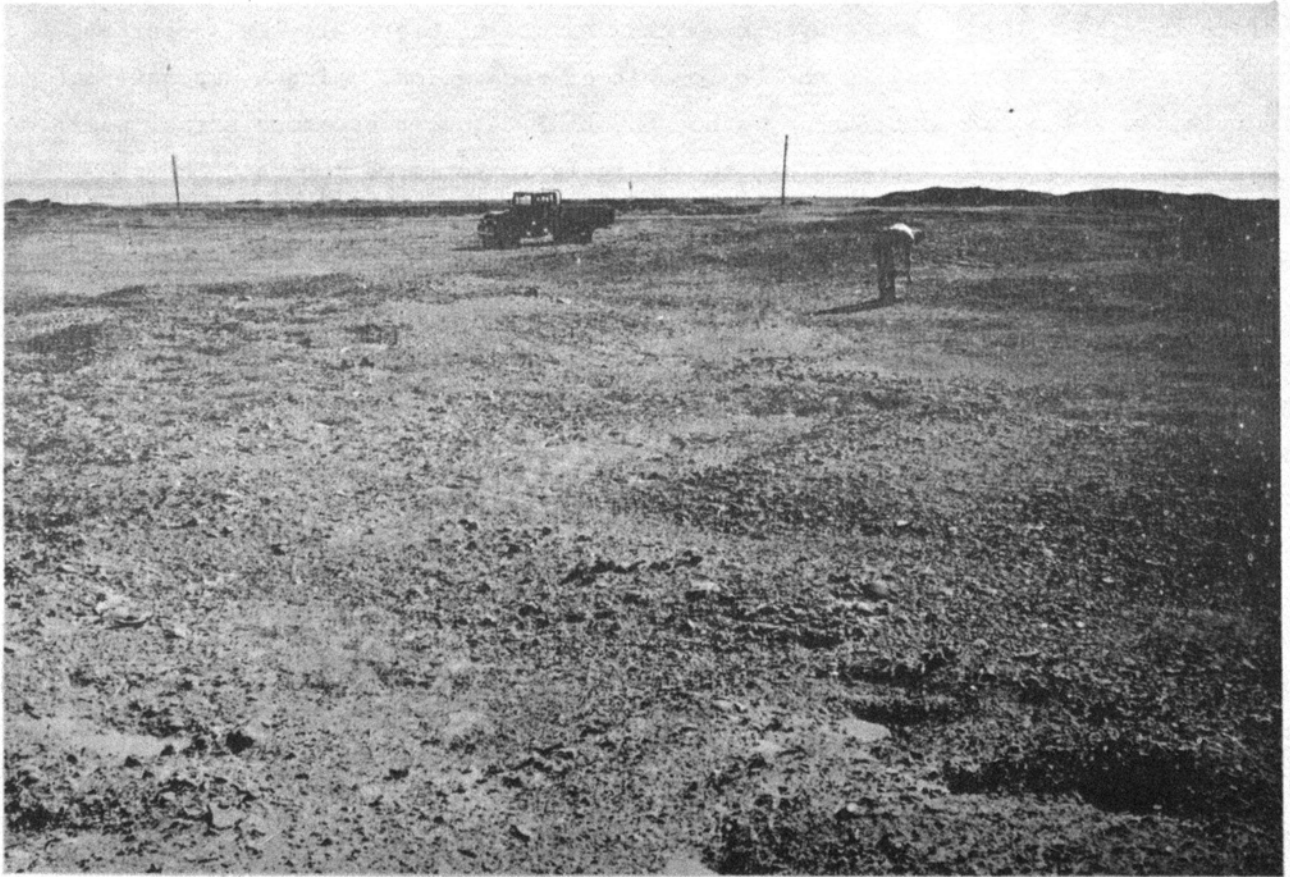


Figure 2: Northcentral Surface

elevations and planned all surface remains of walls. See fig. 3 for a view of the westcentral part of the site with sherd accumulations and contour reflecting walls below. The gridding and mapping confirmed that the town was laid out in the rectilinear pattern normal for classical cities, with streets defining regular insulae (see pl. 1). Note that the modern coast road runs through the site and a strip 80 m wide has been destroyed (see also fig. 1). We then made an intensive

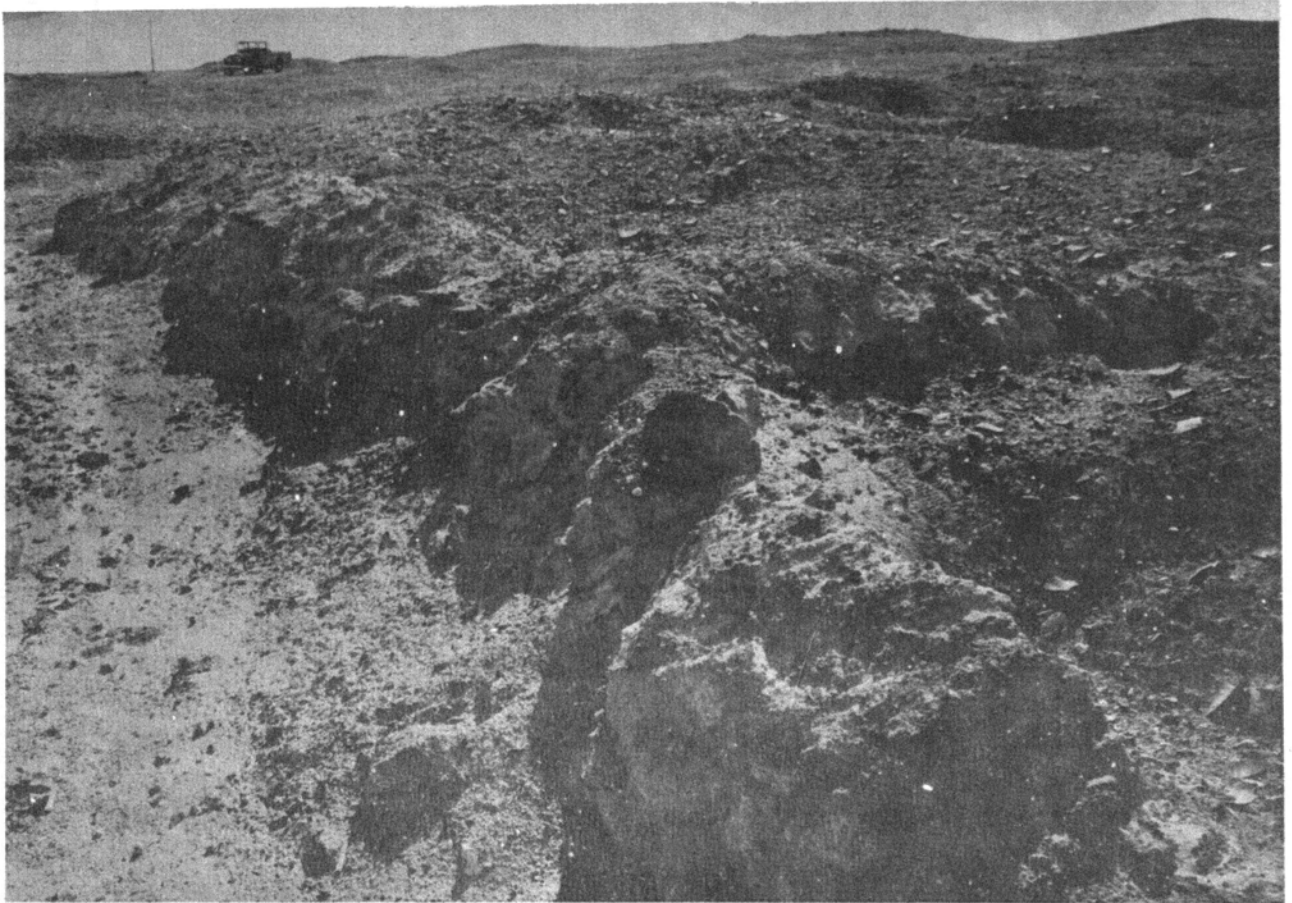


Figure 3: Westcentral Surface

surface collection, gathering and analyzing all artifacts in a nonrandom sample amounting to one per cent of the undisturbed portion of the town. The analysis of this material indicates three, or perhaps four, subdivisions of the site (see the appendix at the end of this chapter for a summary of the statistics). The area to the east of the modern road forms one group, which is similar to but not exactly the same as the material coming from the area of the "island" (S11-S12) and the peninsula containing the Mamlūk houses (L-Q, 7-8). The third distinct group consisted of the far northwestern part of the site, the peninsula in the





southwest corner of the site, and a swath running from the western edge of the site eastward to the modern road including the area of the two large buildings and the area south of them to the edge of the site (G-K, 5-13). The area separating this central swath from the northwest corner of the site was anomalous, not patterning with any of these three groups.

The first two groups both appeared to be Islamic, and it was decided to concentrate on the second since it included the enigmatic "island" and surrounded what appeared to be the harbor facilities. The third group appeared to be Roman; the anomalous area was assumed to be either a variant Roman occupation or a strong mixture of Roman with later Islamic; more likely the former, since the other Islamic material was along the southern edge of the site. Having only a one-month digging season, we decided that, in order to understand as much as possible of the structural organization, use and reuse of the western part of the city, we would dig a series of small test trenches in key areas (the areas shown in black on pl. 1). The excavated trenches are discussed here in terms of general area of the site. There are the Northwestern Area (C4c, D4b, B4a, E6b-E7a), the Central Buildings (F8d-F9c, F10a, G8d, G12a), the Harbor Area (S12a-S12c-S11b, L10c-L9d-L8c, K9b, P7-P8), and Peripheral Areas (A22d, Q2b, Q6a, T5b), vague designations for convenience in dealing with the 1978 trenches only.

#### The Northwestern Area

Two different building complexes were partially excavated in this area. See pl. 2. Trench B4a tested a corner in the northernmost while C4c and D4b explored its southern periphery. B4a seems to have been part of a building devoted to manufactures (although of what material is still undetermined) with grinding, washing, and firing, producing quantities of ashy debris. The tests in C4c and D4b, on the other hand, revealed a more open area with lighter structures. This area was built and occupied in the earliest period of occupation of the site, probably early first century A.D., as is indicated by the fact that it is oriented with the rest of the town. However, this whole section was soon abandoned and the southern part, including C4c and D4b, was used as a refuse dump during later Roman occupation. See fig. 4, a view of the southern edge of the far northwestern section of the site. As a dumping ground, this area provided us with concentrations of artifacts of all types, the exceeding dryness of the site having preserved a wealth of organic remains (cloth, basketry, matting, wooden objects, seeds, papyrus fragments, and so on) as well as pottery, glass, and metals. A view of an

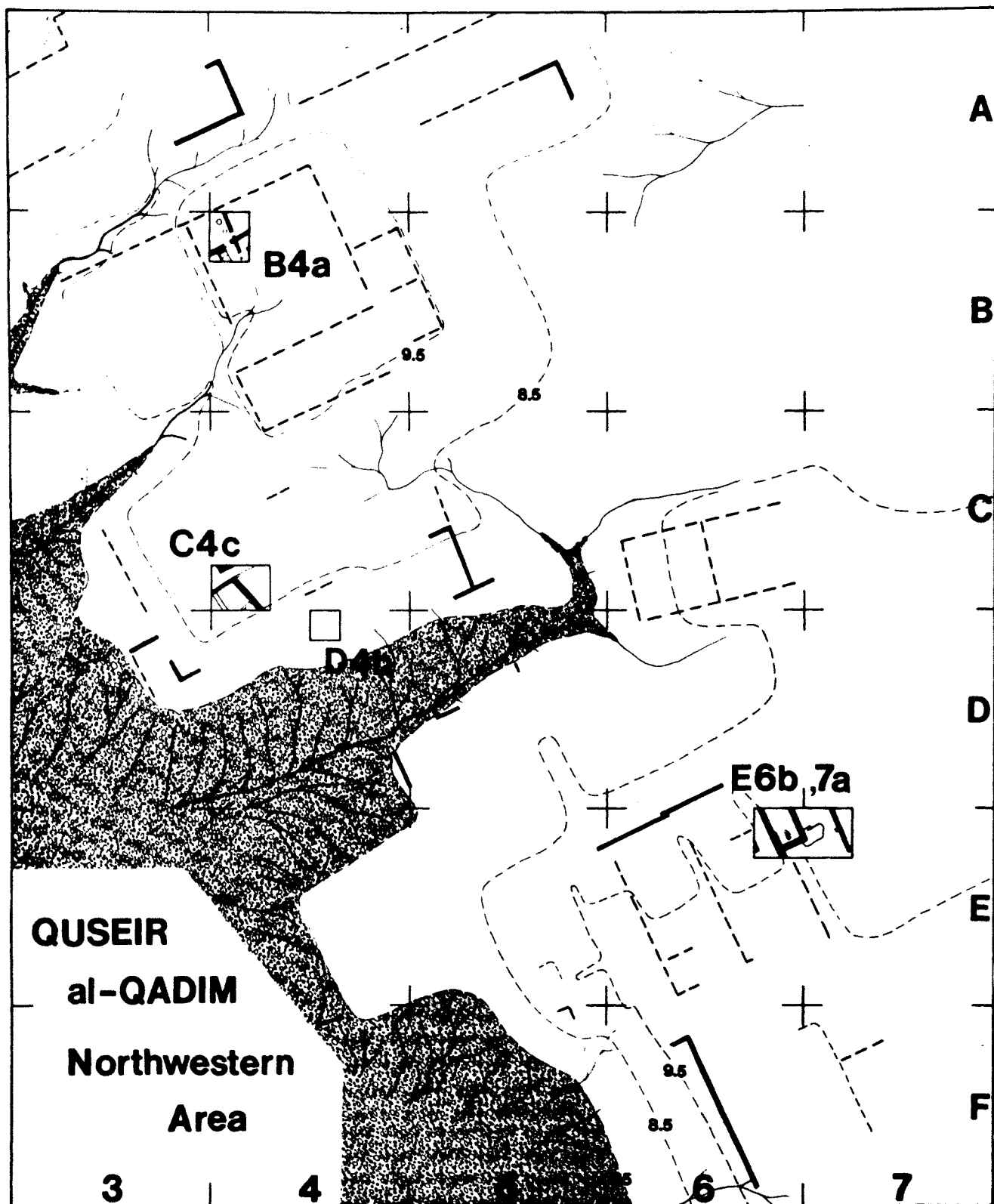


Plate 2: Northwestern Area



Figure 4: Roman Trash

eroded edge of this trash heap, with cloth, fiber, and pottery visible, is shown in figure 5. These objects reflect both the trade goods vital to the port (glass and cloth were two of the main Egyptian exports to the east during the Roman period) and the materials of daily life of these merchants and sailors (including fishnets, fish hooks, and large numbers of fish bones, fish being the only source of food available locally). Also found in this area were a number of ostraca (in Greek largely, although one is the last line of a tax receipt written in Demotic and one is in South Arabic, attesting to contact with the Arabian peninsula across the Red Sea), and a few scraps of papyrus (with inscriptions in Latin and Greek). The existence of Latin and of an ostrakon mentioning a *chiliarch* (military tribune) suggests the presence of a military unit at Quseir. One Greek ostrakon appears to be a dedication made in thanks for safekeeping of the dedicant, written in Greek on gypsum.

The second building complex (E6b-E7a) was located in the section called anomalous as a result of the analysis of the surface collections, south of the preceding building complex (see pl. 2). This area may also have been an industrial

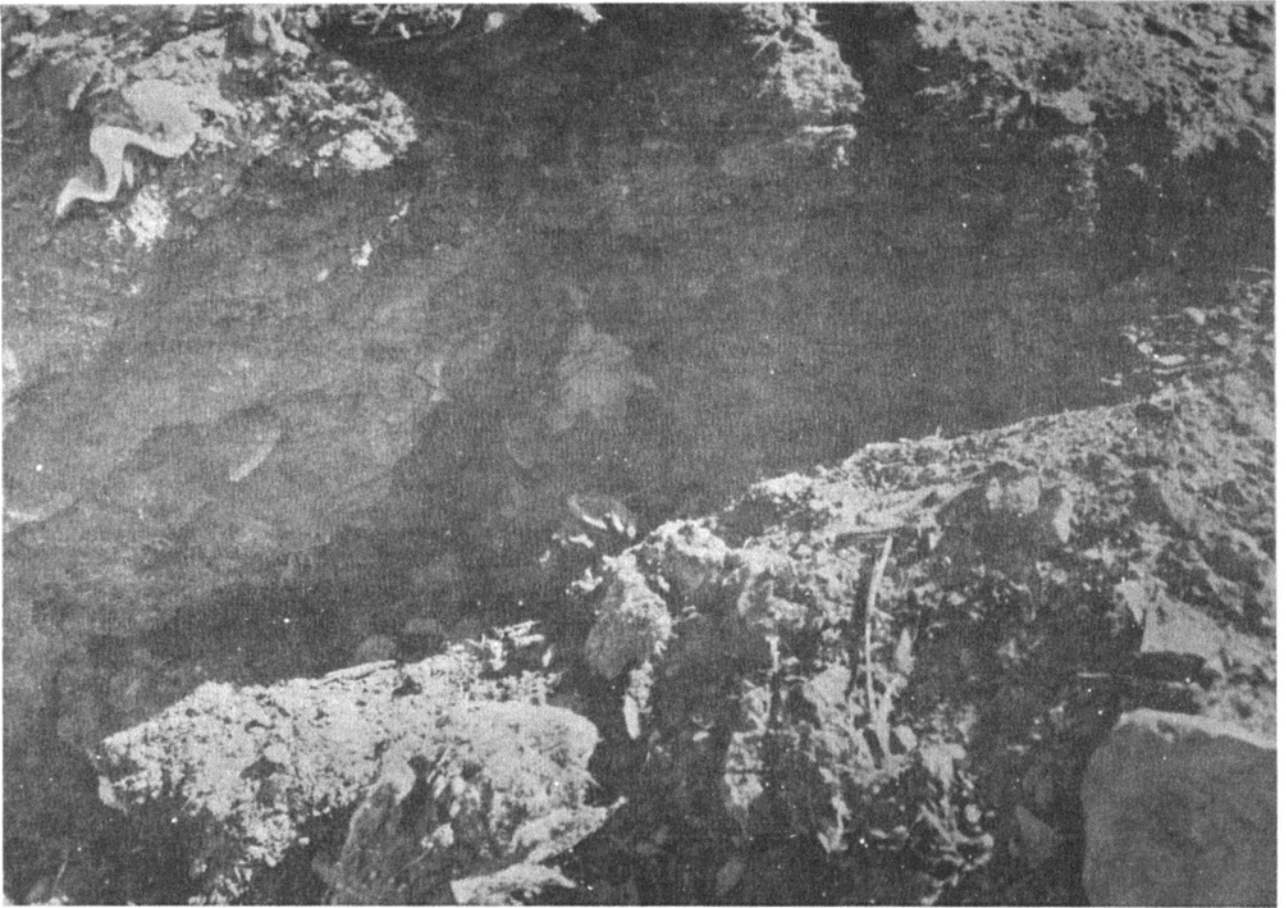


Figure 5: Trash Layers

section, since we found a small iron-working furnace and much iron slag in this area. Again, only one small corner of the complex was excavated during the first season. One amphora has a short inscription carved on the shoulder in the Brahmi script found at Arikamedu in Southern India, evidently used to write Tamil, and dating from the first to second century A.D. A comparison of the pottery found at Arikamedu with the materials from Quseir al-Qadim, especially from E6b-E7a, shows that both sites have similar imported first and second century Roman wares (including Arretine wares) and that Quseir has several examples of what the excavator of Arikamedu called native Indian wares (Wheeler, 1946). This is direct evidence of the trade between Quseir and southern India and indicates that there may even have been a small Indian population at Quseir itself. This would certainly be an explanation for the variation observed in the surface collections between this area and the contemporary areas northwest and south of E6-E7. E6b-E7a, like C4c

and D4b, was covered with later Roman trash, indicating a contraction in the size of the town during the Roman period. No Islamic remains were encountered in the northwestern area other than an occasional surface fragment.

#### C4c

Trench C4c is located in the northwestern part of the site, adjacent to the small sondage D4b. The purpose of this trench was to collect materials similar to those from D4b in a stratigraphic sequence in association with architectural elements. Originally envisaged as a larger trench, the final size was 6 x 4.5 m and reached bedrock at an average depth of 1.0 m. See pl. 3.

The trench was divided into several discrete areas by walls A-F. Most of these walls were built upon the bedrock (with the exceptions of walls B and F). In the absence of foundation trenches, the walls may be presumed to belong to the earliest phase of occupation in this area. Walls A and C were made of stone, as was B, although this latter wall was placed upon a prepared surface which levelled out the irregularities of the natural surface (see fig. 6). Wall D was made of mud-

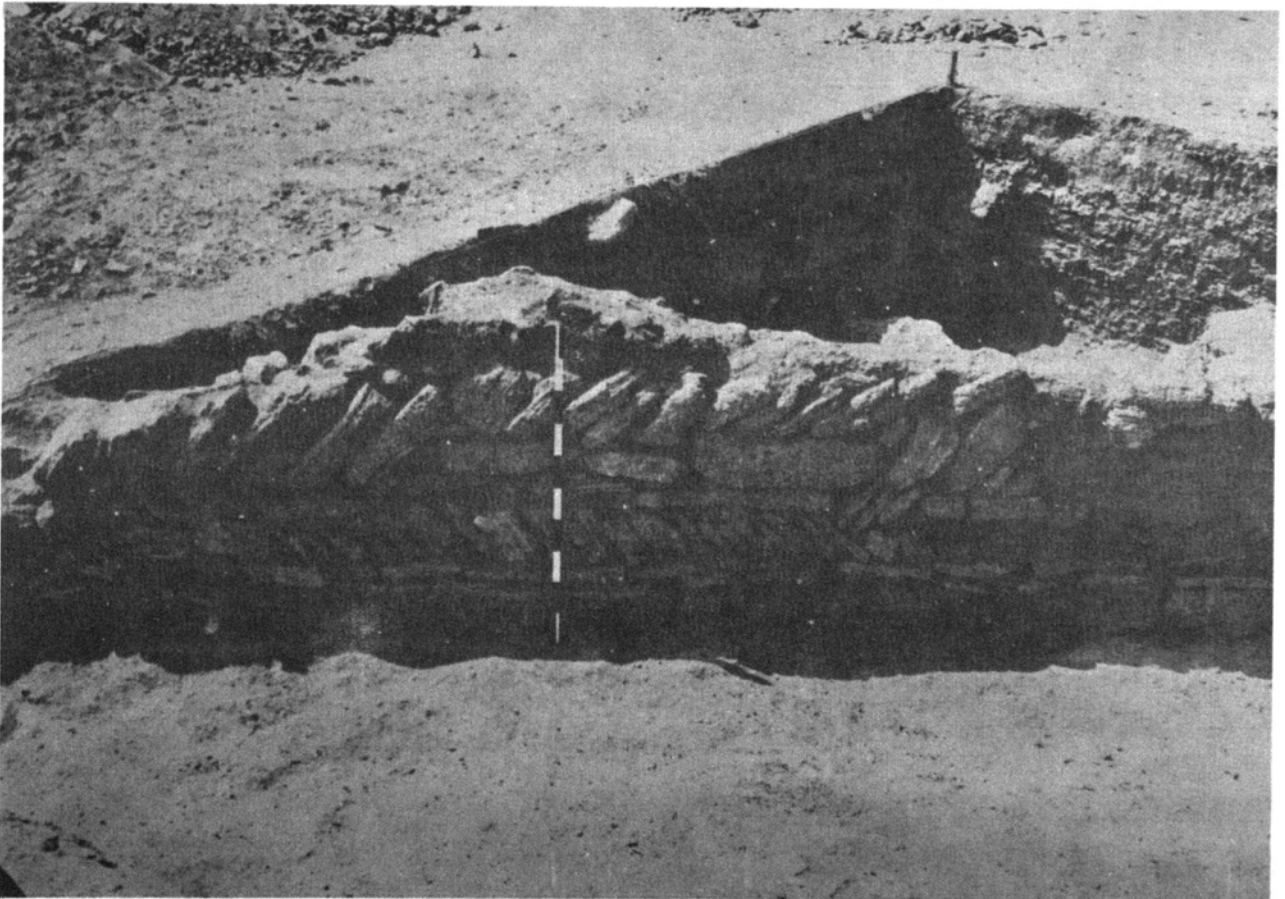
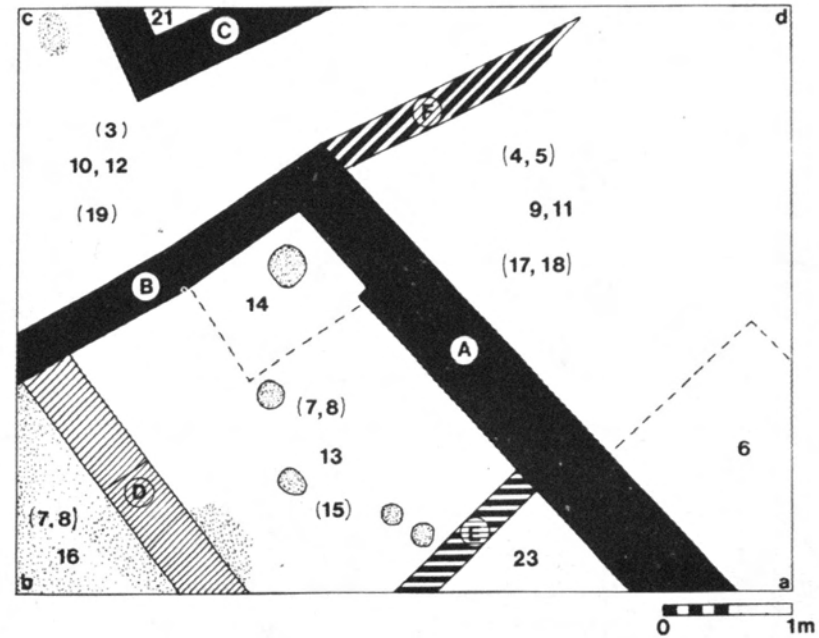
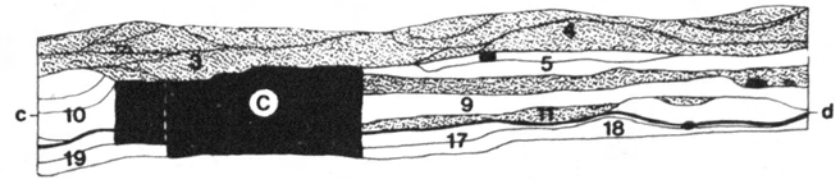
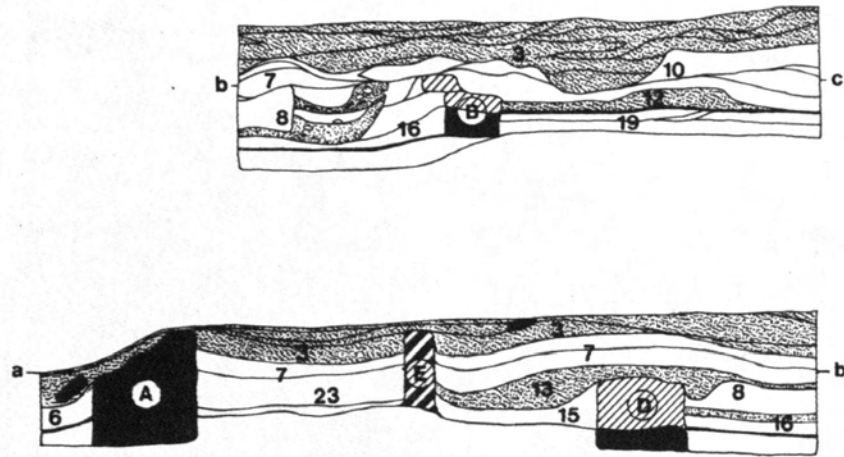


Figure 6: C4c, Stone-built Header-Stretcher Wall

C4c



20

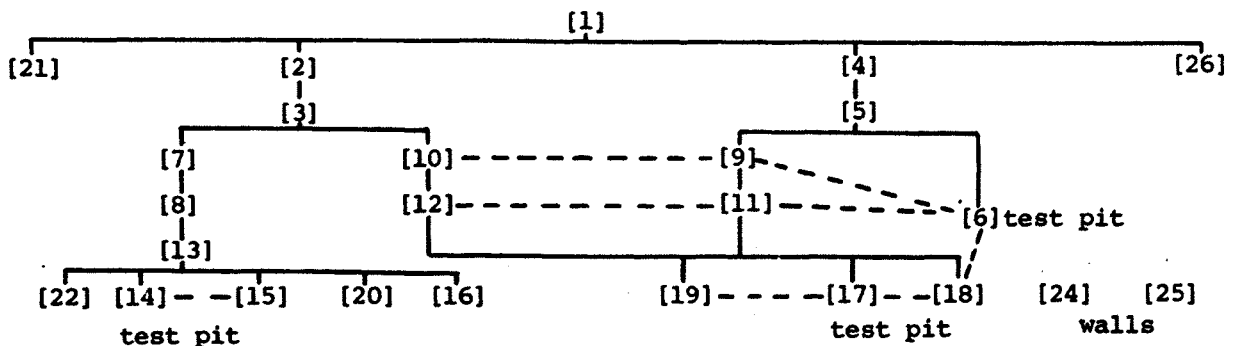
Plate 3: C4c



bricks of indeterminate size with a stone foundation under its southern half, suggesting the possibility of a doorway in the northern part. Walls A, B, D would seem to form a small room with a narrow partition (wall E). The makeup of the floor of this room [15] revealed five blackened areas (see pl. 3). Locus [13] was the immediate fill in the room corresponding to [16] and [23] to the south and west. Above this were more fill-debris [7] and [8] beneath rock fall from wall A; this debris extended over wall D where there was evidence of considerable burning with fire-reddened bricks and thick accumulations of ash (also including [16]).

North of the room described above was a narrow alleyway defined by walls B and F and the corner of a separate building, wall C. The lowest surface in this area was made up of fill with small stones [19], above which were debris levels [12] and [10] containing a fire pit in the former and tether ropes in the latter. Also outside this room was what would appear to have been an open courtyard with a shallow fill [17, 18] below a hard occupation surface. Thereafter the area was fill-debris [9 and 11]. Locus [5] represents a stage of fill accumulation before the construction of wall F. This wall was an irregular construction of stones and mud which seems to have enclosed an area of peat-like organic materials [4], perhaps from stables. (This mound was recognized from the beginning of excavation [2], while the remainder of the trench [1, 3] was layers of debris.)

It may be suggested that loci [15, 16, 17, 18, 19] represent actual occupation on this part of the site, followed by possible occupation and debris accumulation [9, 10, 11, 12, 13, 16, 23]. Thereafter the area was given over to disposal of trash [1, 2, 3, 4, 5, 7, 8]. Two tests were conducted: [6] equivalent to [9, 11, 17, 18] and [14] equivalent to [15]. The correlation of loci in the various parts of C4c may be summarized in the following table:



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## D4b

Trench D4b was one of the first soundings into the site made by the site supervisors in order to examine the nature of the deposition, the logistics of excavation, arrangements of work force, and the nature of the finds in the north-western portion of the site. The trench was originally planned as a 3 x 4 m strip down the steep bank of a deep gully. In fact only 3 x 3 m was attempted and, of that, only half to a depth of slightly more than 1 m. See pl. 4 and fig. 4, a view of the trash deposit covering D3-D5.

The soils encountered were a uniform accumulation of heapings of organic debris on the edge of the mound. The three levels indicated on the section (which is schematic and not measured) illustrate harder surfaces within the trash. The lowest level reached suggested the possible beginning of a wall oriented in the same direction as the long wall A in C4c, which trench was the outgrowth of this preliminary test pit.

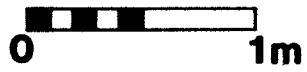
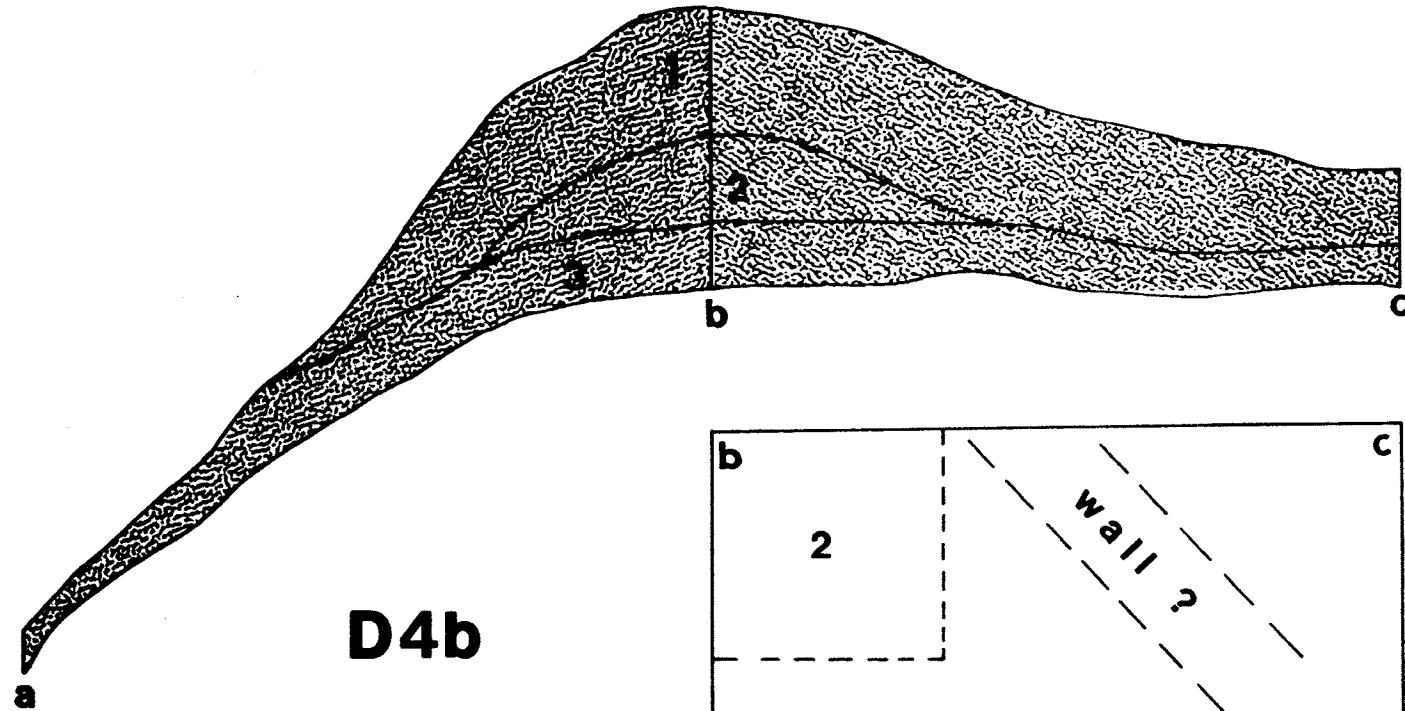
## B4a

Trench B4a was a test in the northwestern periphery of the site, where surface contours suggested the remains of buildings but no wall remains or sherds were present on the surface. The trench measured 4 x 5 m and was 1.0 to 1.3 m to bedrock. See pl. 5. Several mud-brick walls were constructed on bedrock (brick size averaged 30 x 15 x 10 cm). The stratification within this area was relatively straightforward: above the bedrock was fill within the rooms and above this a thick mass of hardpan and bricky fill which became powdery near the surface [1], [2], and [3].

The main room within this trench was defined by walls A and B and filled with a uniform 50 cm accumulation of grey ashy material [4] not unlike stable material. Near the bedrock was a layer of organic material; into this layer and the bedrock were sunk the basal portions of two large ceramic vessels. This debris-filled room led onto two other rooms through two doorways. The narrow opening cut into wall A led to a room filled with yellow sand mixed with some ash. The second doorway, in wall B, was more elaborate, with a brick foundation and a wooden threshold; in front of the door jambs on either side were two round stakes set firmly in the ground (which were identified by the workmen as fastenings associated with stables). The door sockets for both of these doors were found in the corner of walls A, B.

The area south of walls B, C was divided by a somewhat uncertain wall D and contained a number of interesting features. Due to lack of time at the end of the season, this area was not carried below this level to bedrock. In the southwestern





**D4b**

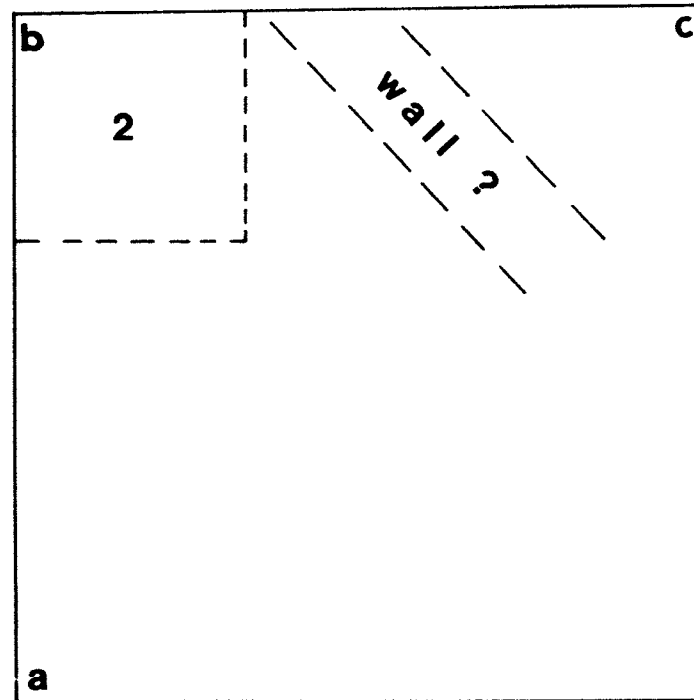
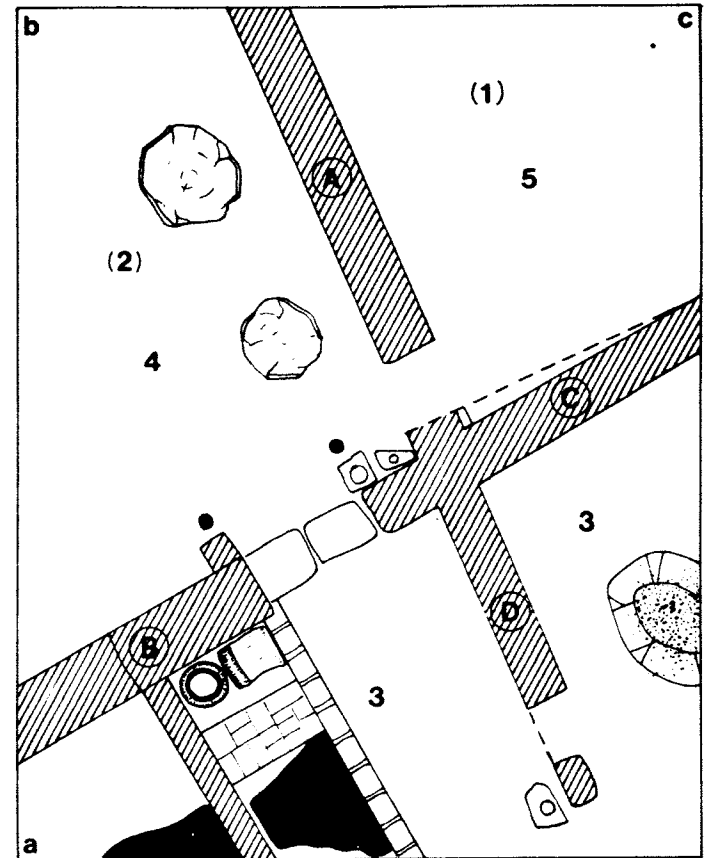
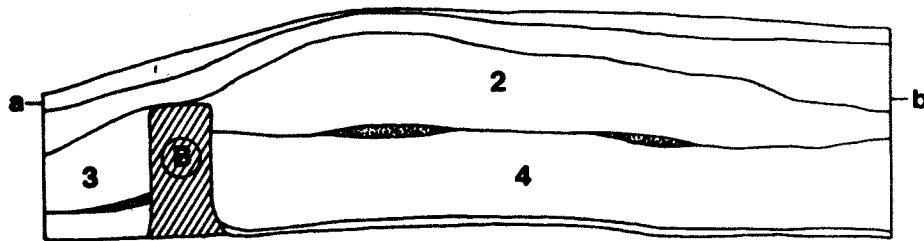
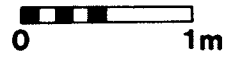
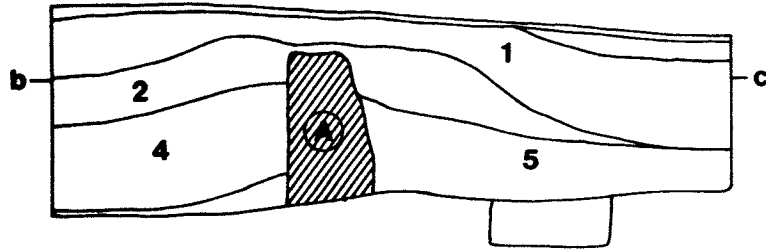


Plate 4: D4b

**B4a**



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Plate 5: B4a

corner was a plastered firepit and what would appear to be a door socket no longer *in situ*. West of wall D was apparently a corridor which on the western side, was bordered by a low curb of small brick fragments. Beyond this curb was a brick platform, next to which was a shallow basin with plastered edges and a large flat stone as its base. Also next to the brick platform were two grinding stones, one round black basalt and the other a saddle quern made of red porphyry (FN 12). Behind these features was a thin brick partition placed there during a latter phase of the room's utilization; beyond this partition was another large stone foundation.

It would seem likely that this complex of rooms was a kind of workshop in which firing, grinding, and washing operations took place. There is no indication as yet of the materials processed in this area. Although the stratigraphy need hardly be diagrammed, it may be summarized thus:

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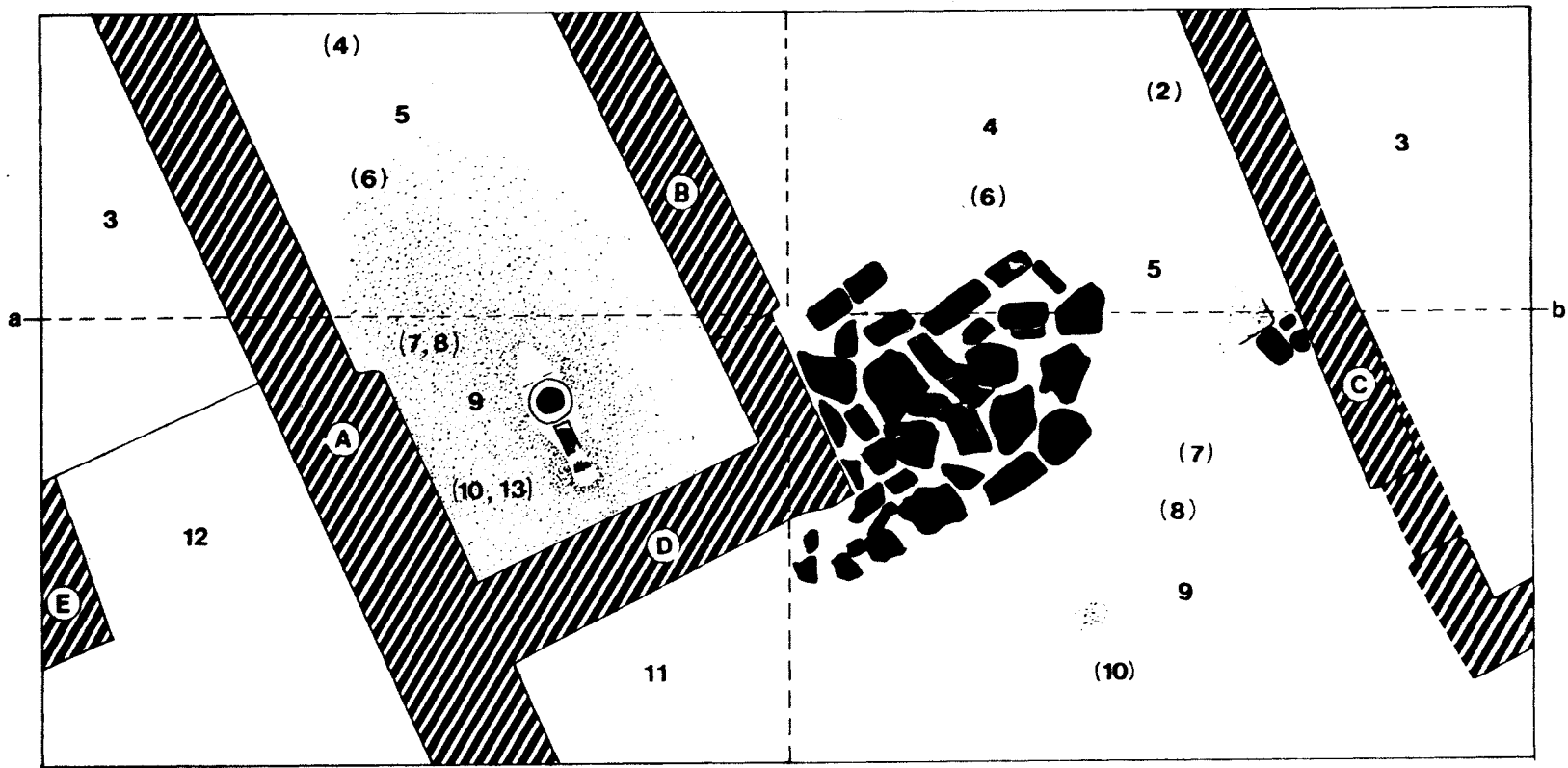
[2] - - - - - [1] - - - - - [3]
  |             |
[4]             [5]

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#### E6b-E7a

Trench E6b-E7a was selected as a test of the undulating hillocks in the northwest part of the city between the central large buildings and the town periphery discussed above. The trench was laid out on the edge of these hillocks of sherds and debris as a 5 x 10 m exposure; E6b on the west (5 x 5 m) was in the debris area while E7a on the east (again 5 x 5 m) was mostly a flat brown powdery surface soil. The depth of accumulation above bedrock was 1.5 m and 1.0 m respectively in these two trenches. A series of parallel walls, A, B, C, running northwest-southeast, and a crosswall, D, were found in this area. Wall C had been built directly on the bedrock where the lower level E7a-[3] was a reddish soil, almost completely sterile. This soil level may correspond to E6b-[6] and [13]; it was upon this soft, red-brown, almost sterile soil that walls A, B, D were laid. All of the walls of this trench have an unusual construction technique, in that they are composed mainly of a yellow mud in which irregular rows of stones have been set vertically; the general impression is one of irregular and impermanent construction. See pl. 6.

The long room in E6b, enclosed by walls A, B, D, had a lower floor [5] and [10]; above this was the main floor of the room's occupation. On the mud floor, and partially constructed into it, was a small furnace; the vertical hole and surrounding mud floor had been fired a bright red. The stoke hole on the southern side was made of a broken amphora neck; both the neck and furnace itself were



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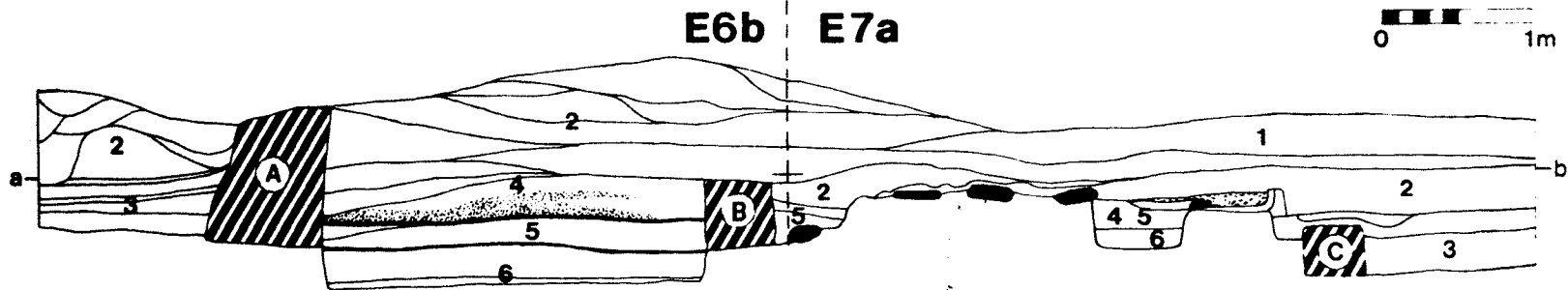


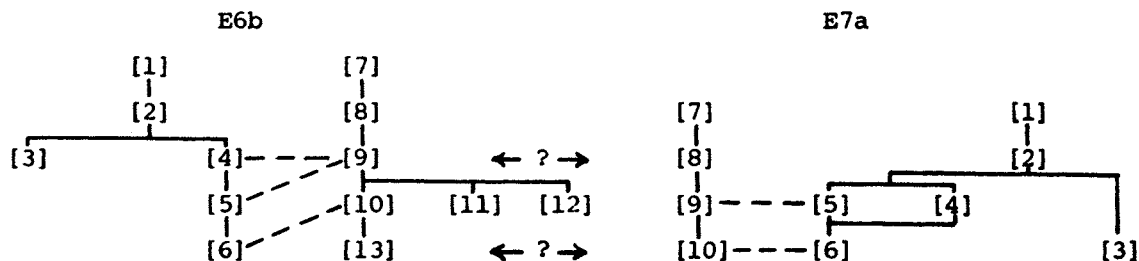
Plate 6: E6b-E7a

filled with ashes, and in the very center was a mass of slag from iron working adhering to the furnace walls. Around and above the furnace was a soft, ashy fill E6b-[4] and [9] of debris which accumulated during the operation of the furnace and also during its subsequent abandonment.

The areas outside of this room were E6b-[3] with several layers of mud floors, possibly contemporary with the furnace floor, and E6b-[12], a similar occupation level with a suggestion of a wall E near the baulk. In this latter area and in E6b-[11], the formation of a hardpan had turned the walls, composed mainly of mud, into solid stone features which were difficult to distinguish from wall collapse. Above these levels associated with the furnace room and its walls were layers of piled-up debris, often solid sherds and organic debris, indicating the area had been abandoned and consigned as part of the city trash dump (E6b-[2]).

The eastern part of the trench, in E7a, was somewhat different in that it would appear to have been an outside area with one narrow partition wall C. Again, two floors were found, E7a-[6] and [10], resting upon the sterile red soil and, above that floor, another surface, E7a-[4, 5] and [9]. The interpretation of these surfaces, especially the upper, is complicated by the presence of a scree of stones and mud-bricks which may be a portion of fall from walls B or D, or collapse of a structure below (and incorporated into) the scree, or even a platform in itself. The excavations did not satisfactorily resolve this point. That a partition wall may be involved is suggested by the indication of a wall stub against wall C, which may have disappeared before this time, and near which was a small hearth. These stones were covered with a brown organic layer, which left a residue very similar to tobacco, mixed with charcoal lenses and bricky wash, which had formed a hardpan, E7a-[2]. It was this yellow-brown hardpan and its powdery surface correlate which formed the uppermost level, E7a-[1].

The stratigraphy of these trenches may be shown as follows:



### The Central Buildings

Several trenches were sunk in the area of the two large central buildings (see pl. 7). Excavations in the more western of the two (F8d-F9c, F10a) revealed standing mud-brick walls over a meter in height built in the same header and stretcher construction found, in stone, in the northwestern area (C4c) (see fig. 6). The architecture and artifacts found here tend to confirm the hypothesis that this is one large building constructed during the Roman period; artifacts below the mud-brick wall fall and resting on floor levels were entirely Roman, first to third century A.D. The spills and splashes of bituminous material suggest a preoccupation with sealing and perhaps storage in this building. In addition to amphora sherds, we found examples of the plugs used to stop them, marked with stamps showing Egyptian motifs and inscriptions in Greek. The ones where the inscription is preserved give the names of imperial freedmen, presumably the men in charge of a wine-producing or shipping estate doing business in or with Quseir. G8d lies outside this building, forming an open, shallow deposit. Unfortunately the efforts on the eastern building were limited to one small test (G12a) which appears to have been placed in the middle of an otherwise featureless room. The thickness of the walls discovered in this area would certainly fit with the suggestion that these were either government centers or operational bases for the merchants, but further discussion of the buildings and their functions must await more extensive clearance of the structures. The uppermost levels of each of these trenches contained Islamic debris, but no clearly Islamic structures were encountered other than the pits, an ubiquitous archaeological feature of Islamic periods.

#### F8d-F9c

This trench originated, like F10a, as a small 2.5 x 2.5 m sounding into the large central building. The sizable mud-brick wall in F8d encouraged an expansion to the east in F9c in increments of similar sized units. The result is a fair impression of the character of this large building (at least its stratigraphic history) and the problems to be encountered in further excavations of this structure. See pl. 8.

The walls were all constructed of mud-brick (31.5 x 15 x 8.5 cm) laid in header-stretcher fashion and built upon the bedrock in this area. In F8d a considerable mass of fallen mud-brick allows the suggestion that a parallel or rear wall is just outside the limit of the trench. The widest wall, A, divides two interior rooms, each of which had two distinct floor levels; halfway along

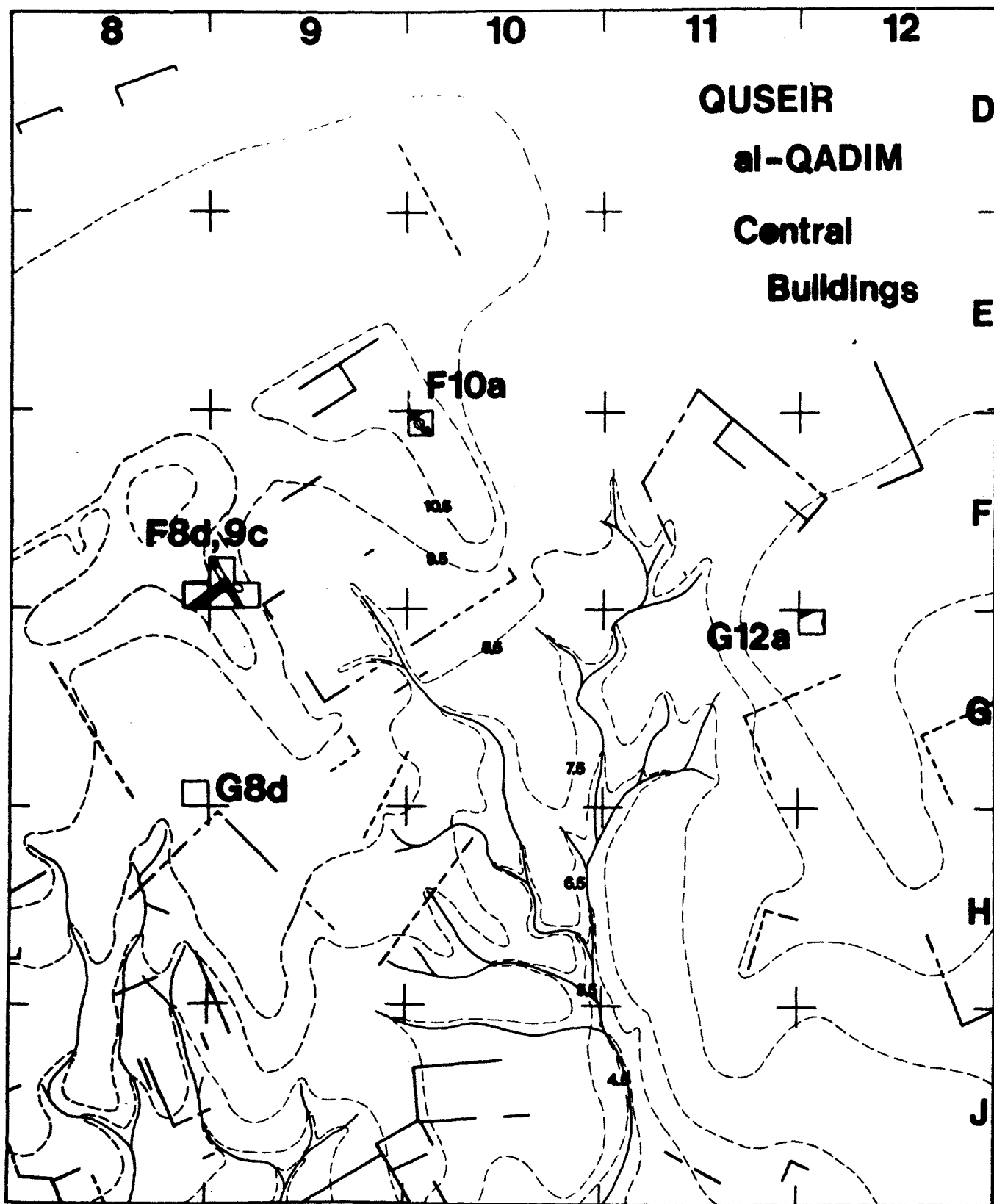


Plate 7: Central Buildings

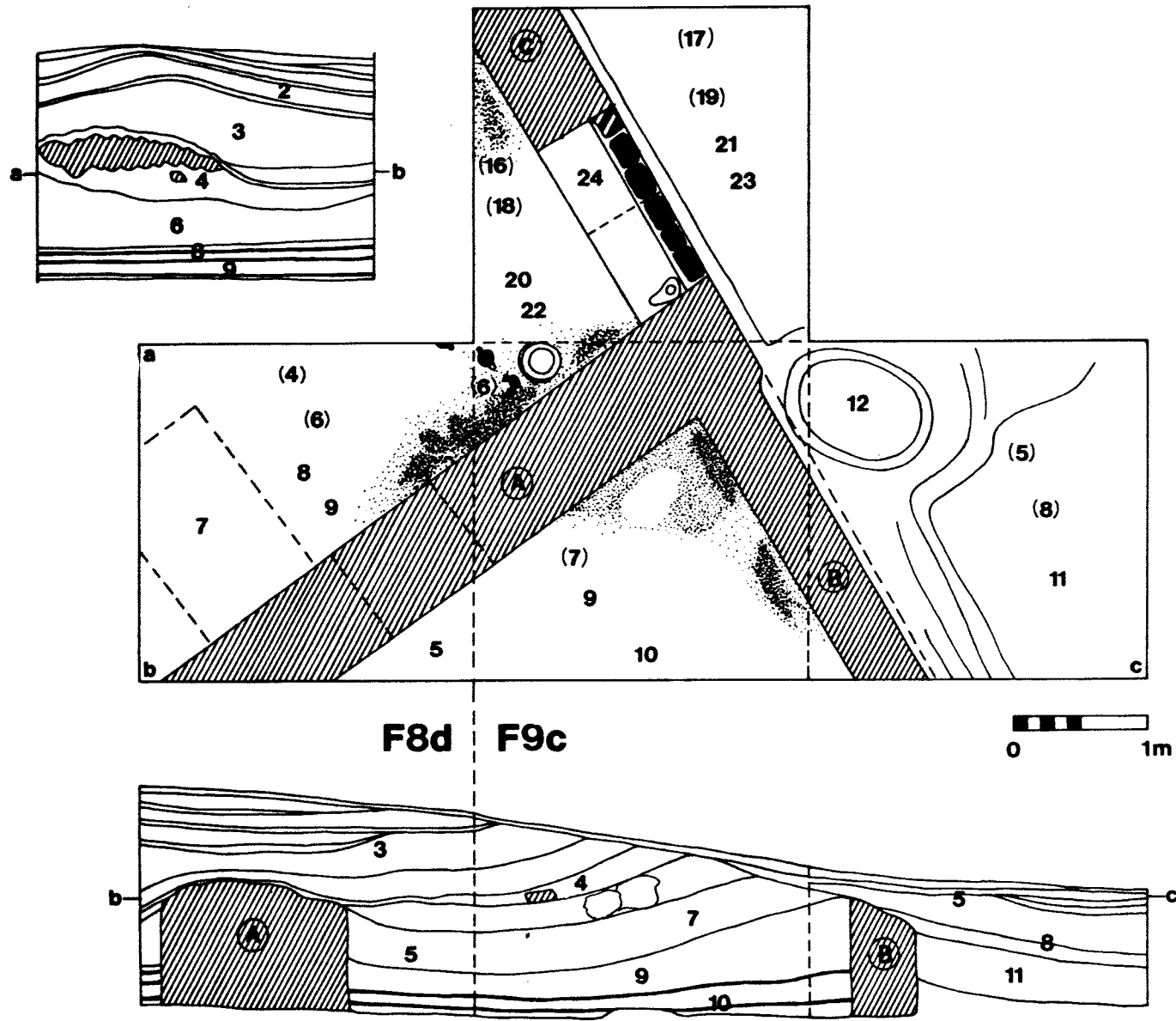


Plate 8: F8d-F9c

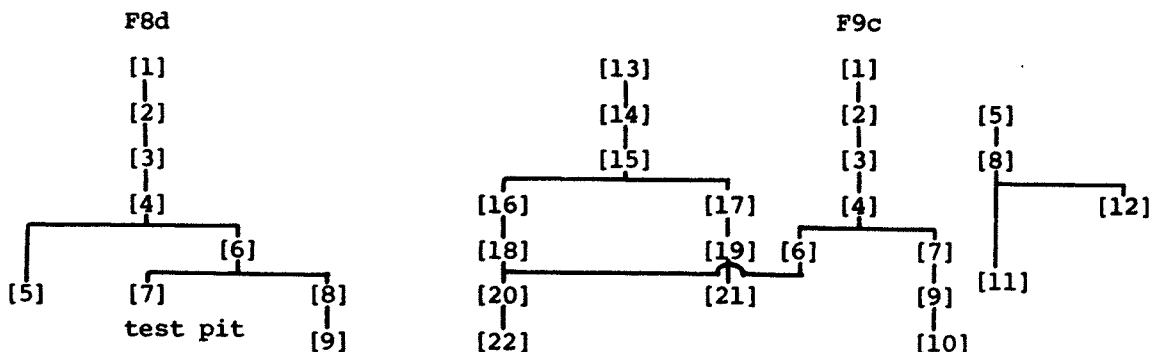


its exposed length were cracks suggesting a bricked-up doorway. In the room south of wall A and bounded by wall B, the lower floor was covered with matting, F9c-[10], and the upper floor, a hard-packed mud surface, had traces of bitumen "spilled" on the walls and floor near the corner, where there were also concentrations around what might have been a hearth, F9c-[9]. The remainder of the room was filled with bricks and bricky material mixed with sandy soil, F8d-[5] and F9c-[7].

The room north of wall A likewise had two, or possibly three, floor levels, the highest of which again bore ash accumulations and was soaked with bituminous material. As in the room south of wall A, these floors were composed of fine mud, extremely hard-packed, F8d-[8, 9] and F9c-[20, 21]. Close to the upper floor within the room fill, F8d-[6] and F9c-[6, 18], were traces of matting and several amphora necks, set up vertically, and a pair of almost identical dishes lying upside down. This fill spread over the threshold and door socket. The doorway in wall C had a raised threshold in which was placed a wooden door socket; in front of the socket was a raised line of stones. A mud-brick jamb blocked the door on the northern side. The room was filled with bricks and bricky material, F8d-[4, 6] and F9c-[16, 18], rising at least to the tops of the walls as preserved.

Outside of the doorway and east of walls C and B was bricky material and some organic material mixed with sand and pebbles, F9c-[11, 19, 21], occurring just above bedrock. Here, as elsewhere in this trench and the site in general, this bricky soil had formed a hardpan which made the tracing of walls extremely difficult. Cut into this hardpan was a circular pit, F9c-[12], filled with softer soil and sherds and extending down to bedrock where it abruptly stopped. This pit was cut from upper levels which were a mixture of sandy gravels and organic debris (rope, matting, cloth, etc.). In each of the excavated areas two layers of this debris were found below the surface, F8d-[2, 3] and F9c-[2, 3; 5, 8; 14, 15]. These trash layers were distinctively Islamic as was the circular pit, in contrast to the Roman artifacts with the building itself.

The stratigraphy for F8d and F9c is summarized as follows:



## F10a

Trench F10a is a small test trench, 2.5 x 2.5 m , placed in the northern portion of the western of the two large central buildings. The trench was situated in a location hopefully just within the outer walls of the building among the rooms of the structure. The trench went to a depth of ca. 2.0 m to bedrock and contained a combination of Islamic and Roman materials. See pl. 9.

The earliest occupation in this area is represented by floor materials on either side of a straight mud-brick wall running northwest-southeast, west of this wall [13] and east of the wall [12]. This lowest phase of the wall was not completely confirmed; it was, however, an earlier phase of a wall with a double bend in its southern portion. This slightly higher floor level was badly disturbed and isolated with confidence only in test pit [9] [10], where fragments of a broken amphora lay on the surface. Above this debris was a soft layer of ash and sherds [8] which may be associated with ash and burnt materials near the walls especially in [7], in the southeast corner of the trench.

This grey fill with some organic debris occurred over most of the surface of the trench as locus [6], at an average depth of 1.3 m below surface. Above this locus were a succession of arbitrary loci [3, 4, 5] cut into the hardpan or thick salt accumulations. Little differentiation was possible in these very hard, stone-like salt layers, and it was not until most of the salt was removed and locus [6] was being excavated that a large pit was discovered in the center of the trench. This pit, which proved to be Islamic in date, contained garbage (sherds, much bone and eggshells), and "after a meter or so Hamdi expressed the opinion that it was a latrine and, since cultural material other than copralites was becoming sparse, we stopped and cleaned the sides" (Roth, field notes). Thus the loci above the first occurrence of the pit [3, 4, 5] are suspect of being either Islamic or mixed Roman with Islamic. These same loci of hardpan may have been collapse from the main walls of the building. From locus [5] bricks and a possible wall line were found in the northwest corner of the trench (bricks measured 35 x 15 x 10 cm ). Steps in this portion of the trench prevented precise definition of this wall. Finally, loci [1] and [2] were powdery surface soils with scattered rocks, cloth, matting, and Islamic materials.

The stratigraphic sequence for F10a may be diagrammed as follows:

# F10-a

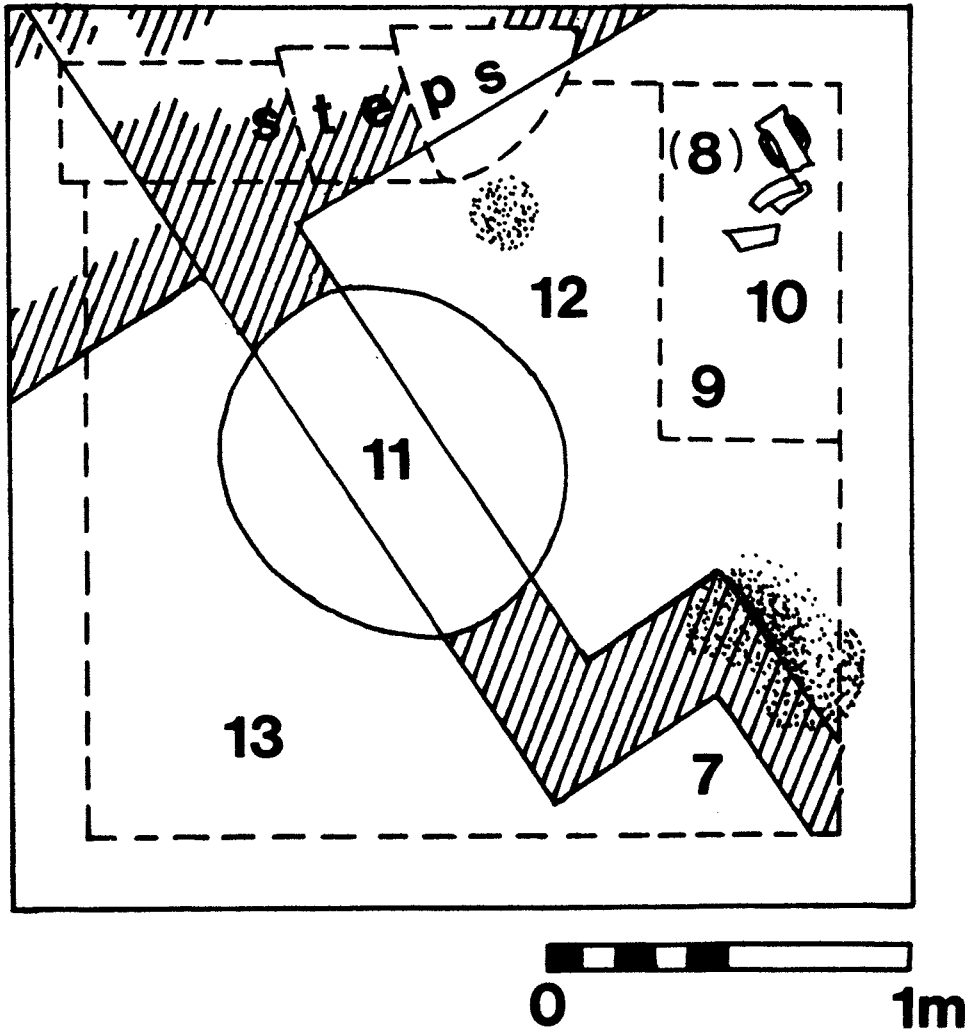
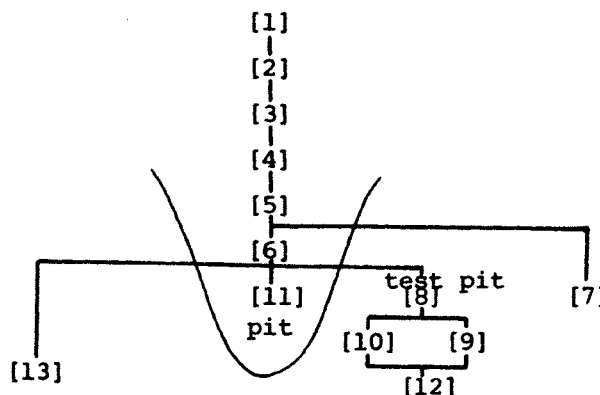


Plate 9: F10a



G8d

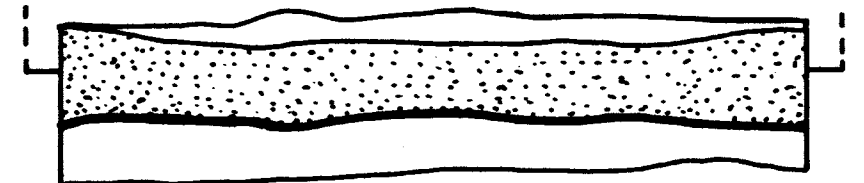
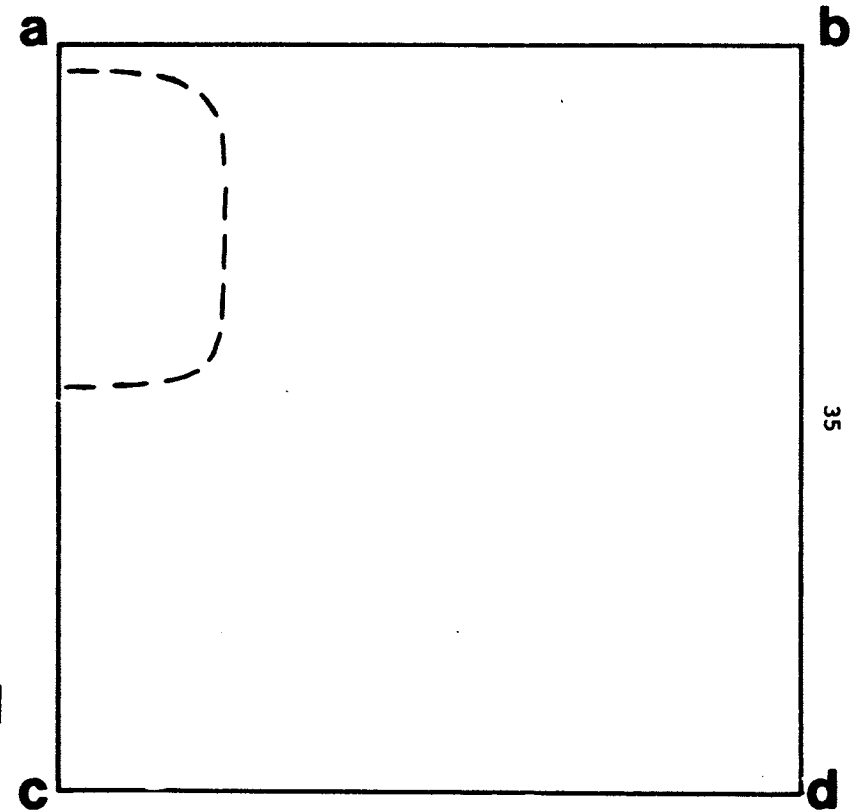
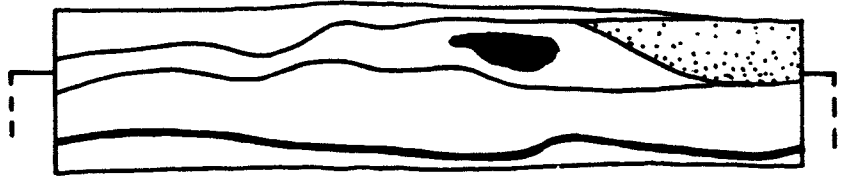
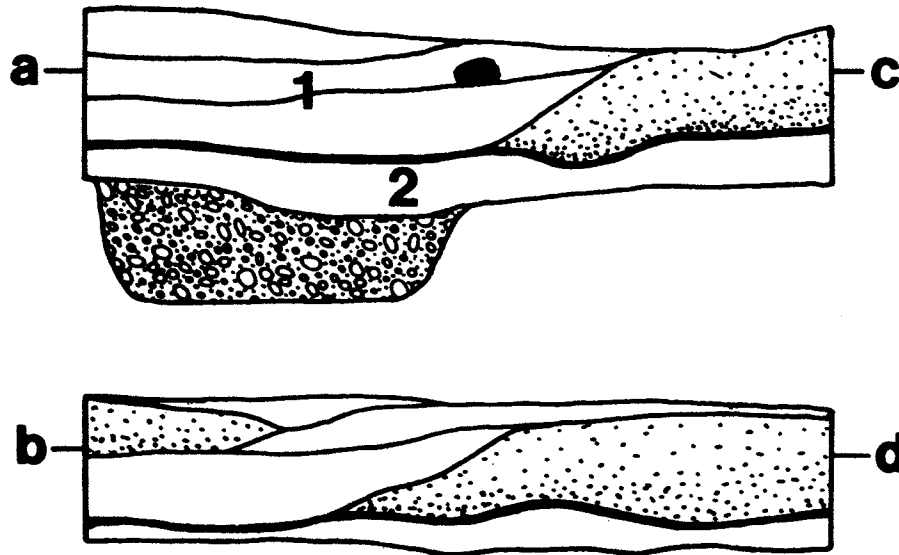
This trench was placed as a small test pit outside of the mounding of the western of the two large central buildings. The trench was carried down to bedrock which was only 50 to 70 cm below the surface. This rather shallow accumulation of debris revealed little in the way of features, see pl. 10. There was a tendency for heavy concentrations of sherds in the southern half of the trench [1] (represented on the sections by a light stippling). Otherwise the soil was generally loose and gravelly down to a slightly harder and almost sterile layer of about 20 cm depth [2], which rested above the coral bedrock. This rock was tested in the northwest corner of the trench.

G12a

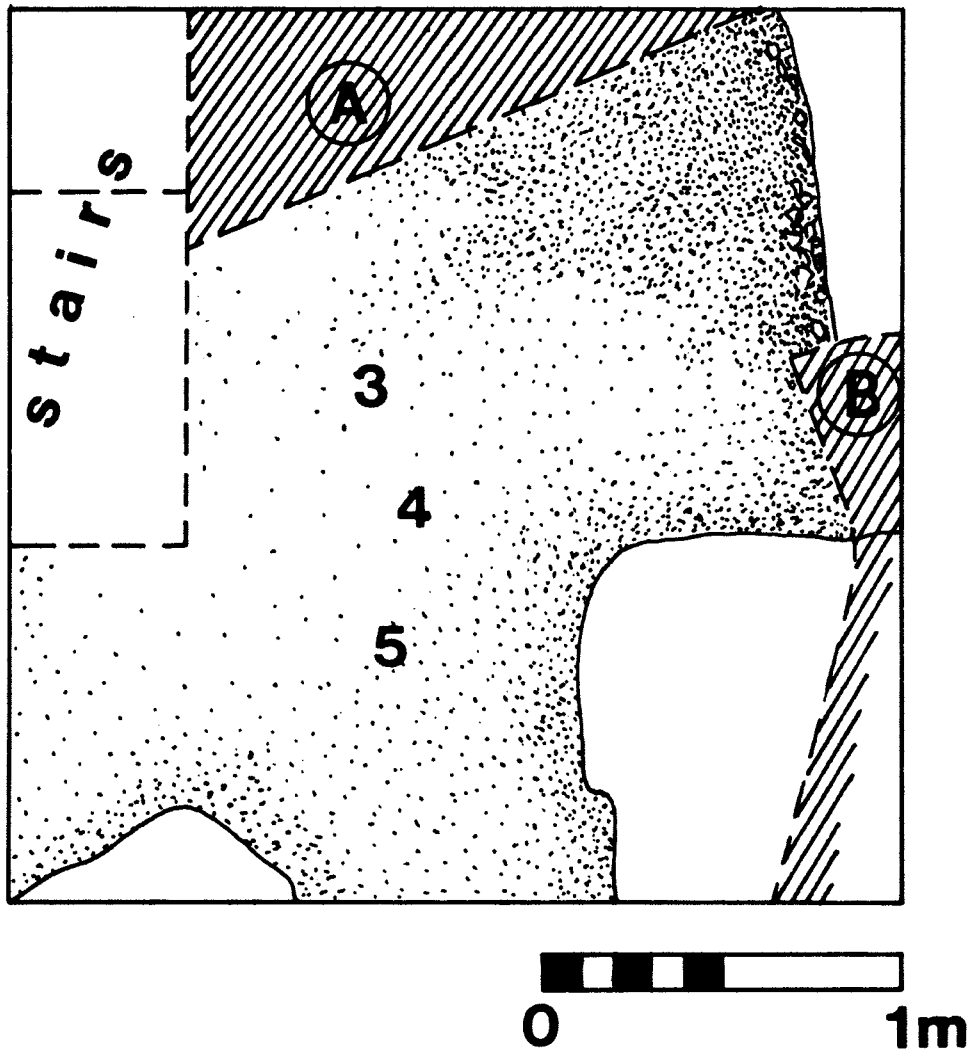
This trench was a small test, similar to trenches F8d and F10a, probing the nature of the large central buildings, in this case the eastern structure. In general the sequence of levels and character of the soil layers encountered paralleled the results of those other test trenches. In G12a the virtual absence of walls made the articulation of other features the more difficult. See pl. 11.

The lowest level, G12a-[5], was a dark red-brown floor material, approximately 10 cm above bedrock and between 2.13 and 1.85 cm depth from the surface of the mound. In the southern part of the trench the surface of this floor was a bright red color in two large patches; elsewhere the floor was covered with an accumulation of ash and charcoal, mixed with sherds, fish bones, and small bits of sulphur, limited by a line of small stones in the northeast corner and by wall fragments. Two walls were suggested although never defined with certainty, wall A being the more likely. Between these walls the fill of the room was mostly brick fall, [4] This brick fall composed the upper locus [3] of over a meter in depth with very little in the way of sherds and other debris. Above this compacted brick fall

# G8d



# G12



was a surface of hardpan and some sherds [2] and, above the hardpan, more concentrations of sherds mixed with soft sand and pebbles of the mound surface.

The stratigraphy of this trench, in the absence of evident cultural features, is straightforward:

[1]  
|  
[2]  
|  
[3]  
|  
[4]  
|  
[5]

#### The Harbor Area

This designation covers two distinct areas: what we called the "island" (S11-S12), and the area bordering what may have been the Roman harbor. See pl. 12. Although what we called the "island" is surrounded by *sabkha* now, we assumed that it was in open water in Roman times. Therefore, we put several trenches into this "island" in an attempt to discover whether the wall traces on the surface were the remains of a lighthouse or fortification of some sort. However, these wall traces were Mamlūk and limited to the immediate surface. Under them was an accumulation of sands and gravels laid down in lenses to a depth of over three meters (these were the only trenches on the site in which we did not reach bedrock). The lowest levels dug revealed good first to second century Roman pottery. The most probable hypothesis in our view is that this "island" is the spoil heap from successive Roman dredging operations which attempted to keep the harbor open.

Based on contours we hypothesized that the rectangular depression directly south of the large Roman buildings, which is now *sabkha*, was open water in the Roman period and served as the Roman harbor (the low area traversed by L8-L10 in pl. 12). By the Islamic period the Roman harbor had completely silted up and the shoreline had receded at least beyond the "island." Islamic buildings were scattered upon the *sabkha*, but more important Mamlūk buildings were located on the higher parts of the city, often reusing or modifying older Roman structures. The Islamic occupation effectively obscures the earlier remains, and the nature of the Roman occupation in this area remains elusive. Lowest levels in the "island" and harbor held Roman debris, but without structural associations. Walls in the harbor, in K9b, and in P7-P8, are all potentially reused Roman building elements. In P8a, b, Roman refuse was clearly swept off the highest parts of the bedrock and used as fill on the slopes, occasionally being carefully plastered over. The first century shoreline and harbor facilities remain to be determined in the next season.

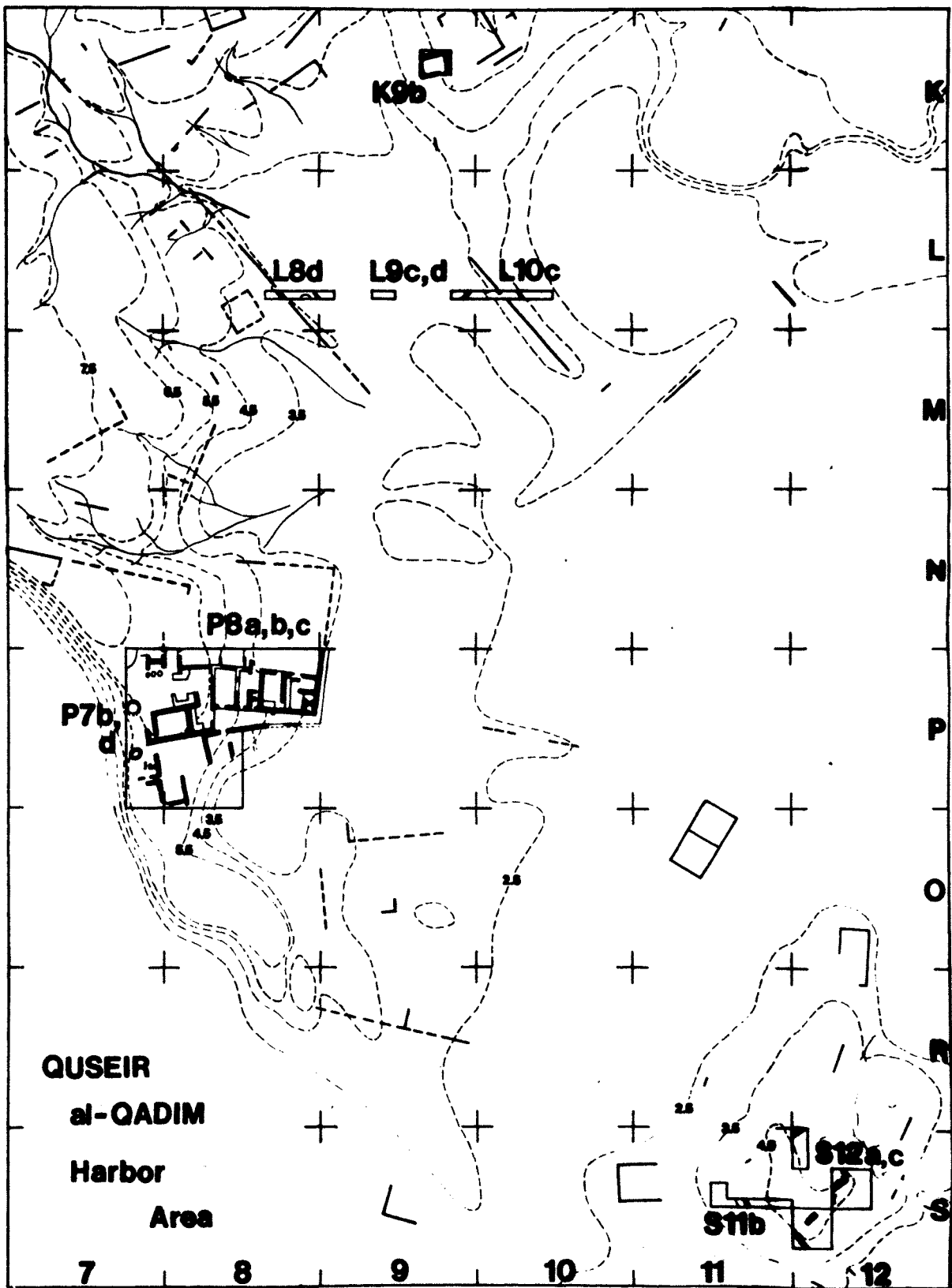


Plate 12: Harbor Area



We concentrated our work on the Mamluk period in the area of the old Roman harbor (see pl. 12). One small trench was put in at the northeast corner of the old harbor (K9b), which revealed a small room with two distinct Mamlūk occupations. A tradition of unglazed painted wares was noted as well as glazed materials. But work on the Mamlūk occupation concentrated on a series of Mamlūk houses on top of and down the eastern side of the peninsula forming the western side of the old harbor. There must have been an earlier Roman occupation of this area since a large amount of Roman material had been carefully swept down the slope and plastered over, where it served as floor for rooms part way down the slope, as noted above, and some of the walls may indeed have been reused Roman walls. It may be suggested that the slight differences observed in surface collections between the Islamic area east of the road and the one near the Roman harbor may be the result of a larger admixture of Roman material in the latter. The excavations revealed a series of regular domestic units including courtyards, sitting rooms, and storerooms opening off a series of streets and lanes. Such features as mastabas and floor mats were found *in situ*. A wide range of artifactual material was discovered. Ceramics included both unglazed painted wares and a wide range of glazed wares (for a very small sample, illustrating mainly white-glazed ware decorated with cobalt blue and magenta stripes, see fig. 7), filter neck water pots, and imported Chinese porcelains and celadons, all datable to the 13th to early 15th century. In addition, we found a large corpus of cloth, largely assorted checks and stripes, and a carved and painted wooden bowl datable to the 13th to 15th century. We also found a large amount of what appear to be Mamlūk letters; all are written in black ink, on paper, and had been torn up, crumpled, and thrown away. They are scattered throughout the site in Mamlūk levels, almost 100 fragments coming from the large Mamlūk house complex. They are largely private letters, including a love letter, or religious spells and charms. It is hoped that some of the letters will include useful descriptions of life in the town and of the commerce of the period.

Thus the evidence of Islamic occupation in the harbor area shows two types of structure. The first consists of wall fragments perhaps used as the foundations for shelters made of matting, reeds, or grasses, found on the "island" and in the harbor. Second, there were more permanent structures of stone walls composing formally arranged rooms, courtyards, and passageways (K9b, P7-P8); again the presence of matting and other organic debris in profusion suggests a combination of this architecture with less permanent building elements. In P8a, b, a preliminary

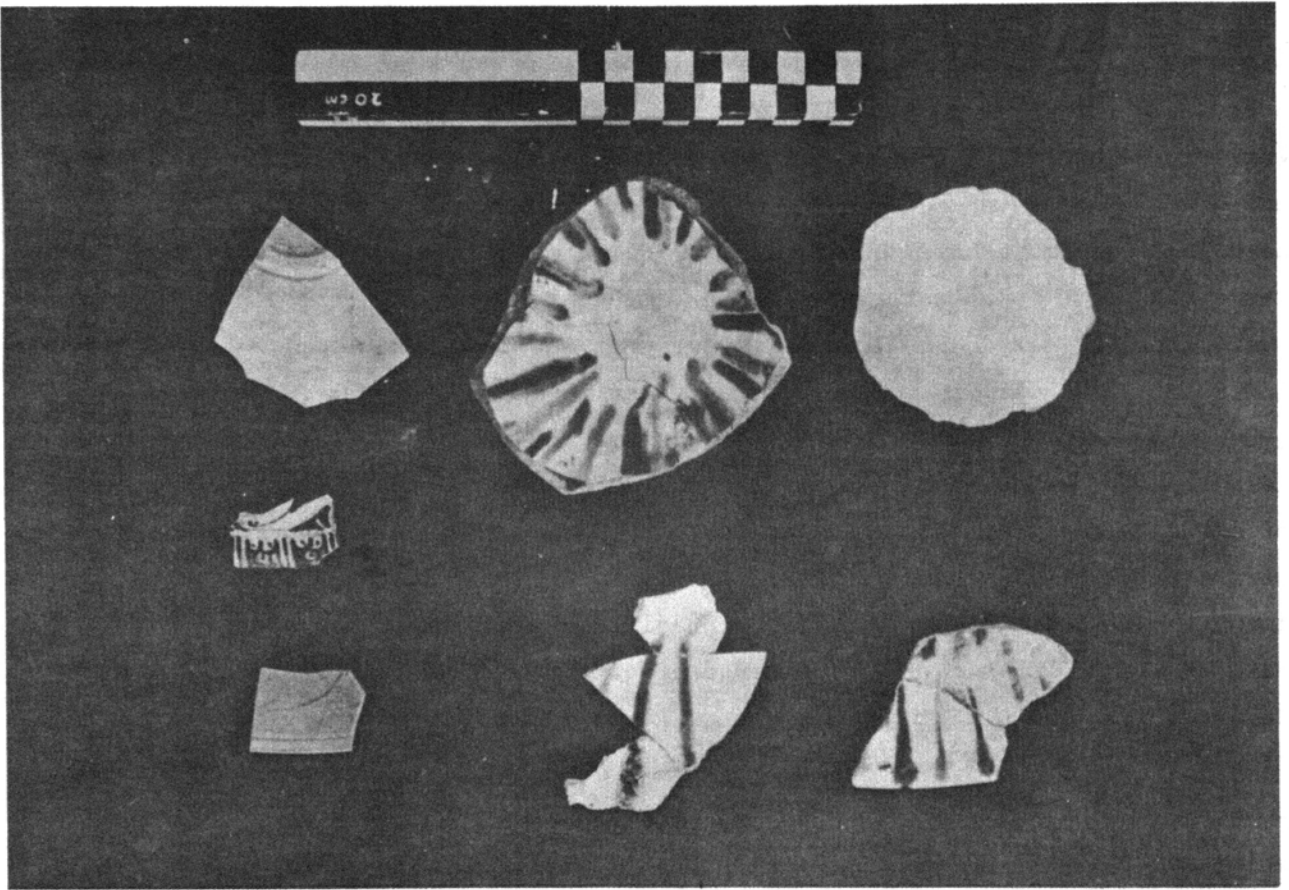


Figure 7: Glazed Pottery

indication of a basic architectural unit consisting of a sitting room, a small yard, and two small rooms was found.

#### S12a-S12c-S11b

The four trenches discussed under this heading summarize the efforts during the first season to understand the history and function of the "island" located apart from the main body of the site in the *sabkha* of the Wadi Quseir al-Qadim and south of the proposed area of the Roman harbor. The hope of substantial architecture at the core of this formation as suggested by surface wall fragments was totally frustrated as layer upon layer of sands and gravels were revealed. Work began with the deep test pit in S12a (loci [5-11]) and a wider exposure in S12c (see pl. 13); thereafter a second deep test was conducted in S12a (loci [12-17]) and a long, narrow cut was made in search of evidence of the depositional history, S11b (see pl. 14). In general the soft sand, in addition to the strong

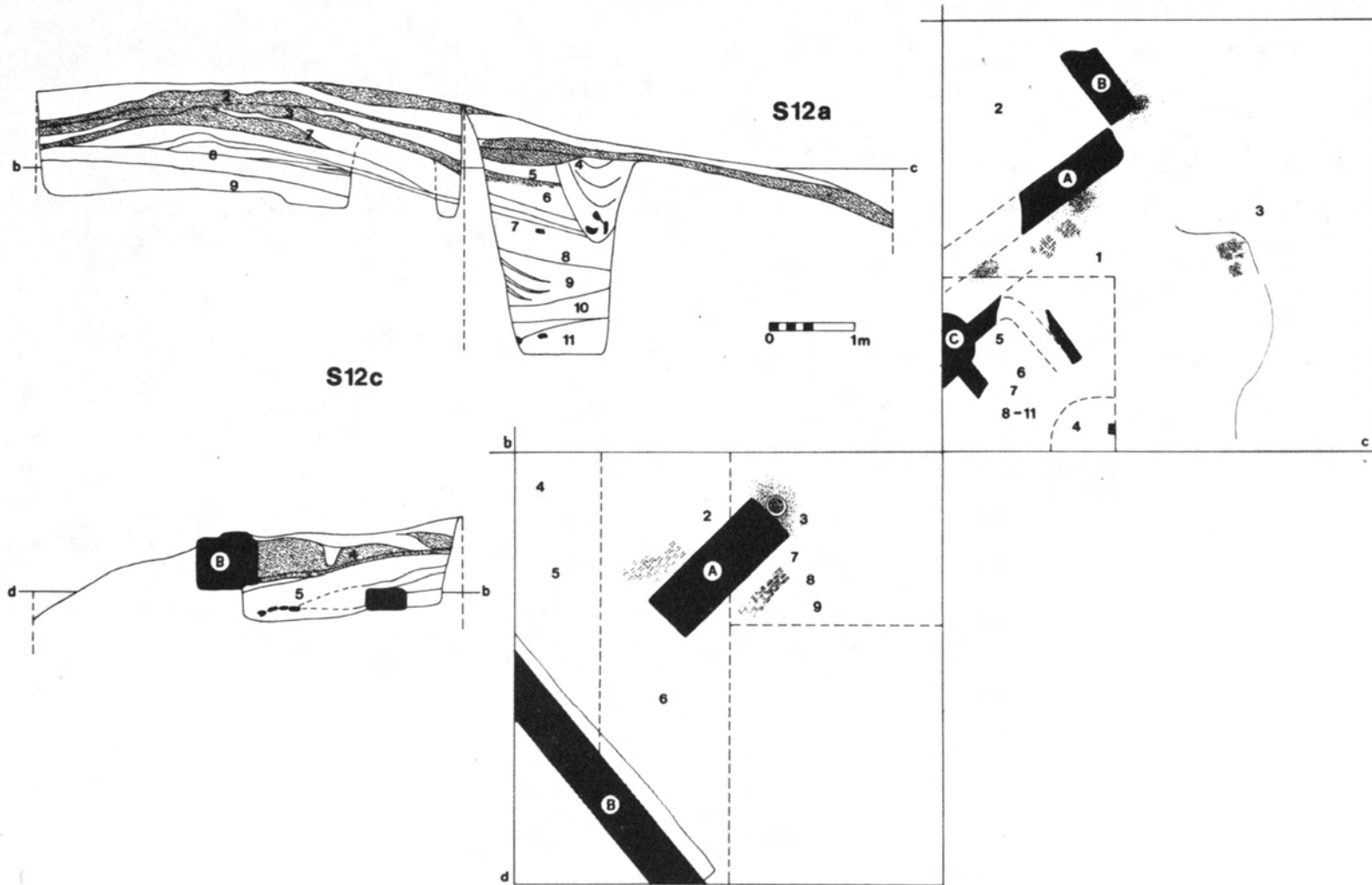


Plate 13: S12a-S12c

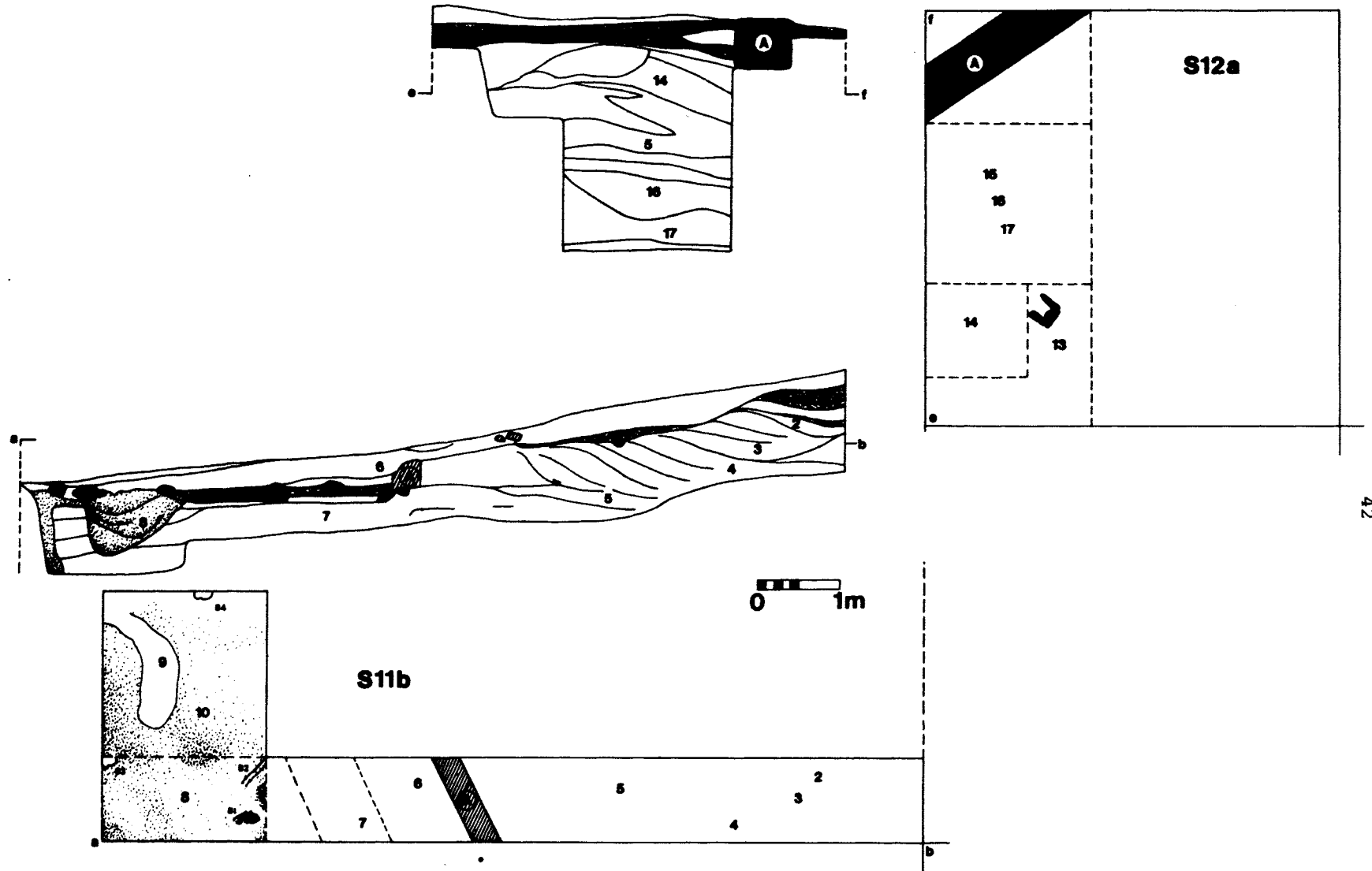


Plate 14: S12a-S11b

northerly wind, made excavation below a depth of one meter extremely hazardous and the sections both unstable and quickly eroded.

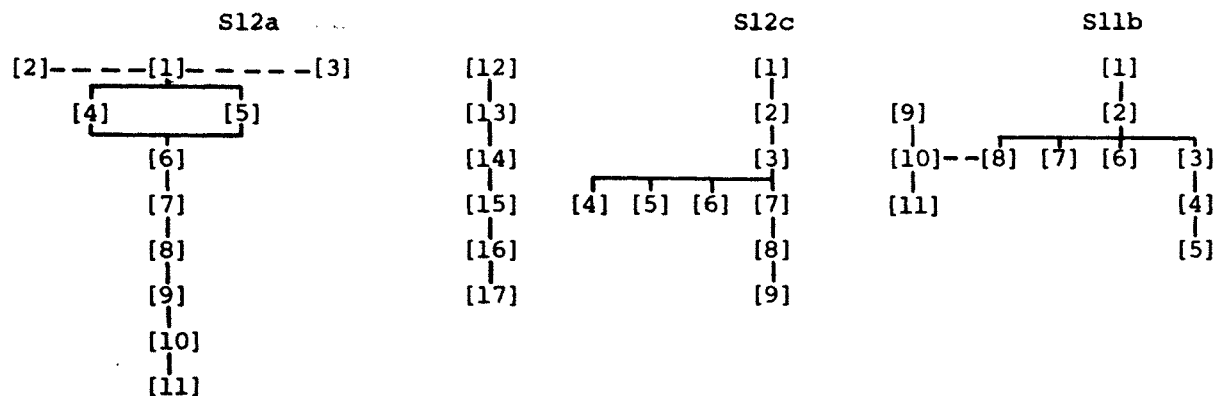
The results of the trenches are thus difficult to interpret. Bedrock was not reached in any of the trenches; rather, the lowest levels were variegated lenses of sand, yellow and grey in tone, with pebbles and gravel mixtures, greys, bright red, and black. These soil layers seem to form a mound and include loci S12-[7-11], S12c-[8, 9], S12a-[14-17], and S11b-[3-5]. The sequence within the second test pit, S12a-[14-17], shows most clearly the interfingering of these lenses and general mounding character. A second pattern may be discerned in the inclined piling of layers to the eastward in S12a-[9] and S11b-[3-5]. This latter feature would suggest beach deposit or perhaps aeolian causes were it not for the interspersal of lenses of large rocks above this layer. In the absence of a clear geomorphological picture of the structure of the underlying coral formations and history of sea and land levels, it is premature to arrive at strong conclusions; nevertheless it is difficult to imagine other than human agency for the major formation of the core of the "island." It was first suggested to us by F. Wendorf, on the basis of other harbor formations in Egypt, that dredging activity might result in such a formation. Given the technological capabilities of Roman engineers and massive dredging operations in pre-Roman harbors at Carthage (Hurst and Stager, 1978) and in Egypt (O'Connor, 1974), there would seem no reason to doubt this possible interpretation at Quseir. Further, all of the above-mentioned levels, while producing no cultural features, were consistently intermixed with Roman artifacts, most commonly amphora sherds, the count being no less at the lowest depths reached than the upper levels.

The utilization of the "island" in the Mamlūk period was radically different; in the upper levels of all the trenches were found fragments of walls, composed generally of coral blocks and mud mortar, and masses of organic debris such as is more characteristic of the other portions of the site. In trench S12a, loci [1, 3] seemed accumulations of organic trash (ropes, matting, cloth, etc.) mixed with fallen wall fragments. Walls A and B enclosed an area [2] of grey sand while wall C had either small buttresses or a small bin attached (a wooden beam had fallen in this area). Several fire pits were found next to walls A and B, suggesting that the walls were used as windbreaks. None of these walls was preserved more than 40 cm high and often the traces were much less. Within the test pit, and below the base of wall C, were levels of Islamic debris mixed with sand; in the southeast corner was a pit filled with soft, dark grey sand and containing numerous fragments of wood, including several large beams.

The second trench excavated, S12c, presented a similar picture of wall fragments and a fire pit with associated matting, often apparently *in situ* as flooring, S12c-[1-6]. S12c-[7] was an occupation prior to wall A, a substantial but isolated wall fragment. Wall B, on the other hand, was visible on the surface and seemed to continue beyond the limits of the trench. Within the west baulk was an isolated block of well-dressed limestone, without apparent associations. Likewise, the uppermost level of the second test pit in S12a, [13], was late debris associated with a substantial wall, A, which transected and went beyond the limits of the trench. No fire pits were discovered in this small exposure.

The long cut S11b was almost bisected by a wall, this time of mud-brick (27 x 13 x 7.5 cm), which was traced on the surface of the mound. Quite a mass of fallen mud-bricks was found above S11b-[5] and in [6]. This latter concentration and the numerous stones suggest the possibility of a parallel wall above [7]. West of these structural fragments the character of the depositions changed with numerous pits into the earlier levels. The fill of these pits and the surface from which they were cut showed evidence of extensive burning with heavy ash accumulation and mud, and brick fired a bright red, S11b-[8]. These pits were evidently for burials similar to those in A22d. Bones of at least four individuals were uncovered, although once the Islamic character of the burials was determined, excavation was terminated in this area. This was evidently not the first disturbance to these skeletons; one of the burials was a secondary deposition, very near the modern surface, of bones probably accidentally disinterred.

The overall stratigraphy for these trenches of the "island" may be summarized as follows:



## L8d-L9c-L9d-L10c

This series of trenches forms a long slit trench, one meter wide, stretched across the proposed area of the harbor, a total length of 37 m of which 25 m were excavated. See pl. 15. The initial work was concentrated on the "causeway," a natural coral finger of bedrock extending toward the southeast from the central portion of the site. Toward the end of the season of excavations, a complementary trench on the western side of the harbor was attempted (L8d-L9c) and finally a central cut to test the harbor's depth at its center was put in.

The impression on the surface, from visible wall fragments, was that the harbor was limited by two parallel walls, wall B of L9c and wall A of L10c. Excavations revealed a somewhat more complex situation. The lowest level in L8d was a mixture of sand and gravel, L9c-[2], which served as a foundation for walls A and B, both made of stone. Between these walls was a large round pit, L8d-[6], cut into the sand and gravel. Other than wall fall, L8d-[3, 5], only orange sand lay above these walls, L8d-[4] and L9c-[1]. West of wall A were levels of hardpan and gravel [2] and, above this, debris including matting and organic materials probably deposited from other building levels further up the slope of the mound to the west.

The correlation of these buildings in L8d-L9c, as well as those in L9d-L10c, to the levels within the central cut cannot be determined in the absence of continuous trenching across the entire length of the intervening space. The principal result of the excavation in L9c is the ascertainment of the depth of fill to bedrock, which ranges from 1.5 to 2.0 m. The fill itself exhibits a regular horizontal accumulation of orange sands which are mixed with gravels and then pebbles as one descends to bedrock, which is here a fossiliferous limestone. From the surface to the bedrock was a fairly uniform admixture of sherds, principally amphora fragments, although somewhat more common near the surface.

This same accumulation of sands, although of a brown hue, was found in the lowest levels of L9d (an extension of L10c), [4] and L10c-[8, 9]; these levels were separated by thin lines of gravels. This same pattern of sand accumulation seems to have continued after the construction of wall D in L9d-[2]. This wall would seem to be associated with, perhaps adjoining at an acute angle, wall C. This latter wall was built upon the rising surface of the bedrock just before a steep drop-off, but the precise direction and nature of this wall was not entirely certain from the limited exposure of this trench. Both walls D and C were covered with fine orange sand, L9d-[1] and L10c-[5, 7]. After a further accumulation of a

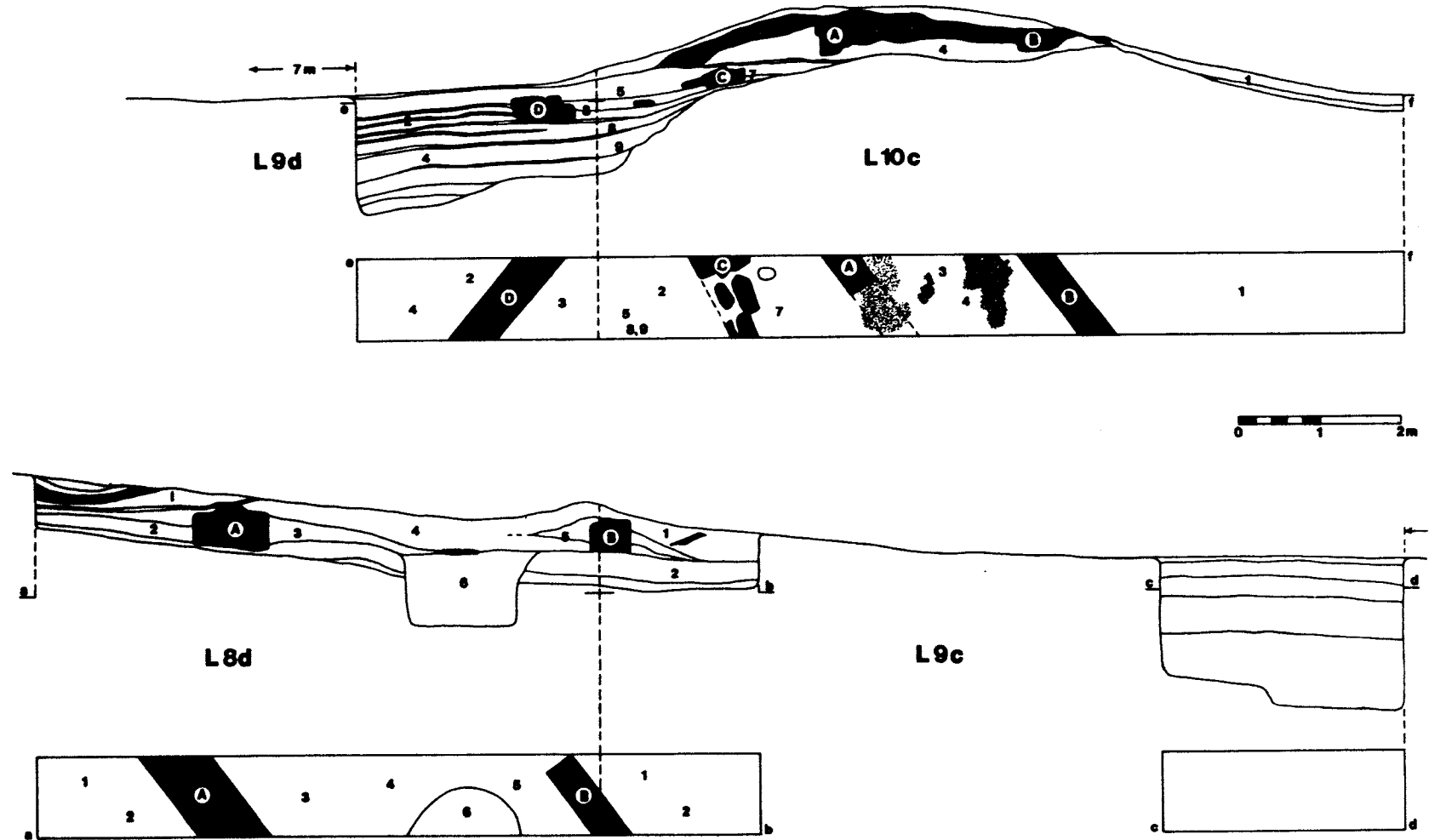
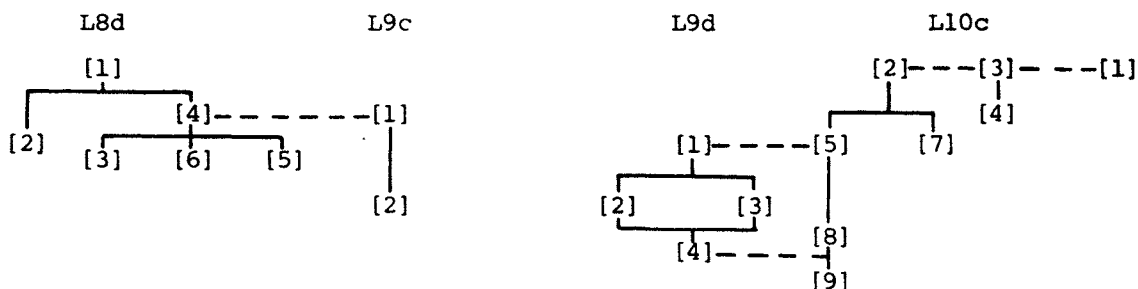


Plate 15: L8d-L9c-L9d-L10c



bricky, compressed sand, L10c-[4], a second building phase occurred along the ridge of the coral, walls A and B. These parallel walls were associated with ash and organic debris, including numerous matting fragments, mixed with brick fall (22 x 14 x 7 cm ), loci [2] and [3]. On the eastern side of the coral ridge was only a thin deposit of sand upon the bedrock, [1].

The stratigraphy for these trenches may be diagrammed thus:



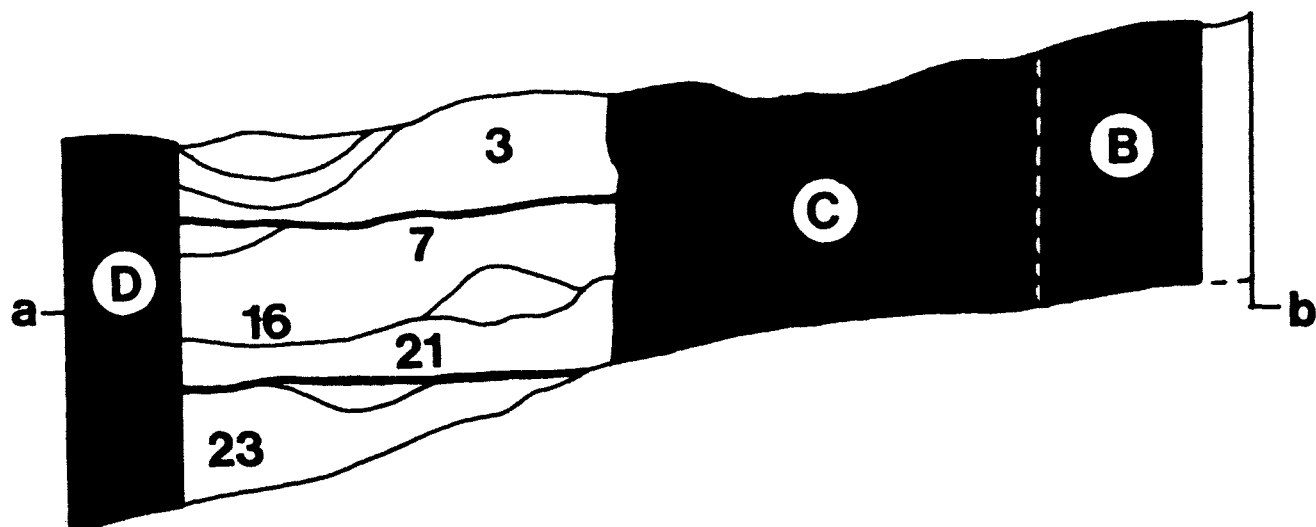
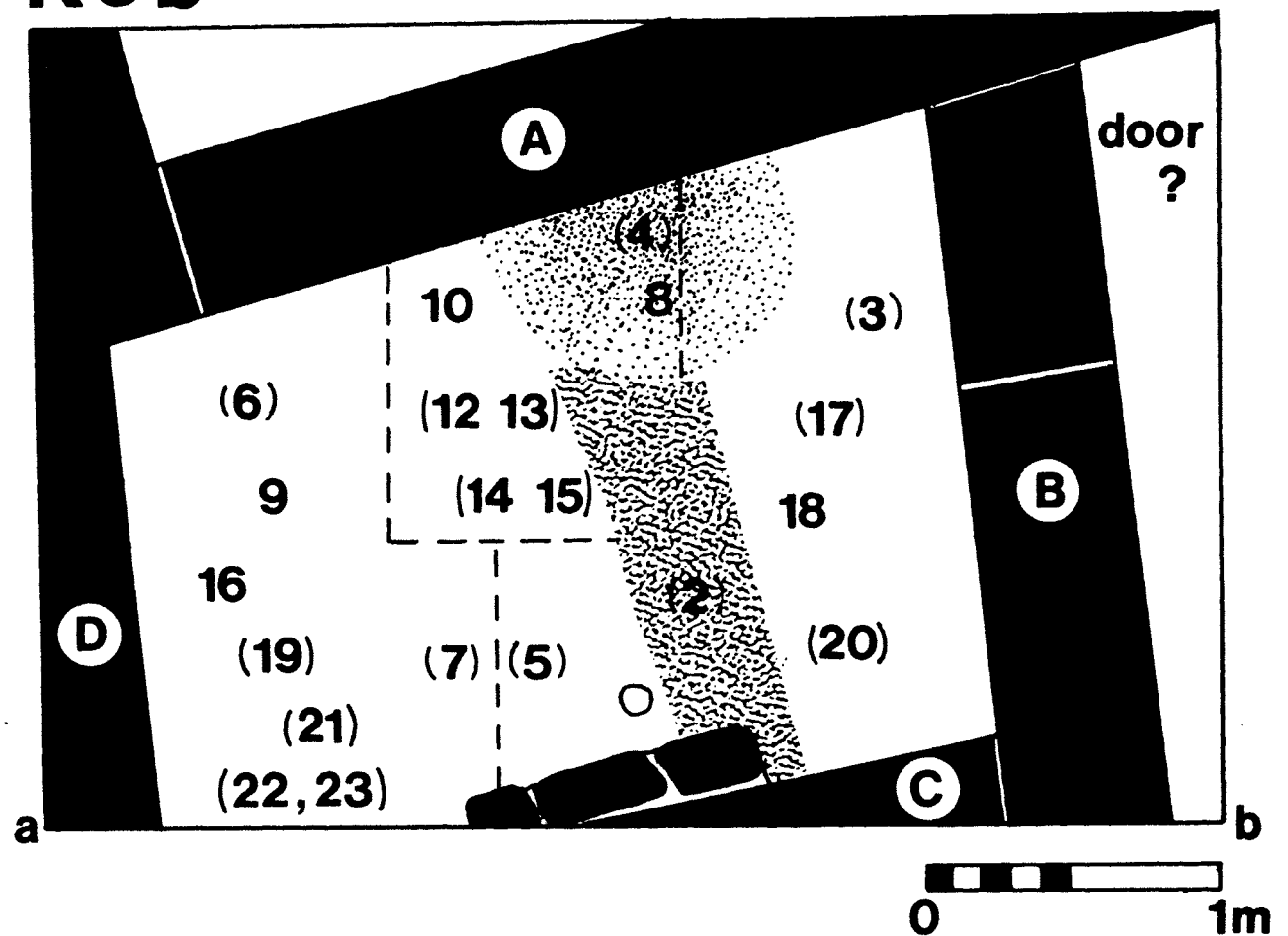
#### K9b

Trench K9b was situated as a small test on the southern edge of the site where numerous white limestone walls were visible on the surface. A rectangular trench was laid out over one room, as visible from the mound surface (3 x 4 m ), on the slope and associated with an elaborate complex of surface wall indications. The walls within K9b, A, B, C, D, describe a parallelogram, resulting from the adjoining of two different buildings; each of these walls was constructed on bedrock. See pl. 16.

The earliest utilization of the room was directly upon the bedrock [15] and [20], corresponding to [21] on the western side of the room where the slope of the rock necessitated a bricky fill to level the floor [23]. Indications of a hearth were found in the southwestern corner [22] associated with this floor level. A posthole was cut into the rock near wall C [11]. The debris on this floor contained many sherds and artifacts, above which was a layer of loose sandy soil with small black pebbles [14] and [19], not unlike some of the lenses in the make-up of the "island." Above this was a level of bricky collapse and fill [16], [10, 12, 13], and [18]. These materials gradually merged with higher levels composed too often of hardpan which made precise stratigraphy difficult (e.g., [7] and [5]).

An upper or second occupational phase is represented by a floor level [9] found throughout the room but best defined in the western half. Three stones against wall C seem to form a bench on this floor; on the opposite wall, A, was a hearth with several flat stones, fragments of a cooking pot, and bones [8]; locus [4] was

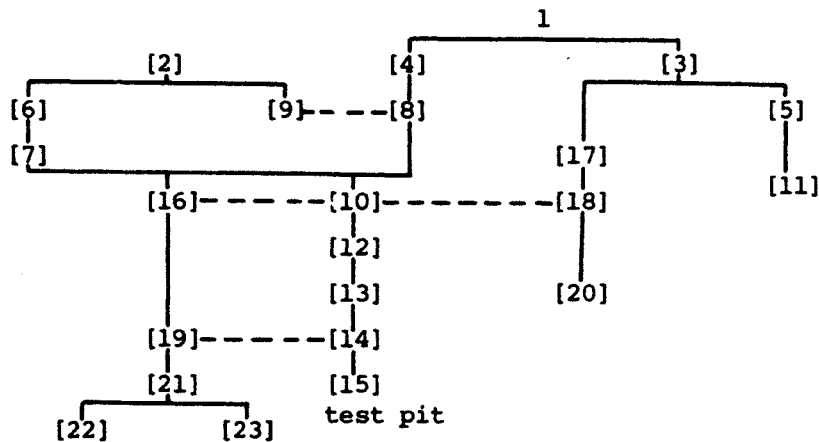
## K9b



an accumulation of wall fall over this hearth. The eastern half of the room may have been paved with brick at this level [3]. At the edge of this bricky area was a concentration of organic debris [2], mainly fragments of woven matting associated with wooden fragments of a frame. The matting might have covered the floor or have been part of the collapsed roof-fall; the possibility of either a bed or room partition cannot be discounted.

Two periods of occupation in this room are suggested in the construction of the walls. Walls A, C, and, especially, B indicate a rebuilding about 50 cm from the bedrock when the stones used are larger and less carefully laid. The northern portion of wall B seems to have been the doorway into the room during the second occupation [3], although the decomposition of the limestone near the surface makes this somewhat uncertain.

The stratigraphy for K9b may be summarized as follows:



#### P7-P8

This trench revealed remains of an architectural complex divisible into five separate sections, two running down the slope to the east and three positioned on the highest part, a natural north-south coral arm. See pl. 17. From what has been preserved, at least four of the five consist of combinations of open courtyards and closed rooms. The different sections are indicated by the different orientation of the walls; this is especially evident where a wall in one of the sections has been extended as a "party wall" for another, and the wall goes off at a different angle from all the other walls of the second section. Also preserved are what may be a street running north toward the main center of the town, P8a-[1], a street or alley running down the slope, P8a-[9], P8b-[1, 3, 10, 11], and a small passageway between two rooms within the southernmost of the three sections on top

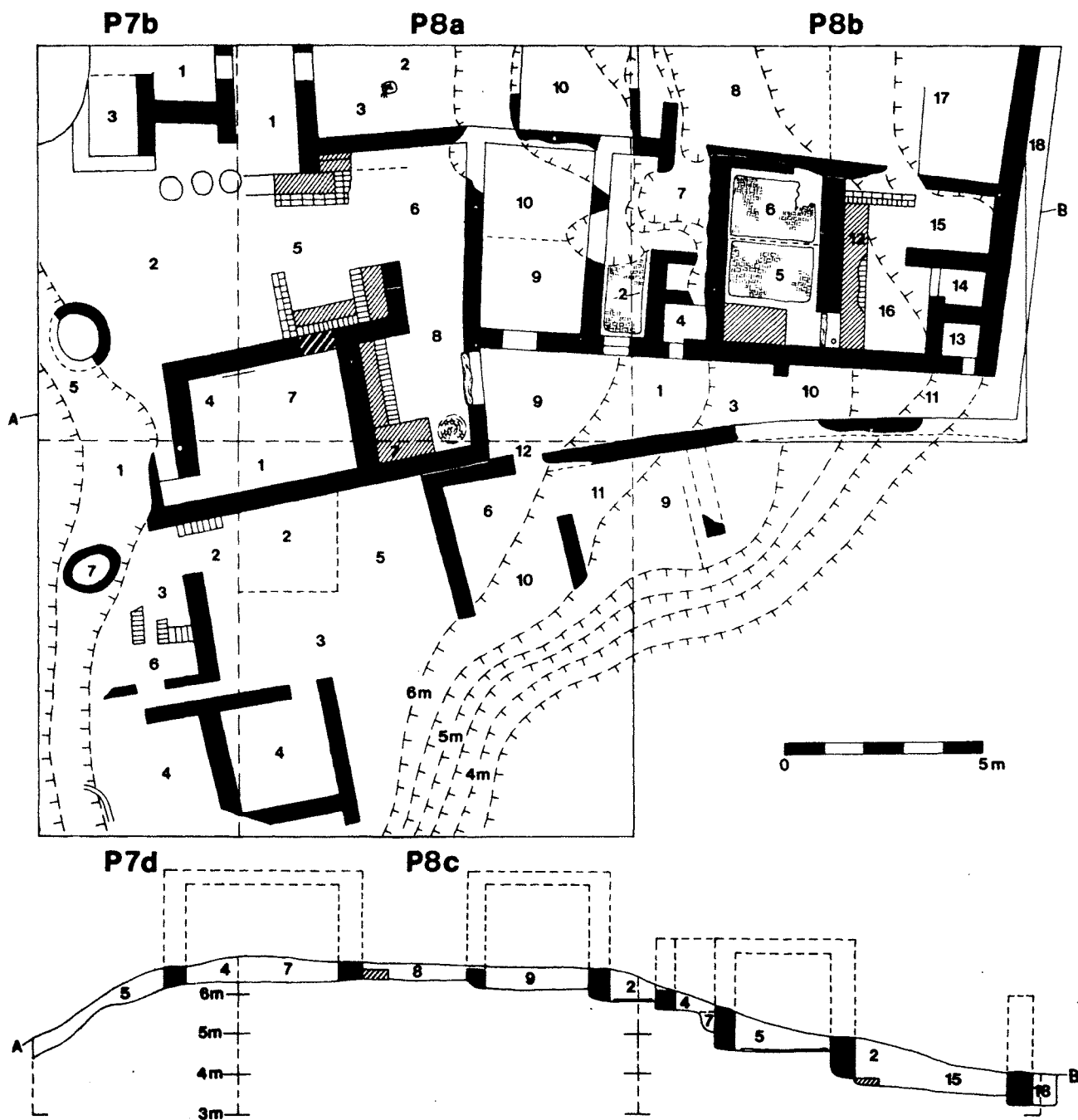


Plate 17: P7-P8

of the arm, P7d-[4, 6]. The best preserved and most clearly delineated of these five sections is the northern of the two running down the slope.

The western end of this complex is a large room, P8a-[9, 10], presumably entered from a doorway in the south wall, the room fill containing some rope, fiber, and matting, some brick and tree branches, with rock wall fall toward the north wall of the room. The northeast corner of this room is largely eroded away (all the Roman debris seemingly having been swept off the top of the arm and piled up against a wall, filling P8b-[7] and then plastered over to serve as a floor). East of the large room is a narrow room, P8b-[2] running north-south entered by a doorway from the alley with a wooden door socket set 25-30 cm above the bedrock (the foundation walls of the room being set on the bedrock). This room, preserved in the southern half only, was covered by a large mat fitted to the size of the room, set on bedrock and at a lower level than the door socket in the door. Just east of this room with the mat are two small rooms, the southern of which, P8b-[4], is entered from the alley by a door in its south wall. These small rooms, and especially this southern one, were full of trash, large amounts of charcoal on the west side, fiber, wood, but no matting. There is a small stone set vertically, partially blocking the door into this small room. While the small northern room was much cleaner, the southern room had lumps of charcoal as well as ash and a fire pit in the southwest corner, suggesting a possible kitchen. These four rooms, including the destroyed area P8b-[7], seem to constitute one unit which is closely paralleled to the east.

The westernmost room, P8b-[5, 6], of this second unit has a brick mastaba in the southwest corner; north of this mastaba are two large mats lying across and filling the floor space of the room. On these mats were found a cream ware water jug with filter neck and a small redware cup. There was brick and rock fall and some loose matting in the fill of this room. The west wall of this room has a good face to the east, the inside of the room, but a rough, unfinished face to the west, where it abuts the Roman trash, suggesting that it was built up against the trash (the trash in P8b-[7] being much more salted than that in surrounding loci). Room P8b-[5, 6] was entered through a door in the east wall with a preserved wooden threshold and door socket. This doorway connected the mastaba and mat room to another room, P8b-[15, 16], which has a brick wall or bench running along the west side. Because of the slope of the bedrock, this brick platform is lower than the door sill and socket. There is a small brick wall running east-west from the north end of this brick platform, before the remains of

the northern wall of the room. To the east of this room is a set of two small rooms, P8b-[13, 14], the southern of which has a blocked-up doorway in its south wall. The doorway to the northern room was also sealed, and the inner face of its walls was rough and uneven, perhaps indicating that this was a storeroom. The fill of these two small rooms was somewhat darker than the blown sand found elsewhere. The lower layers of the yard adjoining these two small rooms has more fiber in the fill. North of the two small rooms, this yard widens out. The area from the platform, P8b-[12] into P8b-[15], was filled with matting, rope, and fiber down to the floor. A structure very similar to these two units was found at Fustat (Scanlon, 1974: 87 and plan 1), called Fustaṭ (area) B: VI' 10, 14, 15 with room E, the sitting room, room F, the yard, and rooms C and C', two small rooms. This building is unusual for Fustaṭ and was called Fatimid in date because of a basin found in the yard.

The easternmost wall of the complex just discussed is a wide wall which continues north past P8b-[13, 14, 15] into N9c. This wall seems to have been an enclosure wall for a large courtyard and may have been a "quay" wall. To its east, P8b-[18], was a trash dump full of scraps of Arabic letters on a level with the *sabkha* of the proposed Roman harbor. Parallel to this wall, and north of the two house units just described, there are a series of plastered retaining walls, cut into the face of the bedrock and forming terraces up the slope. The uppermost of these walls delimited a courtyard on the top of the arm, which had a stout tether rope anchored in a hole with broken bricks (P8a-[3]). Each of these terraces was filled with wall fall, brick and stone, but otherwise relatively clean of fiber, artifacts, etc.; the areas abutting retaining walls held more trash than the middle of the courts. One might hypothesize a difference between outer courts with little matting, rope, fiber, but goodly amounts of wall fall, and indoor rooms with thick accumulations of matting (roof fall[?]) and more artifacts.

South of these two building units was a street or alley running up from "sea" level to the top of the arm. The doorways to the two small rooms, P8b-[4, 13], and the doors into room P8b-[2] and P8a-[9, 10] open off this passageway. The west end of the passageway, and the top section of the east end, were mostly rubble fill--fallen bricks and stones. In the east, a thick (ca. 30 cm) black fibrous layer with numerous sherds was under this rubble, P8b-[11]. Portions of the southern wall edging this passageway which were removed in medieval times were filled with clean, windblown sand. Thus the accumulation of trash must have occurred during occupation. There is a slight bend in the passageway, which

becomes wider near the top. There is a doorway with a wooden threshold in the northern end of the western (top) wall of this passageway. There is a break in the southern wall, P8c-[12], which may give entrance to the area south of the passageway.

This area, P8c-[6, 9, 10, 11], was very badly destroyed by erosion. The northwest corner of the area, P8c-[6], contained thick wall fall and perhaps some fallen roof plaster. A wooden peg was hammered into the bedrock in this corner. In the west half of the room, large bitumen covered sherds were found under the plaster, as well as fiber fill. There are traces of two north-south cross walls dividing this complex into rooms, although not enough is preserved to be certain.

The southern section of the top of the arm seems to be an open courtyard, P8c-[2, 3, 5]. Some charcoal and round matting were found along its northern wall but most of the deposit in the courtyard was shallow. In the southwest corner of the courtyard is a room entered by a door in the north wall, P8c-[4]; the room contained some loose fiber and matting in the fill, as well as traces of charcoal on the floor (bedrock). The courtyard is delimited on the west by a north-south wall approximately aligned with the west wall of room P8c-[4]. Beyond this wall were stubs of brick walls and a narrow passageway, P7d-[3, 6], in association with some matting. On the western edge of the arm was a stone-lined circular pit, P7d-[7], full of dark brown earth, fragments of carved and painted wooden bowl and lid (RN 415-416), blue glazes and redwares. The remains of another pit, or possibly a small retaining wall, were found north of this pit, P7b-[5].

The central section on the top of the arm consisted of several adjoined courtyards and a large room. Alignment of this complex agrees with that of the complex just described as opposed to the orientation of the two building units running down the slope to the east; whether this implies temporal differences rather than topographic adjustments remains uncertain. This area was approached through the doorway from the passageway leading up from "sea" level. Inside this doorway was a mastaba, plastered on the east side (bricks here and elsewhere measured 25-20 x 10 x 5 cm, falling within the range of "later" bricks from Fustat [Scanlon, 1965: 22]), facing eastward toward the passageway. The floor was covered with a thick accumulation of matting, both rectangular and circular mats being found in abundance, P8a-[8]. Under the matting was an oval-shaped layer of charcoal on bedrock. This heavy layer of matting, rope, and fiber was also characteristic of the main courtyard, P8a-[5, 6], with some of the matting

underlying the later brick additions in P8a-[5]. A yellow glazed bowl also came from this locus. This accumulation of matting and fiber continued west to the edge of the arm, P7b-[2], beneath which were three circles carved into bedrock, one of these pits containing a large rope ring. There is only one room in the complex, P7b-[4], P8a-[7], P8c-[1], entered by a doorway at the south end of the west wall and protected by a screen wall to the west. This room, in contrast to the external courtyard, contained almost no matting or fiber, little pottery, although many "pencils" made of twigs. A doorway at the eastern end of the north wall was blocked with stones, see fig. 8, and a mastaba and small brick wall were later built in front of this former doorway; see fig. 9. The periphery and interior of this large room were full of wall fall.



Figure 8: North from P8c

Running north out of this courtyard, P8a-[5], is what seems to be a corridor or street leading toward the central town to the north, P8a-[1]; see fig. 8. It is a straight, rectangular area with a few charcoal and ash traces near the surface and contained sherds of a turquoise glazed pot, sherds of which were also



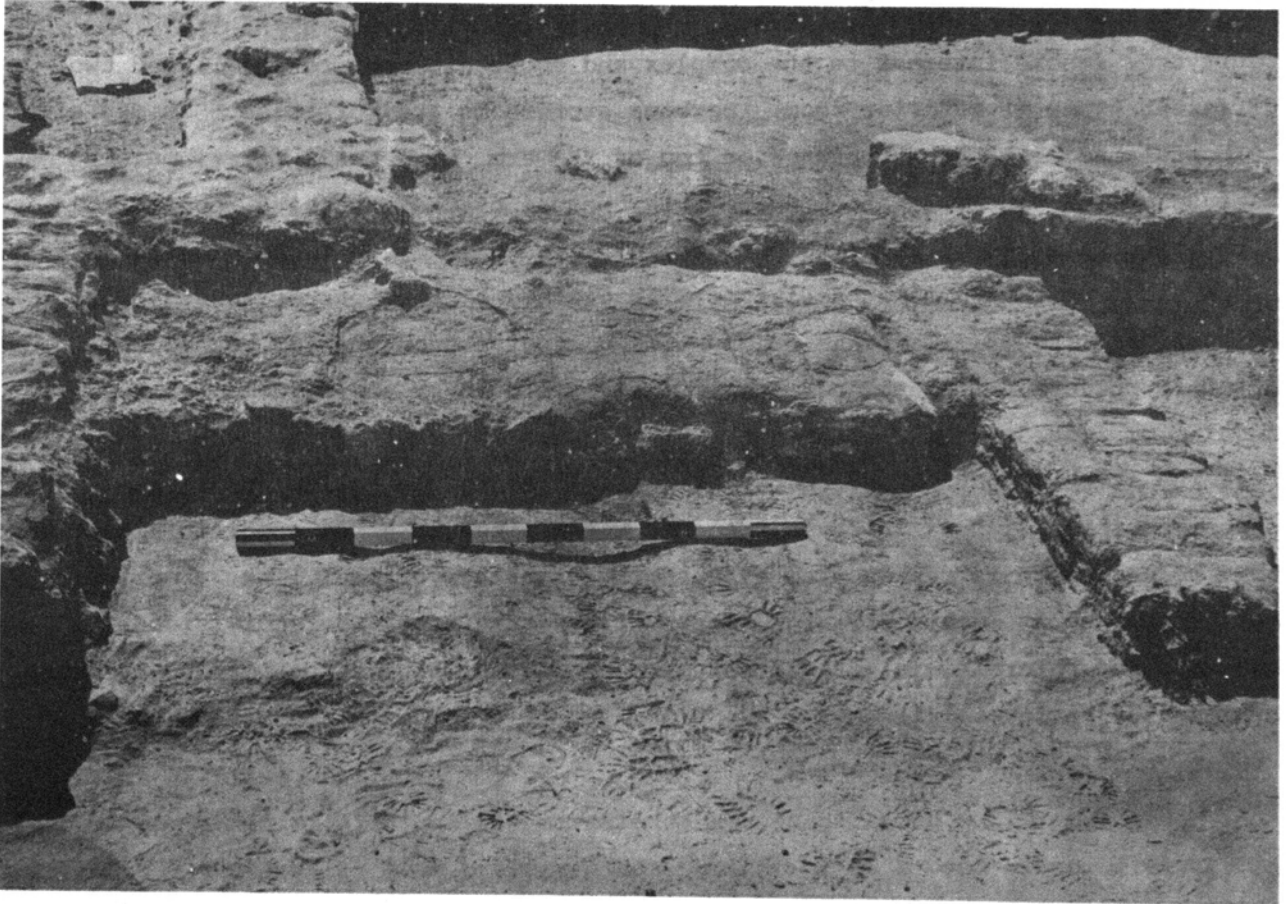


Figure 9: P8a Rebuilding

found in the courtyard P8a-[6]. The entrance to this corridor was partially blocked by a later mastaba (which partially overlays some of the matting of the courtyard). Doorways face onto this corridor from the east, P8a-[2, 3], and west, P7b-[1]. The former opens onto the courtyard with a tether rope described above while the latter door led into a shallow room filled with ash, similar to the fill in the corridor. A possible eastern doorway led into a second small room with a plastered floor, where only traces of the base of the southern and western walls were found. North and west of this small room was a large pit in which were found a few fired bricks. These northern limits of the excavated area are taken to be the edges of a separate architectural complex, left unexcavated due to time and staff limitations.

The suggestion was made that outdoor rooms had less matting than indoor ones in the two building units running down the slope to the east. The opposite would seem to be indicated in the central complex on the arm, where the large courtyard areas are thickly covered with matting while the obvious interior room had almost none. This would suggest the existence of two different types of courtyard (those internal to the complex and those external to it[?]) and two different types of interior room perhaps storerooms and workrooms. It may also be postulated that the structures on top of the arm were built first, partly because of the better location and partly because of the extensive rebuilding with brick walls and platforms found there. The building units running down the slope might have been later additions with different functions or with different occupational groups. Thus the original open courtyard on the top became an interior space and its approach confined to or closed by the street or alley running up from "sea" level.

The stratigraphy for P7-P8 may be represented in the following diagram. The superimposition of loci in these trenches was limited to a few specific situations; this relationship is represented by a short, slanting vertical line. Loci which may be grouped as identical, e.g. parts of the same room, where divisions occurred due to artificial grid lines, are connected between the various trenches by means of horizontal lines.

P8a	P8b	P8c	P7b	P7d
[1]			[5] - - - - -	[1]
[2] \ [3]			[1]	[7]
[4] \ [5]			[2]	[6]
[6]		[3]	[3]	[4]
[7] - - - - -		[1] - - - - -	[4] - - - - -	[3]
	[2]	[2] - - - - -		[2]
	[4]	[4] - - - - -		[5]
[8] - - - - -		[7]		
	[7]		P8b (continued)	
			[8]	
[9] - - - - -	[1] - - - - -	[12]	[10]	
[10]	[3]	[5]	[14]	
	[5, 6]	[6] \ [10]	[15]	
	[12] \ [16]	[11]	[11]	
	[13]	[9]	[17]	
	[8]		[18]	

### The Peripheral Areas

Islamic burials were encountered in the *sabkha* (in S11b and Q6a). There would seem to have been an Islamic cemetery on the eastern periphery where a small trench (A22d) was sunk to clarify the situation of a group of disturbed Mamlūk burials. In this trench were found what seem to be imported Syrian Mamluk blue and white glazed wares, East African(?) paddle-stamped wares, scraps of printed cloth of a type called "Fusṭaṭ" cloth, made in India and dated to the 12th-15th century, and a series of inscribed pieces of ostrich eggshell. These seem to contain spells and reflect the magical connotations of ostrich eggshell at this time. At the other extreme, a small trench of the western periphery (Q2b) tested the debris piled beneath the vertical face of the bedrock. This debris was Roman refuse with much vegetal material and a number of important diagnostic artifacts.

#### A22d

Trench A22d was placed on a sandy knoll on the furthestmost point of the northern edge of the bay, where scattered sherds on the surface allowed us to consider this point as part, or rather an extension, of the town. The trench was 5 x 5 m, placed next to a round hole dug by the University of Alexandria; the backdirt from this "excavation" revealed a few sherds, fragments of ostrich eggshell, and many human bones scattered on the surface. A Byzantine coin was also overlooked during this previous work.

The excavation of A22d quickly revealed a series of stone walls made of coral blocks; these walls were preserved to a height of .5 m and often barely one course (e.g., wall D); see pl. 18. The walls were laid on a dark yellow sand heavily mixed with pebbles, [3, 4, 5, 6], which soil was essentially uniform and distinguished only by the number of burials encountered. The outline of burial pits proved almost impossible to define. After excavation of over one meter in depth of this material and the ascertainment of the Muslim character of the burials, the excavation was abandoned, probably not far from the coral bedrock. Here as elsewhere in the excavations at Quseir al-Qadim (S11b, S12a), all human bones were replaced and reinterred after the excavation was complete. A total of seven individual burials was found in A22d; no burial goods were discovered other than the cloth wrappings on B6, which seems to have been a woman and child. All burials were laid out in an extended manner on the right side facing south-south-east, more or less in the direction of Mecca. The one exception to this rule was B1, who was buried with legs extended straight and, based on the orientation of

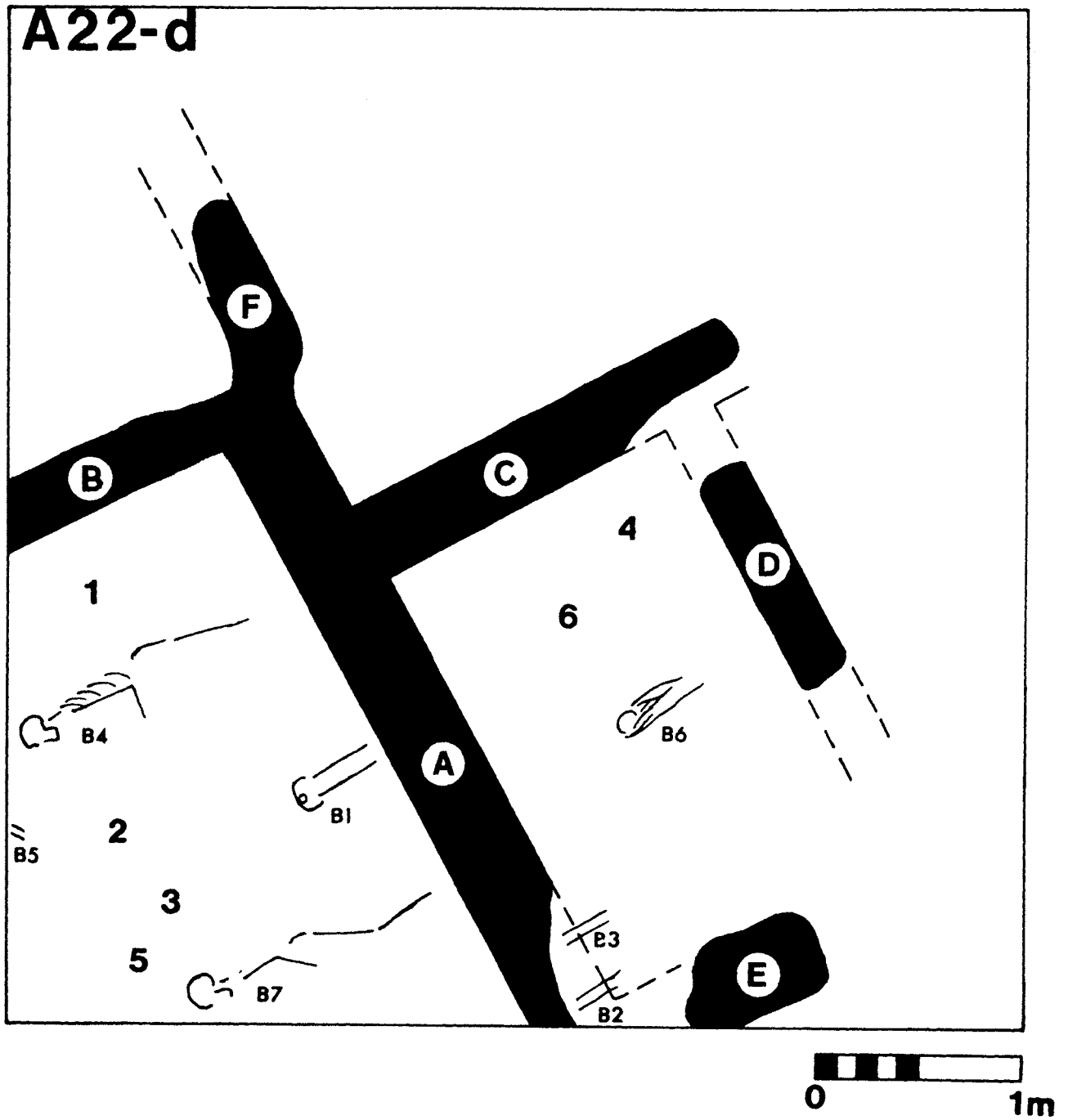
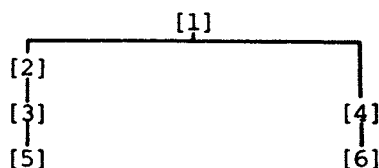


Plate 18: A22d

the pelvis, sitting in an upright position (presumably looking out to sea) The legs of this individual ran under the lowest course of wall A and the absence of all bones above the pelvis would suggest that they were removed during the construction and occupation of this building. It would appear likely that the burials antedate the building.

The most substantial walls uncovered were walls A, B, C, which seem to describe two rooms; other wall fragments, D, E, F, were somewhat uncertain due to the construction techniques and lack of preservation, as the trench slopes off to the north and east. The primary room was at the highest point defined by walls A and B; further walls of this structure were visible in the sides of the University of Alexandria's hole, located immediately south of this trench. The fill within this room [2] was a brownish soil with few sherds and pieces of ostrich eggshell. While no eggshell was found associated with the burials uncovered, it remains uncertain whether they were associated with the disturbed burials or with the superimposed building. The shells were most plentiful in [1], which was mainly backdirt from the previous digging. There was no indication of actual occupation of this structure (such as matting, ash, firepits), which again draws a question whether some sort of funerary building may be considered here. It should be noted that the funerary character of this area was realized by Burton who wrote "Arab tombs" on his map in the early nineteenth century (1822-23).

The stratification of this area is quite minimal; the excavations may be diagrammed thus:



Q2b

This trench was a small sondage to examine a specific surface feature, an intriguing pair of parallel walls set not more than 30 cm apart, against the vertical face of the bluff on the western edge of the site. These walls were placed at the point where the cliff face joins the scree of fallen debris, a steep slope down to the edge of the *sabkha* below. See pl. 19.

A section was first cleared in front of the pair of walls. Below the surface, which was composed of sherds and bone in a matrix of yellow soil and pebbles, the latter weathered out of the conglomerate of the cliff itself, was a thick layer of organic material (wood fragments, twigs, fibrous debris) [2], lying upon

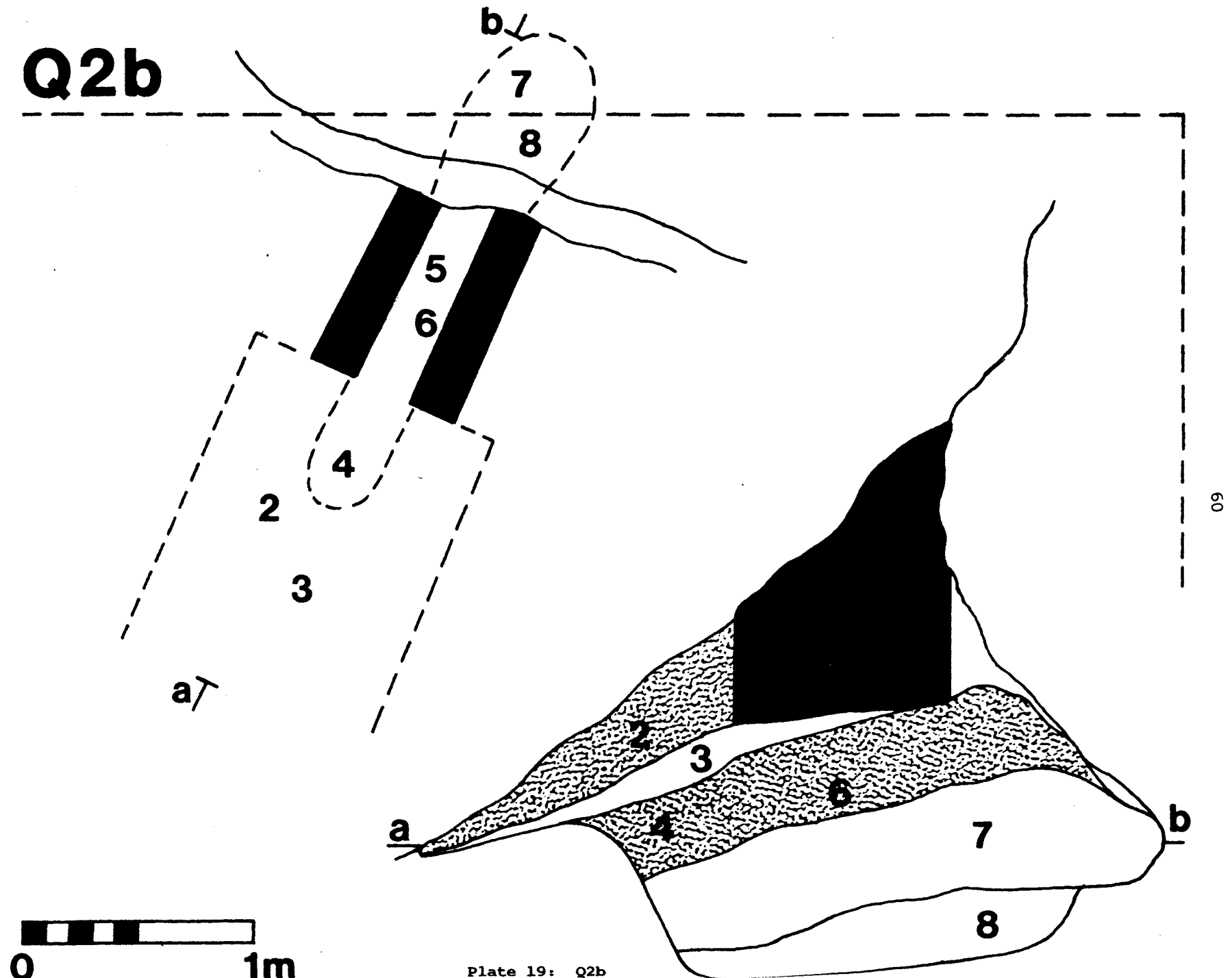
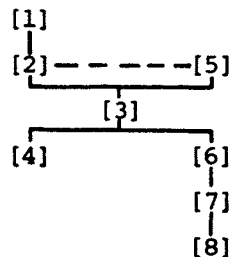
**Q2b**

Plate 19: Q2b

a hard-packed surface in front of and running under the walls. The area between the walls was filled with soft brown sand to this same level [3]. We then probed beneath the walls by means of a narrow slit trench which produced further layers of wood and fiber mixed with large sherds, [4] and [6]; these extended back beyond the walls to the face of the conglomerate which overhangs at this point. This organic debris had compacted leaving large hollow places against the rock face. This type of debris mixed with brown soft soil was below this and in turn overlay a layer of pebbles and pottery only [8]. At this point the danger of collapse of these soft layers and the dispatch of two snakes decided against further exploration.

An interpretation of the pair of walls is still elusive. The walls were placed against the rock after a considerable history of trash deposit, dumped over the edge of the rock face. Although further excavation along the cliff might produce other associated walls, the solution to their function may have existed above. It is possible that these walls functioned as a footing or support for a structure on the surface of the rock, of which, unfortunately, no trace remains.

The stratigraphy of Q2b may be diagrammed as follows:



Q6a and T5b

These trenches are two small test pits to determine the nature of the soil stratification within the *sabkha*, a prelude to a more extensive program seeking to examine the problem of siltation within the wadi and possible lagoon.

Q6a was the closer to the site and exhibited characteristics similar to the lowest excavation area of S11b. See fig. 10. The lowest layers reached were a very dense grey-yellow clay; above this a lighter clay and sand mixture. An upper layer of this soil was interrupted by a pit with human bones at the base, a burial which, like those in S11b, was associated with accumulations of ash and a hard, bright red fired area. A post hole was also found at this same level. A dark brown soil covered this cultural material.

T5b was a second test placed further out into the *sabkha*; see fig. 10. The *sabkha* in this area formed a thick salt crust which was broken when walked upon.

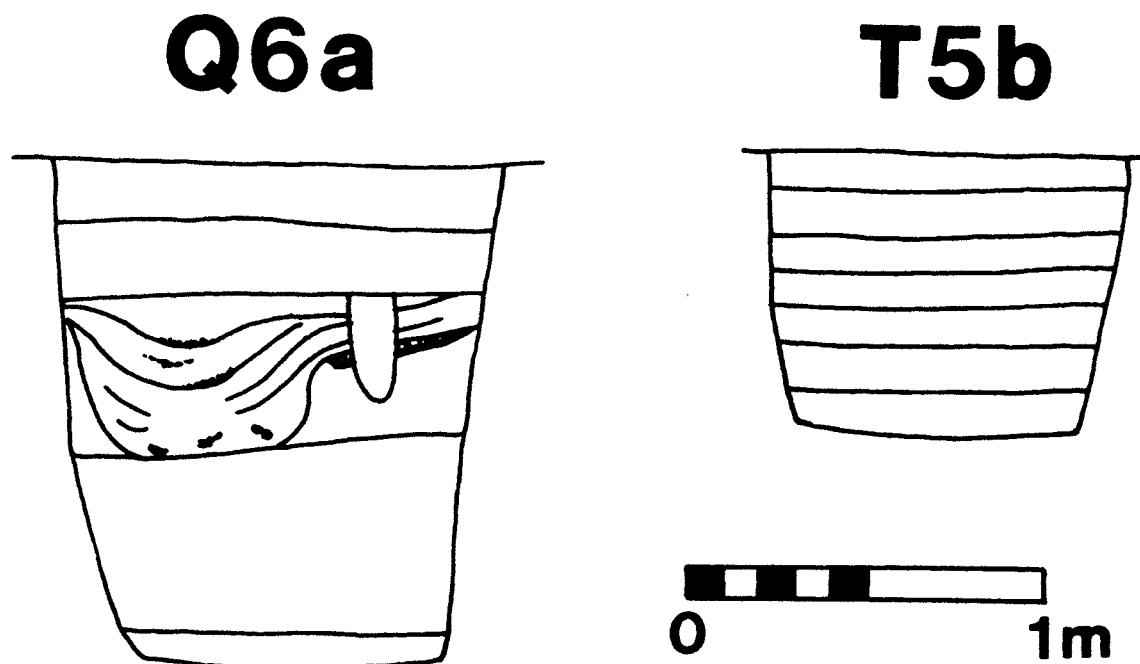


Figure 10: Q6a and T5b

Near the trench were very slight lines of mounding forming a rectangular pattern upon the *sabkha*. A few stones almost completely decomposed by the salt seemed associated with these mounds. The test pit T5b revealed nothing but sterile layers of salt-impregnated clay with thin sandy divisions about 10-12 cm apart. These uniform layers may imply a natural silting or may be interpreted as evidence of a saltern built upon these mud flats at some period before the modern causeway of the asphalt road cut the wadi off from periodic inundations of seawater.

#### Locus Periodization, Summary

C4c	all loci Roman
D4b	all loci Roman
B4a	all loci Roman
E6b-E7a	all loci Roman
F8d	1-4 mixed
	5-9 Roman



F9c	1-5, 8, 13-15 mixed
	6, 7, 9-12, 16-22 Roman
F10a	1-6, 11 mixed
	7-10, 12, 13 Roman
G8d	1, 2 mixed
G12a	1, 2 mixed
	3-5 Roman
S12a	1-3 Islamic
	4-5, 12-14 mixed
	6-11, 15-17 Roman
S12c	1-6 Islamic
	7-9 mixed
S11b	1, 2, 9, 10 mixed
	6-8 Islamic
	3-5 Roman
L8d	all loci Islamic
L9c, 9d	all loci mixed
L10c	1-7 Islamic
	8, 9 Islamic or mixed
K9b	all loci Islamic
P7-P8	all loci Islamic, mixed exceptions are P8a-10
	P8b-4, 7, 8, 17
	P7b-5
	P7d-1
A22d	all loci Islamic
Q2b	all loci Roman

#### General Conclusions

We can now conclude that this small port was laid out as a unit but soon began to shrink in size. The occupation lasted from perhaps early in the first century A.D. into the third century. All datable evidence (pottery, glass, coins, ostraca) confirms a first and second century occupation. These dates include the active period of trade between the Roman Empire and India attested in written documents. Both Greek and Egyptian speaking Egyptians seem to have lived there, and they had contact with people in the Arabian peninsula and India; indeed, there may even have been a small Indian colony living at the site. Note also that a Nabataean graffito was found during the regional survey, perhaps indicating the

presence of Nabataean traders at Quseir. Artificial efforts to maintain the harbor facilities seem to have been undertaken. Nevertheless, perhaps early in the third century, Quseir al-Qadim was abandoned. It was not until approximately 1000 years later that it was selected as a small trading center by the Mamlūks, for trade with the east--East Africa and India, and through the latter with the Far East. Although the Mamlūk occupation of the site may have been small and short-lived, it has left evidence of its organization (reuse of the large central Roman buildings, house structures near the harbor), its extensive overseas trade connections (East African, Indian, and Chinese imports), and a corpus of written materials which could reveal a vast amount of detail about the town and its times.

Thus the first season of work in and near Quseir al-Qadim has provided evidence of trade and daily life of a small port during the two periods of most intensive economic activity on the Red Sea. It has provided direct confirmation of assumed trade patterns (to India, East Africa) and trade goods (e.g., glass, cloth), and it produced the first evidence for the spatial organization of such a small Red Sea port. The wealth of material preserved because of the extreme dryness of the site has produced a large corpus of material, much of it of types which have been little studied and will therefore help in the clarification of the social, economic, and political patterns and constraints involving such a port.

#### Appendix: Statistics

Janet H. Johnson

A nonrandom sample of one per cent of the entire non-disturbed surface of the site was sampled by collecting all pottery and other artifacts from the northwest 1 x 1 m of each 20 x 20 m square. The site was then divided into 13 artificial areas: 1) AA,C-2,5; 2) A,C-6,9; 3) B,F-10,13; 4) D,F-5,9; 5) G,K-4,9; 6) G,K-10,13; 7) H,M-14,17; 8) L,T-12,13 and S10; 9) L,Q-3,5; 10) L,Q-6,8; 11) B,E-15,19; 12) A,E-20,23; 13) F,H-17,21. For each of these 13 groups, the number of different types of pottery and the percentage of the whole which each represented were computed. Two different correlations were then calculated: Jaccard's correlation of the similarity coefficient between each two of the 13 groups [ $C_{ij} = a_{ij}/(a_{ij} + b_{ij})$  where  $a$  = pairs of attributes present in both groups and  $b$  = those present in only one group, not the other] and the Brainerd-Robinson coefficient of the percentage of similarity between each two groups [ $D_{ij} = (P_{ia} - P_{ja})/200$  when  $P_{ia}$  = % of a given category and the closer  $D$  approaches 0, the more nearly identical the two groups are] (Wenke, 1975-76). Having isolated 20 types of pottery, we had 20 calculations for each group, one

Jaccard correlation and 19 Brainerd-Robinson figures. For each group each of these 20 figures was compared with each of the other groups to determine with which it was most similar and with which it was least similar. Then the similarities and differences for each group were compared, and it was determined with which other group or groups each individual group patterned most closely, and least closely. On the basis of this patterning, three, or four, groups of groups were discerned: A) groups 1, 2, 5, 6, 7, and 9 (the far northwest corner of the site, the southwestern peninsula, and the swath across the center of the site); B) groups 11, 12, and 13 (the eastern part of the site); C) groups 8 and 10 (the area surrounding the presumed Roman harbor); and D) groups 3 and 4 (the area between the northwest corner and the swath through the center of the site).

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## CHAPTER 3: POTTERY

The ware, slip, and glaze descriptions given on the plates correspond approximately to the following Munsell color chart numbers:

wares: fine red--10 R 5/6 to 6/8; fine light red--7.5 YR 6/6; fine orange/fine red, burnished red slip--10 R 4/8; red or brown sandy or grit--10 R 6/6; red straw--10 R 5/6; red-brown--10 R 6/4; brown--10 R 5/4; grey brown--5 Y 7/2; fine grey--7.5 YR 7/2; dark grey--7.5 YR N4; cream--10 YR 7/4.

slips: red--10 R 4/4; orange--10 R 5/6; red-brown--5 R 6/6; cream--10 YR 7/4; grey exterior--10 YR 5/1 to 6/3.

paints: red--2.5 YR 6/6 to 7.5 YR 4/6; black--2.5 YR N3.

glazes: cream--5 Y 8/4; yellow--5 Y 8/6; yellow-green--5 Y 6/6; green 5 GY 7/1 to 5 G 5/2; dark green--5 G 6/2; purple grey--5 R 4/3.

## Roman Pottery

W. Raymond Johnson

The Roman period pottery from Quseir al-Qadim ranges in date from the latter part of the first century B.C. to the close of the third century A.D. However, the bulk of the recovered material comes from the first century A.D., the period of the trading station's most intensive activity. The pottery recovered is, as was to be expected, quite diverse, varying from basic, coarse utility wares to very fine early *terra sigillata* wares, found in abundance throughout the site. Identifiable are simple-form Arretine and Pergameme wares (especially from C4c, E6b, and E7a), some with maker's stamps (34:c-k), but with practically no appliqué decoration. Found in the same first century A.D. context are numerous examples of thin-walled brittle wares (26:e, g; 28:f; 32:j), among which should be noted a few examples of imitation Barbotine ware, probably locally produced in the Nile valley (22[bottom]:a; 23:f; 24:c; 31:a; 32:a). Thin glazed wares with appliqué decoration appear occasionally; small plain dishes of molded faience are common (20:l-n; 22[top]:j; 23:g; 24:e; 26:i; 30[top]:e, n, p; 33:m). One very elaborate example was found (29:i-k).

Utility wares are plentiful. Cooking pots, pans, and kettles of varying fabrics, with and without handles and usually flat-bottomed, are the commonest. Interestingly enough, more than a few finely-made examples of reddish grey gritty paste appear to have had their origin in first-century south India (Wheeler, 1946) (22[top]:a, c; 22[bottom]:d; 23:b; 24:f, h, l; 25:o, s; 27:e, j; 28:o, r; 29:a, c; 31:j-l; 33:a, d), although most of the cooking wares and common tablewares are known Greco-Roman forms originating in either the Nile valley or the Mediterranean area.

Storage jars, and more specifically wine and oil amphorae of differing fabrics, make up the bulk of the pottery found. Commonest was a variety of tall, red-brown, neck-handled amphora also found in the Nile valley which probably originated there (21:z; 22[top]:e; 23:q; 25:p; 28:k; 29:m, q; 30[top]:m; 30[bottom]:b; 31:f; 32:m, o-q). Next most common are the squatter, neck-to-shoulder, often double-handled amphorae of gritty cream to red paste brought in from the Mediterranean (24:h, l; 25:o; 28:m; 30[top]:l; 30[bottom]:j; 32:r) in company with less common (at Quseir) Mediterranean amphorae of distinctive forms such as the wide-mouthed barrel amphorae found in great numbers at Ostia and Pompeii (27:j; 29:r) and the bulging, horn-handled amphorae of Koan and Rhodian type (27:f). Found in association with these amphorae, and of special interest, were a number of plaster amphora plugs reinforced with sherds and often stamped with the owner's, or distributor's, name and logo; most, unfortunately, poorly preserved (see further in chapter 8).

Specialized water jars were found in the form of barrel bottles (22[bottom]:f; 24:k; 32:l) and large, barrel-shaped pilgrim flasks (28:l, n; 29:n; 33:e), both usually of reddish sandy fabric. Of special note is an almost complete mortaria (33:r) with an elegant pouring spout, the only vessel of its kind found on the site.

Surprisingly few lamps were recovered; those that were ranged from fine first-century molded light red ware lamps from Italy (35:b-d) to the coarser local frog lamps (35:m) and other later types from the third century.

#### Locus Summaries

C4c-4. Arretine parallels from mid first century A.D. (For C4c-4, a, see Wheeler, 1946: fig. 6:23; b, *ibid.*: fig. 5:8; d, *ibid.*: fig. 6:30; i, *ibid.*: fig. 6:27.)

C4c-9-10. Contains Pergamene, terra sigillata, and "Indian" wares from the first century A.D. (For C4c-9, h, see Wheeler, 1946: fig. 21:25b; for C4c-10, b, see Waage, 1948: pl. IV, # 405f; c, see *ibid.*: Pl. IV, # 151f [possible late first century B.C.]; x, see Wheeler, 1946: fig. 19, 20:24.)

B4a-2. "Indian" ware parallels from the first century A.D. (For B4a-2, a, see Wheeler, 1946: fig. 19, 20:24; c, *ibid.*: 24:47, 53c.)

B4a-4. Contains "Indian" ware parallels from the first century A.D. and first to second century (or slightly later) amphorae parallels. (For B4a-4, b, see Wheeler, 1946: fig. 15:6a; k, see Baldacci, 1972: p. 74, fig. 3, # 4 [first century A.D.] and pp. 87-88 [Ostia, Tipasa, second century A.D.]; m, *ibid.*: p. 244, fig. 1, p. 245, fig. 2 [bottom right] [Syracuse, terminus post quem early third century A.D.]; o, see Holscher, 1954: pl. 48, G'1 [first to fourth century A.D.] )

- B4a-5. "Indian" ware parallel from first century A.D. (For B4a-5, d, see Wheeler, 1946: fig. 19, 20:24.)
- E6b-4. Amphora and "Indian" ware parallels from first century A.D. (For E6b-4, f, see Wheeler, 1946: fig. 31:87; h and l, *ibid.*: fig. 9:48 [early first century A.D.] )
- E6b-5. Arretine, "Indian" ware, and amphorae parallels from first century A.D. (For E6b-5, i, see Wheeler, 1946: fig. 8:41 [mid first century A.D.]; o, *ibid.*: fig. 9:48 [early first century A.D.]; s, *ibid.*: fig. 19, 20:24; t, *ibid.*: fig. 9:61 [early first century A.D.], and Grace, 1961: fig. 60.)
- E7a-9. An "Indian" ware parallel datable before the mid first century A.D. (For E7a-9, e, see Humphrey, 1976: fig. 12, p. 81, A63, a related form and ware, deeper lip, unpainted, "Italian[?]" ; Cairo Museum # 49683, 49682, two cruder, later versions of the interior painting; Ballardini, 1964: fig. 213, p. 162, another cruder, later version of the same motif [fourth century]; E7a-9, j, see Wheeler, 1946: fig. 9:47.)
- E7a-10. Parallels, including Pergameme and "Indian" wares, date from first century B.C. to first century A.D. although one amphora type is paralleled by an example from Ostia dating from the second quarter of the third century A.D. (For E7a-10, f, see Waage, 1948: pl. IV, # 132k [possible first century B.C.]; k, see Humphrey, 1976: fig. 12, p. 81, A67 [Koan/Knidian ware], and Robinson, 1959: pl. 1. 64; F.29-32 [first century B.C.-early first century A.D.]; e, see Wheeler, 1946: fig. 30:76, fig. 33:97 [first century A.D.]; i, see Baldacci, 1972: fig. 69, p. 100 [Ostia, found with pottery plug].)
- F9c-6. "Indian" ware parallel from first century A.D. (For F9c-6, e, see Wheeler, 1946: fig. 21:25m].)
- F9c-7. An "Indian" ware parallel from the first century A.D., and an amphora parallel from the first to third century A.D. (For F9c-7, m, see Grace, 1961: fig. 60 [first to third century A.D.], and Wheeler, 1946: fig. 9:46 [before the mid first century A.D.]; r, *ibid.*: fig. 15:6a.)
- F9c-10. An amphora parallel dated before the mid first century A.D. (For F9c-10, o, see Wheeler, 1946: fig. 9:47.)
- F9c-20. An Arretine parallel from the mid first century A.D., and a Pergameme parallel possibly from the first century B.C. (For F9c-20, d, see Waage, 1948: pl. IV, # 132k [possible first century B.C.]; h, see Wheeler, 1946: fig. 8:42.)
- F10a-2. An amphora parallel from the third quarter of the first century A.D. (For F10a-2, r, see Grace: 1961: fig. 32 [Pompeii], Baldacci, 1972: fig. 17, p. 81.)

F10a-3. "Indian" ware parallels from the first century A.D. (For F10a-3, a, see Wheeler, 1946: fig. 21:25b(89); c, *ibid.*: fig. 19, 20:24.)

G12a-4. First century A.D. amphorae and storage jar parallels. (For G12a-4, d, see E7a9-h; j, see E6b-5 t.)

S11b-3. First century "Indian" ware parallels. (For S11b-3, j, see Wheeler, 1946: fig. 19, 20:24; k, *ibid.*: fig. 21:25r; l, *ibid.*: fig. 32:93.)

S12a-11. Amphora parallel to one in early first century A.D. context. (For S12a-11, m, see E6b-5, p.)

Q2b-7. A mortaria with parallels ranging from late first century B.C. to first to third century A.D., and a tableware with first to second century A.D. parallel. (For Q2b-7, q, see Humphrey, 1976: fig. 17, p. 105, D16; r, see Robinson, 1959: p. 19, pl. 2, F90 [late first century B.C.] and Frost, 1969.)

Q2b-8. Arretine and "Indian" ware parallels from first century A.D. (For Q2b-8, a, see Wheeler, 1946: fig. 6:31 [mid first century A.D.]; d, *ibid.*: fig. 12:1h.) Stamped wares have parallels from the first century B.C. (For C4c-5, c, see Iliffe, 1938: p. 43, A. SESTIVS, Arretine, Oxé, 1968: p. 426; D4b-1, d, see Oxé, 1968: p. 186, # 634, possibly EPIΦONUS], Arretine; D4bsurf, e, see Iliffe, 1938: p. 38, Samian, copy of Arretine, Oxé, 1968: p. 282; C4c-2, h, see Iliffe, 1938: p. 29, Samian; E7a-10, k, Oxé, 1968: p. 230, imitation of Arretine IVCVNDVS.)

Lamps. The Italian imports have parallels from the first century B.C. to the first century A.D.; the local Nile valley lamps have third century A.D. parallels. (For D4b-1, c, see Perlzweig, 1961: pl. 2, # 36, spout with volutes [early first century A.D.]; F8d-3, b, *ibid.*: pl. 2, # 21, 22, 24, finger-holes with remains of handle shields [first century B.C. to first century A.D.]; C4c-2, d, Deneauve, 1969: pl. XXXV-XLI, Type IV-A, p. 107ff. [reign of Augustus, Claudius], triangular nose ornamented with volutes, Corinth, type XXII, Tarsus, group XII, Maurétanie Tingitane, type II, 1, Vindonissa, types I, IA, IB, Dressel-Lamboglia, types 9A, 9B, 9C; C4c-7, 1, see Petrie, 1905: pl. LXIV, # E30, E31; D10surf, m, *ibid.*: pl. LXIII, # F4, F51; F8d-7, k, *ibid.*: pl. LXVII, # B34.)

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a	C4c-4	RN 220	fine red, dense, fine polished red slip interior, exterior, Arretine
b	"	"	"
c	"	"	"
d	"	"	"
e	"	"	fine red, dense, fine polished red slip interior, exterior, possible Arretine
f	"	"	fine red, dense, fine polished red slip interior, exterior
g	"	"	fine red, dense, fine polished red slip interior, exterior, Arretine
h	"	"	fine red, dense, fine polished red slip interior, exterior
i	"	"	fine light red, polished red slip interior, exterior, much eroded interior, Arretine
j	"	"	fine orange, polished red slip exterior, eroded interior, possible Pergameme
k	"	"	fine red, dense, fine polished red slip interior, exterior, possible Arretine
l	"	"	faience, blue glaze
m	"	"	"
n	"	"	"
o	"	"	fine light brown, black exterior

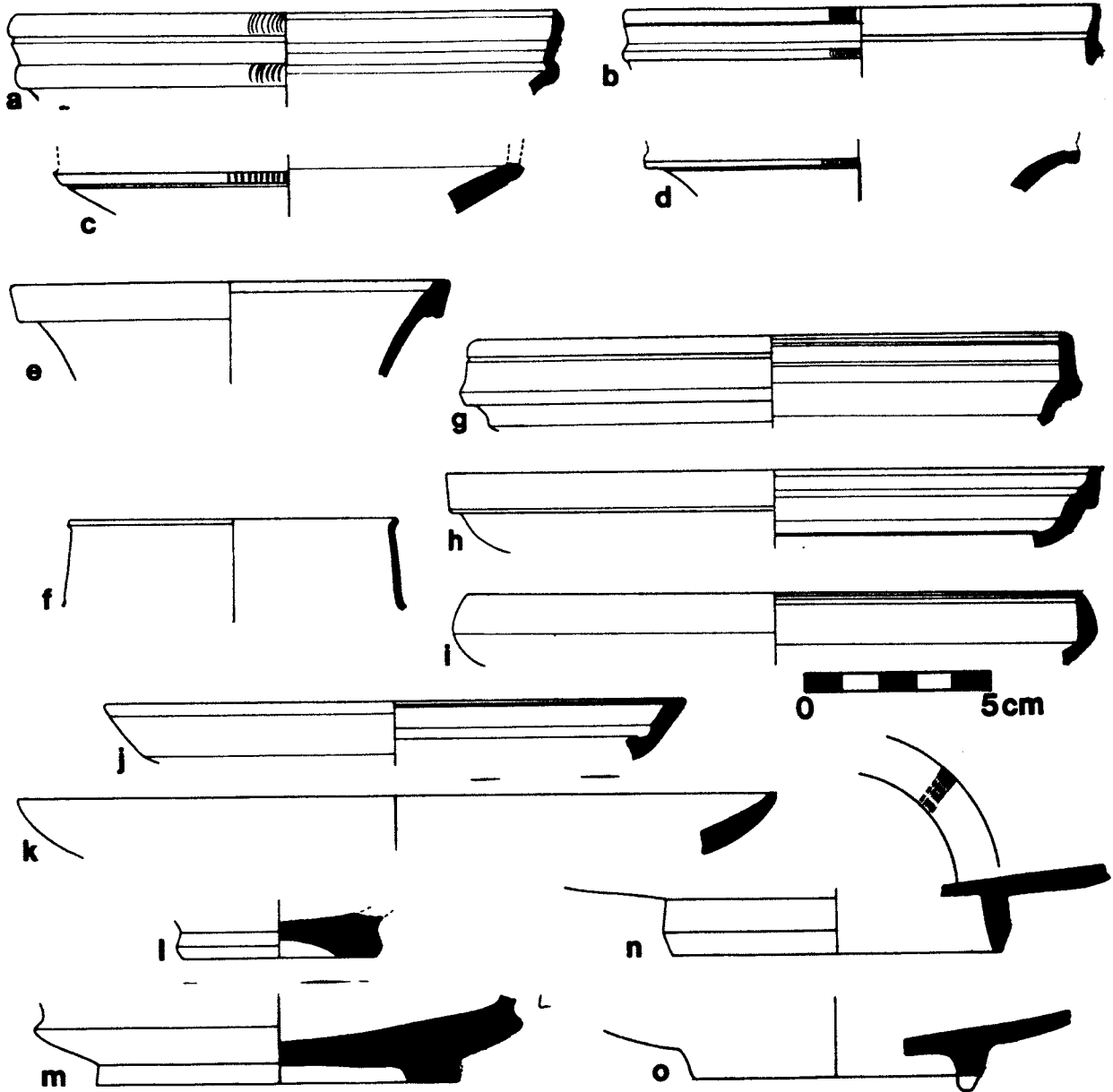
**C4c-4**

Plate 20: C4c-4

a	C4c-10	RN 216	fine orange, fine polished red slip interior, exterior, possible Pergameme
b	"	"	fine orange, fine polished red slip, Pergameme
c	"	"	fine orange, polished red slip interior, exterior, Pergameme
d	C4c-9	RN 215	fine orange, polished red slip interior, exterior, eroded, possible Pergameme
e	C4c-10	RN 216	fine brown, tiny pits, brown slip exterior, wheel marks exterior
f	C4c-9	RN 215	fine red, dense, fine polished red slip interior, exterior, possible Arretine
g	"	"	fine red, dense, fine polished red slip interior, exterior, Arretine
h	"	"	fine red, dense, eroded
i	"	"	fine red, dense, fine polished red slip interior, exterior
j	C4c-10	RN 216	brown straw, smoothed interior, exterior
k	"	"	fine orange, polished red slip interior, exterior, eroded, raised relief exterior, possible Pergameme
l	"	"	fine cream, black grit, blue-green glaze interior, exterior
m	"	"	fine red, dense, fine polished red slip interior, exterior, possible Arretine
n	"	"	"
o	"	"	"
p	"	"	"
q	C4c-9	RN 215	"
r	"	"	"
s	C4c-10	RN 216	red sandy
t	"	"	fine red, fine polished red slip
u	"	"	fine red
v	"	"	fine brown, eroded interior, exterior
w	"	"	brown sandy, grey interior, exterior
x	"	"	brown sandy
y	"	"	light brown sandy, cream slip
z	"	"	fine brown
aa	"	"	fine red, traces plaster interior, exterior blackened

75

C4c-9-10

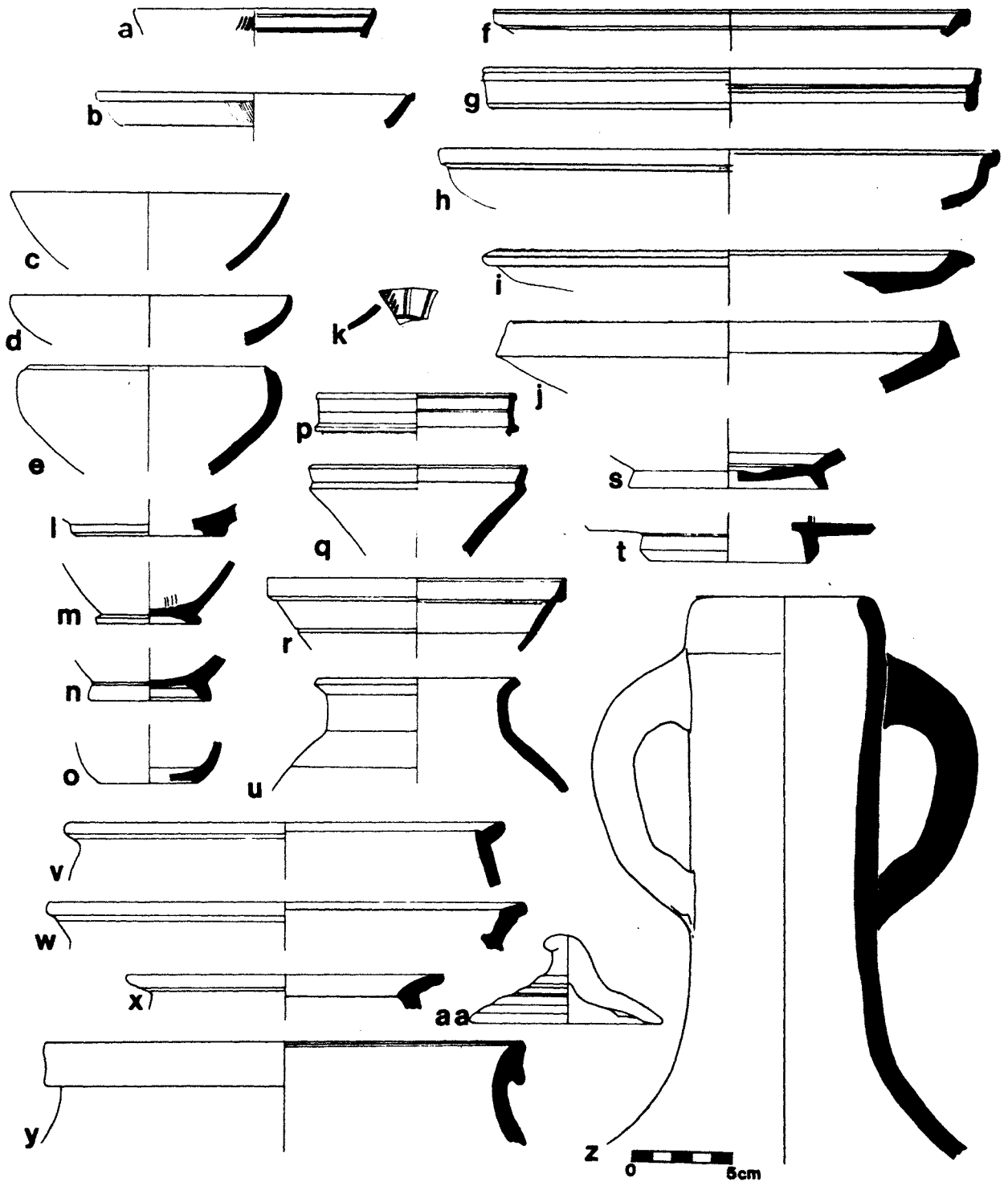
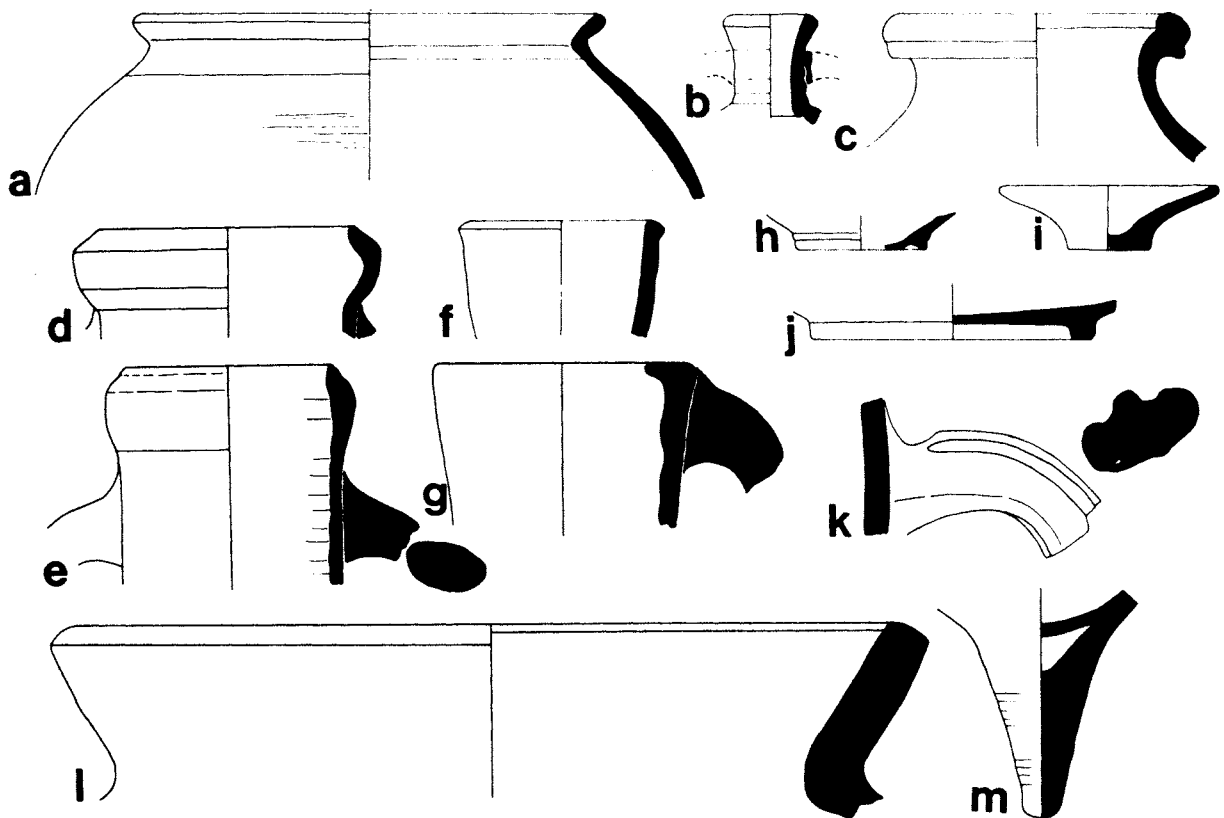
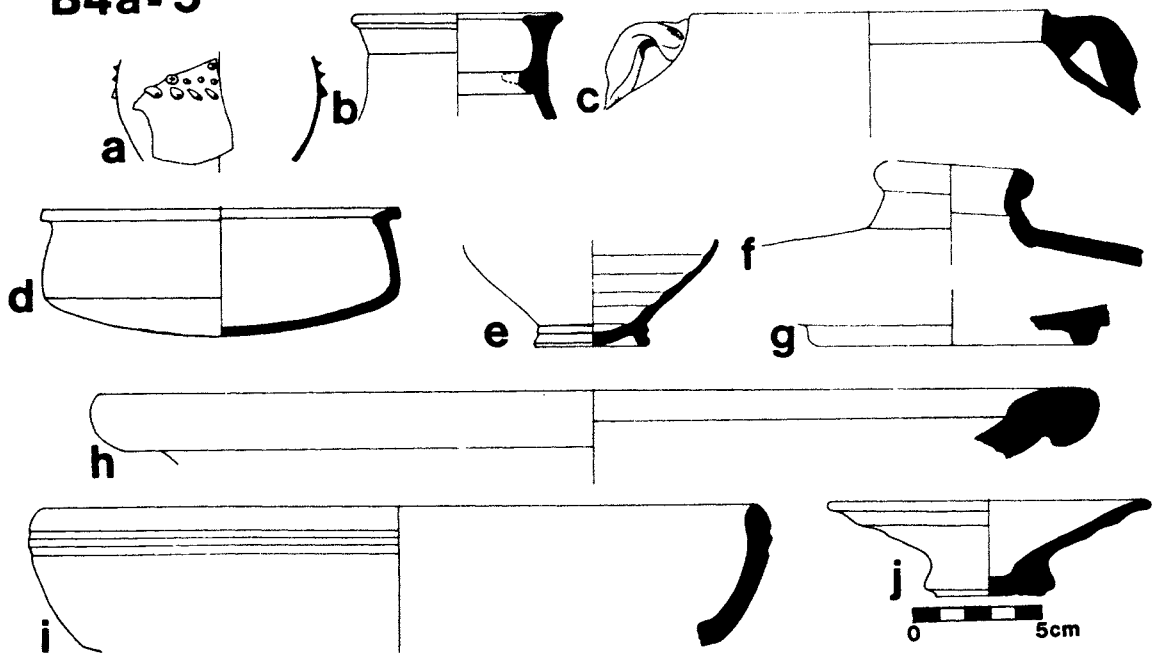


Plate 21: C4c-9-10

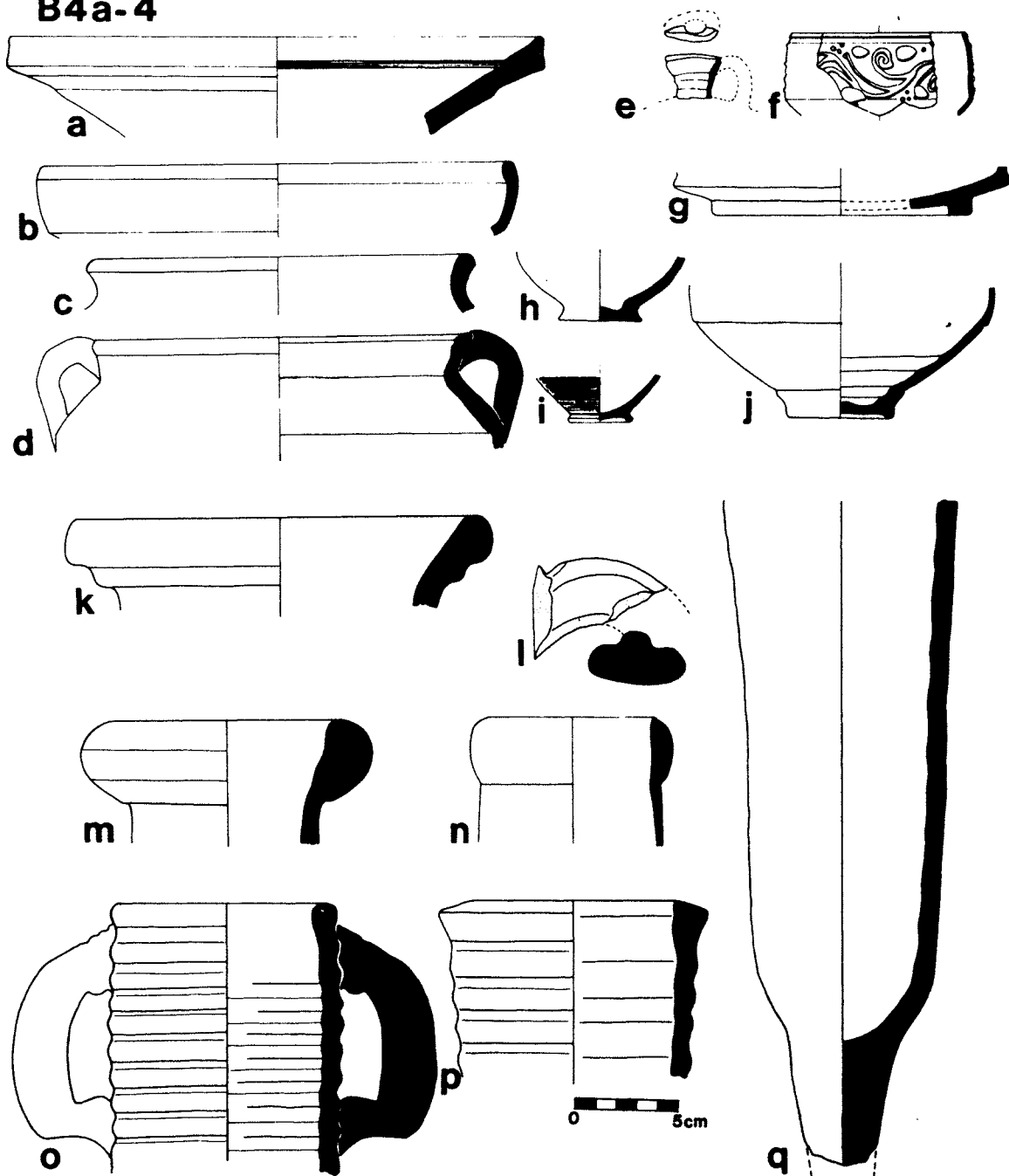
a	B4a-2	RN 208	red sandy, wheel marks interior and exterior, interior and exterior lip covered with thick bitumen
b	"	"	fine red, cream slip(?)
c	"	"	red sandy, pitted
d	"	"	fine red, black interior and exterior lip (bitumen)
e	"	"	red straw, some black (bitumen) interior, wheel marks interior, white reserve at handle join
f	"	"	fine red
g	"	"	red straw, light brown slip
h	"	"	fine red, polished black slip exterior, wheel marks exterior
i	"	"	red sandy, pitted, cream slip turned to grey in parts
j	"	"	faience, blue glaze turned green
k	"	"	red sandy, pitted, dark grey exterior
l	"	"	red straw
m	"	"	fine red, cream slip, exterior wheel marks, bottom of amphora joined to point by hollow
a	B4a-5	RN 208	light brown to cream, interior wheel marks, exterior smoothed, applied "dots" fine cream, tiny black flecks
b	"	"	red straw, pitted, cream slip interior, exterior
c	"	"	fine red, possible red slip exterior
d	"	RN 378	pink-cream ware, smoothed surface, wheel marks bottom exterior
e	"	RN 208	fine red, cream slip exterior, interior wheel marks, irregular base
f	"	"	red sandy, smoothed
g	"	"	brown sandy, green-blue glaze interior, exterior (much eroded)
h	"	RN 647	red sandy, yellow glaze interior
i	"	RN 208	brown sandy, exterior and part of interior black
j	"	"	red sandy, light red slip interior, exterior

**B4a-2****B4a-5**

a	B4a-4	RN 208	red sandy, cream slip
b	"	"	dark grey, black interior, exterior
c	"	"	light red sandy, smoothed exterior
d	"	"	brown sandy, black interior, exterior
e	"	"	fine light red
f	"	RN 212	fine cream, brown slip interior, exterior, raised design fine cream, light brown coating (slip[?]), imitation barbotine, possible Middle Egypt
g	"	RN 208	faience, blue glaze
h	"	"	fine cream, green-grey slip exterior
i	"	"	dark grey, very dense, polished black exterior, wheel marks exterior
j	"	"	fine brown, wheel marks interior, exterior
k	"	"	fine red, smoothed interior, exterior
l	"	"	red sandy, black exterior
m	"	"	fine red, cream slip
n	"	"	fine light brown, cream slip exterior, bitumen stain interior, exterior lip
o	"	"	red sandy, bitumen interior and dribble on handle
p	"	"	red sandy, light red slip exterior, interior bitumen coated
q	"	"	fine brown, smoothed surface



**B4a-4**



a	E6b-4	RN 490	fine brown, dark grey exterior
b	"	"	red sandy, cream slip exterior
c	"	"	fine red, mottled red-grey exterior, fine cream "dots," tiny black particles
d	"	"	fine light brown
e	"	"	faience, blue glaze turned green interior, exterior
f	"	"	fine red, some pits, polished red slip interior, exterior
g	"	"	red sandy, tiny black particles, light brown slip exterior
h	"	"	fine red sandy, black flecks
i	"	"	fine red, some pits, cream slip exterior
j	"	"	brown straw, some pits
k	"	"	red sandy
l	"	"	fine red, cream slip
m	"	"	fine cream, possible cream slip

# E6b-4

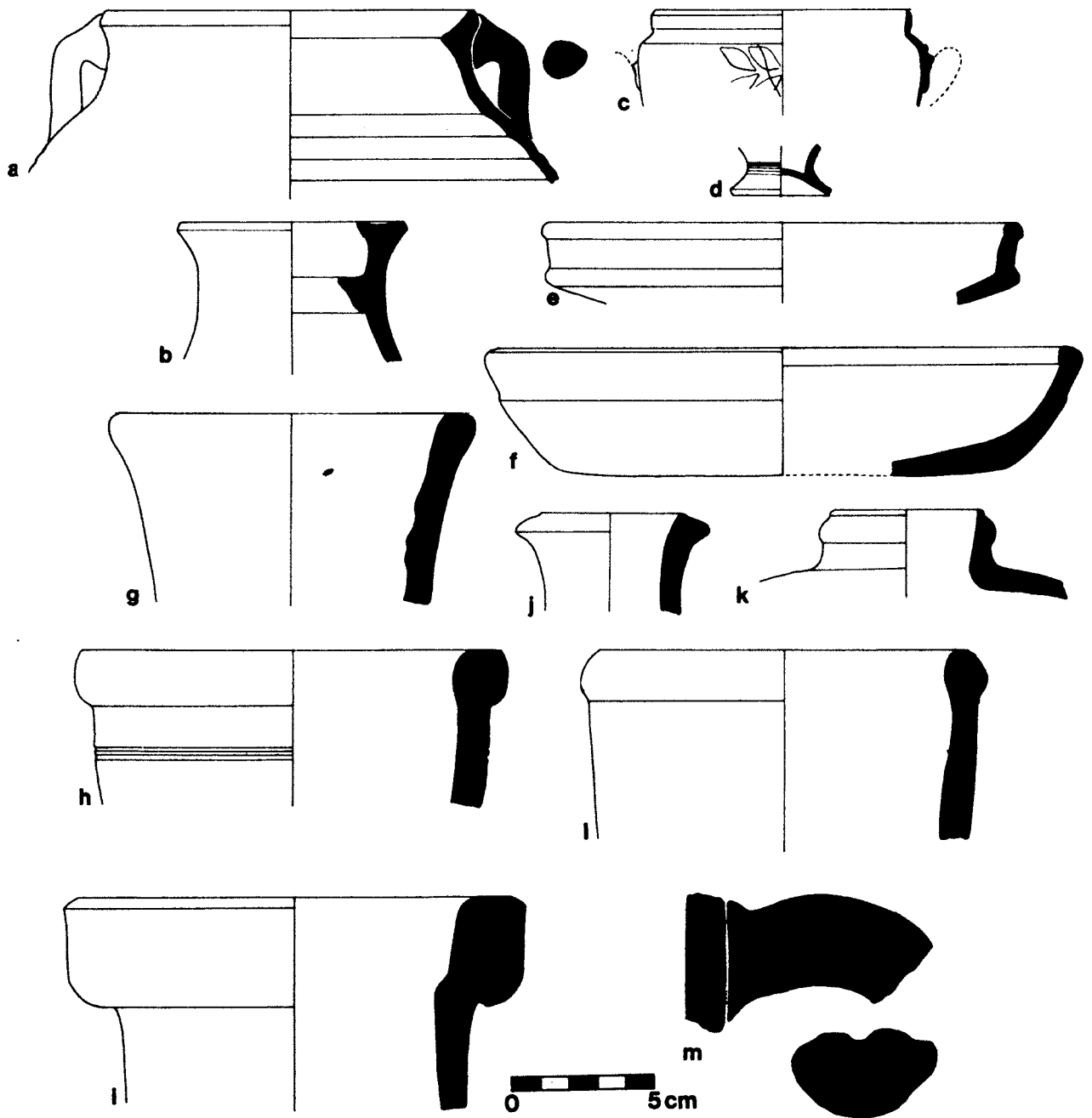


Plate 24: E6b-4

a	E6b-5	RN 488	fine red sandy, pitted
b	E6b-9	RN 205	fine red, black exterior
c	"	"	red sandy
d	E6b-5	RN 488	fine brown, black exterior
e	"	"	brown straw, brown-grey slip exterior
f	E6b-9	RN 205	grey-black, black interior, exterior
g	E6b-5	RN 488	brown straw, red-brown slip exterior
h	E6b-9	RN 425	fine red, sandy
i	E6b-5	RN 488	fine red, dense, fine polished red slip interior, exterior rouletting, Arretine
j	"	"	fine red, dense, fine polished red slip interior, exterior
k	E6b-9	RN 205	fine brown, wheel marks exterior
l	E6b-5	RN 488	fine red, dense, fine polished red slip interior, exterior
m	"	"	fine red sandy, pitted
n	"	"	fine brown
o	"	"	red sandy, black sand, cream slip interior lip, exterior
p	"	"	fine red, some sand, cream slip
q	"	"	fine brown
r	"	"	black, flakey, grey brown interior, exterior
s	"	"	fine brown sandy
t	"	"	cream sandy, hard, black sand particles
u	"	"	fine red sandy, hard
v	"	"	fine cream sandy, some brick red particles (sherds [?]), cream slip exterior, ink lettering, worn
w	"	"	fine brown

## E6b-5-9

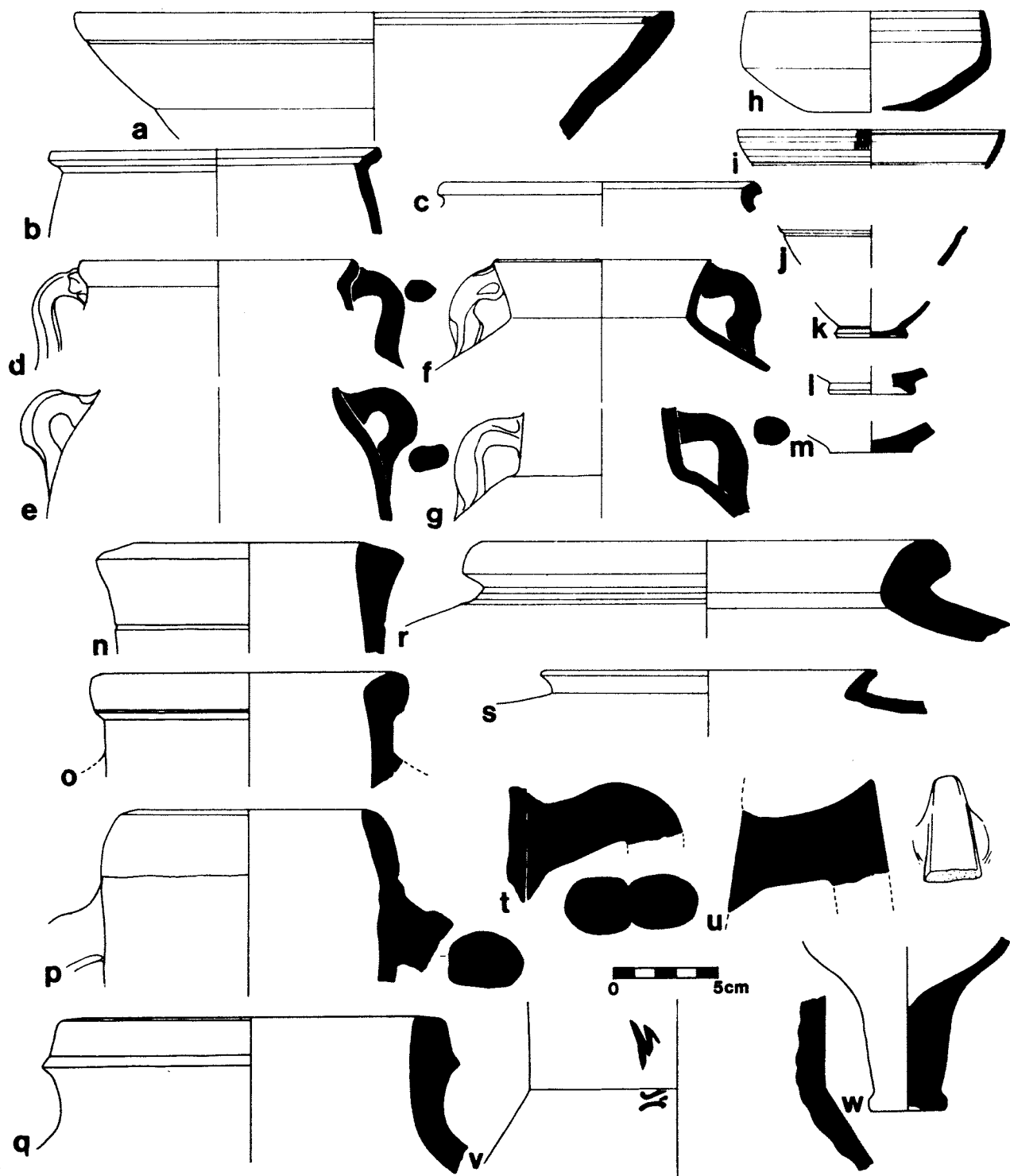


Plate 25: E6b-5, 9

a	E7a-9	RN 202	fine light red
b	E7a-10	"	fine red, white slip interior just below rim, rest interior dark red slip, rim and line exterior dark red
c	E7a-9	"	red sandy
d	"	"	fine red, dense, fine red slip interior, exterior, possible Arretine
e	"	RN 420	fine light red, scattered tiny black particles, smoothed interior, painted decoration red (striped) and black (solid) paint, figure with rope
f	E7a-10	RN 202	fine cream, fine polished red slip, eroded, Pergameme
g	E7a-9	RN 653	fine cream, grey exterior, punctated incisions
h	E7a-10	RN 202	fine red, dense, fine polished red slip interior, exterior
i	"	"	faience, blue glaze turned green interior, exterior
j	E7a-9	"	fine red, tiny mica flakes, fine polished red slip, badly eroded, possible Arretine
k	E7a-10	"	fine dark grey, polished red slip
l	E7a-9	"	red sandy
m	"	"	fine orange, traces of polished red slip interior, exterior, possible Pergameme
n	"	"	fine red, dense, fine polished red slip interior, exterior, possible Arretine
o	E7a-10	RN 365	fine light red, dense, with flecks, fine polished red slip interior, exterior, possible Arretine
p	E7a-9	RN 202	fine red, dense, fine polished red slip, possible Arretine
q	E7a-10	RN 395	fine red, burnished red slip

# E7a-9-10

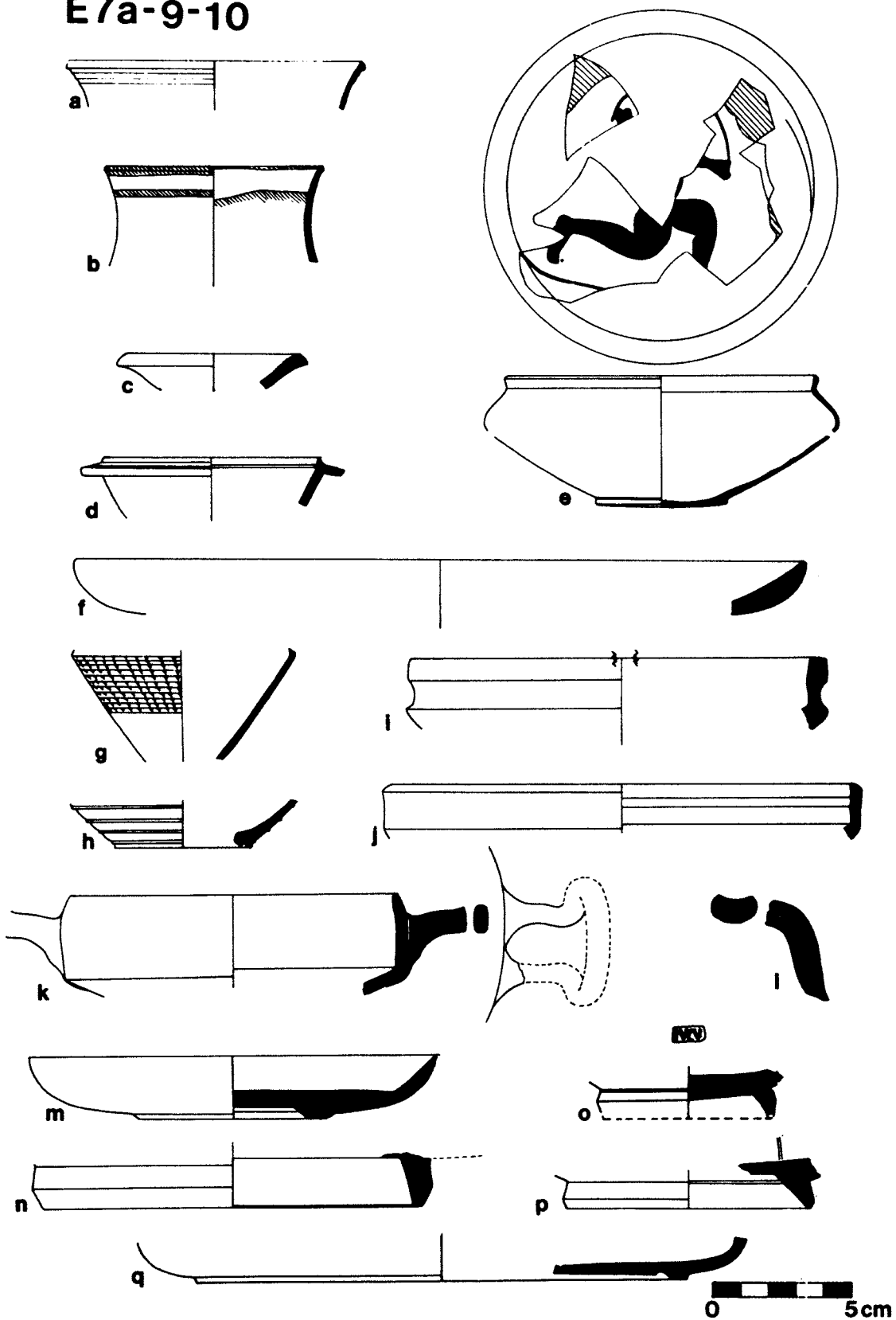


Plate 26: E7a-9-10

a	E7a-9	RN 202	fine cream, cream sandy
b	"	"	red sandy
c	"	"	red straw, red slip exterior
d	E7a-10	"	red sandy
e	"	"	cream sandy
f	"	"	red sandy, cream slip exterior
g	E7a-9	"	fine brown
h	"	"	brown sandy
i	E7a-10	RN 379	red-cream ware, cream slip exterior, heavy black grit
j	E7a-9	RN 636	orange ware, cream slip exterior, grit and black sand, deep incised inscription
k	"	RN 202	cream sandy, exterior grey patches
l	"	"	fine red, cream slip



# E7a-9-10

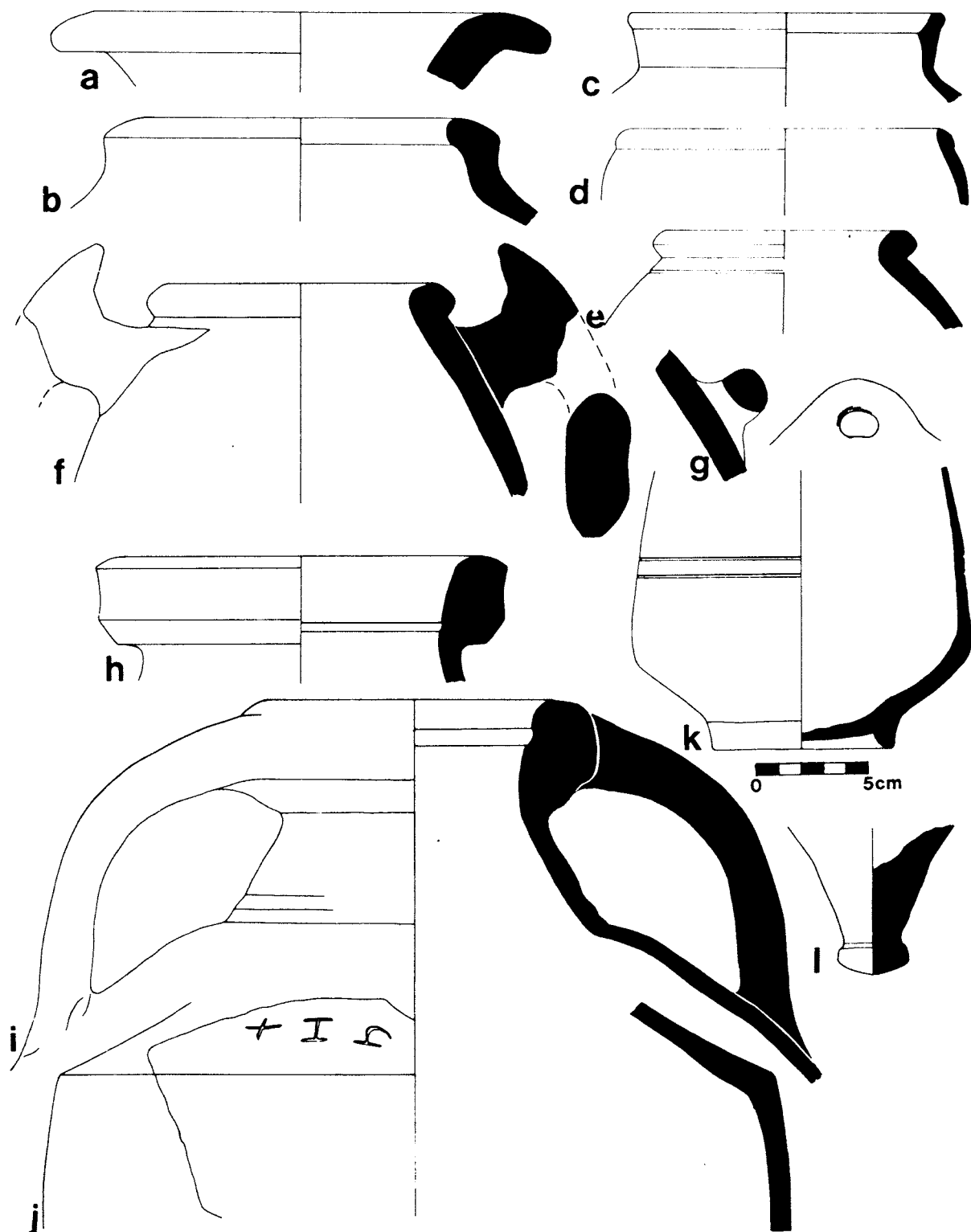


Plate 27: E7a-9-10

a	F9c-16	RN 199	brown sandy, black interior, exterior
b	F9c-20	"	fine light red, light red slip
c	"	"	fine orange, polished red slip
d	"	"	fine orange, polished red slip interior, exterior, Pergameme
e	F9c-6	RN 182	fine brown, black exterior
f	F9c-20	RN 374	fine light red, exterior lip brown changing after 2 raised lines to light red
g	F9c-18	RN 199	red sandy, wheel marks interior, exterior, white wash or slip exterior, painted decoration black (solid), red
h	F9c-20	"	fine red, dense, polished red slip interior, exterior, incised decoration exterior, Arretine
i	"	"	light red sandy, smoothed
j	F9c-16	"	red sandy, wheel marks interior, exterior
k	F8d-9	RN 491	fine brown, brown straw handles
l	F9c-16	RN 199	red sandy, light red slip, plaster plug in mouth
m	F9c-7	RN 492	cream sandy, cream slip(?)
n	"	"	red sandy
o	F9c-10	"	cream sandy, cream slip exterior, incised H
p	F9c-16	RN 199	fine cream
q	F9c-10	RN 492	fine sandy cream, cream slip exterior
r	F9c-7	"	dark grey sandy, black interior, exterior
s	"	"	light red sandy, cream slip exterior

F9c-6-20

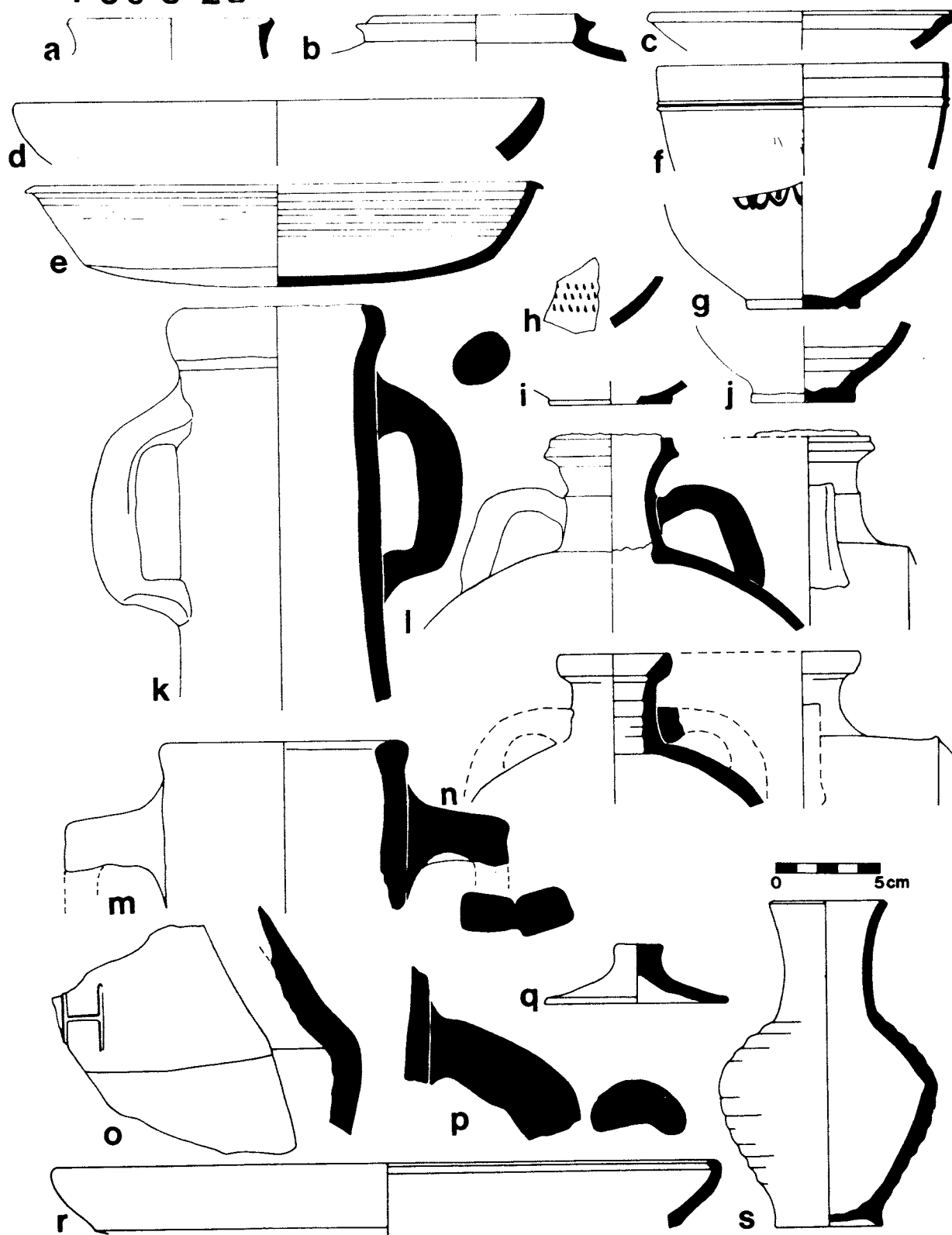


Plate 28: F9c Roman

a	F10a-3	RN 491	red gritty, large white grits, dark sand, light brown slip interior, exterior, exterior bottom blackened
b	F10a-2	"	fine red, polished red slip interior
c	F10a-3	"	fine red sandy
d	F10a-5	"	red sandy, smoothed exterior
e	F10a-2	"	red sandy, pitted
f	F10a-5	"	fine light red, grey exterior
g	"	RN 189	fine bright red, pitted, light brown slip exterior, wheel marks interior
h	F10a-3	RN 491	brown sandy, black exterior
i	F10a-5	RN 114	faience
j	"	"	"
k	"	"	"
l	"	RN 491	fine light red, grey slip exterior
m	F10a-12	RN 175	fine brown, smoothed exterior, handle straw tempered
n	F10a-5	RN 491	fine red
o	F10a-3	"	fine cream, cream slip
p	"	"	red sandy, light red slip
q	F10a-12	RN 175	fine brown, smoothed
r	F10a-2	RN 491	red sandy, cream slip, thumb impression interior handle
s	F10a-2	"	red sandy, pitted

F10a

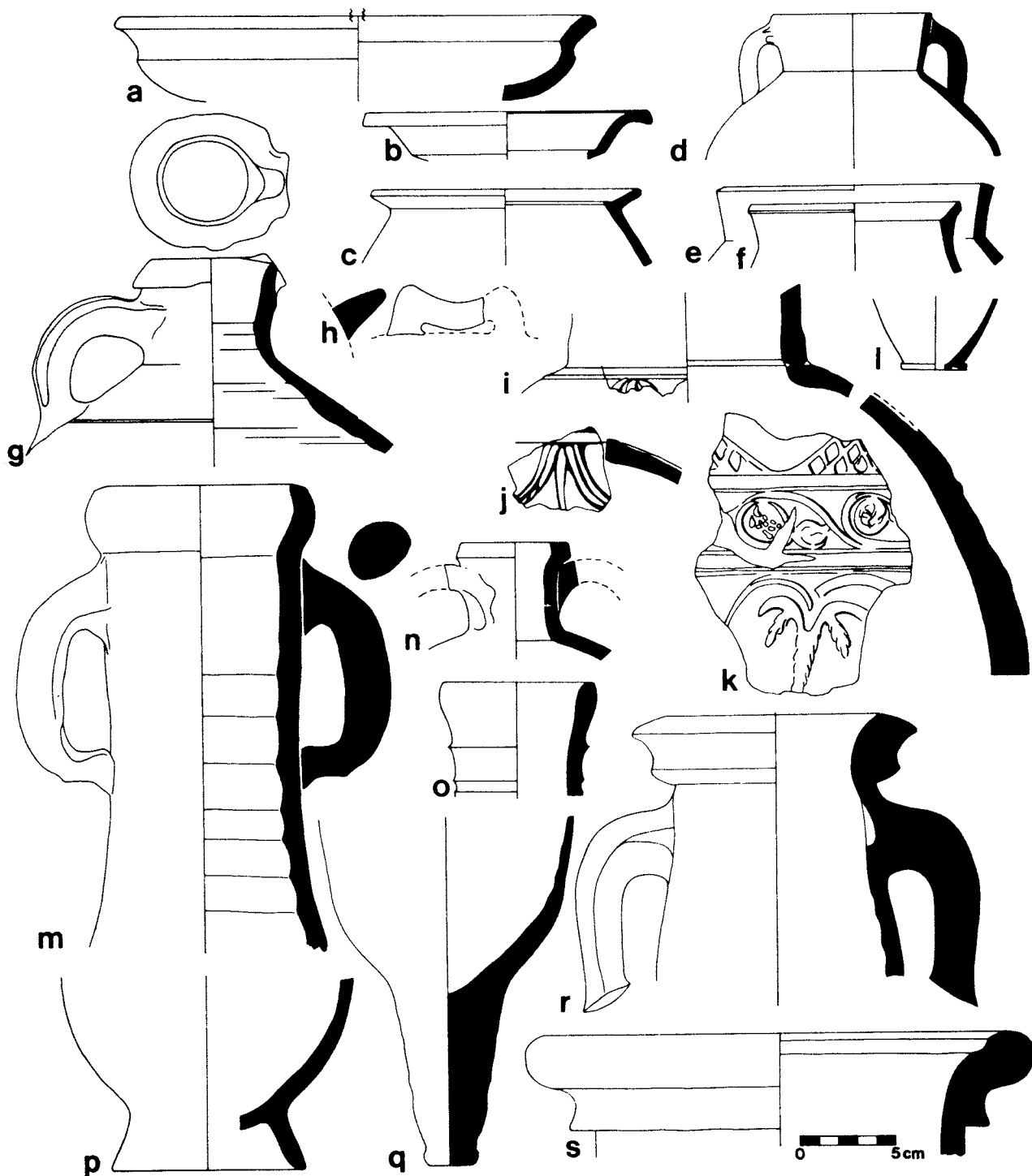


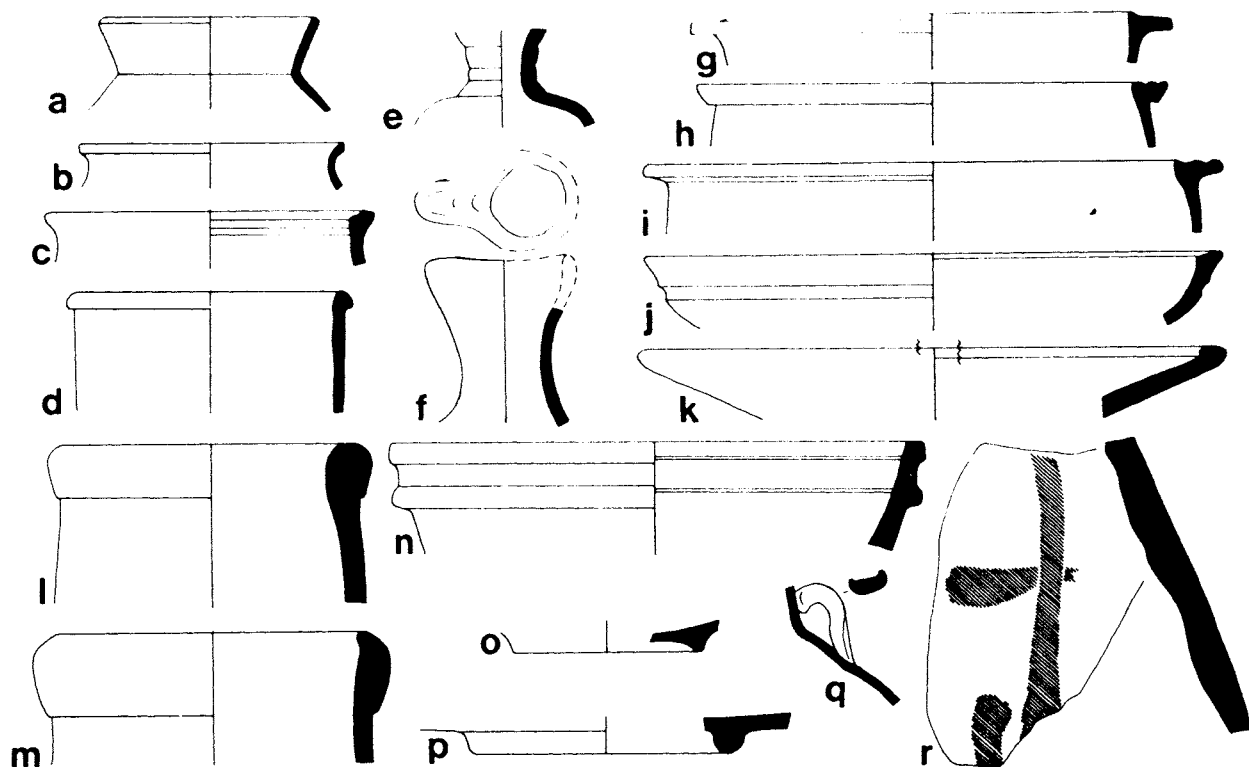
Plate 29; F10a

a	G8d-1	RN 168	dark red, grit, self slip outside
b	"	"	dark red, sandy
c	"	"	dark red, grit
d	"	"	fine red ware, cream core
e	"	RN 207	faience, blue-green glaze interior neck, exterior
f	"	RN 168	light red ware, sandy
g	"	"	brown ware, grey core, black slip or bitumen outside
h	"	"	dark red, black (bitumen [?]) outside
i	"	"	red, fine grey core
j	"	"	grey sandy
k	"	"	grey-brown, sandy, covered with bitumen
l	"	"	orange, cream slip exterior, gritty
m	"	"	brown ware, coarse, bitumen interior and over rim
n	"	RN 207	faience, blue glaze interior, exterior
o	"	RN 168	fine red
p	"	RN 207	faience, blue glaze interior, exterior
q	"	RN 168	fine dark red-brown, grey core
r	"	"	cream ware, gritty, light red paint

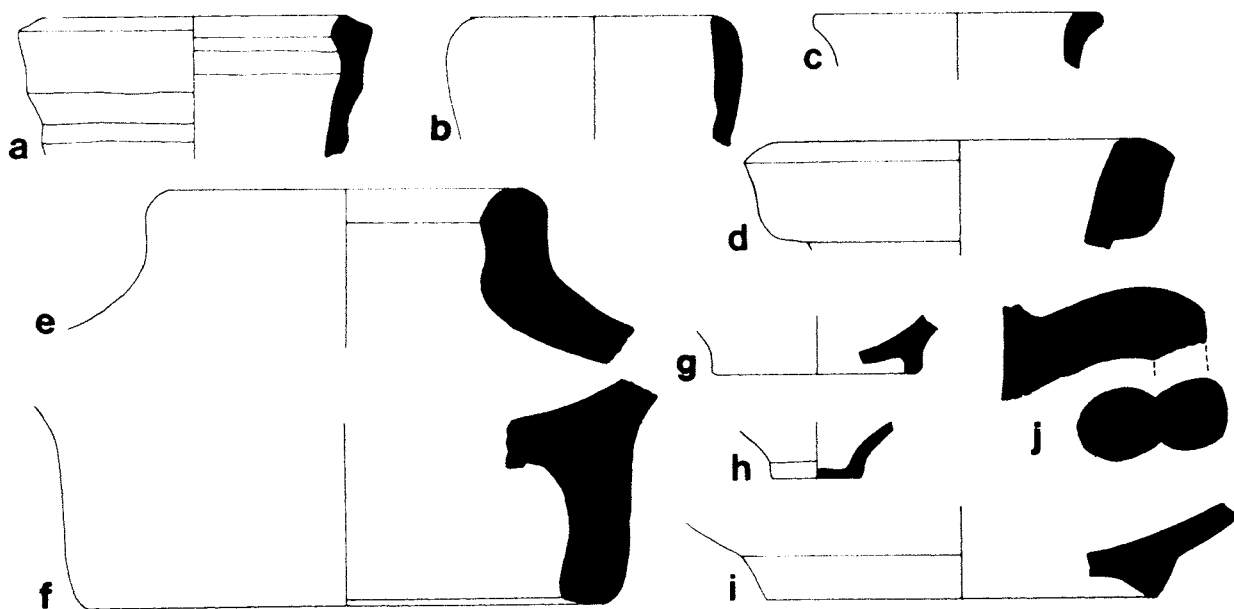
a	G12a-4	RN 490	fine brown, black interior, grey slip exterior
b	"	"	fine brown
c	"	"	red sandy, light brown slip
d	"	"	red sandy, dark grey interior, exterior
e	"	"	light red straw, smoothed exterior
f	"	"	light red straw, smoothed exterior
g	"	"	fine brown
h	"	"	fine red, cream slip exterior
i	"	"	coarse brown, hard
j	"	"	fine cream, cream slip

} same vessel

# G8d-1



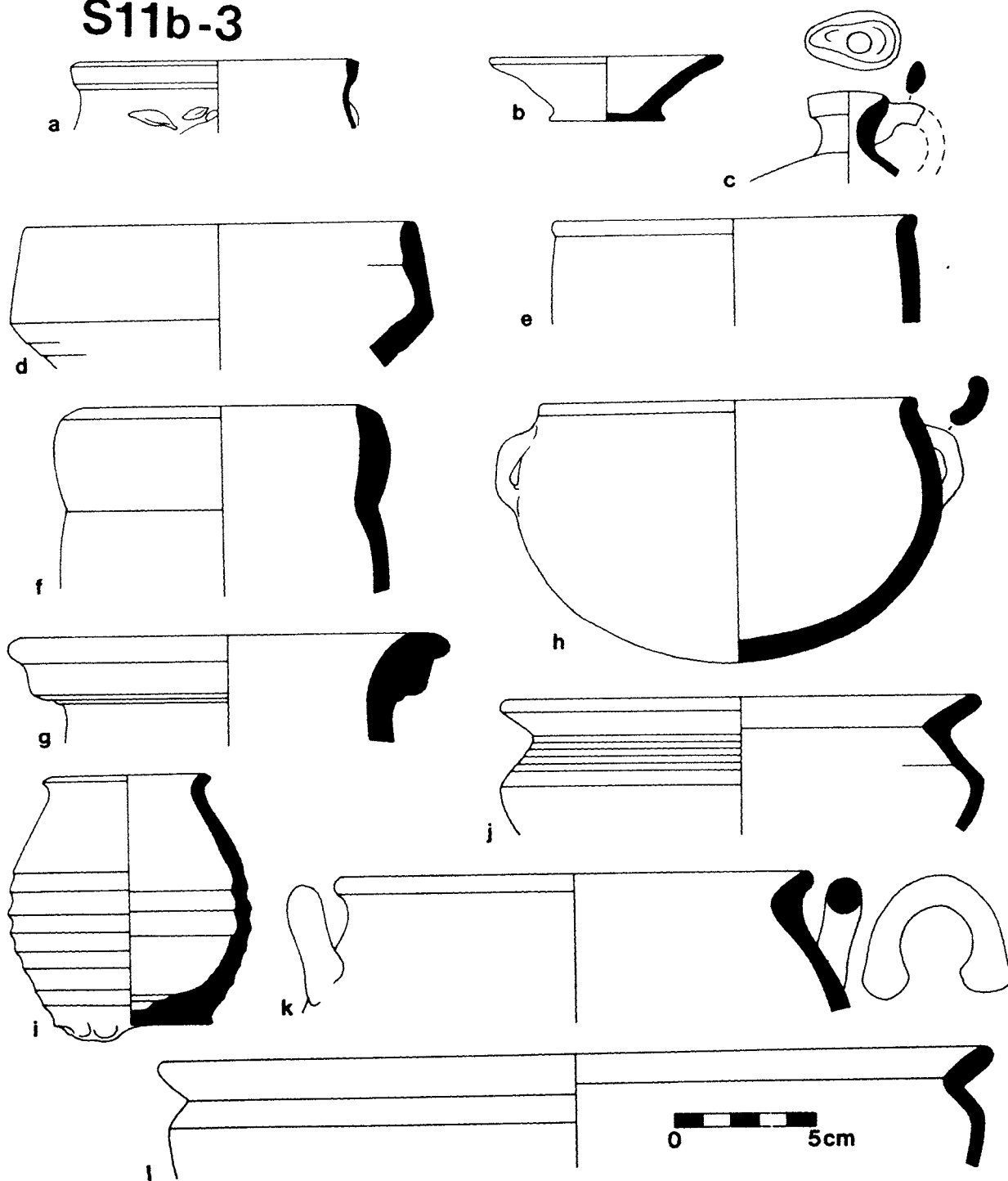
# G12a-4



a	S11b-3	RN 493	fine bright red, darker red slip exterior, cream "dots," imitation barbotine
b	"	RN 422	red sandy
c	"	RN 493	fine red, red slip
d	"	"	fine red sandy, pitted, cream slip interior, exterior
e	"	"	brown sandy
f	"	"	fine brown
g	"	"	red-brown, gritty
h	"	RN 422	brown sandy, light brown slip interior, exterior
i	profile	RN 413	bright red sandy, bitumen stain interior, exterior
j	S11b-3	RN 493	brown sandy, black exterior
k	"	"	brown sandy, black exterior
l	"	"	brown sandy, black interior, exterior



# S11b-3



a	S12a-6	RN 169	fine dark red, red "dots"
b	"	"	red sandy, plaster on lip
c	"	"	red sandy
d	S12a-7	RN 137	fine red, black exterior
e	S12a-11	RN 169	red sandy
f	S12a-6	"	red sandy, grooved exterior
g	S12a-11	"	light red sandy
h	S12a-7	RN 137	grey sandy
i	"	"	red sandy, grey exterior
j	S12a-6	RN 169	fine grey, red interior, orange-grey exterior
k	S12a-11	"	fine light red, eroded red slip
l	S12a-6	"	fine red
m	S12a-11	"	fine brown
n	S12a-4	"	red sandy, cream slip exterior
o	S12a-7	RN 137	fine brown
p	"	"	brown sandy
q	S12a-11	RN 169	fine brown
r	S12a-6	"	brown sandy
s	S12a-7	RN 137	red sandy, black flecks

# S12a-4-11

97

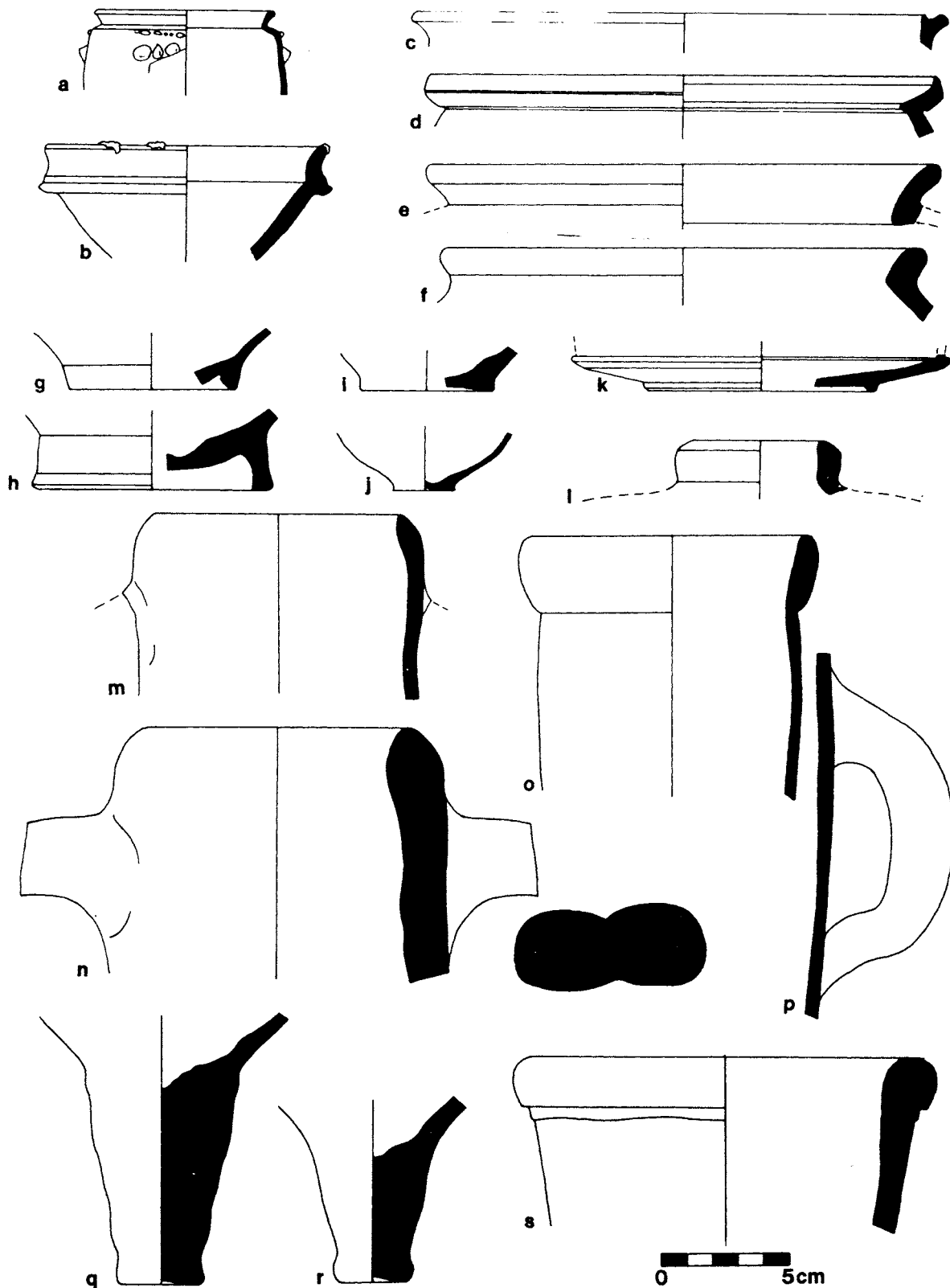


Plate 32: S12a Roman

a	Q2b-8	RN 158	fine red, smoothed
b	"	"	dark grey, gritty, plaster outside above line
c	"	"	red sandy, cream slip
d	"	"	dark red, grit
e	"	RN 376	red, grit, cream slip interior rim, exterior
f	"	"	fine red
g	"	RN 158	red straw, black exterior
h	Q2b-5	"	dark red sandy, black bitumen interior, exterior
i	Q2b-8	"	fine red, very dense, fine polished red slip interior, exterior, possible Arretine
j	Q2b-3	"	fine red, black flecks, brown slip
k	Q2b-8	"	red sandy, cream slip, plaster covering exterior
l	Q2b-8	RN 376	light brown sandy, dense, smoothened exterior
m	Q2b-7	RN 158	faience, blue glaze
n	Q2b-6	"	fine red, pink slip
o	Q2b-8	"	red sandy, smoothed
p	"	RN 271	fine brown sandy
q	Q2b-7	RN 158	brown sandy, smoothed
r	"	RN 375	fine orange, gravel embedded in interior

Q2b

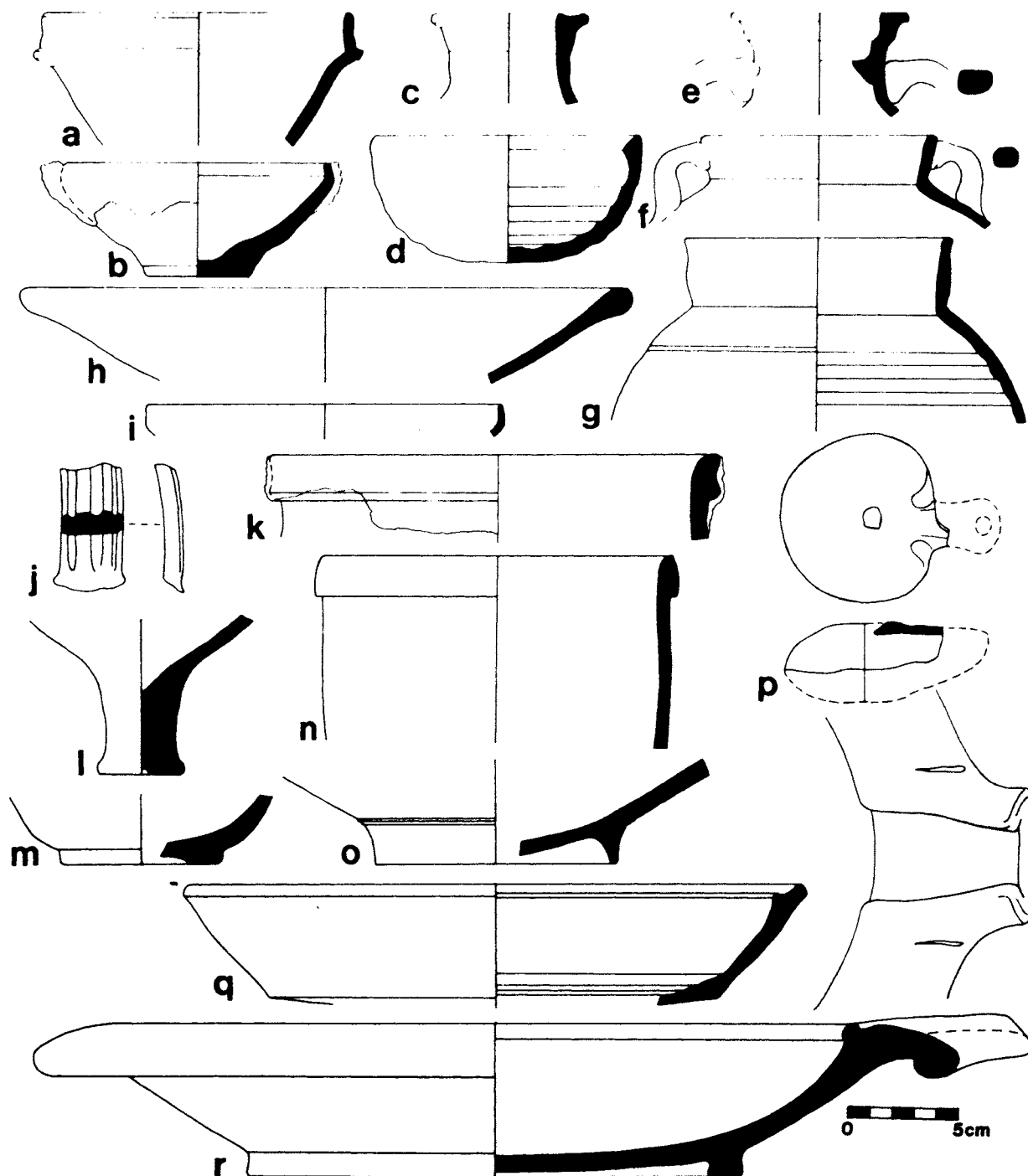


Plate 33: Q2b

a	C4c-2	RN 198	fine brown, few sand particles, mottled dark green glaze interior, exterior, appliqué relief decoration, couple engaged in questionable activity
b	D4b-3	RN 171	brown gritty, much sand, inscription scratched in shoulder
c	C4c-5	RN 363	fine red, dense, fine polished red slip interior, exterior, maker's stamp interior, Arretine
d	D4b-1	RN 366	"
e	D4bsurf	RN 362	"
f	C4c-2	RN 361	fine red, dense, fine polished red slip interior, exterior, stamped "cartouche" interior
g	"	RN 364	fine red, mica flecks, fine polished red slip interior, exterior, stamped interior, Samian
h	"	RN 360	fine red, dense, fine polished red slip interior, exterior, maker's stamp interior, owner's mark(?) scratched on bottom
i	C4c-6	RN 377	fine orange, dense, polished red slip interior, exterior, much eroded, owner's mark(?) scratched on side
j	C4c-11	RN 220	fine red, dense, fine polished red slip interior, exterior, maker's stamp interior, possible Arretine
k	E7a-10	RN 365	fine light red, dense, mica flecks, fine polished red slip interior, exterior, maker's stamp interior, Samian

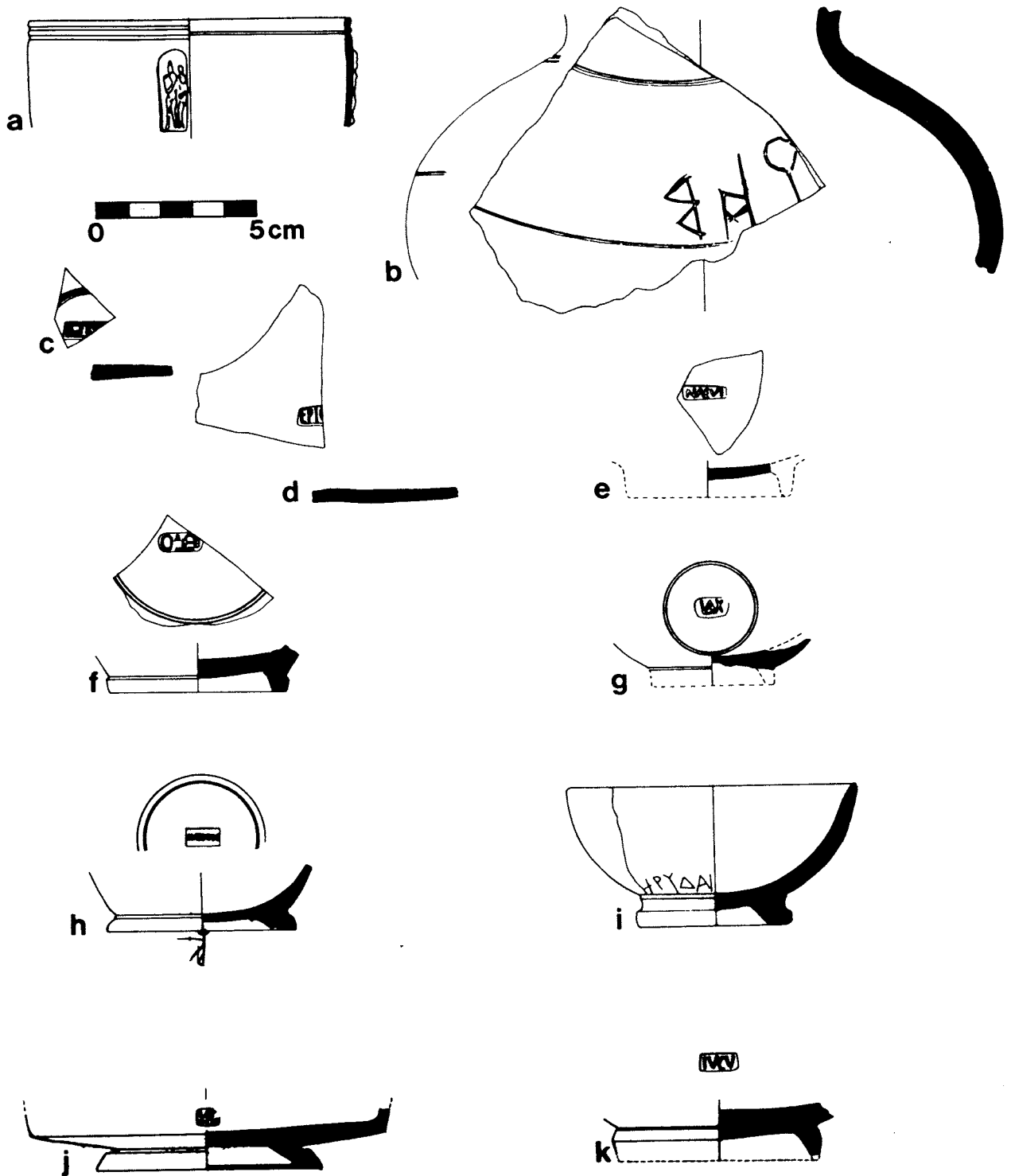


Plate 34: Stamped Wares

a	C4c-4	RN 277	fine light brown, thin polished red slip exterior
b	F8d-3	RN 274	fine light red, polished red slip
c	D4b-1	RN 664	fine light brown, red-dark brown slip, polished exterior
d	C4c-2	RN 275	fine red, dense, polished red slip exterior
e	C4c-5	RN 270	fine brown, red slip
f	Illsurf	RN 273	brown sandy, red slip exterior
g	C4c-10	RN 209	fine light red sandy, red slip exterior
h	S12a-17	RN 120	fine grey sandy, red-brown slip exterior
i	Q2b-6	RN 268	red sandy, red slip
j	E6b-2	RN 116	red sandy, some straw
k	F8d-7	RN 98	brown sandy, tip spout blackened by flame
l	C4c-7	RN 267	fine red sandy, red slip exterior
m	D10surf	RN 272	light greenish cream sandy, interior smoothened, exterior eroded
n	N2surf	RN 56	fine light red, cream slip exterior
o	C4c-9	RN 284	fine brown sandy, exterior design worn away
p	P8b-2	RN 165	fine brown, chocolate brown glaze interior, exterior, burned at mouth tip



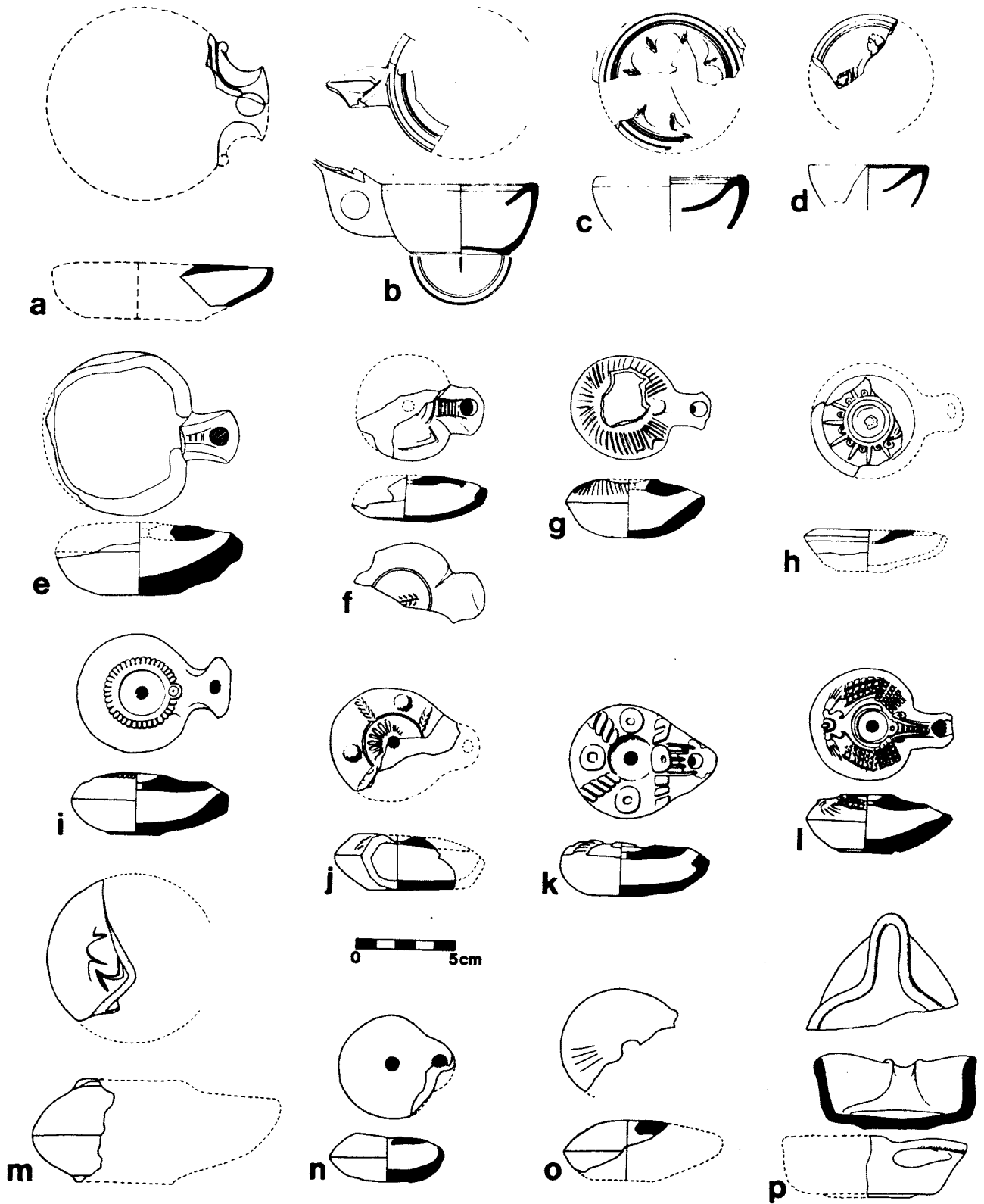


Plate 35: Lamps

## Islamic Pottery

Donald S. Whitcomb

The ceramics of the Islamic period at Quseir al-Qadim are grouped into three broad categories: the plain wares, the glazed wares, and the imported (Far Eastern) wares. The following description follows an order from the most prevalent to the rarest among and within these categories; more detailed statistical treatment will be undertaken for the final report. The majority of the vessels and sherds recovered during the excavations were unglazed ceramics, rarely reported in detail for Islamic excavations. Unlike the Roman loci in the northwestern area, there are no Islamic trenches or levels where the possibility of admixture of Roman sherds can be ignored. Many Roman ceramic types are now recognizable and segregated out. Otherwise, multiple occurrences of types in otherwise uncontaminated Islamic loci have led to an assurance for the most common Islamic ceramic types. Nevertheless, certain rare or unique sherds may have been included in Islamic plates and so described; further study and excavation will correct such misattributions.

## Plain Wares

Most of the Islamic plain wares have a red or red-brown body, often with an appreciable amount of sand temper. A number of bowl forms were found, especially in larger, heavier vessels (the lighter and more delicate bowl forms are generally glazed). Among these are deep bowls with a sharply out-turned ledge rim (43:n; 40:e; 36:m). Deep bowls or basins made of red ware included a specific type with a straight thickened rim below which is a wavy band of comb decoration (45:n; 36:r). Likewise cooking pots are made of the same material, often burnt black or brown; rims follow the general shape of 48:n and are often turned outward (41:h; 39:g).

In a more closed form, there are similar jars with a characteristic out-turned flat rim, occasionally with a lightly ribbed globular body (38:q; 47:n; some cream ware variants are found). Other jars display two decorative techniques: comb incising (47:p; 40:p; 36:q) and, second, painting in red and black. While some of the painting is in simple bands recalling the earlier wooden bowls (43:b), more complex patterns are also found (45:f, g; 50:l, m). These designs have broad easy strokes suggesting a relationship to earlier "Coptic" painted tradition, with which these examples should not be confounded. On the other hand, one painted handle (50:n) suggests distant parallels in form and decoration to Arab Geometric wares common on the Levantine coast and in Syria (Rogers, 1972: XCV, 1, 2),

which may be dated from the 13th to the 15th century. Water bottles were also found with ribbed sides; these are very similar to examples from Roman contexts. The Islamic forms are distinguishable in the necks and rims of the openings, which are high and almost straight (47:j; 45:l; 36:i, this last example being a cream ware).

A number of juglets were found, the best preserved of which is 43:h; other fragments recall elements of the gudulia, often in cream ware. The one ceramic form which is consistently made with a cream body is a type of juglet with filter neck (this is not absolute, as 44:e is a red ware). Most of the filter necks recovered are pierced by random round holes; others are more elaborate and have a bearing on the chronological studies of this artistic medium (Olmer, 1932, 1940; Scanlon, 1970). Clear parallels may be seen with filter designs from Fustat which Scanlon has shown to be Fatimid; Quseir filter 38:c falls into Scanlon's type F (1970: 7b), and 46:a is similar to type J (1970: 10b). The openwork design of 44:d is Scanlon's type K (1970: 10f), his "continuing Fatimid," corresponding to Olmer's Ayyubid (1940: IV). Likewise the openwork and zigzags of 48:b are close to type L (1970: 11e). Finally the Naskhi inscription (43:c) finds a close parallel in Olmer (1940: VI; Scanlon, 1970: 13d). In light of the finds at Quseir, it would seem an attribution of Ayyūbid to the three examples is justified and that, in Scanlon's words, "elements carried over into the Ayyūbid" (1970: 49) might be expanded to include the first two types mentioned. Thus the filters from Quseir would tend to muddy the waters of stylistic chronology in this medium.

The best preserved lamp fragment brings forth a similar conclusion. Following Kubiak's typology of the lamps from Fustat (1970), the Quseir lamp (38:t) would seem to fall into type F or G, the late 11th or 12th century, a date probably too early for Quseir. This lamp was glazed and, before entering the discussion of glazed wares, one well-known Islamic ceramic type should be mentioned, the so-called grenades. These vessels were made of a thick grey stoneware with decorative elements and often a plum or turquoise glaze on the exterior. No information toward the resolution of the much-discussed utilization of these objects was obtained.

#### Glazed Wares

The majority of glazed sherds from Quseir were fragments of bowls with yellow glaze on a red body or green glaze on either a red or cream ware. A distinctive type of glazed ceramic was a type of bowl, almost hemispherical, with a low ring base and a slightly curved ledge rim. The ware is sandy red. The interior is

covered with a thin yellow glaze, often tending toward a greenish hue, with painted lines in green and brown. The decorative lines form festoons on the ledge rim and occasionally within the bowl. The center of the base is devoted to a single motif, a blazon--a spur (43:k), napkin (37:e), or star (38:q).

This type may be similar to a ware in Aden referred to by Lane (1948: IIf), and by Doe (1963: 153), who states that "many of the glazed bowls and plates are painted yellow with brown and green patterns." Otherwise, black-painted yellow wares with similar forms are reported from the east coast of Africa (Kirkman, 1954: fig. 22, a, b; Chittick, 1974: 304), the latter of whom dates this ware to the 14th century. A more distant comparison might be drawn with wares in the eastern Mediterranean, which add a sgraffiato technique to green and brown painting on a light slip covering a red body. This encompasses the so-called Athlit wares (Johns, 1934: 138), and finds at al-Mina (Lane, 1937: fig. 7) and on Cyprus (Taylor, 1938: figs. 17, 28), all dating between the 12th and 15th century. The majority of Athlit wares have a "simple arabesque, a crude animal or a blazon in the base" (Johns, 1934: 139). Closer parallels to the Athlit wares occur at Fustat (Scanlon, 1971: 6 b, f).

A related ware at Quseir has a thick glossy yellow glaze (rarely green, 44:m) with dark brown paint on a sandy cream body. The forms differ from the preceding type in that the rims are either only slightly out-turning (38:h; 40:g) or heavy and overhanging (37:g; 36:e). This ceramic type may be Lane's ware E33 from Kom el-Dik (Alexandria), dated 13th to 15th century (1949: 147). This brown (or manganese) painted yellow ware is also found at Fustat (1971: 4a, although again more commonly with a sgraffiato technique). A fragment of brown-filled sgraffiato was found at Quseir (50:f), very similar to Scanlon's example 4e (1971).

The sgraffiato wares at Quseir occur on straight or slightly curving-sided bowls with high ring bases in a fine cream ware. The glaze, generally on the interior only, is usually a deep green or, more rarely, yellow (44:o) or mottled blue (39:c). The designs are usually random, vaguely floral motifs or surmounting semicircles (39:c; 40:f). However, it is difficult to assign the Quseir fragments to the Mamlūk sgraffiato described by Scanlon; certainly the "casual, almost random incising" is present, but the "formal arrangement of decorative elements" appears to be lacking (1971: 228), as is the most characteristic shape (a carinated bowl with a high conical base). Some similarity may be seen in Kilwa's Late Green sgraffiato (Chittick, 1974: 304) dated to the 13th century. The ultimate source of this style may well be Chinese vessels; as Scanlon has demonstrated, imitations

of Chinese porcelains and celadons were popular in the Ayyubid period (1965: fig. 4; 1971: 5b) and probably continued into the Mamlūk period (1970: 89-90)

The rarity of Mamlūk sgraffiato at Quseir (a few poorly preserved pieces were found but not illustrated) is complemented by a similar lack of Mamlūk slip-painted wares. The one sherd with a reproduceable pattern (44:f) shows a crossing pattern of broad lines with fleur-de-lis in the intervening space; the resulting coloration is yellow on brown with green along the rim dripping into the bowl. Preservation was extremely poor. It is comparable to Fustāt examples 6d, g (1971)

Returning to ceramics more typical for Quseir, a large number of delicate bowls were glazed in light turquoise or white on a cream body with a high ring base (44:c; 47:e; 41:b). While the distant inspiration for these turquoise and white wares was Chinese, one might see a filtering influence of late Seljuq wares (Scanlon, 1973). This is particularly suggestive in two carved turquoise fragments (50:g, h), with parallels datable to the 12th and 13th centuries in Iran. Turquoise glaze is also characteristic of jars or beakers (37:c; 44:q), both with carved surfaces. Turquoise or white ceramics were never as common as the plain yellow or green glazed wares.

The discussion of turquoise and white wares leads to more unusual subtypes of these ceramics. The excavations at Quseir produced a number of cream wares with a thick white glaze and splashes of blue and manganese purple. The form is a gracefully out-turning bowl with a high, well-made ring base (41:a; 46:c; 47:k; 38:n; and fig. 7). While a possible parallel is cited from Antioch (Waage, 1948: 87, 4), a closer example may be seen from Fustāt (Lane, 1947: fig. 40B, upper right).

Connections with the world of Fustāt are also documented in the underglaze painted and silhouette wares, techniques, if not actual vessels, deriving from Iran and Syria. Of the latter are bowls in both techniques with pseudocalligraphic rim decorations (51:d, e; fig. 7), exactly paralleled in Scanlon's pl. 3, b, c (1971), types dated by Lane to the late 12th or 13th century (1947: figs. 78, 81). Similarly the design of Quseir 51:o is very close to a Fustāt example (1971: 5e), and the floral motifs (51:k) with Fustāt 3f. Another floral design (51:j) in black under turquoise approaches closely the style of the products of Raqqa and Kashan in the 13th century, as does the neck of an albarello (51:g). Finally one may note the canine figure on a Fustāt sherd (1971: 3b) is appropriately replaced at Quseir by the depiction of a fish (51:n).

## Imported Far Eastern Wares

The imported Chinese wares found at Quseir may be tentatively described, although examination by specialists is necessary with these important artifacts. The most common Chinese ceramics are the celadons, of which many plain rims and bases were found (see fig. 7). A characteristic rim form is 51:r, with vertical fluting and petal design; this form is paralleled at Fustat where they are seen as Yüan or Ming (South Sung, Lung Ch'uan or Lung Ch'uan yao) (Gyllensvard, 1975: 18, 4; 35, 4). A base for such a bowl has a very slightly molded floral motif (51:w) corresponding to another example from Fustat (1975: 36, 1). Another floral motif, rather more deeply carved, was found in a brownish yellow stoneware (51:v), which seems similar to another Fustat fragment (1975: 43, 4), again identified as Ming Lung Ch'uan (cf. a white ware from Shun-tê Fu, Palmgren, 1963: 297, C.128). Finally, a feather-like mode of incised decoration (51:s) may be seen as a somewhat earlier Yüeh Yao (Gyllensvard, 1973: 5, 3), although other examples (1973: 21, 7) are classified as Ying Ching. Ying Ching is perhaps the more likely identification in view of the rim sherd (51:q) with feather incising and with the characteristic light blue hue of the Sung Ch'ing pai (1973: 21; 110-11).

A number of fragments of white porcelains were discovered as well as blue and white decorated wares. The three sherds shown here (51:a, b, m) have bands of floral motifs on small bowls. These are broadly comparable to the porcelain depicted by Scanlon (1971: 5e) from Fustat. Another parallel is a blue and white porcelain from Aidhab, which Hobson describes as a typical export ware in late Sung or Yüan periods (1928: Va, c). Likewise, Lane describes porcelain fragments from Aden and the problems of their attribution (1948: 124, 127-28). Finally, blue and white wares as well as celadons and white wares were discovered at Kilwa (Chittick, 1974: 309-12). It seems probable that the present examples are late Sung or Ming, dating to the 14th or 15th century.

A fragment of blue and white porcelain was discovered in trench A22d (49:d) in association with coarse plain wares with a paddle-stamped surface design (49:a, b). This unlikely combination has been noted in Oman (Whitcomb, 1975) and in the Trucial States (de Cardi, 1971: fig. 15). This paddle-stamped pottery is probably African in origin (e.g., see Chittick, 1969: XXIII, dated to the 15th century or later). Also common in medieval assemblages from Oman were large storage jars broadly termed Martaban wares. Fragments of brown glazed bases of stoneware jars were found at Quseir (51:u). Also found was a small loop handle with a dog-like lion mask at the lower end (51:p), a typical feature of Martaban

jars dated to the 14th to 16th centuries (Adhyatman and Lammers, 1978: III D4). Similar handles are combined with combed waves or scallops (50:i, depicted upside down), dated to the late Sung period (Harrison, 1978: 25; Locsin, 1976: 182; I wish to thank Suzanne Valenstein for discussing these Martaban pieces with me).

In summation, there is a curious divergency in the evidence for dating presented in the Islamic ceramics at Quseir. While the common glazed wares and plain wares tend toward an Ayyūbid date (late 12th-13th century), the fine glazed wares and imported pieces uniformly suggest a 14th or 15th century occupation. One possible explanation is two sequential occupations during the Ayyūbid and then Mamlūk periods, but other speculative possibilities present themselves. Hopefully this problem will be resolved during the second season of excavation.

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a	F8d-2	RN 153	fine cream, light grey exterior
b	"	"	fine red, wheel marks interior, exterior
c	"	"	red sandy, brown slip interior, exterior
d	F9c-3	RN 199	red sandy, yellow glaze interior, exterior lip, green (hatched) and brown (solid) line decoration interior
e	F9c-14	"	cream ware, grit, yellow glaze interior, exterior, purple-brown paint, traces turquoise exterior
f	F9c-5	"	red sandy, yellow-green glaze interior, brown line decoration interior
g	F8d-2	RN 153	fine cream, silver white glaze interior, exterior
h	"	"	brown sandy, green glaze interior
i	F8d-1	RN 154	fine cream, cream slip exterior, bitumen coating inside mouth and body
j	"	RN 580	fine light red sandy, alternating red and green stripes, white between
k	F8d-2	RN 153	red sandy
l	"	"	fine pink, handle dark grey
m	"	"	red sandy, red slip interior(?), exterior
n	"	"	cream sandy, cream slip
o	"	"	brown sandy
p	"	"	red sandy, red slip exterior
q	"	"	fine red, dull red slip interior, incised design
r	"	"	red sandy, light brown slip, incised

F8d-F9c

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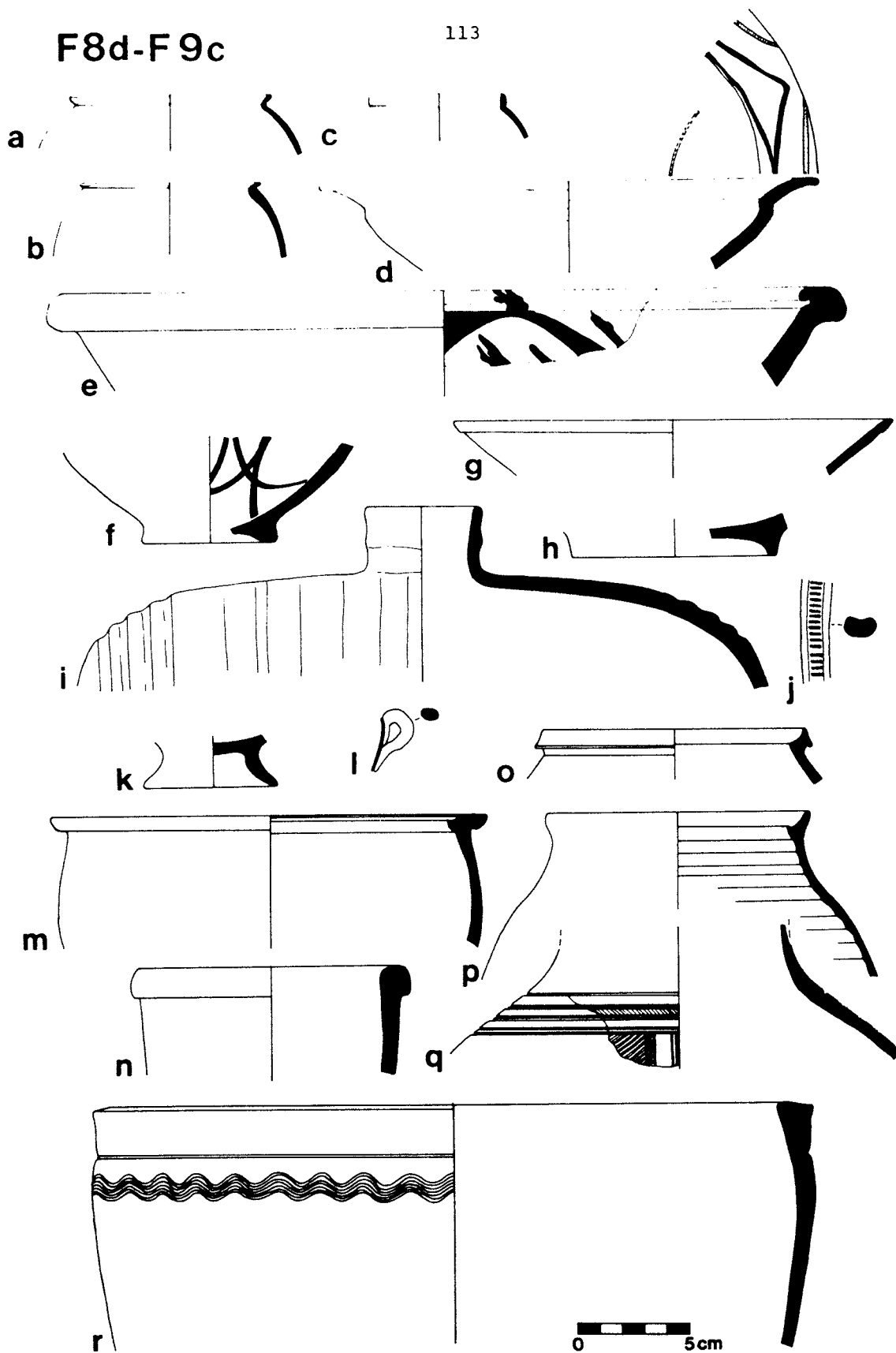
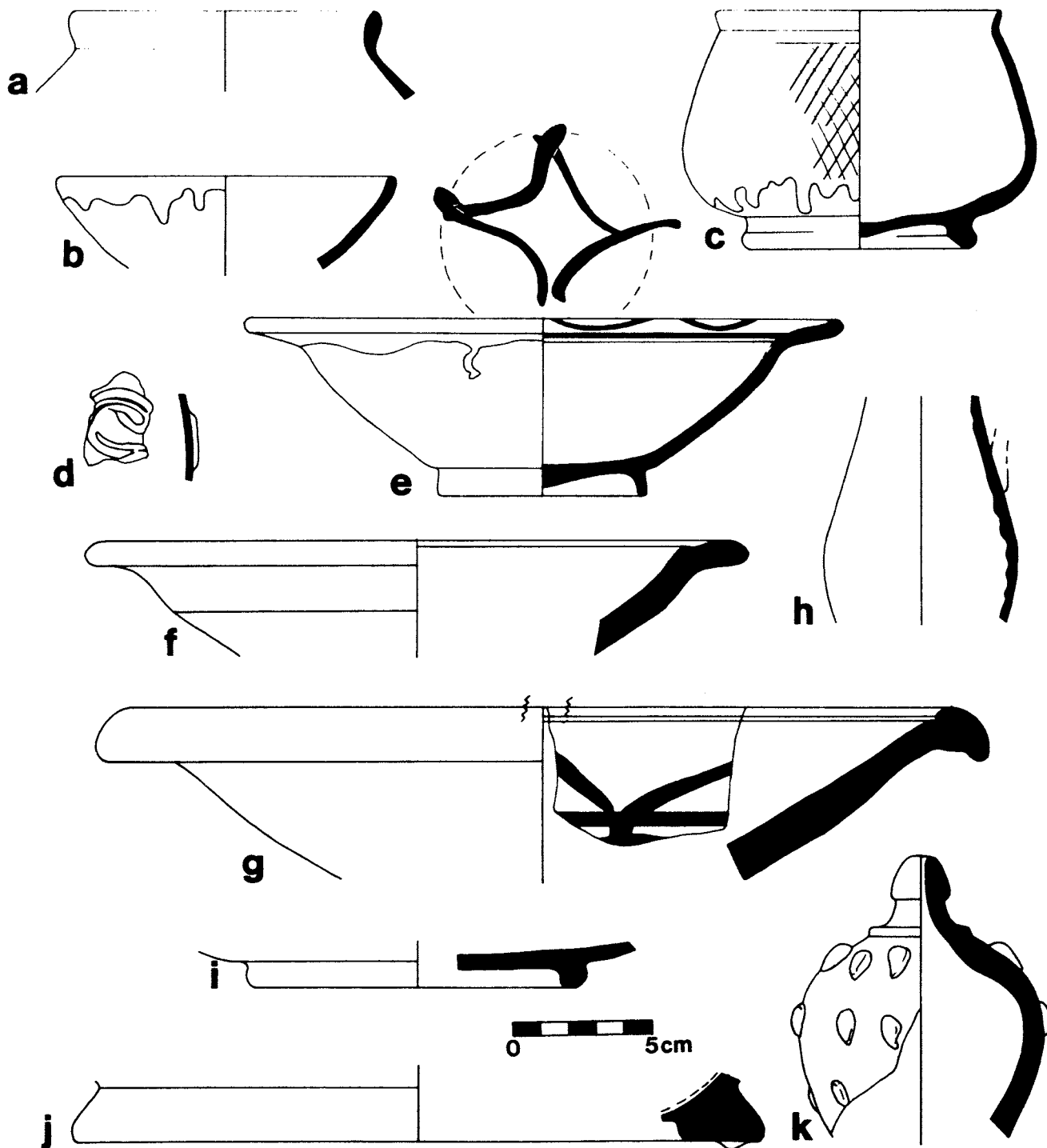


Plate 36: F8d-F9c

a	F10a-1	RN 176	dark red, very gritty, body eroded, thin dark green glaze
b	"	"	red-brown, thin white glaze interior and rim
c	F10a-11	"	cream ware, light turquoise glaze turned white interior, exterior
d	F10a-1	"	faience
e	F10a-11	RN 103	red-brown, yellow glaze, brown lines, glaze eroded interior under rim
f	"	RN 176	dark red sandy, yellow glaze interior
g	F10a-6	"	cream, grit, yellow glaze interior and rim, black paint(?)
h	F10a-1	"	red, green glaze interior, exterior, badly eroded
i	"	"	white frit, blue glaze
j	"	"	blue frit, drips lower right
k	F10a-11	"	cream stoneware, plum glazed

# F10a



a	Sl2c-3	RN 576	cream sandy, smoothed, strainer mostly gone
b	Sl2c-2	RN 204	fine cream sandy, cream slip
c	Sl2c-5	"	fine cream sandy
d	Sl2c-3	RN 576	red sandy, cream slip exterior, red (hatched) and black paint
e	Sl2c-5	RN 204	fine cream sandy, green glaze interior, exterior, incised decoration interior
f	Sl2c-3	RN 576	fine cream sandy, dark olive green glaze interior, exterior, incised decoration interior
g	Sl2c-4	RN 583	fine red sandy, yellow glaze interior, exterior lip, bit of green glaze dripping on yellow
h	Sl2c-6	RN 204	red sandy, cream glaze interior, exterior lip and drips, brown stripe design
i	Sl2c-5	"	fine cream sandy, mottled purple glaze
j	Sl2c-6	"	cream sandy, pale green glaze interior
k	Sl2c-5	"	grey sandy, dark grey interior, exterior
l	Sl2c-3	RN 576	fine cream sandy, grey-green glaze interior, turquoise blue glaze exterior
m	Sl2c-5	RN 204	fine cream sandy, pale green glaze interior, exterior glaze ends at line
n	Sl2c-3	RN 576	fine cream sandy, pale green-white glaze interior, exterior glaze ends at line, cobalt blue (hatched) and purple (solid) decoration
o	Sl2c-3	"	fine cream sandy, green glaze interior
p	Sl2c-2	RN 204	faience, blue glaze interior, exterior
q	Sl2c-6	"	fine brown, mustard cracked glaze interior, grey exterior
r	Sl2c-2	"	red sandy, light green glaze interior
s	Sl2c-6	"	cream sandy, pale green glaze interior
t	Sl2c-7	RN 283	fine brown sandy, dark green glaze interior, exterior
u	Sl2c-5	RN 204	red sandy
v	Sl2c-5	"	brown sandy
w	"	"	red sandy, red slip
x	Sl2c-7	RN 577	fine grey sandy, black interior, exterior

.

S12c-2-7

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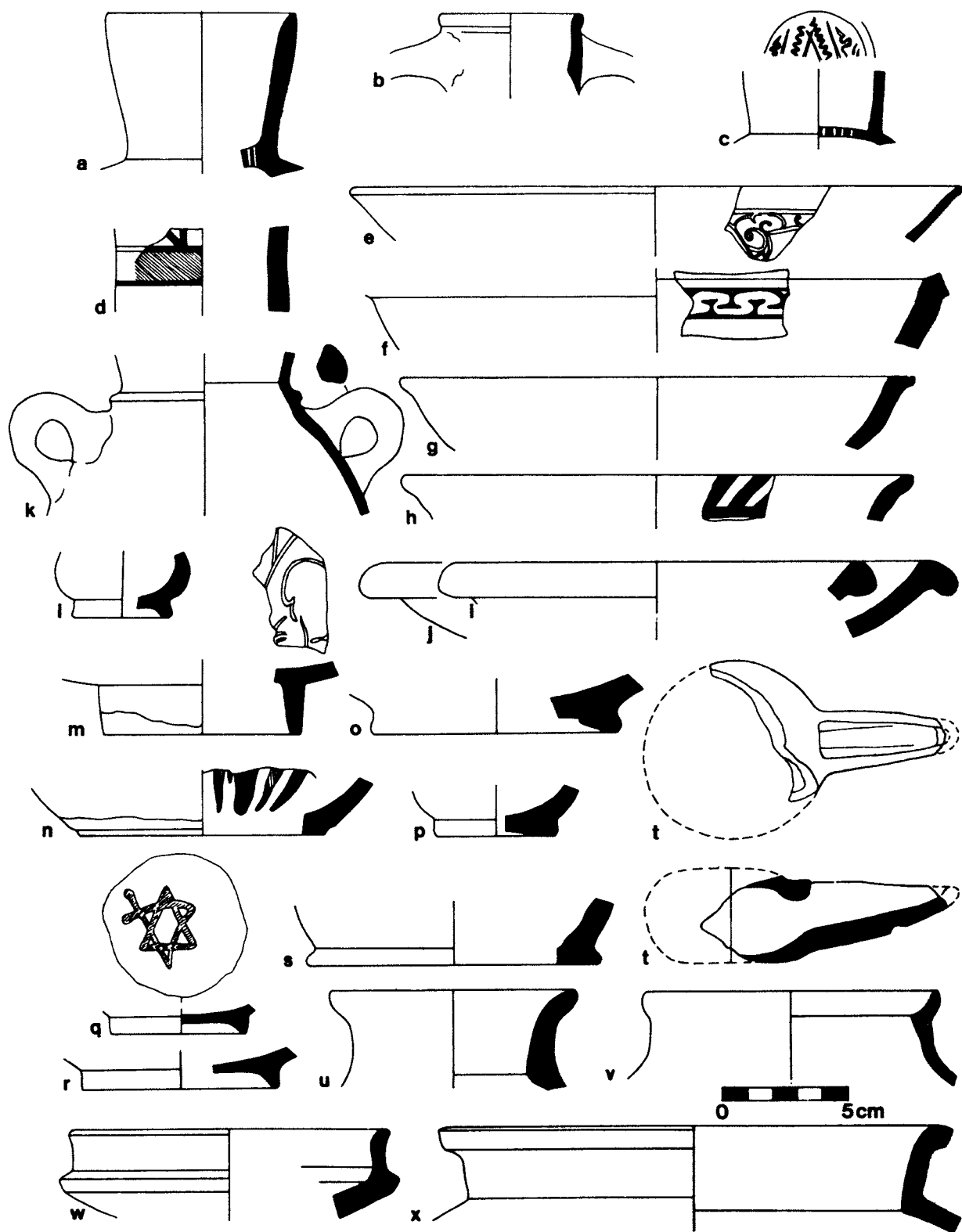


Plate 38: S12c

a	K9b-7	RN 678	cream ware, lavender glaze interior, exterior
b	K9b-5	"	cream ware, white glaze interior, exterior
c	K9b-7	RN 8	fine cream sandy, dark cobalt blue glaze interior, exterior, incised decoration interior filled with darker blue or black paint
d	"	RN 678	cream sandy, green glaze exterior
e	K9b-1	"	red, gritty, red-brown slip partially blackened, red paint
f	K9b-3	RN 9	fine red sandy, orange slip, red and black painted decoration
g	K9b-5	RN 678	brown, straw, cream slip, incised lines
h	"	"	red-brown, gritty
i	"	"	red, cream slip exterior, grit and straw
j	K9b-3	"	cream, dark green glaze interior, exterior
k	K9b-5	"	red, straw and grit
l	K9b-17	RN 173	grey-brown, gritty
m	"	"	cream ware
n	"	"	red sandy
o	K9b-1	RN 678	red sandy
p	K9b-5	"	red, wet-smear surface, grit
q	K9b-7	"	cream, turquoise glaze interior, exterior
r	K9b-3	"	red-brown, blackened exterior, grit



# K9b-1-17

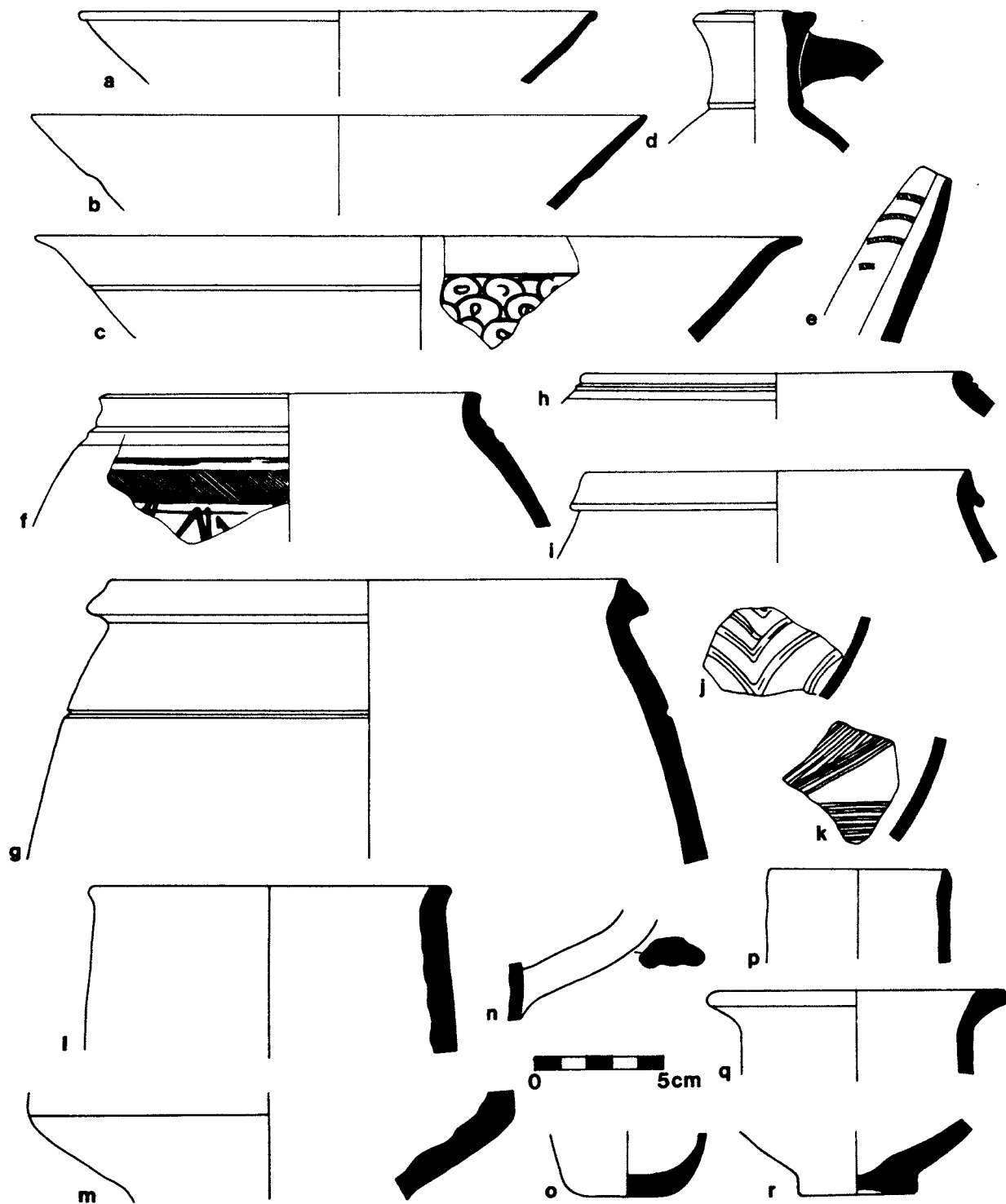


Plate 39: K9b-1-17

a	K9b-19	RN 173	cream sandy
b	"	"	fine cream, smoothed exterior
c	K9b-13	RN 678	red sandy, yellow glaze interior, exterior rim
d	K9b-21	RN 584	fine brown, pale yellow glaze interior, exterior
e	K9b-19	RN 173	brown sandy
f	K9b-23	"	now gold irridescient, green(?)
g	K9b-21	RN 584	fine red-brown, pale yellow glaze interior, exterior lip, black painted decoration interior
h	K9b-14	RN 678	light red sandy, yellow glaze interior
i	K9b-19	RN 173	red sandy
j	K9b-21	RN 584	fine red, cream slip
k	K9b-19	RN 173	fine cream, cream glaze interior, exterior
l	K9b-12	RN 678	red-brown sandy
m	K9b-21	RN 584	fine cream, yellow-green glaze
n	K9b-23	RN 578	fine red, cream slip part of exterior, black painted band exterior
o	"	RN 173	cream, white slip, ridge
p	"	RN 578	fine red sandy, cream slip(?), incised decoration exterior
q	"	RN 173	fine grey, mottled purple-grey glaze exterior, wheel marks interior
r	K9b-19	"	dark grey, dark grey exterior (slip[?]), incised notches
s	K9b-18	"	fine red, red slip(?)
t	K9b-21	"	light red sandy, cream slip exterior
u	K9b-13	RN 678	red-brown sandy, yellow glaze interior
v	K9b-16	RN 173	fine red, black interior
w	K9b-21	"	red sandy
x	K9b-22	RN 586	net bobbin made of cream ware sherd, tip blackened
y	"	"	net bobbin made of cream ware sherd with turquoise glaze, tip blackened

# K9b-12-23

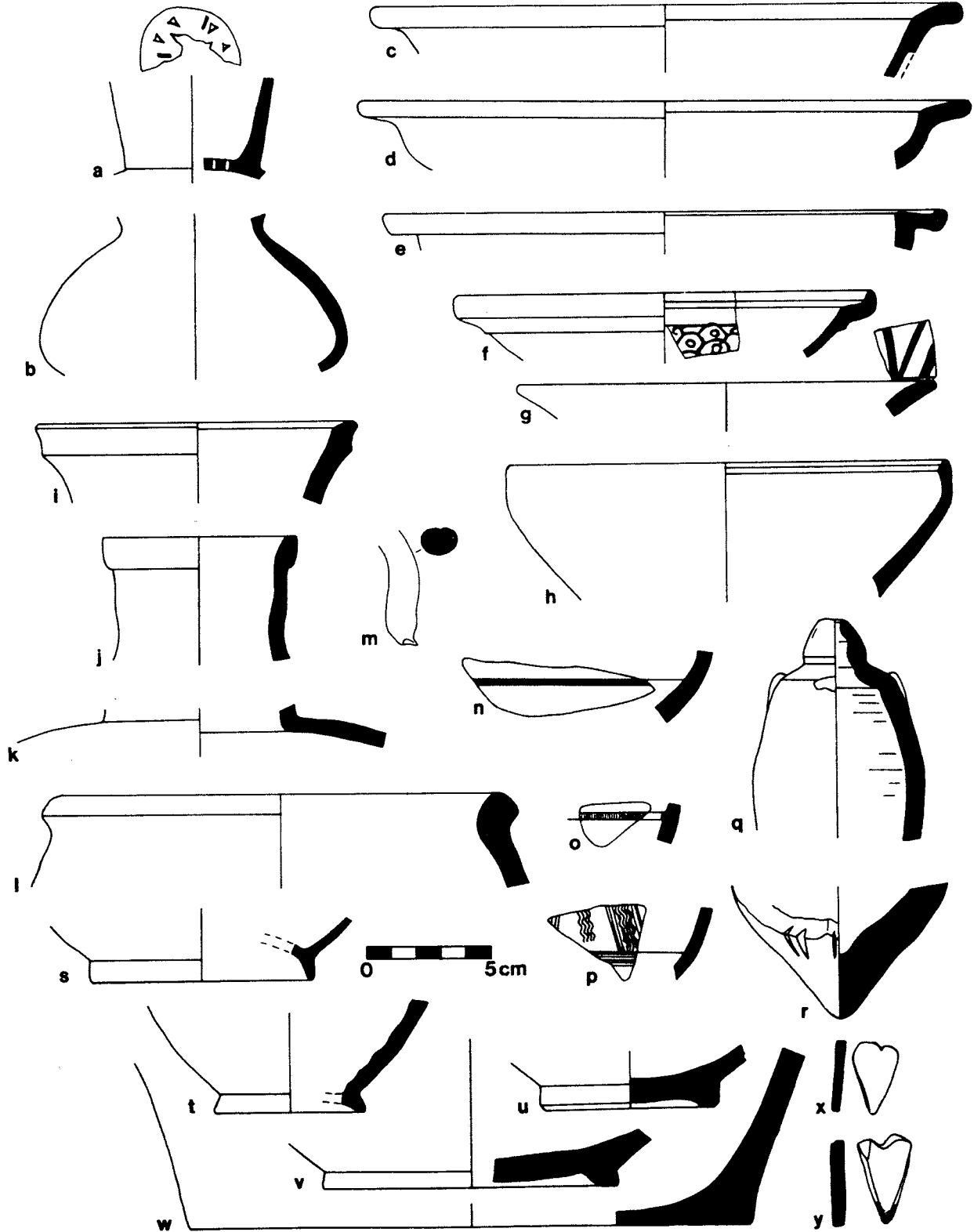
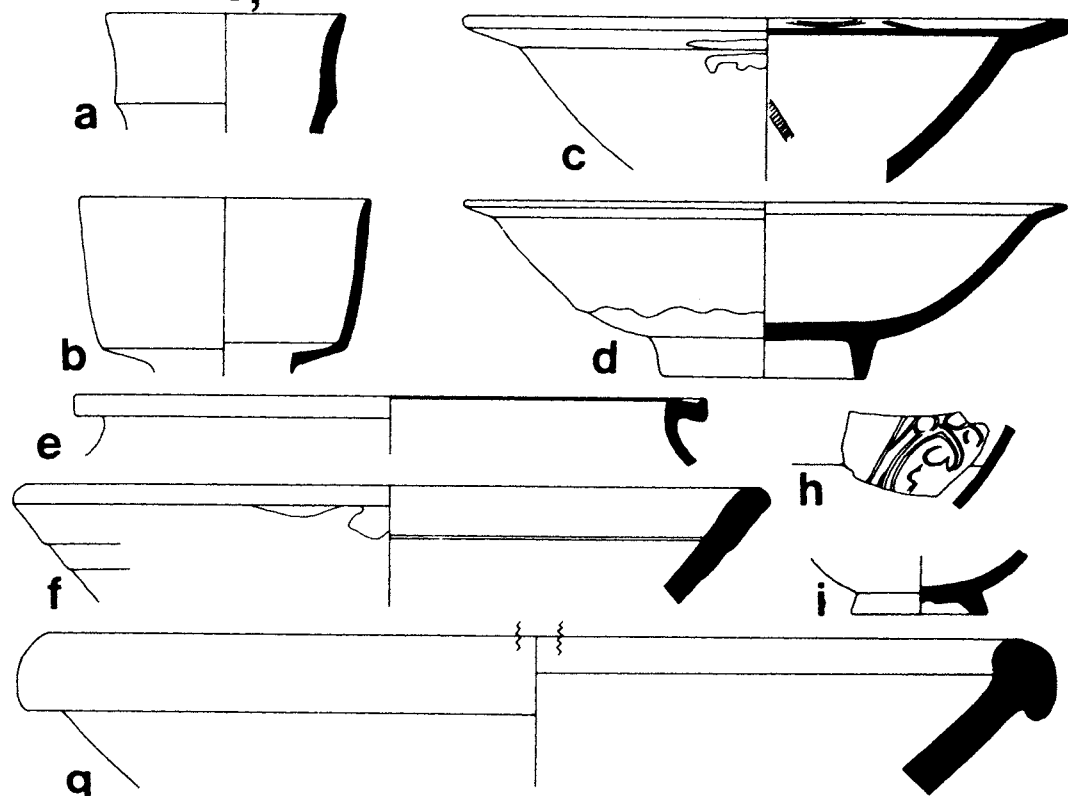


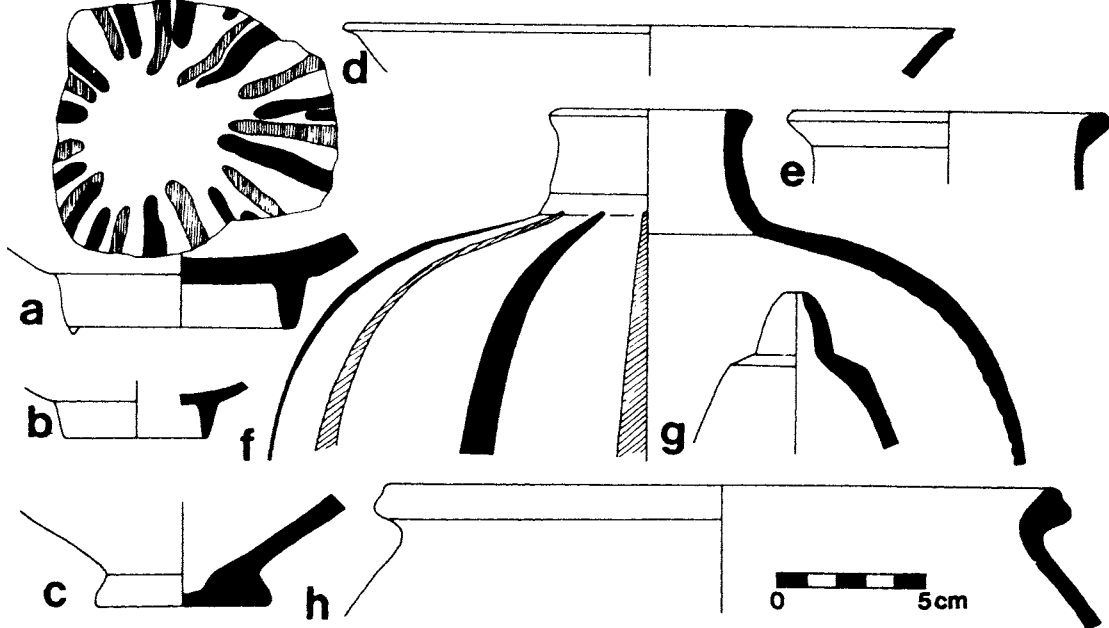
Plate 40: K9b-12-23

- |   |       |        |   |
|---|-------|--------|---|
| a | P7b-5 | RN 225 | red sandy, grey exterior  |
| b | P7d-7 | RN 229 | red sandy, red slip exterior, smoothened interior   |
| c | P7d-1 | RN 161 | red sandy, smoothed, pitted, yellow-green glaze interior, interior rim green (hatched) and brown (solid) band, interior bowl green band, exterior yellow-green glaze in spots |
| d | P7d-7 | RN 160 | fine cream sandy, blue-green glaze interior, exterior ends at wavy line   |
| e | P7b-5 | RN 224 | grey sandy, black interior, exterior  |
| f | P7d-1 | RN 161 | red sandy, yellow glaze interior, exterior lip  |
| g | P7b-5 | RN 225 | brown sandy, eroded yellow paint interior   |
| h | "     | RN 161 | fine cream, green glaze interior, exterior, incised decoration interior   |
| i | "     | RN 160 | fine cream sandy, turquoise glaze interior, exterior  |
- 
- |   |       |        |  |
|---|-------|--------|--|
| a | P7d-3 | RN 165 | cream sandy, light green-white interior, exterior, interior design drips of cobalt blue (hatched) and magnesium purple (solid) radiating from center |
| b | "     | RN 160 | fine cream sandy, turquoise blue glaze interior, exterior  |
| c | "     | RN 223 | grey, string cut   |
| d | "     | RN 160 | fine cream sandy, turquoise glaze interior, exterior   |
| e | "     | RN 165 | fine cream sandy, pale green-white glaze interior, exterior  |
| f | "     | "      | fine red, interior brown glaze, exterior yellow glaze, alternating brown and green vertical stripes  |
| g | "     | RN 163 | dark grey  |
| h | "     | RN 225 | red sandy, smoothed exterior   |

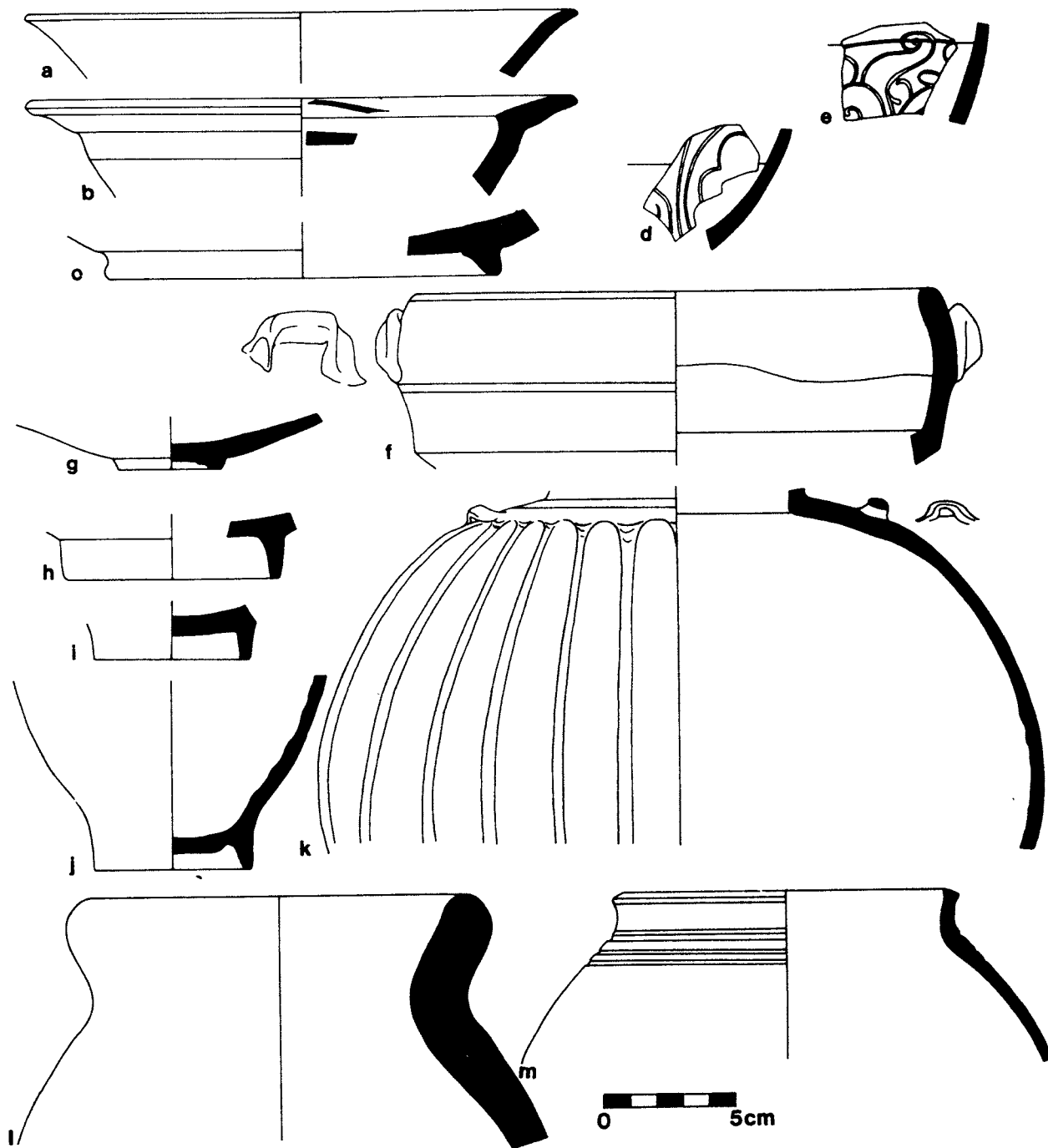
**P7b-5, P7d-1-7**



**P7d-3**



a	P8a-1	RN 160	fine cream sandy, turquoise glaze
b	"	RN 161	red sandy, yellow-green glaze interior, exterior lip, dark brown decoration
c	P8a-3	RN 160	fine cream sandy, turquoise glaze interior, exterior
d	"	RN 161	fine cream, yellow-green glaze interior, exterior, incised design interior filled with brown pigment
e	P8a-2	"	fine cream, dark green glaze interior, exterior, interior incised lines decoration
f	P8a-3	RN 165	dark cream sandy, interior yellow-brown glaze bottom half, exterior somewhat blackened
g	P8a-2	"	fine white paste, glass-like, flecked with tiny black particles, clear glaze letting white show through interior, exterior
h	P8a-3	RN 161	fine cream sandy, pitted, interior metallic puce, exterior green-brown glaze
i	P8a-2	RN 160	fine cream sandy, deep purple glaze interior, exterior
j	P8a-3	RN 223	dark red, gritty, cream slip interior, exterior
k	P8a-1	RN 160	fine cream sandy, green glaze interior, dark blue-green glaze exterior, possibly 3 or 4 handles
l	P8a-3	RN 224	red straw
m	"	"	red sandy, black exterior

**P8a-1-3****Plate 42: P8a-1-3**

a	P8a-4	RN 224	grey sandy
b	"	RN 159	fine brown, orange slip exterior, dark red (hatched) and black (solid) design exterior
c	P8a-6	RN 414	cream
d	P8a-5	RN 166	cream sandy
e	P8a-4	RN 224	fine light red
f	P8a-5-6 P7b-2	RN 159	fine red, red and black (solid) paint
g	P8a-5	"	fine brown, white and black (solid) paint exterior, incised lines
h	P8a-4	RN 192	brown sandy, light brown slip exterior, rope tied around handle
i	"	RN 224	red sandy, grey slip interior, exterior, interior mouth stained black, white reserve at handle join
j	"	RN 161	red sandy, pitted, bright green glaze interior, exterior lip
k	P8a-5	RN 162	red, yellow glaze, green (hatched) and brown (solid) decoration interior
l	"	RN 229	brown sandy, black interior, exterior
m	P8a-4	RN 230	red-brown, grit
n	P8a-5	RN 225	fine brown, dark brown slip
o	P8a-4	RN 161	fine brown, yellow-green glaze interior
p	P8a-5	RN 165	fine light grey, glass-like paste, clear glaze interior, exterior allowing grey to show through, incised design interior
q	P8a-4	"	fine cream sandy, pale green-white glaze interior, exterior
r	P8a-5	RN 161	fine cream, yellow-green glaze
s	"	RN 160	fine cream sandy, burned purple glaze (once turquoise[?]) interior, exterior
t	P8a-8	"	fine cream sandy, mottled green glaze interior, turquoise blue glaze exterior, drip under base



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P8a-4-8

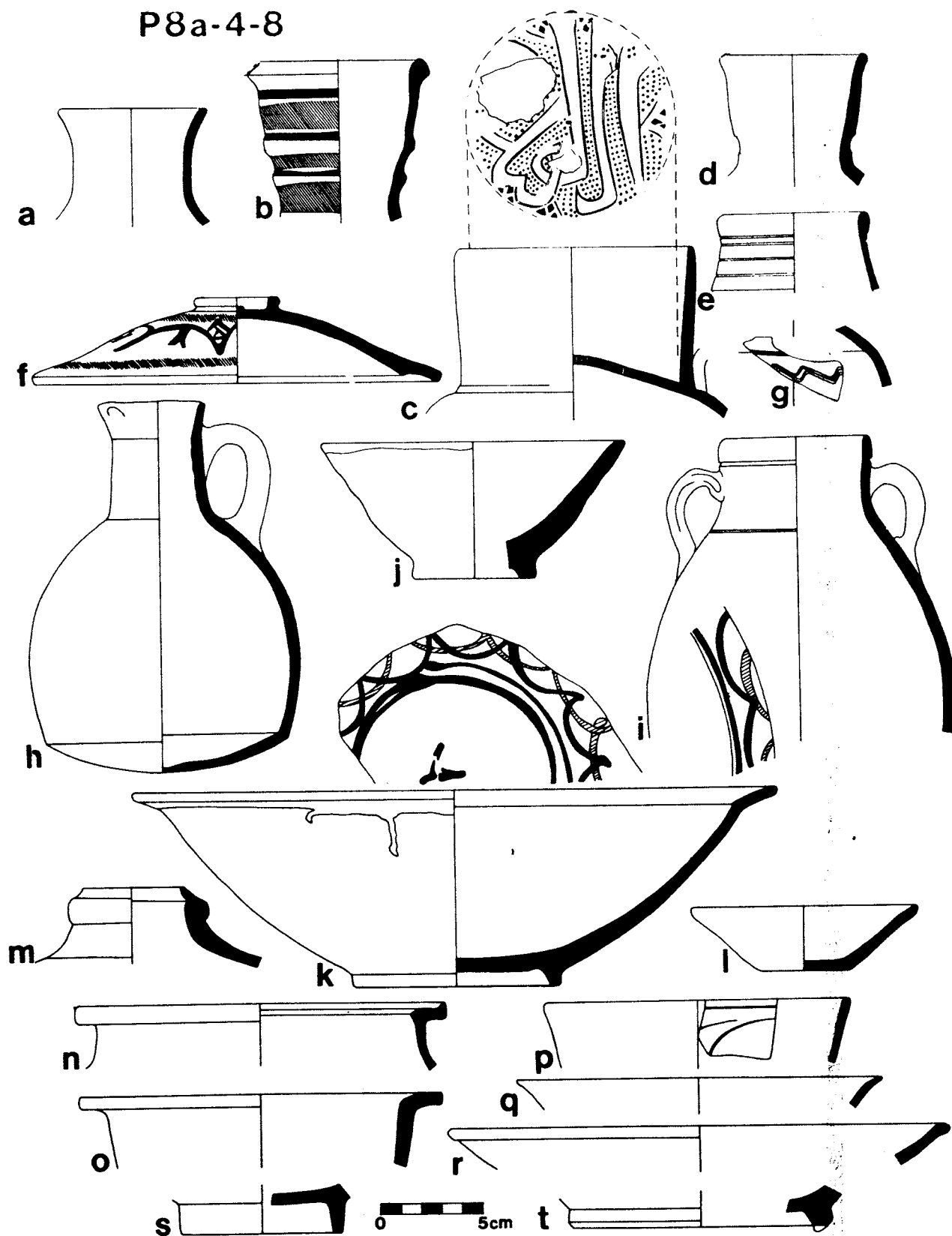


Plate 43: P8a-4-8

a	P8a-9	RN 160	fine cream sandy, turquoise glaze interior, exterior
b	"	"	fine cream sandy, turquoise glaze interior, exterior ends at wavy line
c	"	"	fine cream sandy, turquoise glaze interior, exterior
d	"	RN 166	cream sandy
e	P8a-7	RN 224	fine red, light red slip
f	P8a-9	RN 165	fine brown, chocolate brown glaze interior, exterior, green (hatched) and yellow (dots) painted decoration
g	P8a-10	RN 161	red sandy, yellow glaze interior, exterior lip, green and brown painted decoration interior
h	P8a-9	RN 160	turquoise glaze interior, exterior
i	"	"	fine cream sandy, turquoise glaze interior, exterior
j	P8a-10	RN 224	brown sandy, black exterior
k	P8a-9	RN 225	red sandy, black exterior
l	P8a-10	RN 229	fine red, straw, eroded exterior
m	P8a-9	RN 161	cream sandy, black flecks, pitted, light green glaze interior, light brown decoration interior
n	P8a-10	"	cream sandy, black flecks, pitted, beads light green glaze interior
o	P8a-9	"	fine cream sandy, mustard glaze interior, exterior, brown incised lines decoration, exterior base drip
p	"	RN 159	fine red, smoothed exterior
q	"	RN 160	fine sandy cream, green glaze interior, turquoise blue glaze exterior
r	"	RN 161	fine cream, dark green glaze interior, light green exterior, incised design interior, invisible now
s	"	RN 165	fine cream sandy, pale green-white glaze interior

## P8a-9-10

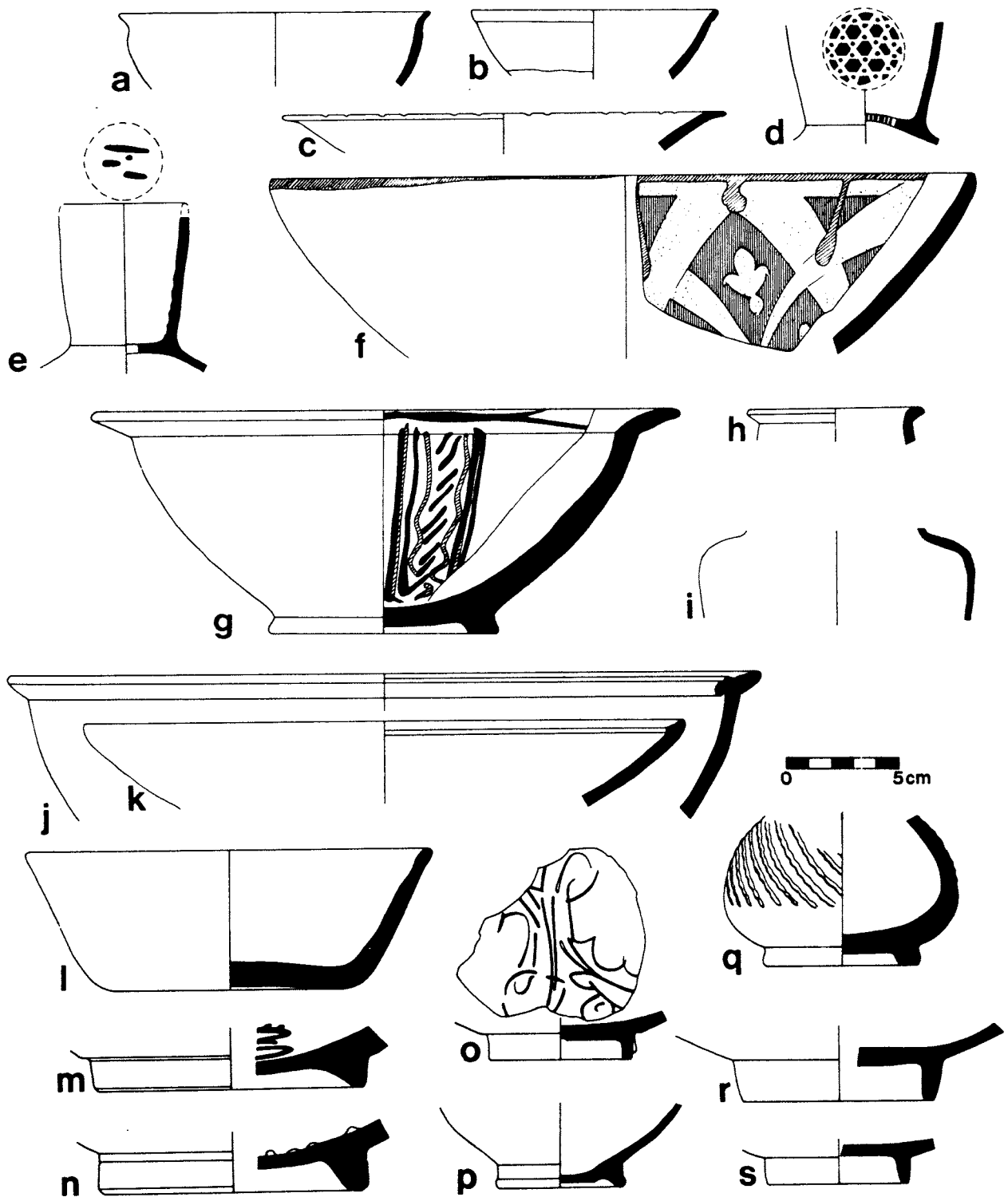


Plate 44: P8a-9-10

a	P8a-10	RN 224	red sandy, dark grey slip exterior
b	"	RN 222	dark red, self slip exterior, grit
c	P8a-9	RN 224	fine brown, light red-brown slip exterior fine grey, almost glass-like paste, tiny black flecks, grey-green glaze interior, exterior
d	"	"	fine grey, black polished interior, exterior, wheel marks interior
e	P8a-10	"	brown sandy
f	P8a-9	RN 159	red sandy, light red slip exterior, painted red and black
g	"	"	red sandy, bright red slip exterior, black painted design
h	"	RN 224	brown sandy, light brown slip exterior
i	"	RN 161	cream sandy, pitted, light green glaze exterior
j	"	RN 224	red sandy, some straw
k	"	RN 159	light red sandy, cream slip interior, red slip exterior
l	P8a-10	RN 230	red ware, cream slip exterior, grit
m	"	RN 224	fine red sandy
n	P8a-9	"	fine red, possible red-grey slip
o	"	RN 223	red, gritty, four holes
p	"	RN 224	red sandy, wheel marks interior, exterior also with cream slip

P8a-9-10

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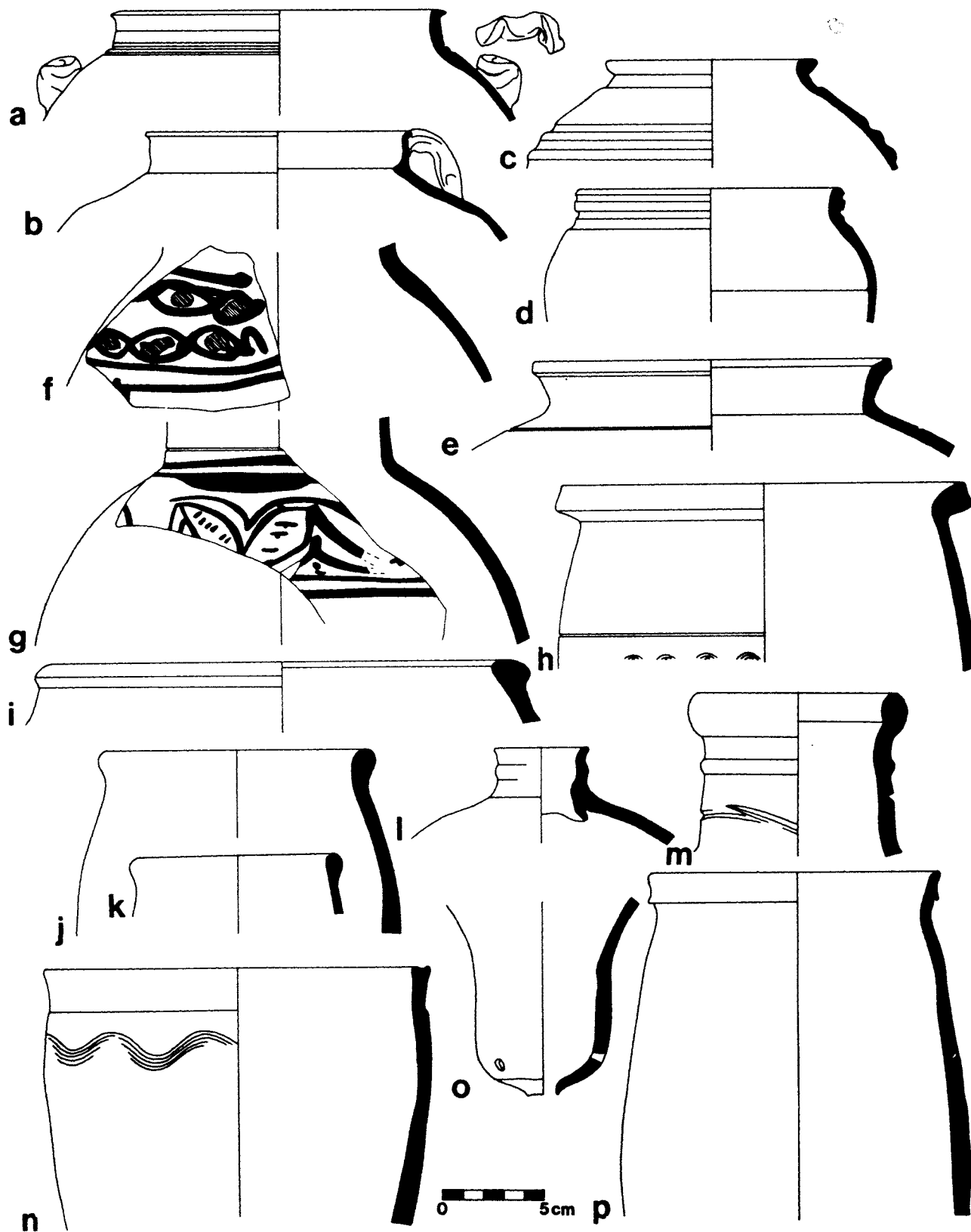
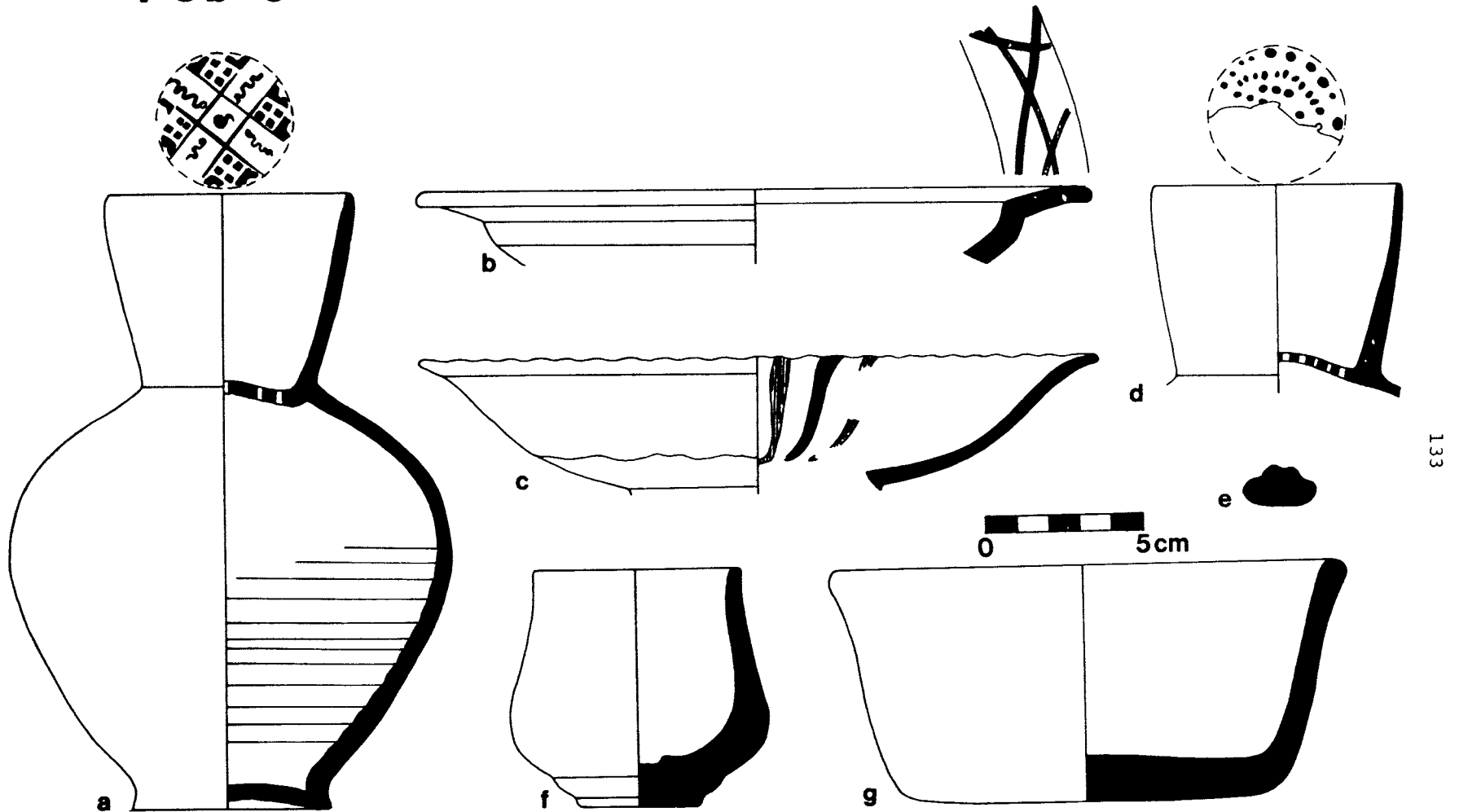


Plate 45: P8a-9-10

a	P8b-6	RN 187	pale grey sandy
b	"	RN 161	fine brown, yellow-green glaze interior, dark brown (solid), brown (middle), and green (bottom) bands on rim
c	"	RN 165	fine cream sandy, white glaze interior, exterior, interior drips of cobalt blue (hatched) and magnesium purple (solid) down side, exterior glaze ends at wavy line
d	"	RN 166	cream sandy
e	"	"	"
f	"	RN 186	fine light brown sandy, dark grey exterior
g	"	RN 229	red sandy, pitted, smoothed interior, exterior, string-cut base

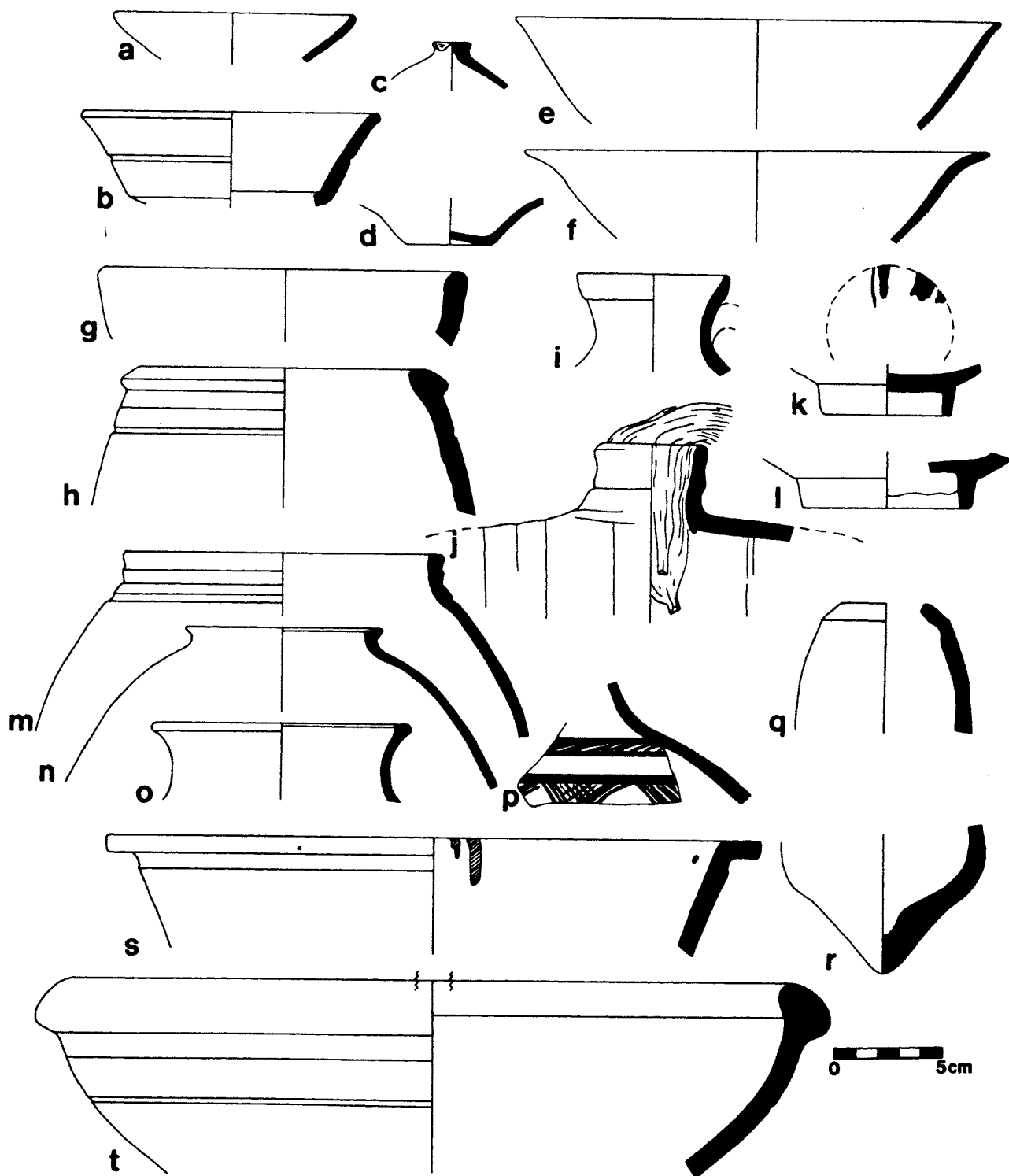
# P8b-6



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a	P8b-13	RN 230	red, blackened surface
b	P8b-16	RN 231	fine brown, dark green glaze interior, exterior lip
c	P8b-14	RN 223	fine red
d	P8b-6	"	brown, blackened interior
e	P8b-16	RN 231	fine cream sandy, turquoise glaze interior, exterior
f	"	RN 160	"
g	P8b-15	RN 161	red sandy, yellow glaze, greenish tinge, interior
h	P8b-6	"	cream sandy, black flecks, pitted, light grey-green glaze interior, exterior
i	"	RN 225	red sandy, smoothed interior, exterior
j	P8b-15	RN 184	fine brown, possible brown slip exterior, reed clump sealing
k	P8b-16	RN 231	fine cream sandy, white-cream glaze interior, cobalt blue (hatched) and magenta (solid) drips
l	"	"	fine cream sandy, pale green-white glaze interior, exterior to wavy line
m	P8b-12	RN 230	red, gritty, black surface exterior
n	P8b-13	RN 224	red sandy, black interior, dark grey slip exterior
o	"	RN 230	red, cream slip exterior, grit
p	P8b-16	"	red-orange ware, cream slip, grit, incised decoration
q	"	RN 231	fine dark grey, shiny grey-purple exterior
r	"	RN 163	fine cream sandy, turquoise glaze
s	"	RN 231	fine brown, yellow-green glaze interior, exterior lip, dark green drips interior lip, mend hole near lip
t	P8b-14	RN 224	brown sandy



**P8b-6-16****Plate 47: P8b-6-16**

a	P8b-8	RN 166	cream sandy
b	P8b-17	"	"
c	"	RN 231	fine light brown sandy, turquoise glaze interior, exterior
d	P8b-8	RN 161	red sandy, yellow-green glaze, dark brown and green decoration interior
e	"	"	red sandy, yellow glaze interior, exterior lip, brown paint decoration interior
f	"	RN 166	cream sandy
g	P8b-17	"	"
h	P8b-8	RN 161	red sandy, pitted, yellow-green glaze interior
i	"	RN 160	red sandy, dark blue-green glaze interior
j	P8b-17	RN 231	fine brown, yellow-green glaze interior, exterior lip
k	P8b-8	RN 161	red sandy, yellow glaze interior, exterior lip
l	P8b-17	RN 225	brown sandy, incised decoration exterior
m	"	RN 231	fine brown
n	P8b-8	RN 225	fine red, light red slip, wheel marks interior, exterior
o	"	"	fine grey, dark grey interior, exterior
p	"	RN 166	cream sandy
q	"	RN 222	red-brown, grit, grey surface exterior

P8b-8-17

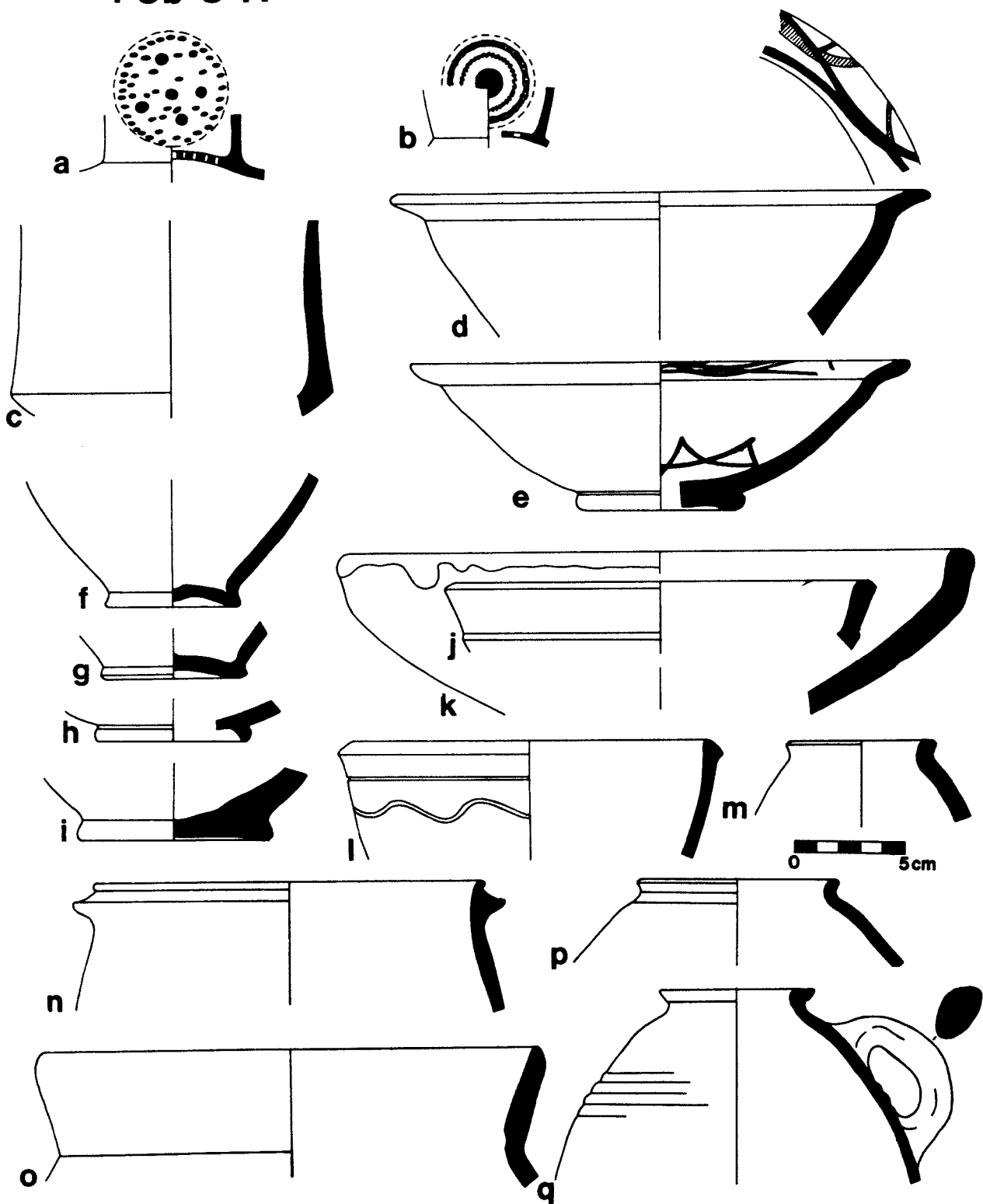


Plate 48: P8b-8, 17

a	A22d-4	RN 200	red-brown, fine straw temper, paddle-stamped exterior
b	A22d-3	"	"
c	"	"	sandy cream, pale green glaze interior, brown-grey painted decoration under glaze
d	"	"	porcelain, blue painted decoration interior and exterior
e	"	"	red sandy
f	A22d-4	"	brown sandy
g	"	"	white-grey ware, sandy with red grits
h	"	"	fine cream sandy

A22d

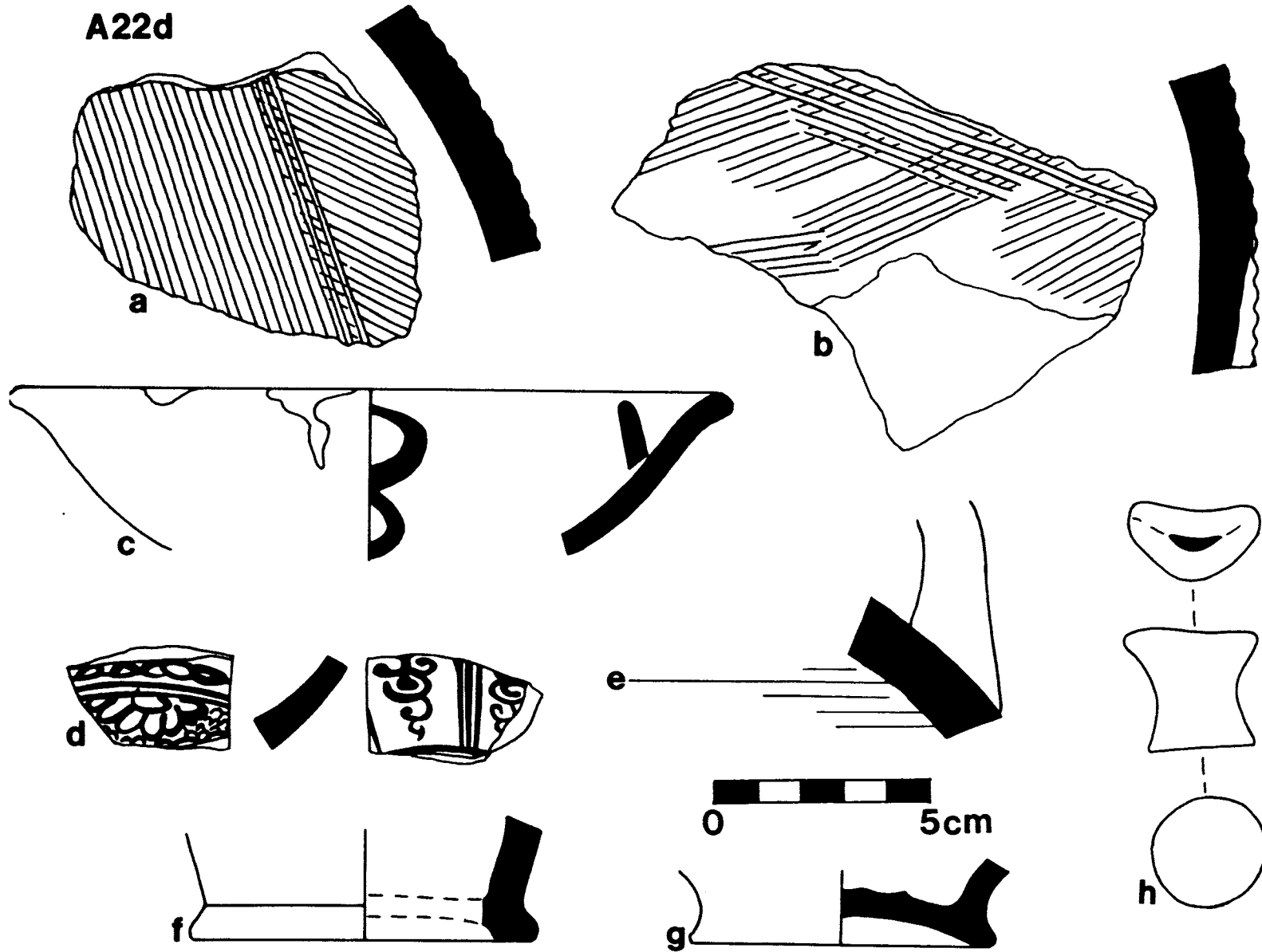


Plate 49: A22d

a	G11surf	RN 667	cream, turquoise interior, exterior
b	M6surf	"	cream, bluish white interior, exterior, pseudoporcelain
c	F12surf	"	cream, turquoise glaze interior, rim
d	C20-F20 surf	RN 209	fine cream, green glaze interior, exterior, incised decoration interior
e	N8surf	RN 667	cream, green glaze interior, exterior
f	E8surf	RN 174	fine red, mustard glaze interior, brown exterior, interior incised decoration filled with brown paint
g	Ssurf	RN 667	cream, turquoise interior, exterior
h	77surf	RN 699	cream, green glaze interior, light green glaze exterior, moulded pseudocalligraphy
i	surf	RN 581	grey sandy, glassy, brown glaze exterior, brown incised decoration
j	D10surf	RN 667	greyish cream, light green interior, soft painted decoration purple-black (solid), dark green (hatched), and blue
k	P2surf	"	cream, light green interior, clear and brown (hatched)
l	L13surf	RN 666	orange, self slip, brown paint
m	K9surf	"	orange, dark brown and red paint
n	NWsurf	"	orange, black and red paint
o	D8surf	"	cream-orange, orange slip exterior, dark brown paint
p	B19surf	"	orange, white grit, black paint

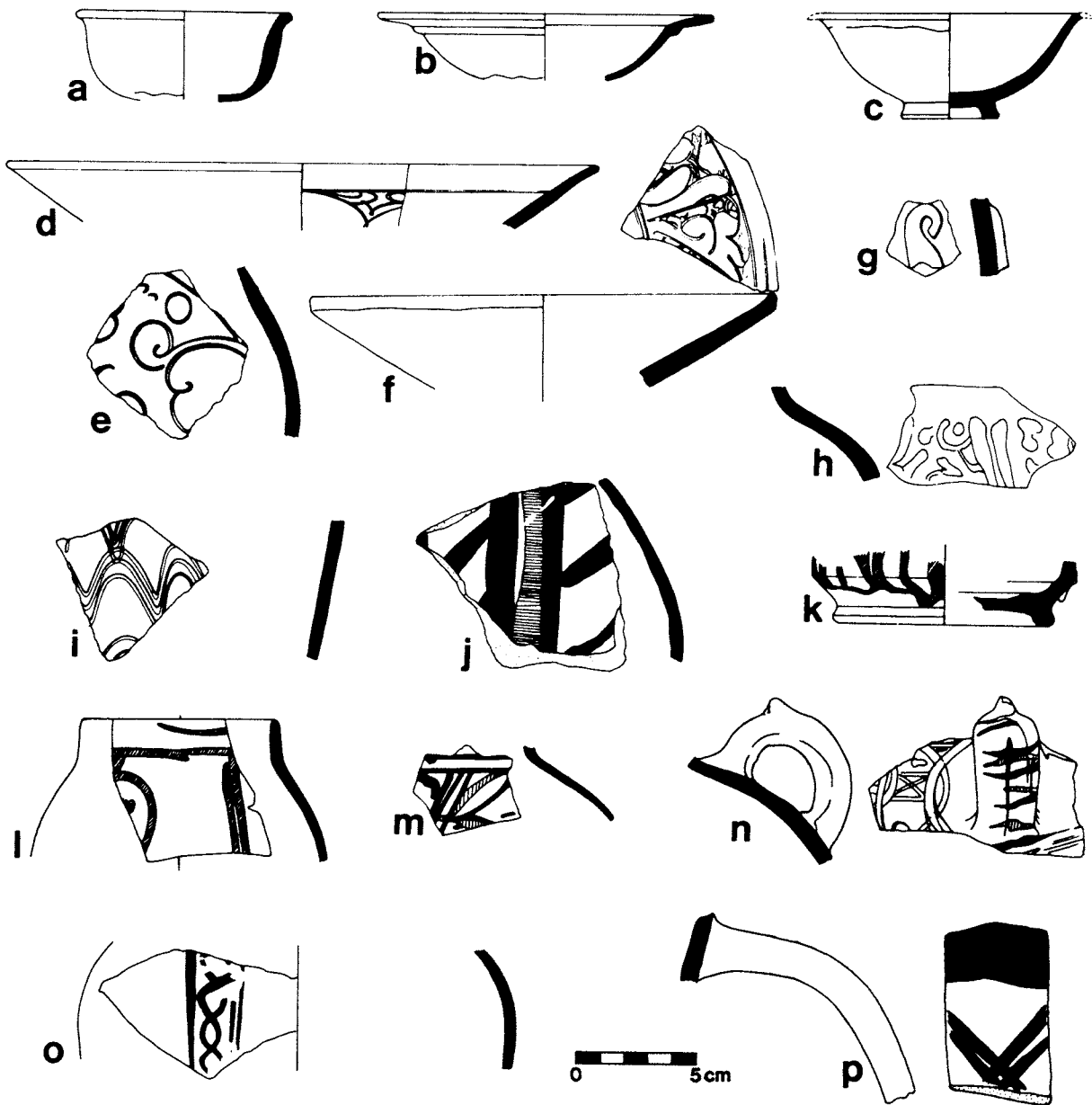


Plate 50: Surface

a	S12surf	RN 667	blue and white, crackles in surface
b	NWsurf	"	blue and white
c	F17surf	"	black under turquoise, frit
d	L8surf	"	cream, blue and black on white
e	E10surf	"	frit, black under turquoise
f	J11surf	RN 588	fine sandy cream, white background, blue and black painted decoration interior, exterior, covered by clear glaze interior, exterior
g	77surf	RN 699	cream, light green glaze interior, black and white glaze
h	P2surf	RN 209	faience, blue glaze interior, exterior, black paint interior
i	S12surf	RN 667	frit, black on white
j	77surf	RN 699	cream ware (frit[?]), turquoise glaze, black underglaze paint
k	SCentralsurf	RN 667	frit, black under cobalt blue
l	77surf	RN 699	clear glass, enameled, blue (hatched) and white (screen) with design outline in red
m	H13surf	RN 667	blue and white, pale blue
n	ECentralsurf	"	frit, blue and black
o	77surf	RN 699	cream, black, blue (hatched), and white glaze
p	L8d-6	RN 211	grey sandy, glassy paste, green-brown glaze exterior
q	E7surf	RN 667	light blue, porcelain, comb incising
r	77surf	RN 699	light grey, celadon, thin glaze
s	G12surf	RN 667	olive green, celadon
t	C20-E20surf	RN 209	celadon
u	SCentralsurf	RN 667	unglazed stoneware, olive brown glaze strip, brown wash
v	77surf	RN 699	stoneware, brownish yellow glaze, molded design
w	"	"	celadon, dark green glaze, lightly molded design, circle of glaze on base, red unglazed portion of base
x	H7surf	RN 667	light olive brown, celadon
y	E18surf	"	white, porcelain
z	M8surf	"	red-cream, heavy sand temper, brown-green glaze



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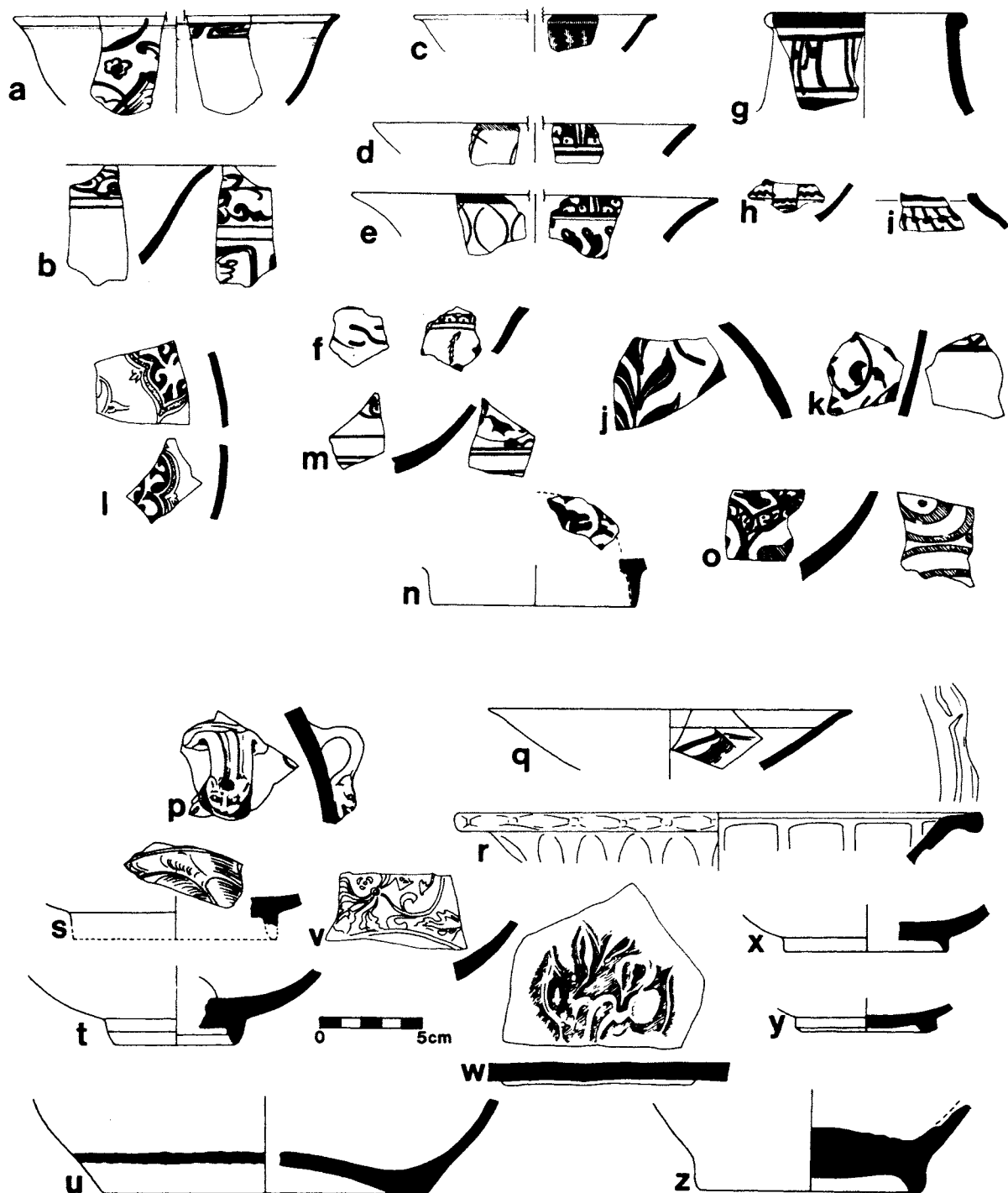


Plate 51: Surface

## CHAPTER 4: GLASS

Ann Roth

The glass found at Quseir al-Qadim dates from two distinct periods. The vast majority of the fragments found are associated with early, Roman, materials and are of types generally dated to the first centuries B.C. and A.D. The numerous fragments of finely made ribbed-molded bowls and fused millefiori glass may indicate a connection with the renowned Alexandrian glass industry that flourished during this period. Glass was still a rather expensive commodity, however, and may have been used long after its original manufacture. The second period is an Islamic occupation, 13th and 14th century in date. A large portion of the glass found in areas of this date was large, light olive tinted body sherds, with no diagnostic features (rim, base, or decoration). The diagnostic pieces show generally larger vessels characterized by simple forms, large kick-ups (a conical area in the base extending up into the interior of the vessel) and decoration applied to the exterior of a vessel, often in a darker color.

Most glass recovered from Quseir al-Qadim presumably was imported from the glass factories of Alexandria or the "Syrian" coast. However, a concentration of glass slag was discovered in G8d, which seems to indicate that some glass was made locally, at least during the Roman period. This square is located just outside the walls of one of the postulated insulae of the Roman settlement, in a "street." No wasters were found in this square; however, one very elegant vessel found on the surface of P8a has its rim collapsed into the base, to which it is attached by either glass slag or hardened bitumen. It is interesting to note that all known sites of ancient glass manufacture were near the sea, where the necessary sand was abundant, and that Quseir al-Qadim shares this advantage.

## Roman Forms

Pillar-molded bowls (52:a-e, m; 53:f; 54:b, o, q; 55:b, h, t; 56(top):b; 57:e, f, g; 58(bottom):b; 61:l; 62:h; 65:h). These bowls, found in many parts of the Roman empire, were possibly manufactured in Palestine (Weinberg, 1970, 1973). They are commonly dated to the first century B.C. or even earlier (Weinberg, 1970, 1973) and last through the first century A.D. The examples at Quseir al-Qadim are typical, their ribs beginning about 1.5 cm below the rim and coming together towards the base, though no bases themselves are preserved. All show interior wheel-cut grooves. In most examples, the ribs are not perfectly perpendicular to the rim, and this angle varies even on a single bowl, indicating that the ribs may have been applied or at least modified by hand. The underlying shape of the bowls varies even within a single square, from a rather flat, open bowl to a

deeper bowl with vertical or even in-sloping rims. There seem to be, in general, more open, shallow forms in the central area than were found in the northwest area, perhaps indicating a slight difference in date or spatial function, but the sample is so small that the difference may be coincidental.

No fused or millefiori examples were found, although such bowls are known from other sites. Of the fourteen examples of this type in which the corrosion has not obscured the original fabric, all are transparent and the colors are as follows: 5 light green, 3 deep royal blue, 3 deep amber-brown, 2 light yellow, 1 light turquoise, and 1 deep magenta. Two fragments of light amber (brown) ribbed glass found in otherwise "Islamic" loci may indicate that this kind of bowl was still used during the Islamic occupation, but more probably is a result of the mixing of Roman surface debris with the discards of the Islamic settlement above it. (Kämpfer, 1966: pl. 8; Von Saldern, 1974: # 249, 253, 254, 256, 258; Weinberg, 1970, 1973)

Unguentaria (rims and necks: 52:i, j; 53:n; 55:e, k; 56(top):c; 56(bottom): i, j; 57:h-j; 59:g, h; 60:k; 65:a-e; necks: 52:h, 53:o, p; 54:d, e; 55:m, v; 10:f; bases: 52:l; 53:g; 54:f, g; 55:o; 56(bottom):e, k; 57:k, l, n; 58(bottom): h; 59:j, '65:l). Probably the most commonly attested vessel from Roman loci is the long-necked unguentarium. These bottles held perfume and other valuable volatile liquids. The body of the vessel is usually squat and conical, often partially or even entirely solid, functioning mainly as ballast for the tube-shaped interior. It is generally held that the hollower bodies are earlier than more solid examples, although this cannot be proven on the basis of the material from this site. Most examples have rolled or folded rims. The height and width of the neck varies, with a number of examples showing the characteristic bulge above the junction with the body.

The vast majority of examples were transparent in a great variety of colors: 10 light green, 6 green, 5 dark green, 4 white/clear, 3 blue-green, 3 olive green, 1 dark amber, 1 light turquoise, 1 pale pink. Two examples showed a marbling of transparent dark green and opaque glass, and one base was decorated with gracefully applied ribs (55:w). (Calvi, 1968: pl. 21, # 1, 2, 4; marbled, Corning, 1957: # 150, 151, 154; Von Saldern, 1974: 355, 356, 359, 364, 365, 367, 369, 371, 375)

Pinched vessels (52:p; 53:u, w; 56(top):m, 57:r; 59:k, l; 65:m, n, p). A number of fragments excavated in Roman loci are from vessels whose sides have been pinched in on all four sides to form a squarish or 4-petalled cross section. None of these examples is preserved enough to allow a reconstruction of the top.

Most examples have a slight bulge at the base and a kick-up. One example has an attached molded base. All twelve examples are clear, although the two examples from G8d have a slight green tinge. (Harden, 1936: # 376, 393; Isings, 1957: form 32 [late first century A.D.]; Hayes, 1975: # 187-91; Auth, 1976: # 109)

Wide-rimmed molded bowls (53:a, d, e; 54:l; 58(top):l, m; 58(bottom):a; 59:a, b[?], c, e, g; 60:a, i, j; 64:a-e). A number of bowls were found, mostly in Roman contexts, which have wide, flaring rims. The rim is separated from the body of the bowl by a sharp change in inclination, usually emphasized by a rounded ridge. At the top of the rim there is another ridge, after which the rims turns out and down. All examples are clear; one has surface cutting. The dating of this form is uncertain. Such bowls may have been used during both occupations. (Harden, 1936: # 73, 74, 166, 170)

Handled unguentarium(?) (57:d). The most nearly intact glass object recovered was a small spherical bottle of clear glass with a wheel-cut band and two applied curled handles of light green glass. The rim is broken off, but a close parallel in the Royal Ontario Museum (Hayes, 1975: # 123) suggests that it would have been a flat rolled rim, not far above the present break. (Calvi, 1968: pl. 2, # 1; Corning, 1957: # 203 [first-second century A.D.] )

#### Islamic Forms

Flaring beaker (rims: 60:f; 61:c, h, i, j; 62:d, i; 63(middle):c). The most common shapes in the Islamic loci seem to be thin-walled beakers with either vertical or outward slanting sides, widening slightly at the rim, or flaring outward and down. These shapes are generally clear, with a yellow-green or pinkish tinge. One example has deep blue-green color applied irregularly around the rim. No bases are preserved.

Rolled base (58(top):g; 60:g; 61:n; 65:t, v). There are five examples of a base type that seems typical of Islamic areas of the site. They have vertical or outward slanting sides and are clear with either a pink or green tinge. The base is a ring, either solid or a loop from the body of the vessel (it is often difficult to distinguish). The bottom of the vessel is usually kicked up. (Philippe, 1970: fig. 62, 25, 26, 27; Harden, 1955: fig. 45)

These bases and the rim type discussed above may be parts of the same type of vessel: a vessel with a rolled and kicked-up base, which is straight sided for about 2/3 of its height, then flares sharply out to a wide rim. Most examples of this form were painted, often with gold. (Brussels, n.d.: # 109 [early 14th century A.D.]; Philippe, 1970: fig. 90; Lamm, 1929: pl. 99 (1-4), 127, 128, 141, 164, 166, 167, 177, 178)

Bevelled neck (58(bottom):e;60 :c; 61:a). There are only three examples of this final Islamic type noted, two of which are dark amber while the third is yellow-green. The form is an out-turned squared rim, which forms a bevelled lip. The sides then bulge out again, growing thicker as they narrow. This may be reconstructed as a very tiny pot or, more probably, the top part of a long-necked flask, decorated by a graceful bulge. (Lamm, 1929: pl. 5, # 2, 13; pl. 179, # 4)

#### Decorative Motifs

Fused (52:f, n; 53:g, h; 54:r; 57:a, o). Seven examples of fused glass were found on the site, four of the much noted millefiori type. This sample, although small, is interesting in that the sherds from C4c are very fine, with one or two types of cells forming a symmetrical pattern, while the two pieces from E6b-E7a are thicker and have a random jumble of components. Of the standard millefiori from C4c, one is particularly interesting because it appears to be a plate, not a common use of millefiori. It has a ring base, which has been constructed of one of the millefiori strands used to form the cells above it pulled even thinner and finer than the one from which the cells were cut. The flower inside the basal ring would have been hidden until the plate was broken. Of the examples of millefiori from E6b-E7a, one is a shallow, open bowl of opaque glass. The background is green with yellow speckles, with floating areas of dark red with black and white speckles. The second example is from a vessel or object of indeterminate type and is "wavy" in profile.

Two of the C4c examples are not millefiori. One is a tiny but exquisite fragment in which four double entwined strands of white glass run parallel in a clear glass matrix. A single-stranded parallel is in the Royal Ontario Museum (Hayes, 1975: # 69, 71 "network glass"), dated first century B.C. or early first century A.D. The spirals are larger and not as separated as in our example. The other, like millefiori, consists of cells in a matrix. The matrix is transparent dark blue while the cells are coils of opaque yellow in transparent yellow glass.

Marbled and traced (52:i; 53:i; 55:i, j; 59:h; 63(top):e). A number of examples were found in which two or more different kinds of glass were combined, most usually with strands of opaque white glass being applied to and incorporated into transparent colored glass. In three examples, these strands were applied in the traditional waved pattern seen in the earliest glass, but other examples show a more irregular application. Most examples come from Roman loci. The single example from an Islamic context is very different from the other examples in that strands of opaque green and magenta glass are applied to a clear vessel. The

sherd is too tiny to allow speculation on the shape of the vessel, but it had very thin, finely fluted walls. (Hayes, 1975: # 133-137)

Cut decoration. There were four different types of cut decoration found.

Wheel cutting (53:j, k; 55:n; 56(top):a; 56(bottom):a, b; 57:b, d; 60:f; 64:g; 65:v). This technique, which results in shallow horizontal bands, was used on the interior of all the ribbed bowls and as exterior decoration on many other vessels. Most of these bowls are clear, although there are examples in dark blue, pale green, and pink. The majority of examples are from Roman loci; those pieces recovered from Islamic areas may be attributable to mixed loci.

Regular geometric cutting (53:l, m; 54:j; 55:c, r; 56(bottom):d; 58(bottom):i; 64:h). In these examples, shallow interlocking cuts were made at regular intervals, usually on a goblet or tall cup. These cuts were either diamond-shaped, oval, or a teardrop-shaped combination of the two. These patterns were arranged in horizontal bands, with the outer edges of the band always rounded and the inner, interlocking, cuts always angular. Thus ovals are found only when there is a single row of cuts and teardrops are found only at the edges of a band. The vessels bearing these patterns are all clear and well made. They usually also have one or more molded raised horizontal lines bordering the bands of cut decoration. This kind of decoration has many parallels from the first century A.D., with examples found as far away as Sweden. (Kisa, 1908: sect. 337, p. 905; Isings, 1957: form 21 [begins end of first century]; Harden, 1936: # 409, 410; Von Saldern, 1968: # 27 [50-100 A.D.] )

Irregular geometric cutting (64:e, i, m, n). This technique consisted of covering the outside and underside of shallow bowls with small shallow oval cuts which vary in size, shape, spacing, and orientation. In one example, a down-turned rim is also so decorated. All examples were recovered from the surface, but from an area of the surface which would presumably be Islamic. All examples are clear.

Looped-line cuts (65:f, g). Two pieces of dark blue glass were recovered from the surface; they appear to be from the shoulders of small vessels. They are decorated with wide, shallow-cut lines which apparently formed a series of loops around the vessels. Two small horizontal cuts were made inside each loop in one example. The cutting is irregular and uneven. The area of the site from which they were collected suggests an Islamic date. (Auth, 1976: # 231; Lamm, 1929: pl. 54, # 2, 3; Pl. 55, # 3, 6)

Applied decoration. Three different types of applied decoration were distinguished: applied lines, applied prunts, and applied oval lozenges.

Applied lines (61:b; 58(top):j). There were two examples of applied lines from excavated context. One, which was found in an Islamic locus, is the neck of a clear vessel with a pink tinge, decorated with three dark blue rings, regularly spaced. The other is a small, clear sherd with three irregularly spaced clear threads crossing it.

Applied prunts (62:k, l; 63(middle):e; 58(top):i; 64:j). Five examples of prunting were found, four of the same glass as the vessel to which they were applied, one being clear glass with smoky pink prunts. Three were found in definite Islamic context, two from the surface. The example from the central area surface differs from the others in that it is much smaller, more irregular, and the prunts (assuming there were others) were more widely spaced. In the four remaining examples the prunts were roughly conical in shape. The example from the far northeast corner (A22d) was noticeably more regular, and the prunts were more closely spaced than in the examples from the harbor area. (Philippe, 1970: fig. 96, # 1-6; Lamm, 1929: pl. 26, 13-18, pl. 27, 2-4; Harden, 1955, fig. 40)

Applied oval lozenges (60:h, s, t, u). Three of the four examples of applied oval lozenges are from the same square and adjacent loci, are all green, and may, perhaps, be parts of a single vessel. They seem to have been pulled into oval shape after application, as there is a small, curled strand marking the point at which the tool was disengaged at one end of the oval, and the top surface shows signs of the tension. The remaining example shows none of these signs and also differs in color, being a dark blue lozenge applied to clear glass.

Painting (54:h, i; 63(top):d). Three pieces of painted glass were recorded. Two are from Roman loci, the third is from an Islamic locus. All three pieces are quite small and are painted with an enamel-like paint. The Roman examples both show a row of yellow squares, with a line running roughly perpendicular to it. One sherd is green with a dark red line; the other is clear with a yellow-green line. The Islamic sherd is very small, on clear glass, painted with a more complex design in blue, green, white, and black. One additional sherd was collected from the surface of a Roman area which seems to be partially traced or fused and partially painted (64:p). It is clear, with a band of transparent yellow, and is painted with dark red and white.

Handles. Only a few of these vessels had handles, in all cases applied and in many cases decorative, for which reason they are treated here rather than as form. There are two basic categories of handles: small, curled handles and large angled handles. In addition, there is one handle which fits neither category. It

is a thin rod of dark blue glass which was bent and attached to a large, clear vessel (61:k). Of the four curled handles (52:g; 57:d; 63(bottom):b), at least three are of green glass attached to a clear vessel (two belonging to the same small jar), and the fourth is too corroded to distinguish the original color. The curled handle seems to have been applied as a molten blob, the top of which was then pulled around to make a loop. These are all from Roman contexts.

There is more variation among the angled handles. All consist of a wide, flat piece of glass attached to the rim of a necked vessel, which extends out horizontally or up at a slight angle until it is directly above the shoulder of the vessel, then bends down to join it. One of these handles is clear and completely flat (65:k); two are divided into three wide, flat ribs, one clear, one pink (58:c; 54:c); a green one has been pulled at points along the junction with the shoulder, resulting in heavy ribbing (58[top]:d); while the last, of pink glass, has three distinct ribs (65:j). The dating of this style is uncertain; the flat ribbed type is found in good Roman context as well as an Islamic locus, so, although it is probably Roman, the style may have been used in both periods.

Bubbles (65:i). In addition to the types of decoration noted thus far, one piece shows a type of decoration for which no parallel has been found. It was collected from the surface and seems to be either the base of a bowl with a very high kick-up, or a stemmed glass with something extending down from the rim. It is smoky grey in color, but its most interesting feature is a rolled base/rim which has been carefully left hollow, then pinched at regular intervals so that the air-space inside the rim became a chain of bubbles.

#### Locus Summaries

C4c-4. This locus contained a good assemblage of early Roman glass types. Piece b is probably a ribbed bowl; the angle is doubtful.

C4c-9, 10. This glass should be earlier than or the same date as that found in C4c-4. The only difference worth noting is the greater percentage of ribbed bowls, which in an assemblage of this size cannot have much significance. Both loci should probably date to the first centuries B.C. and A.D. The glass is not susceptible to closer dating at this point. (For C4c-2, t, see Isings, 1957: fig. 69b; C4c-4, c, see Harden, 1936: # 734; C4c-8, w, see Kämpfer, 1966: pl. 9; Harden, 1936: # 544, 545; Hayes, 1975: # 560.)

B4a-2. The glass from this locus is simpler than the assemblage from C4c, with no ribbed bowls or millefiori. It could be earlier, or, more probably, it simply indicates a difference in prosperity or the function of the area.



B4a-4. This locus has the same assemblage as locus 2, and thus is probably of the same date.

B4a-5. The pieces found in this locus seem to be from the same type of jar. Nothing can be said about date.

E6b-4. This locus yielded a slightly less rich collection of types than the upper C4c loci, but is probably within the same range of dates.

E6b-9. The jar can be dated by a parallel noted above to approximately second century A.D. (For E6b-9, d, see Calvi, 1968: pl. 2, 1; Corning, 1957: # 203; Hayes, 1975: # 123.)

F8d-1, 2. Islamic pottery was recovered from this locus, and the glass certainly contains no unambiguously early forms. Neither does it have any forms that have been identified with the Islamic period. (For F8d-2, c, see Harden, 1936, # 734)

F9c-20. If this sherd is mold-blown, it would fit into the Islamic assemblage better than the Roman types found elsewhere on the site. The sherd is too small to yield definite conclusions, however. (For F9c surf, d, see Kämpfer, 1966: pl. 26; Calvi, 1968: pl. 12, 5; Auth, 1976: # 130, 132; Cooney, 1976: # 1074-76.)

F10a-3. A hollow, very narrow, dark green unguentarium base and a clear, regular geometrically cut piece. The second accords well with a piece from C4c-4 and probably should be dated to the centuries around the change of millennium, also.

F10a-5. No conclusions can be drawn from the one bottle found.

F10a-12. The type found is also found in the upper loci of C4c and in B4a. Early Roman date seems probable.

G8d-1. The pinched vessels, traced unguentarium rim and wide rimmed bowls would seem to place this locus in the early Roman period, although the rolled bases may indicate some Islamic mixing. The presence of a small amount of glass slag could indicate that this was near the site of a small-scale glass manufacturing area.

S12a-4. No conclusions can be drawn from this single sherd.

S12c-2-7. Although these forms have not yet been determined to be Islamic, they are not paralleled in the extensive Roman assemblage found on the site.

K9b-1-17. No conclusions can be drawn from these sherds alone. (For K9b-16, c, see Lamm, 1929: pl. 3, # 72.)

P8a-9. This jar type was recovered only from loci with Islamic pottery and is regarded as Islamic.

P8b-6. The straight-sided beaker with slight bulge at the rim and the rolled base with high kick-up are common in other Islamic loci. The kick-up of the very large vessel would be very unusual in a Roman context and is probably Islamic.

- P8b-8. The large beaker is distinctly un-Roman and the flaring neck fits well in the Islamic assemblage, also. If the small sherd is a ribbed bowl fragment, the locus may be slightly mixed.
- P8b-17. Both pieces are clearly from the site's Islamic assemblage. (For P8b-1, b, see Roeder, 1940: pl. 16, d.)
- Q2b-3. This piece is very similar to the Roman curled handles in construction but is larger and more sturdy, which perhaps indicates a later version of the same type. (For K4-L4surf, f, see Lamm, 1929: pl. 3, # 72; for K4-L4surf, k, see Toledo, 1969: 27; Calvi, 1968: pl. 14.)

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a	C4c-9	RN 355	clear dark blue
b	"	"	clear light green
c	C4c-10	"	transparent purplish magenta
d	"	"	clear white or light green, ribbing not visible
e	"	"	clear white or yellow
f	C4c-9	"	coils of opaque yellow and clear light yellow on dark blue ground with beige centers
g	"	"	clear, corroded
h	C4c-10	"	clear green
i	"	"	opaque white and clear dark green
j	C4c-11	"	transparent dark green
k	"	"	clear
l	C4c-15	"	pale blue
m	C4c-18	"	transparent amber
n	"	"	opaque dark purple background with white section dividers, each flower either clear green with opaque yellow petal dividers or red center surrounded by yellow dots, ring base is dark purple interior, green exterior, with little flowers of red with yellow petals

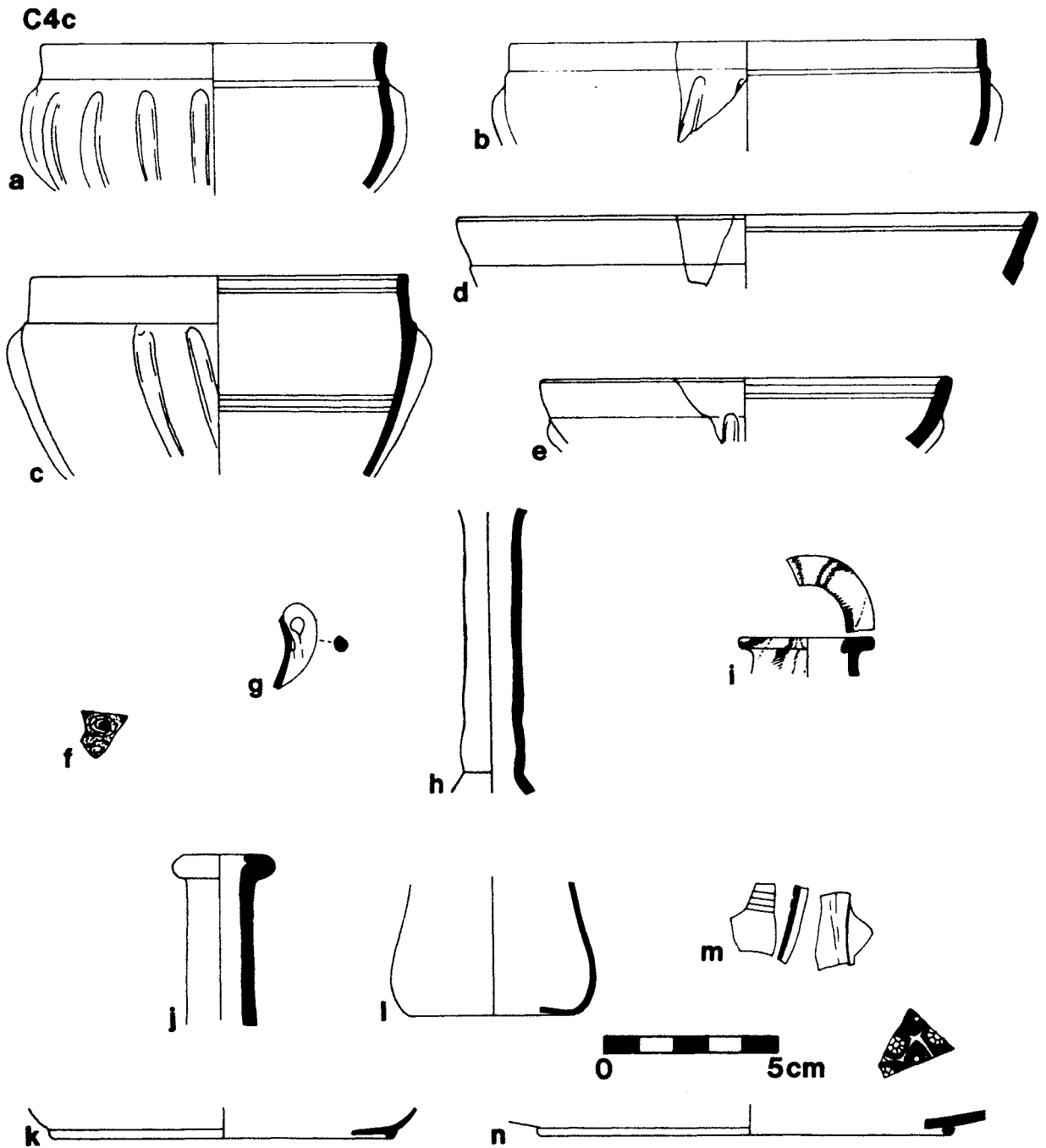


Plate 52: C4c

a	C4c-2	RN 355	clear white
b	"	"	clear
c	"	"	opaque dark magenta
d	"	"	clear
e	"	"	clear pink
f	"	"	transparent deep amber
g	"	"	translucent dark purple background, opaque white circles surrounded by opaque dark red petals in white cells
h	"	"	clear with pale turquoise tinge with opaque white twisted ribbons
i	"	"	transparent amber with white opaque trailings
j	"	"	clear
k	"	"	clear with pink tinge, incised line and groove
l	"	"	clear, honeycomb mold, cut
m	"	"	"
n	"	"	transparent white
o	"	"	clear blue-green
p	"	"	clear green
q	"	"	transparent dark green
r	"	"	clear green
s	"	"	clear
t	"	"	clear pinkish
u	"	"	clear, pinched sides accentuating squarish base
v	"	"	clear, dark blue-green, very large bubbles
w	"	"	clear, heavy, pinched sides

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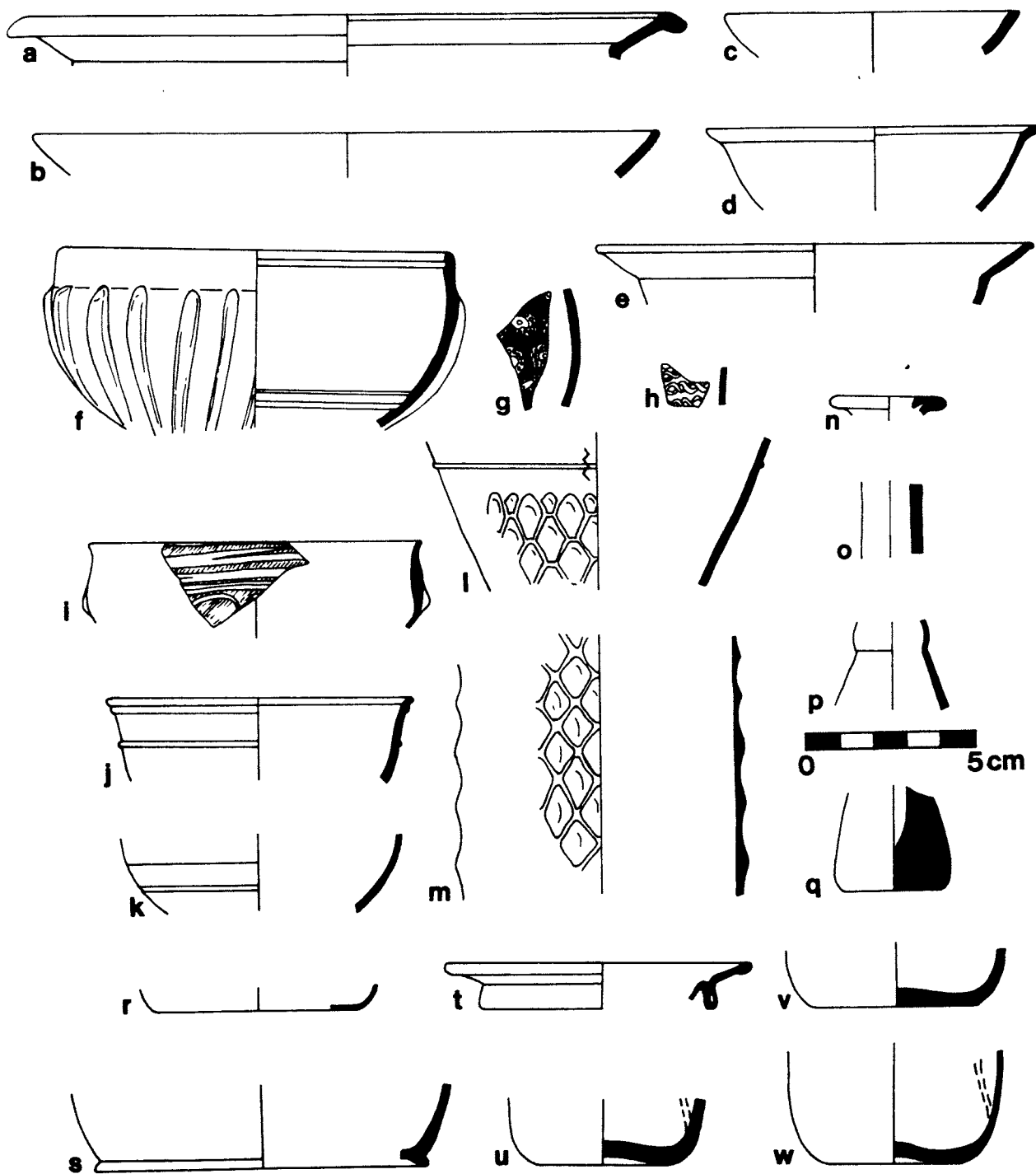


Plate 53: C4c-2

a	C4c-4	RN 355	transparent bright green
b	"	"	clear turquoise, incised lines interior, exterior
c	"	"	clear pinkish
d	"	"	clear blue-green
e	"	"	transparent dark green
f	"	"	clear pinkish
g	"	"	clear green
h	"	"	transparent dark green, painted with bright yellow squares and dark red lines
i	"	"	clear, painted with yellow squares and lines of yellow-green enamel
j	"	"	clear, raised lines, cut or molded indentations
k	"	"	clear blue
l	"	"	clear
m	"	"	transparent amber, very shallow ribs
n	"	"	clear blue, combed
o	"	"	transparent light green
p	"	"	clear
q	"	"	transparent light yellow
r	"	"	opaque, powder blue background with dark red flower centers, beige petals, and white outlines



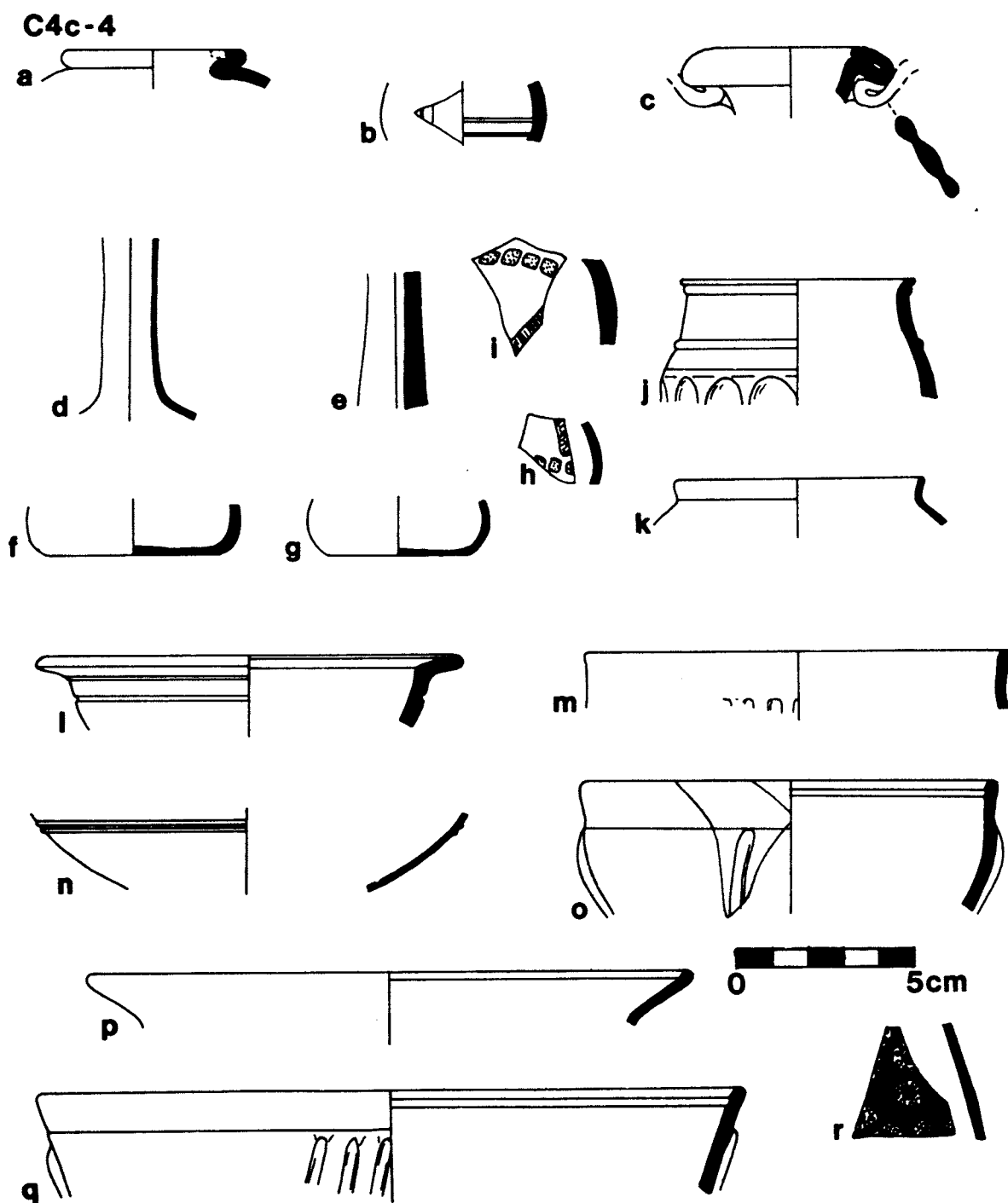
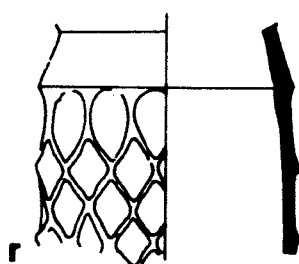
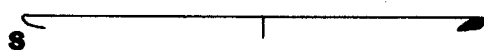
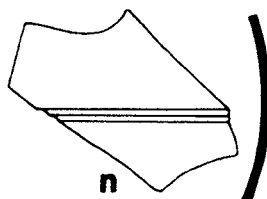
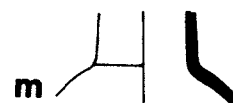
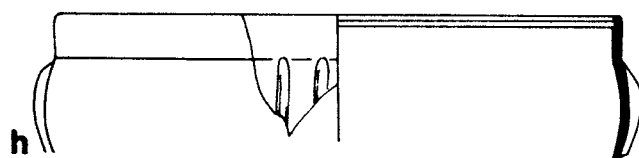
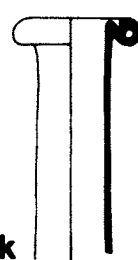
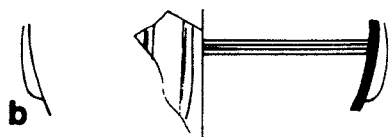
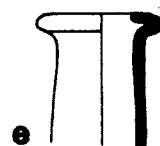
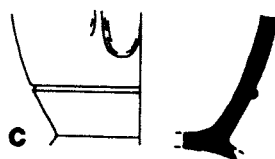
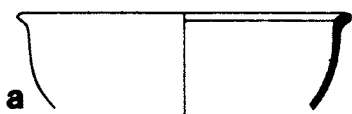


Plate 54: C4c-4

a	C4c-3	RN 355	clear light green
b	"	"	transparent dark blue
c	"	"	clear
d	"	"	clear, irregular
e	"	"	clear light green
f	"	"	clear, possibly pinched at top
g	C4c-7	"	clear
h	"	"	transparent deep blue
i	"	"	green with opaque white tracings
j	C4c-5	"	opaque blue with white tracings
k	C4c-7	"	transparent light green
l	C4c-5	"	translucent magenta, green, and blue, badly corroded
m	"	"	transparent light green
n	C4c-7	"	clear
o	"	"	transparent green
p	"	"	translucent white
q	C4c-8	"	transparent white
r	"	"	"
s	"	"	transparent dark green
t	"	"	transparent amber
u	"	"	clear
v	"	"	transparent light blue-green
w	"	"	transparent white

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**C4c-3-8**

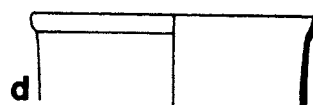
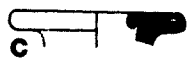
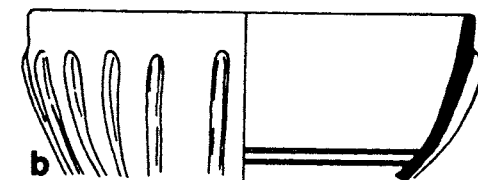


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a	D4bsurf	RN 681	transparent dark blue
b	D4b-3	RN 359	clear yellow-green
c	"	"	transparent green
d	"	"	clear pale blue
e	"	"	translucent green

a	B4a-2	RN 354	clear
b	"	"	"
c	"	"	"
d	B4a-3	"	"
e	B4a-2	"	translucent dark blue
f	B4a-1	"	clear, very fine
g	B4a-2	"	"
h	"	"	translucent white, slightly squared
i	B4a-5	"	translucent pale green
j	"	"	"
k	B4a-4	"	translucent smoky green
l	B4a-3	"	transparent white with grooves
m	B4a-4	"	clear, squarish base, pinched

**D4b**



**B4a**

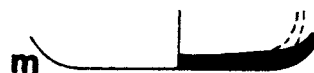
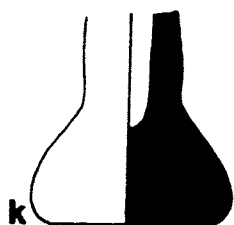
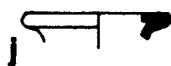
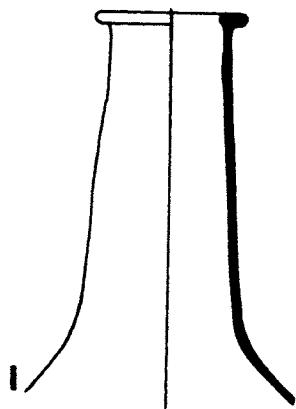
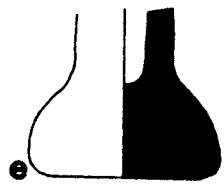
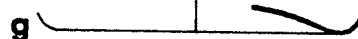
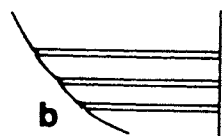
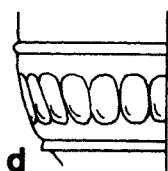


Plate 56: D4b, B4a

a	E7asurf	RN 352	yellowish green with yellow dots dark red with white dots and black lines
b	E6b-5	RN 343	transparent blue
c	E6b-8	"	translucent light green
d	E6b-9	"	clear with light green handles and incised band
e	E6b-4	"	clear green, corroded
f	"	"	clear(?), corroded
g	E7a-2	RN 356	translucent amber or light green, very corroded
h	E6b-4	RN 343	clear
i	"	"	transparent light green
j	E7asurf	RN 356	"
k	E6b-8	RN 343	"
l	E7a-2	RN 356	translucent light green, corroded
m	E6b-9	RN 343	clear
n	E6b-10	"	transparent dark amber or green
o	"	"	opaque yellow, red, and white, translucent black
p	E6b-5	"	clear
q	E6b-4	"	translucent green
r	E6b-12	RN 358	transparent white, pinched sides
s	E6b-11	RN 343	translucent light green
t	E6b-4	"	"

E6,7

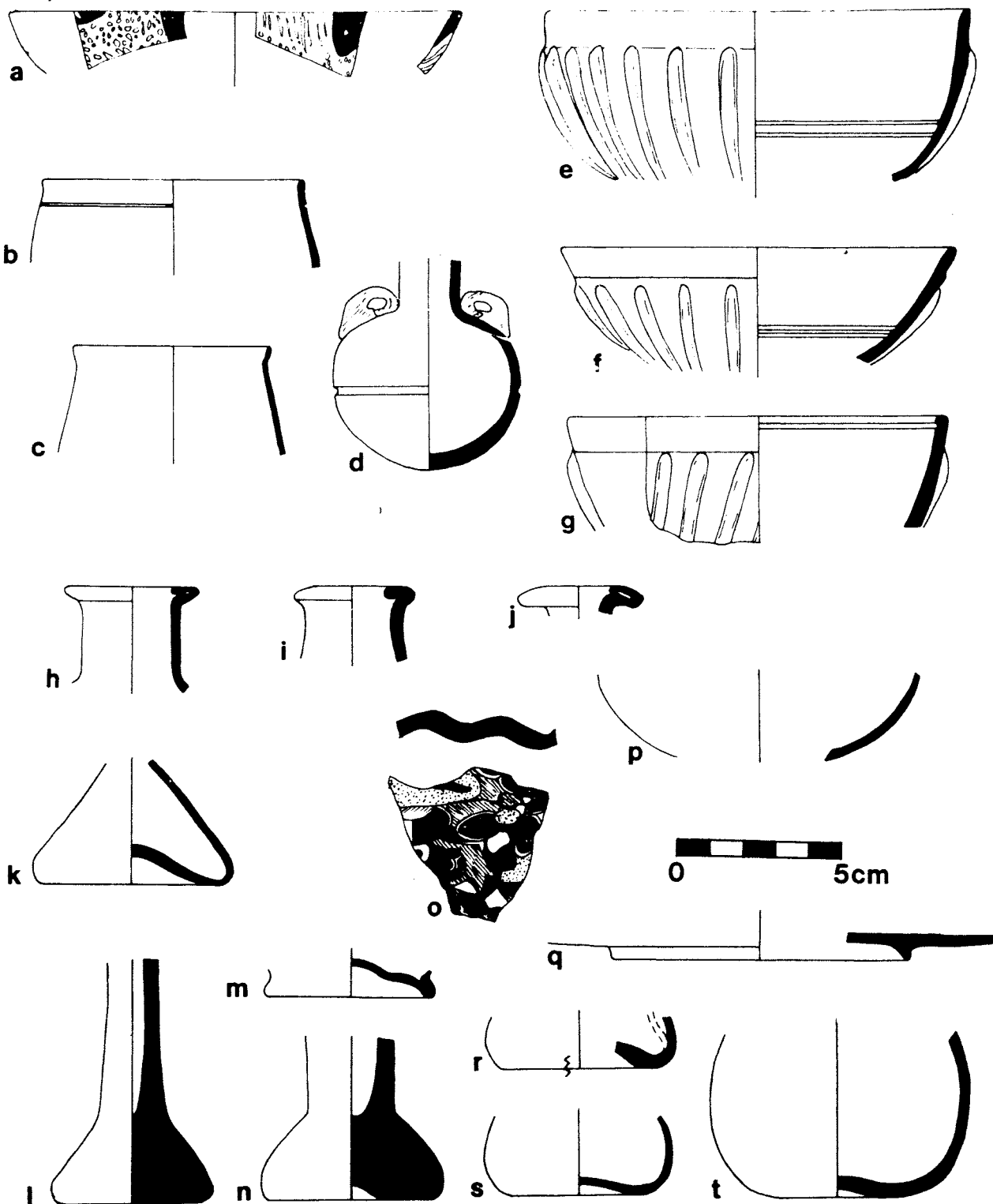
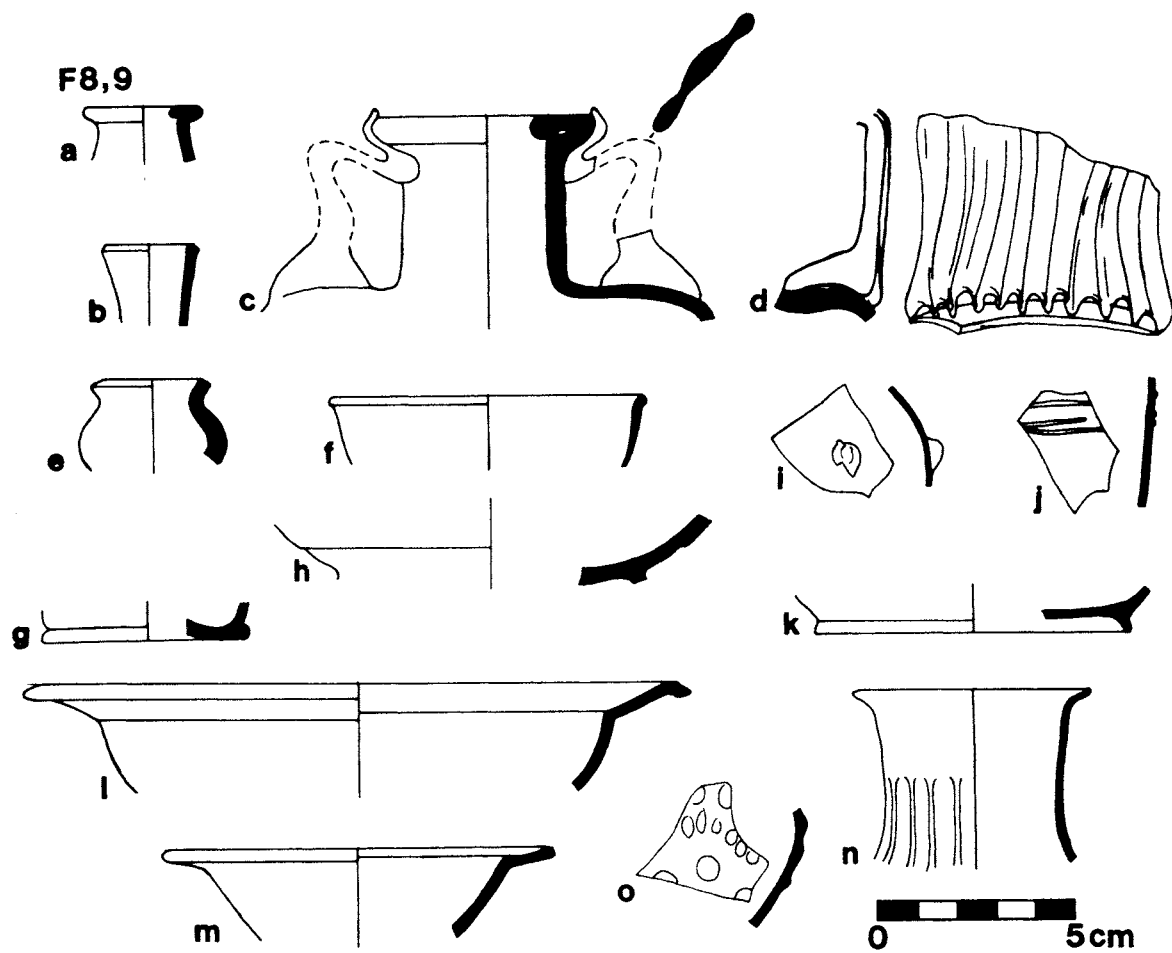


Plate 57: E6-E7

a	F8d-2	RN 344	clear pink
b	"	RN 345	clear green tinged
c	"	RN 344	clear
d	F9csurf	RN 345	transparent bluish green
e	F9c-1	"	dark amber
f	F8d-1	RN 344	transparent dark green
g	F8c-5	RN 345	clear green
h	F9c-15	"	clear, roughened upper surface(?)
i	F9c-2	"	clear, applique prunt
j	F9c-8	"	clear, applique ribbons
k	F9c-15	"	clear
l	F8d-6	RN 344	transparent white
m	"	"	"
n	F8d-8	"	clear
o	F9c-20	RN 358	clear light green tinged ring around depressions

a	F10a-4	RN 347	translucent white
b	F10a-1	"	translucent light turquoise
c	F10a-5	"	translucent reddish purple
d	F10a-1	"	transparent dark blue, many bubbles
e	"	"	transparent dark amber, many bubbles
f	"	"	translucent green
g	F10a-12	"	translucent white, pinched sides
h	F10a-3	"	transparent deep green
i	"	"	clear





**F10-a**

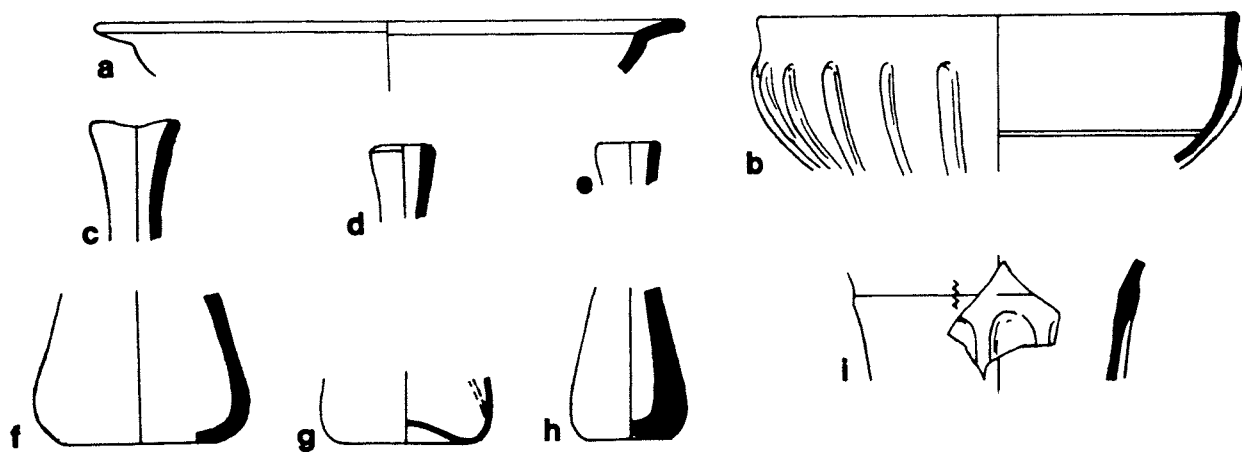


Plate 58: F8-F9, F10

a	G8d-1	RN 346	clear
b	"	"	"
c	"	"	"
d	"	"	"
e	"	"	"
f	"	"	"
g	"	"	translucent light turquoise
h	"	"	translucent pale green with streaks of opaque white
i	"	"	translucent white
j	"	"	clear
k	"	"	clear green tinged
l	"	"	"
m	"	"	translucent white
n	"	"	clear
o	"	"	"

G8d

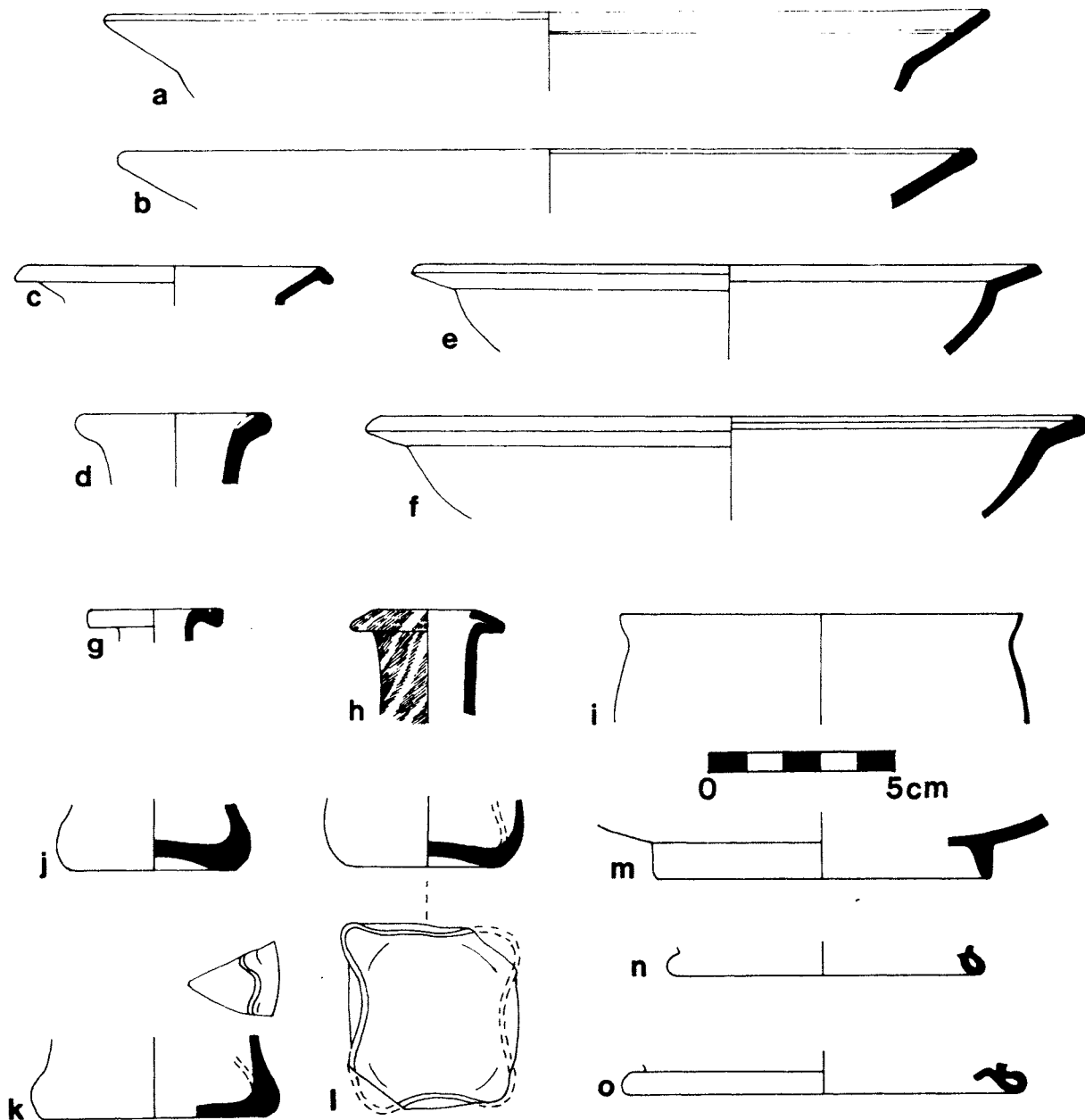


Plate 59: G8d

a	S11b-2	RN 352	translucent white
b	S12a-3	"	transparent dark amber
c	"	"	"
d	S12a-13	RN 358	transparent white with green tinge
e	S12a-1	"	clear light green
f	S12a-5	RN 352	"
g	S12a-4	"	transparent pale turquoise
h	S12a-3	"	transparent with appliqué in dark blue
i	S12c-3	"	transparent white
j	S12c-5	RN 350	"
k	S12c-2	"	transparent blue-green
l	S12c-6	"	transparent deep green
m	S12c-2	"	translucent deep green
n	S12c-1	"	transparent white
o	S12c-6	"	"
p	"	"	transparent deep green
q	S12c-3	"	clear
r	S12c-4	"	"
s	S12c-3	"	clear green
t	S12c-5	"	"
u	S12c-6	"	"
v	S12c-7	"	transparent deep amber
w	S12c-8	"	clear, cut decoration

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S11, 12

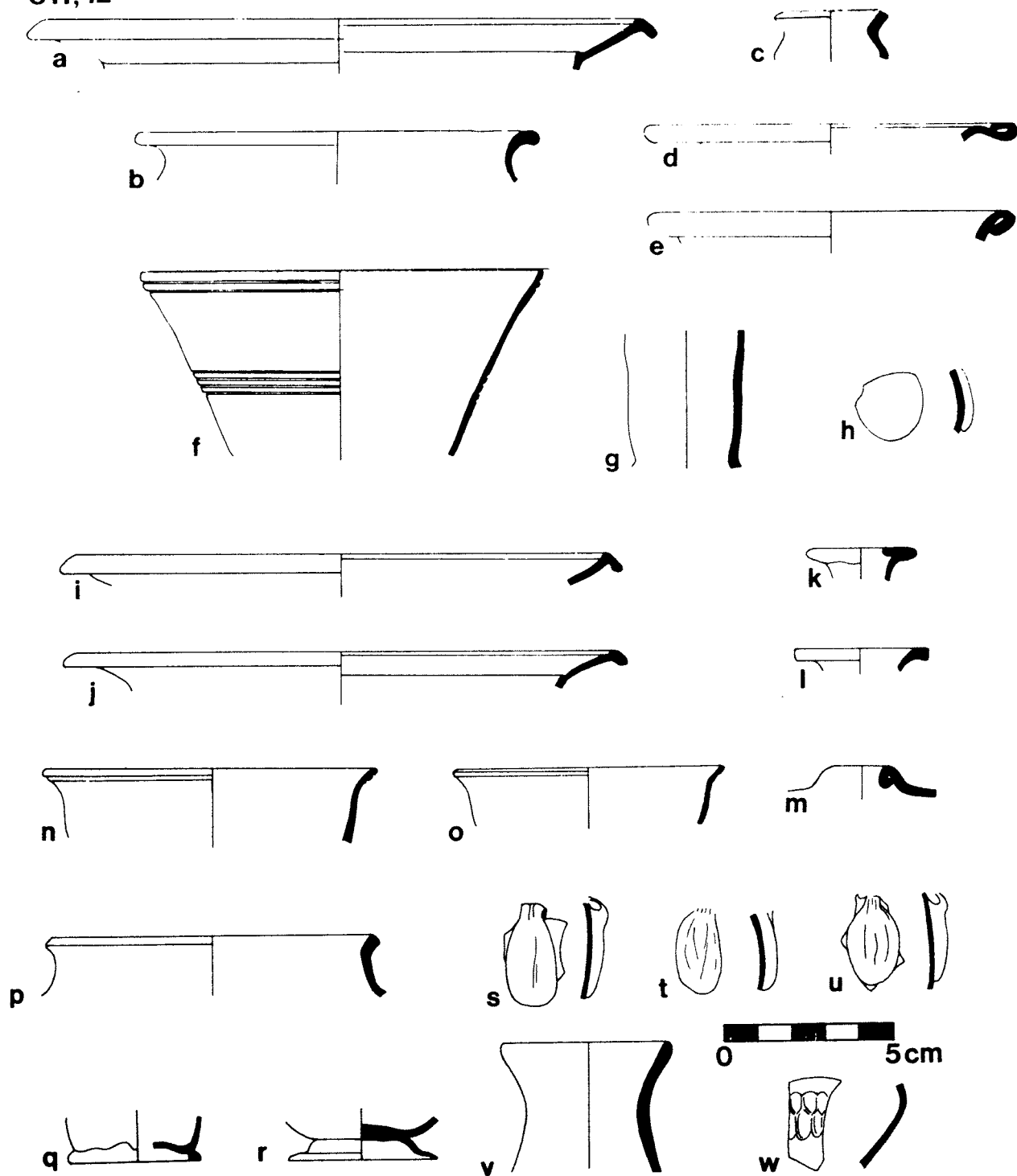
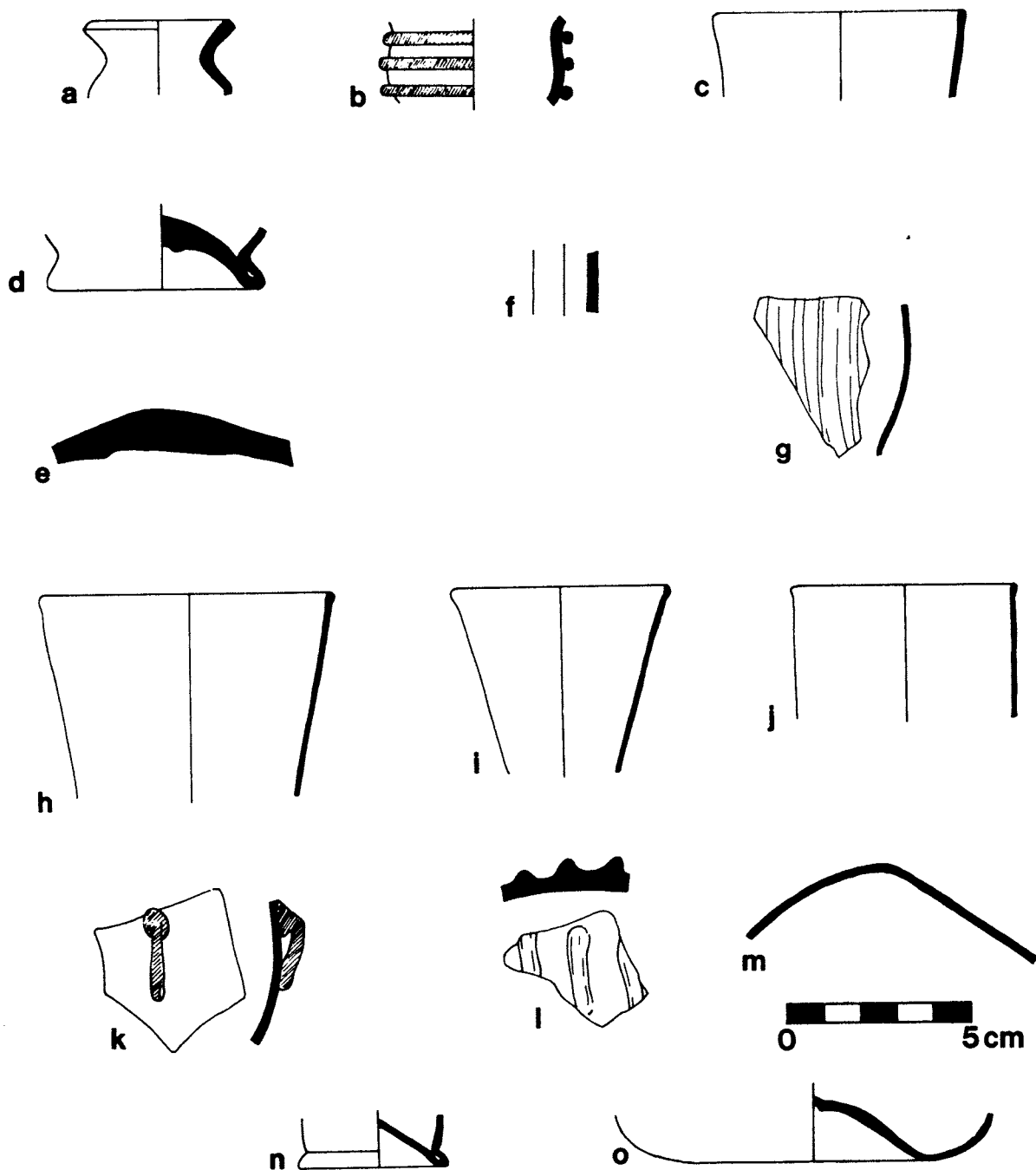


Plate 60: S11-S12

a	P8a-9	RN 351	transparent yellow-green
b	P8b-1	RN 357	clear pink tinged, opaque blue applied ridges
c	P8c-12	RN 357	clear pink tinged
d	P8c-4	RN 358	transparent white
e	P8c-2	RN 357	clear white, greenish, many bubbles
f	P7d-6	RN 358	translucent pale turquoise
g	P8b-3	RN 349	translucent dark green, faintly rippled
h	P8b-5	"	clear pink tinged
i	"	"	clear pink tinged, many bubbles
j	P8b-6	"	clear pink tinged
k	"	"	clear grey-green tinged, dark blue handle
l	P8b-5	"	clear light amber
m	P8b-6	"	clear greenish amber
n	"	"	clear purplish, pink tinged
o	P8b-5	"	transparent dark kelly green

P7,8



a	P8asurf	RN 351	transparent smoky grey rim fallen inside with bitumen or slag, ribbed inside
b	P8bsurf	RN 349	translucent dark kelly green
c	P8surf	RN 356	clear with very light pinkish tinge, dark bluish green applied to rim
d	P8b-8	RN 357	clear greenish, many tiny bubbles in diagonal lines
e	"	"	translucent dark, incising marks inside rim
f	"	"	transparent light blue-green, incised lines interior
g	P8b-7	RN 349	clear, incised groove exterior
h	"	"	clear light amber
i	P8b-17	RN 357	clear yellow tinge
j	P8b-18	"	clear yellow-green tinge
k	P8b-17	"	transparent white with applied prunts
l	P8b-18	"	clear purple tinged with applied prunts
m	"	"	clear yellow-green tinge



P8

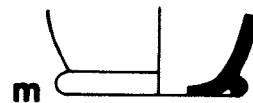
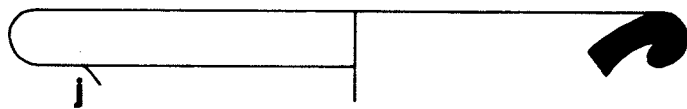
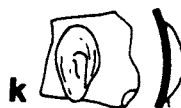
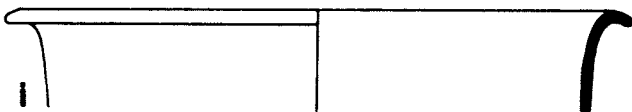
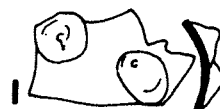
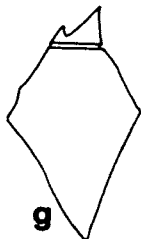
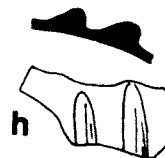
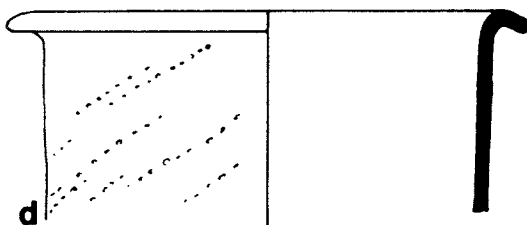
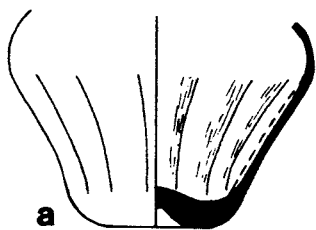


Plate 62: P8

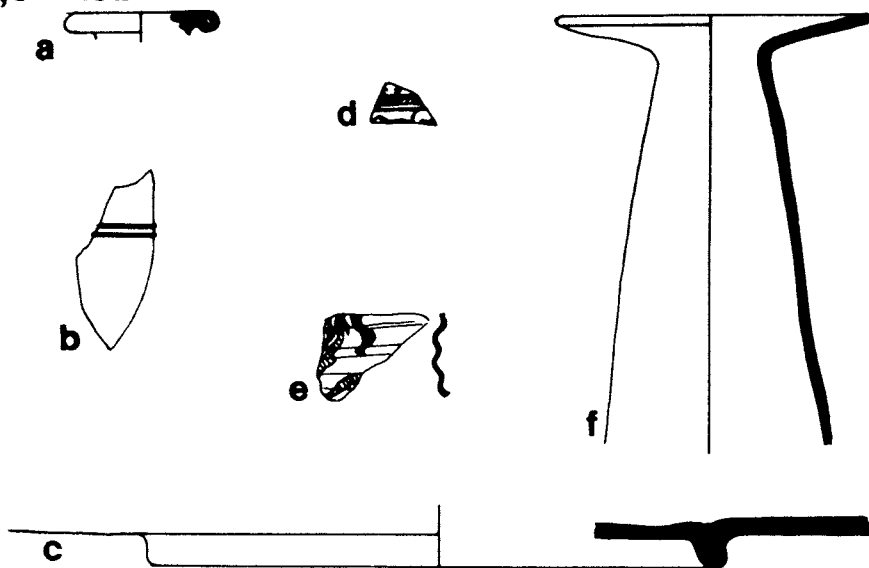
a	L10c-4	RN 352	transparent pale turquoise
b	L9d-2	RN 358	clear, 2 fine ribs
c	K9b-16	RN 348	clear light green, corroded
d	L9c-1	RN 358	clear
e	K9b-3	RN 5	clear, painted with blue, green, white, and black enamel
f	K9b-1	RN 64	transparent green, opaque magenta lines, many bubbles

a	A22d-1	RN 353	transparent green
b	A22d-3	"	clear pale greenish blue
c	A22d-1	"	transparent light green
d	A22d-3	"	clear
e	A22d-1	"	transparent light yellow-green, appliqué prunts

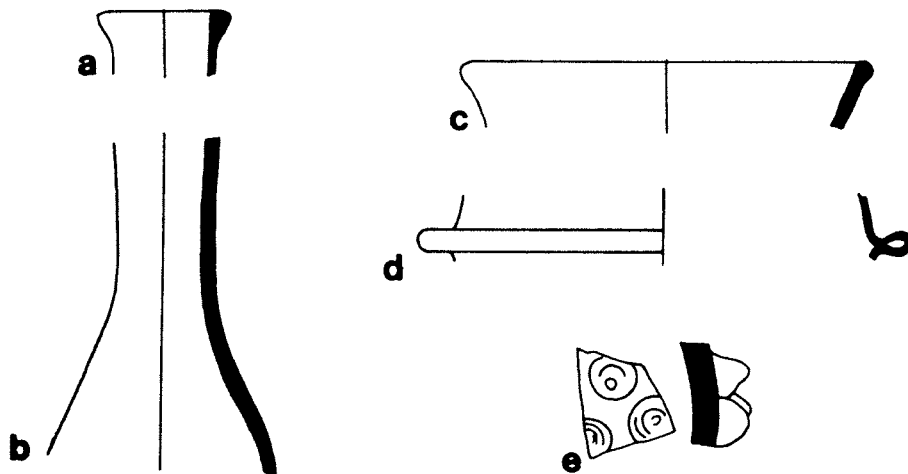
a	Q2b-7	RN 358	translucent white, two incised lines
b	Q2b-3	"	clear light green, many bubbles

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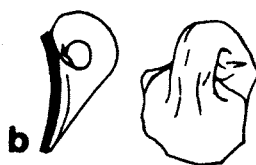
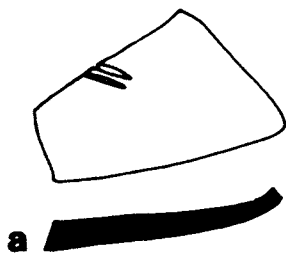
**L8,9 K9b**



**A22d**



**Q2b**



a	NWsurf	RN 681	clear
b	K4-L4surf	RN 356	transparent white
c	F7surf	"	"
d	"	"	"
e	J7surf	RN 681	clear, cut on exterior and top of rim
f	K4-L4surf	RN 356	transparent pale green
g	C5surf	RN 681	clear, incised lines
h	B7surf	"	clear, cut on exterior
i	H8surf	"	"
j	NWsurf	RN 681	clear, smoky pink applique prunts with depressions between them
k	NWsurf	RN 4	opaque dark green, tracings of yellow-green, yellow, white, and dark green
l	C20surf	RN 356	opaque dark blue, tracings of white and greenish brown
m	SCentralsurf	RN 681	clear, cut on exterior sides and base
n	"	"	"
o	NWsurf	"	clear, opaque white tracings
p	C7surf	"	clear, translucent yellow, white and opaque dark red on exterior
q	K4-L4surf	RN 356	translucent white
r	F7surf	"	"
s	"	"	"

Surface

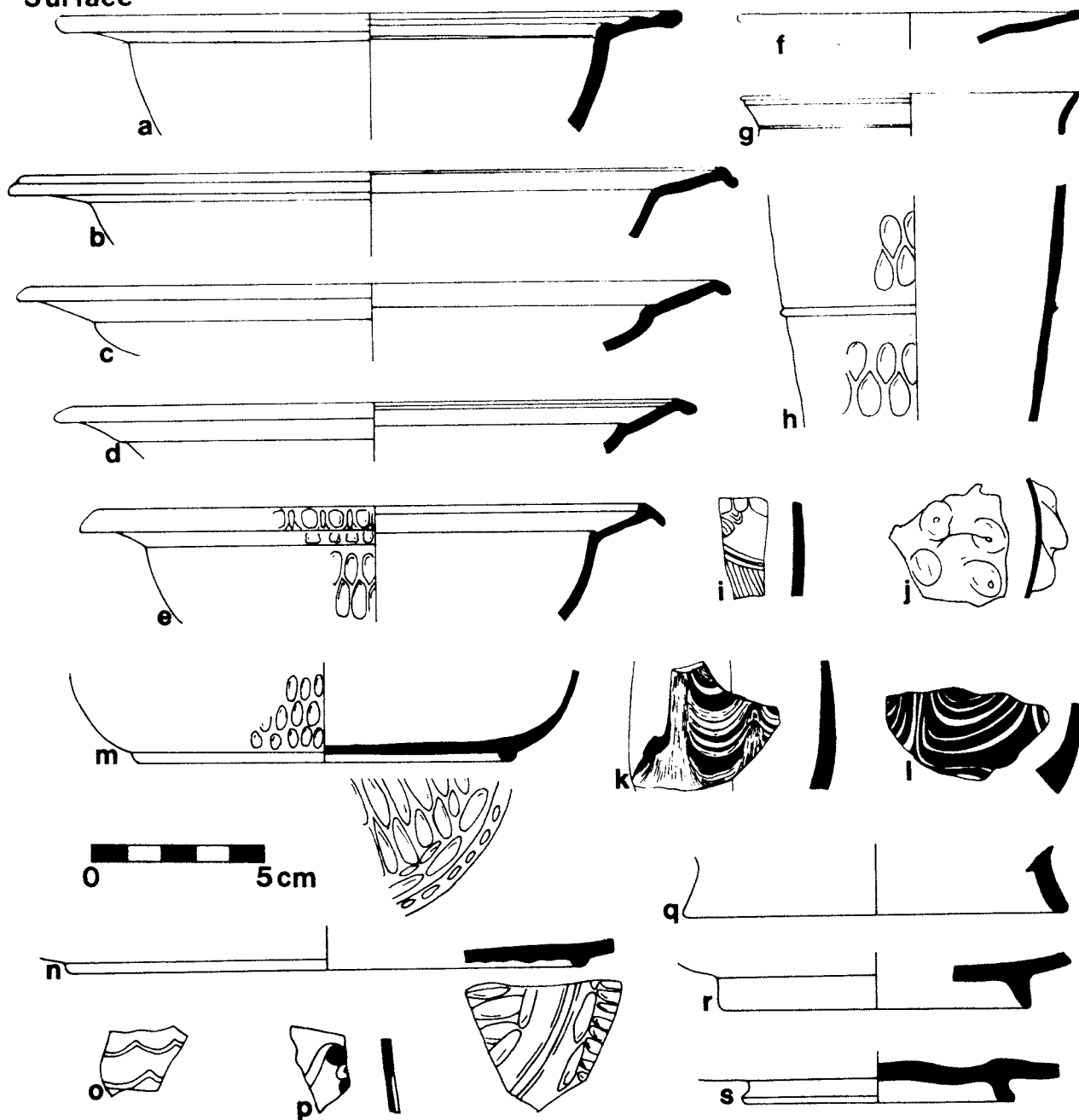


Plate 64: Surface

a	NWsurf	RN 681	transparent olive green
b	F7surf	RN 356	translucent green
c	"	"	translucent green, long flat bubbles on neck
d	K4-L4surf	"	dark amber, long flat bubbles twist around neck
e	F7surf	"	transparent light green
f	K4surf	"	transparent dark blue, etched
g	Centralsurf	RN 681	transparent dark blue, etched, many bubbles
h	H10surf	"	amber
i	Centralsurf	"	clear smoky grey tinged, rolled rim with chain of bubbles
j	F7surf	RN 356	translucent pinkish, corroded
k	K4-L4surf	"	clear, many bubbles
l	J6surf	RN 681	transparent green
m	"	"	clear, pinched sides
n	F7surf	RN 356	translucent white, square base, pinched sides
o	J4surf	RN 681	clear
p	C3surf	RN 356	clear, square body, pinched sides
q	M10surf	RN 352	transparent green
r	Centralsurf	RN 352	translucent white
s	A9surf	RN 356	transparent white
t	D12surf	RN 681	clear pinkish tinge
u	N12surf	"	transparent light green
v	J6surf	"	clear, incised lines

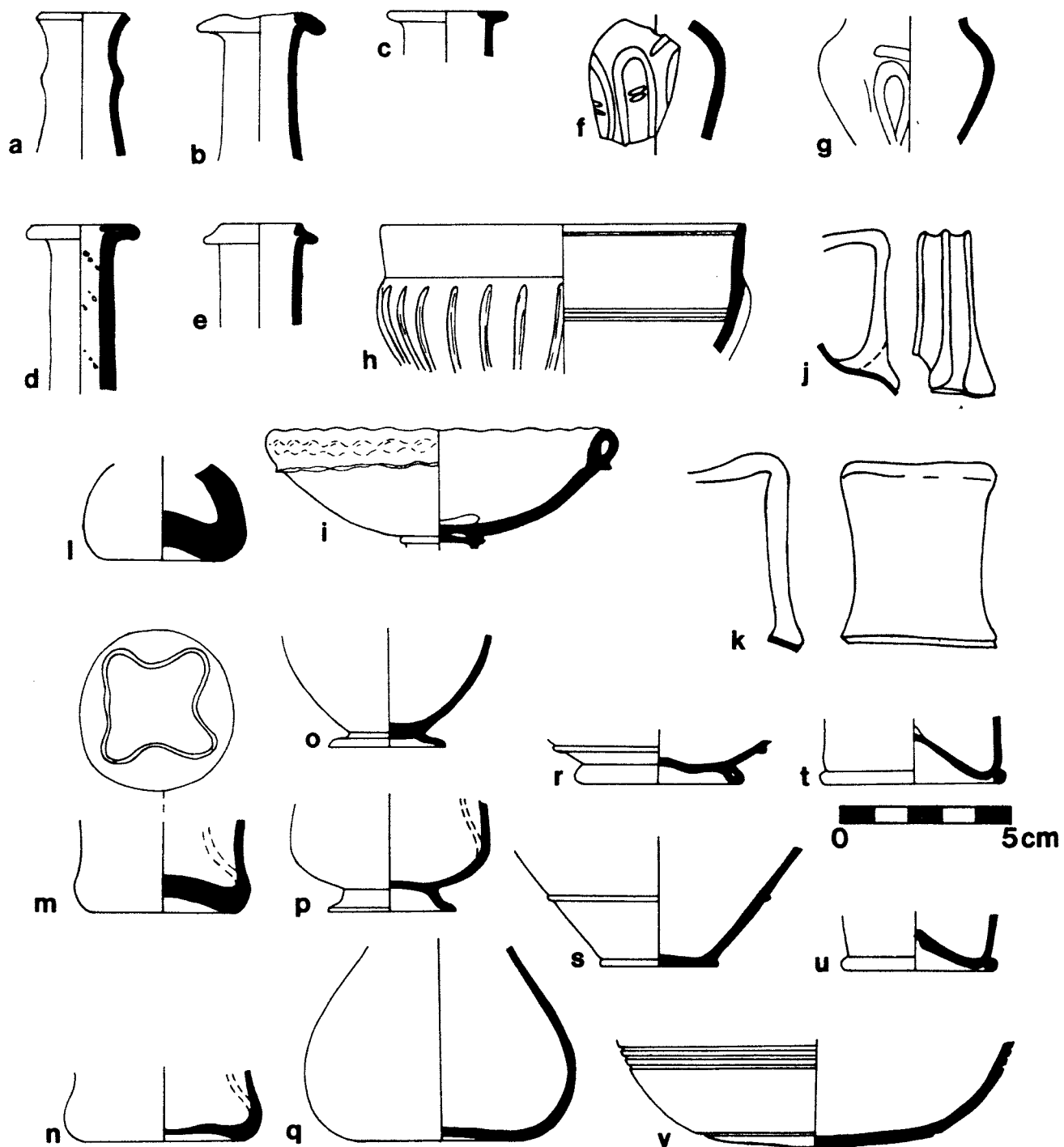
**Surface**

Plate 65: Surface





## CHAPTER 5: TEXTILES

Jonathan Brookner

Of approximately three hundred decorated textile fragments from Quseir al-Qadim, most come from Mamlūk loci, although one was found in a definitely Roman locus and several more can be identified as of Roman type. Cotton is the predominant fabric used, with a certain percentage of woolens and a very little linen. The vast majority are single-cloths of a simple over-one, under-one "tabby" weave. A few in which the weft picks are finer than the warps provide a variation in the look of these textiles. One twill-weave was recovered (67:n). There are several embroidered cotton bands (66:j-m, p), tapestry-woven woolens (71:c and fig. 11), a linen tiraz with bands in black and red (not pictured), and a cotton cloth which has a block-printed design (66:n), evidently printed in India. A similar cloth is Brooklyn Museum # 38.835, called "Fusta Cloth," and dated "12th-15th century." One cotton embroidered with silk is described separately in chapter 7 (71:b and fig. 24). Colors principally used include an ubiquitous dark blue, some lighter blue and brownish red common in the Roman striped fabrics, red, and green. Brown was often used in the striped woolens, black and sometimes light blue in the embroidery, and unique pieces exist with purple and with yellow stripes.

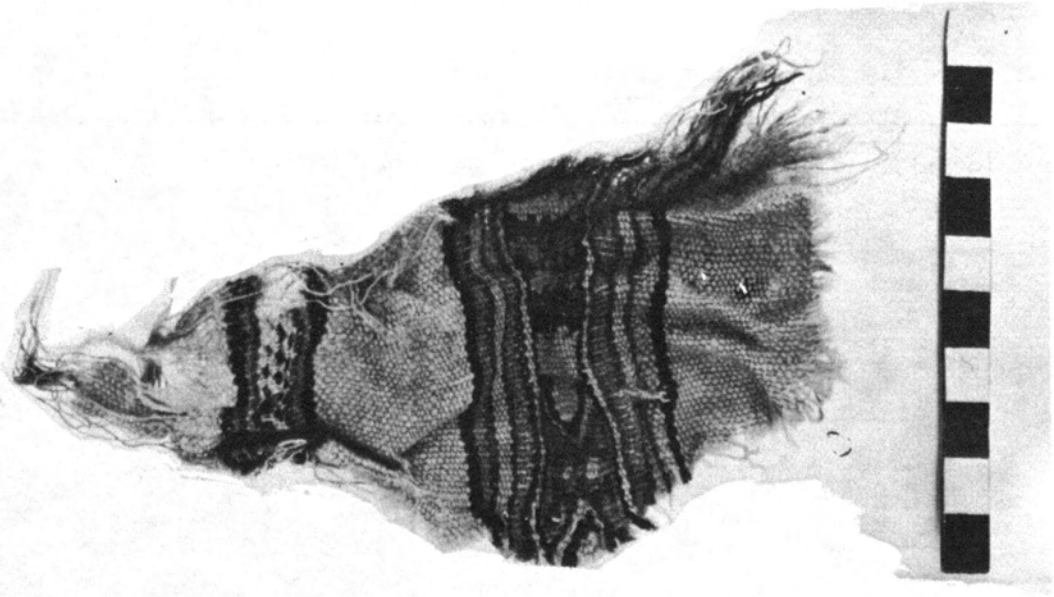


Figure 11: RN 76

## Inventory of Stripes

Evenly spaced blue stripes of more or less equal size: # 1, 14, 16, 24, 25, 29, 33, 37, 47, 50, 52, 60 (66:a), 62, 65, and 76

Pairs of blue stripes: # 5, 7, 9, 11 (with selvedge, 66:f), 15, 19, 24, 26, 48, 53, 57, 63, 67, 71, 75 (66:b), 82, 83, 86, and 92 (see fig. 12)

a	60	S12a-3
b	75	S12c-3, S12c-5, S12c-6
c	17	S11b-2
d	68	S12a-1
e	44	F8d-5
f	11	P8b-5, P8b-15
g		P8b-18, left and right edges illustrated
h	20	C4c-4
i	31	P8b-18
j		S12c-3 black on tan, embroidered
k		S12c-2
l	"	light blue on tan, embroidered
m		F10a-2 black on tan, embroidered
n		A22d-2 blue (solid), red (dots), and tan print, drawn 2:1
o		S12c-5 brown (solid) and blue (hatched) on tan
p		S12c-3 black woven band sewn to black, gauzy cloth

number given is pattern number of stripe

patterns in blue (hatching rising to right), red (hatching rising to left), green (dots), and brown (solid) on tan (natural fiber)

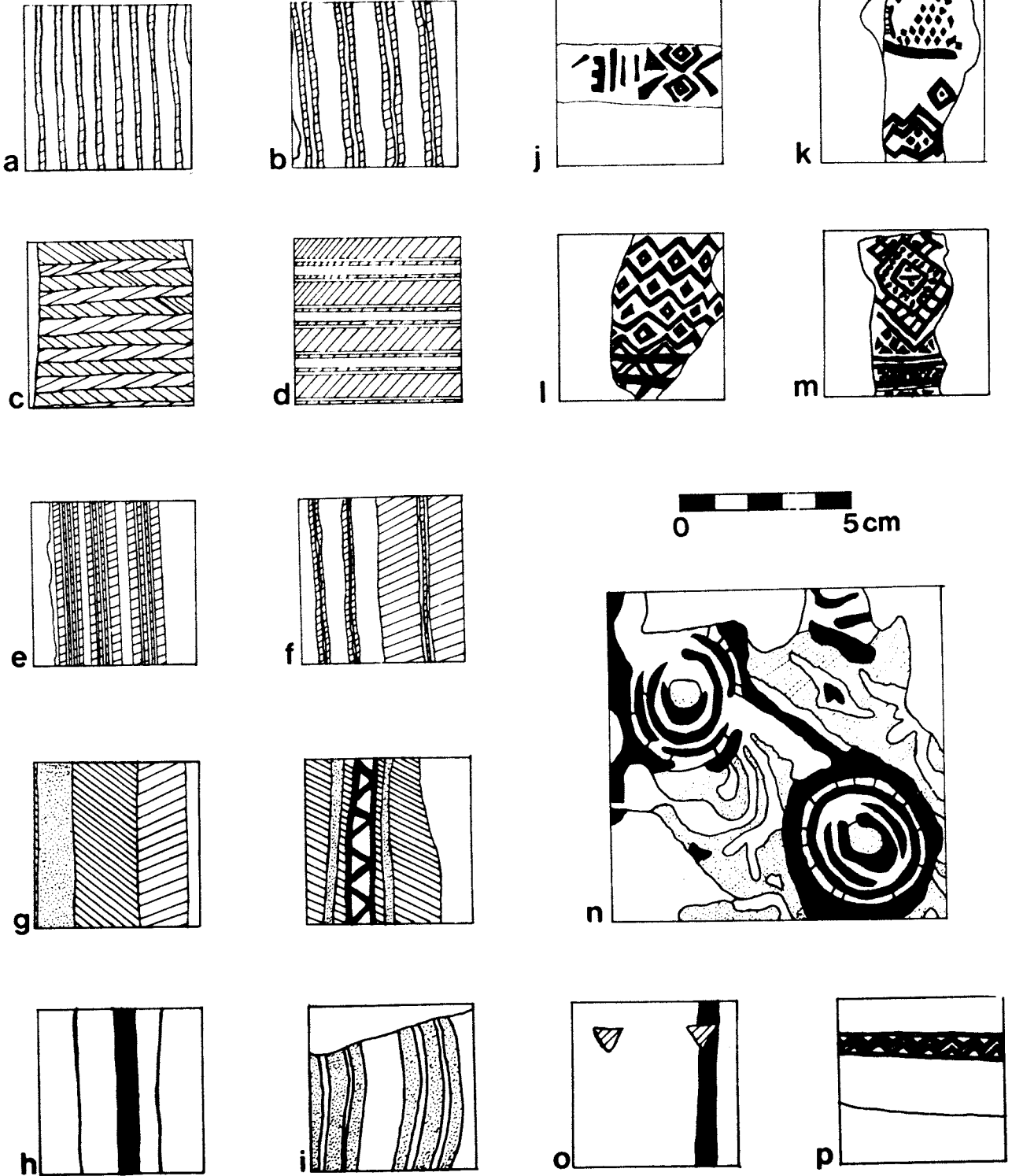


Plate 66: Striped Cloth

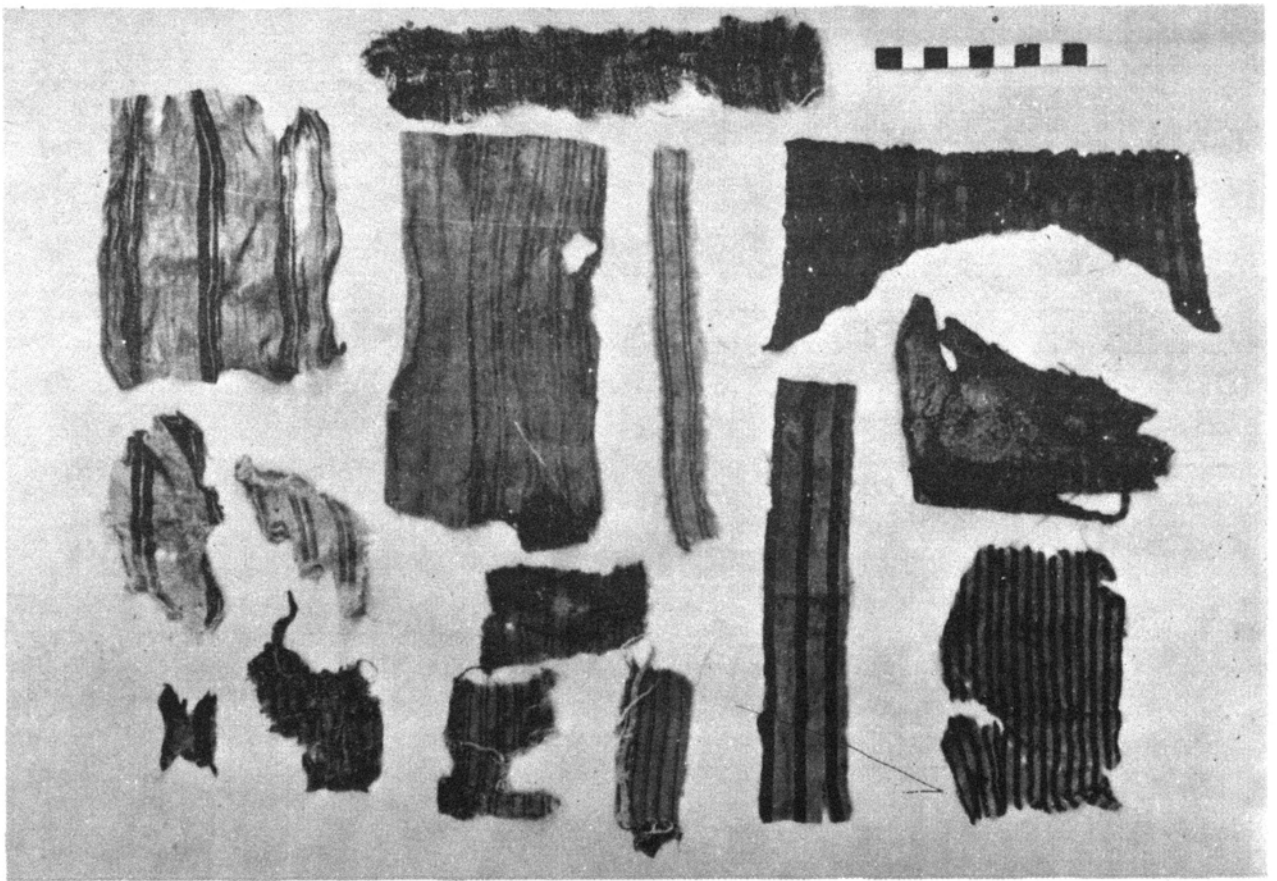


Figure 12: RN 286, Pairs of Blue Stripes

Pairs of thick stripes and pairs of thin: # 6 and 38

Variations on two thin stripes for every thick stripe: # 40, 56, 68 (66:d), and 89

Thick stripe-thin-thick-thin: # 70 and 101

Pairs of thin stripes bracketed by one thick on each side: # 2, 44 (66:e) and 57

Bands with two thick blue stripes, thin blue stripe between: # 23 and 91

Triple stripes: # 31 (green, 66:i), 45, 64, and 79

Triple blue stripes with single blue separating triples: # 51

Triple blues and single red stripes: # 46

Alternating red and blue stripes: # 17 (66:c) and RN 37

Red stripes with blue stitching: "tapestry" # 35

Other bi-color, red and blue: # 3, 7, 10, 27, 31, 57, 61, 84, RN 76 (wool, 71:c and fig. 11), and "tapestry" # 19 (wool)

Single red stripe (Roman type): # 39 and "tapestry" # 12 (wool)

Single brown stripe: # 20 (Roman locus, 66:h), 21, and 41

Brown swath or stripes: "tapestry" # 9 (wool), 12, 16 (wool, cross-stripes making railroad-track design), 18 (wool), 23, 33 (66:o, with inlaid blue triangles), 34, and 57b

Brown and red: # 8 and 21

Black and red: # 28

Double red stripe: "tapestry" # 1

Green stripes: # 32

Blue-green-blue-green: # 4, 22, 72, 74, 77, 90, and 110

Blue-yellow-blue-yellow: # 8

Purple-green-purple-green: "tapestry" # 3

Brown-red-blue: "tapestry" # 4 (wool) and 38

Brown, red, and green: # 57a and "tapestry" # 17 (wool, 66:g right)

Blue, red, and green: "tapestry" # 15, 17 (wool, 66:g left), and RN 419

Brown, blue, and green: "tapestry" # 2

Blue selvedge stripes: # 18, 42, 54, 81, and 88

Blue stripes of uneven spacing or width; fragment too small for ascertaining pattern: # 10, 35, 43, 49, 58, 80, 85, and 87

One blue stripe, evenly spaced rectangular holes in fabric: # 73

#### Inventory of Checks

Evenly spaced blue stripes crossed by same: # 1 (67:a), 6, 9, 10 (67:f), 11, 13, 16, 40, 43, 51, 62, 79, 80, 100, 104, 113, 123, 130, RN 37b (67:b), and RN 68f (see fig. 13)

Wide blue-narrow blue crossed by same: # 28, 58, 76, and 110 (67:d)

Pairs of narrow blue stripes crossed by same: # 2 (67:c), 29, 36, 44, 74, 83, and 103

Pairs of narrow blue by pairs of wide blue: # 12, 65 (with selvedge), and 136 (with selvedge)

Evenly spaced blues by pairs of narrow blue: # 81

One wide-two narrow blue by same: # 4 (67:g), 5 (67:h), 50, and 116

One wide-two medium wide blue by same: # 35 (67:e)

One wide-two medium wide blue by pairs of medium wide blue: # 3 and 120

Two wide-one narrow blue by same: # 61

Two wide-two narrow blue by same: # 106

Three wide-two narrow blue by same: # 107

Three narrow-one wide blue by same: # 20

Three wide-one narrow blue by same: # 47

a	1	F8d-3, P8a-9, P8b-4, S12a-3, S12c-2, S12c-3, S12c-5
b	RN 37	D4b-1
c	2	F8d-1, F8d-2, F8d-3, F9c-5 [sleeve], F10a-2, P7b-2, P8a-7, P8a-9 P8b-4
d	110	F10a-1, drawing at 3:1
e	35	F9c-15, F10a-1, P7b-3, S12a-3, S12c-2
f	10	P8a-9, P8b-12, S12c-3 [sleeve with selvedge]
g	4	P7d-3 [sleeve], P8a-9, P8c-6
h	5	P8b-4, S12c-6
i	22	P8c-6
j	97	S12a-3
k	8	P7d-3, P8a-9
l	17	P8b-6
m	57	P8b-18
n		P8b-7, S11b-3

number given is pattern number of check

patterns in blue (hatching rising to right, solid where two blues cross), red (hatching rising to left), and green (dots) on tan (natural fiber)

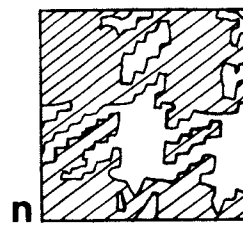
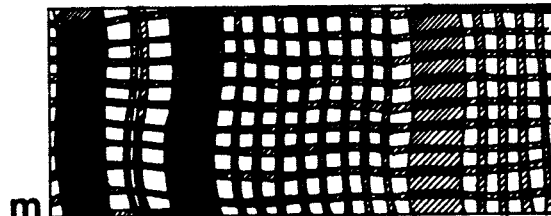
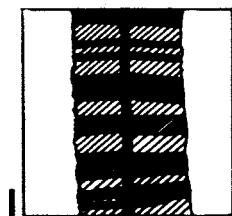
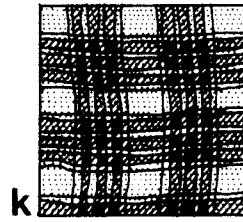
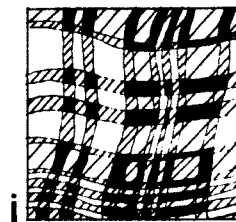
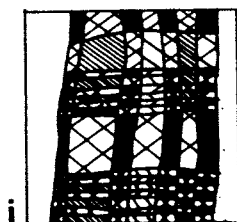
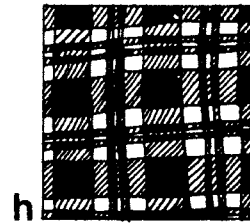
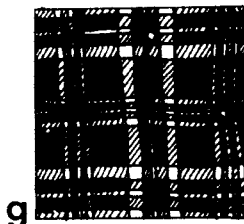
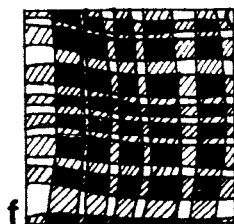
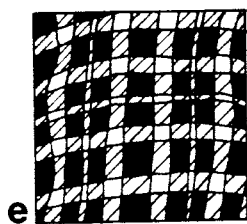
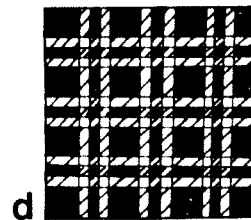
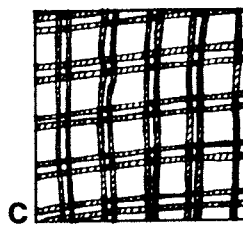
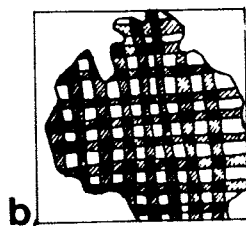
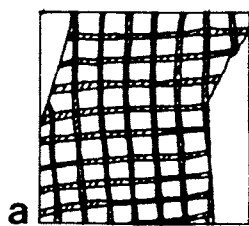


Plate 67: Checked Cloth

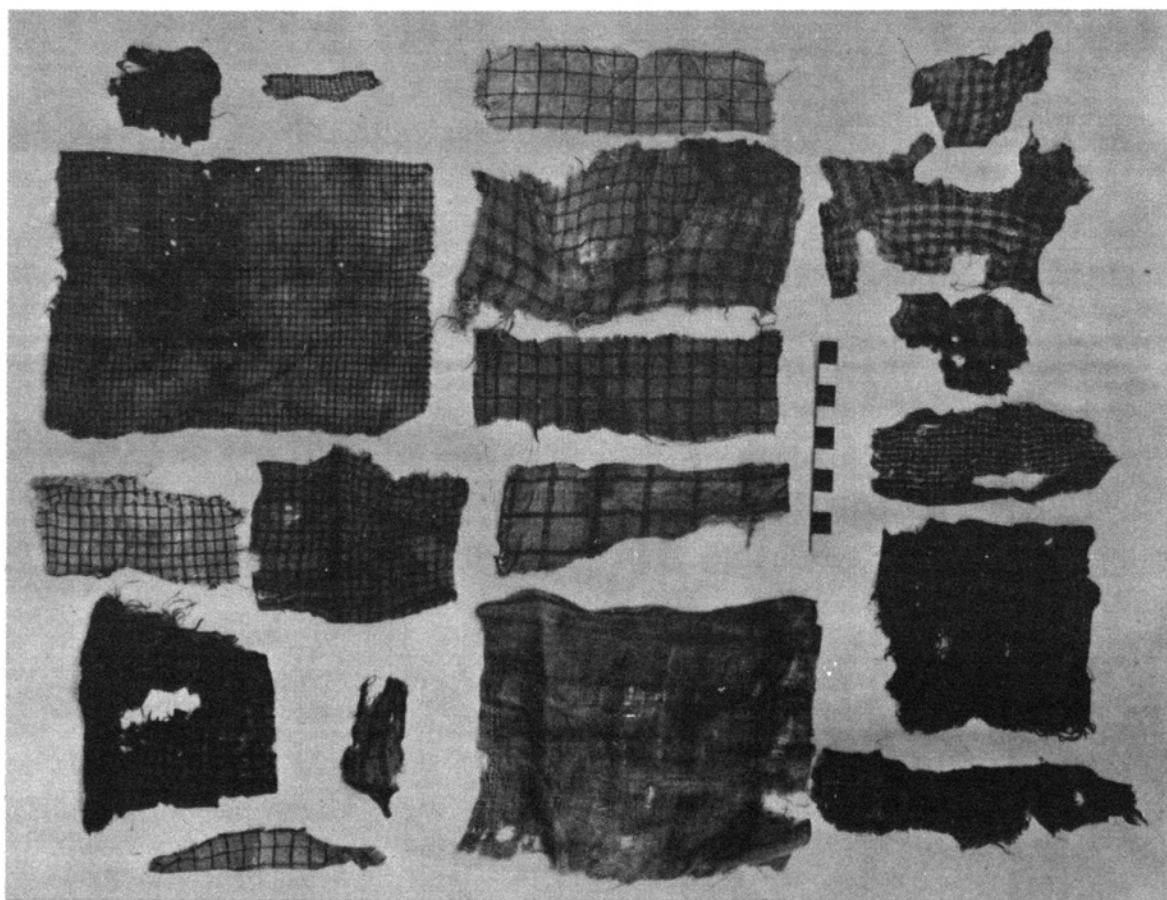


Figure 13: RN 290, Simple Blue Checks

One wide-two narrow by one wide-three narrow blue: # 68

Two narrow-one wide blue by two narrow-one wide-three narrow blue: # 114

One wide-one narrow-one wide-two narrow by narrow blue: # 96

Two narrow-one wide-one medium-one wide blue by same: # 94 and 137

One wide-three narrow-one wide-three medium wide blue by same: # 60

Groups of four narrow blue by same: # 87

Evenly spaced dark blue by evenly spaced light blue: # 89 and 132

Pairs of dark blue by pairs of dark blue separated by single light blue stripe:  
# 85

One light blue-three dark blue stripes by same: # 53

Three narrow-one wide-one medium light blue by narrow dark blue stripes: # 27

Three narrow dark-one wide light-one narrow dark-one wide light by narrow dark  
blue: # 52



Patterns in dark and light blue forming hollow blue squares: # 84, 88, 93, 97  
(67:j), 124, 129, and 135

Pairs of wide light blue-pairs of narrow dark blue by evenly spaced narrow dark  
blue: # 25

Groups of four narrow dark blue by evenly spaced light blue: # 122

Band with central lengthwise stripe crossed by alternating light and dark blue  
stripes creating a repeating pattern in dark blue of three wide-two narrow:  
# 17 (67:l)

Single blue crisscrossing threads: # 15 and 31

Patterns in blue uneven or too complicated for determination by fragments remaining:  
# 14, 19, 38, 39, 41, 57 (67:m), 63, 66, 72, 77, 82, 95, 102 112, 117, 118,  
and 121

Composite stripes of narrow blue-wide red-narrow blue by same: # 24

Composite stripes of narrow blue-wide red-narrow blue by alternating reds and blues,  
the blues in a one wide-three narrow pattern: # 22 (67:i)

Alternating blues and reds by same, with brown knots in line: # 67

Pairs of narrow blue by three red, then groups of composite stripes of blue-red-  
blue: # 73

Complicated blue check with one red stripe: # 30

Single cross stripes of red: # 105

Complicated pattern in red: # 45

Wide green-two narrow blue by same: # 127 and 131

Wide green-three narrow blue by same: # 8 (67:k)

Four blue-two green stripes by same: # 18 (left)

Four narrow blue-one wide green by four narrow red-one wide green: # 86

Complicated pattern in green: # 49

Evenly spaced brown stripes by same: # 34

Brown-natural by blue-natural-green-natural-blue-natural-green-natural-brown-  
natural-brown: # 23

Orange warp stripes by alternating light blue and green stripes: # 18 (right;  
other end of same cloth described above)

Illusion of check pattern created by omission of every seventh thread in warp  
and weft: # 42

Twill-weave, blue and natural colored threads: "tapestry" # 6 (67:n)

In addition, tan/natural, yellow, brown, blue, red, and green solid colored  
cloth was found ranging from fine linen to coarse burlap. A cloth slipper is  
illustrated in fig. 14.

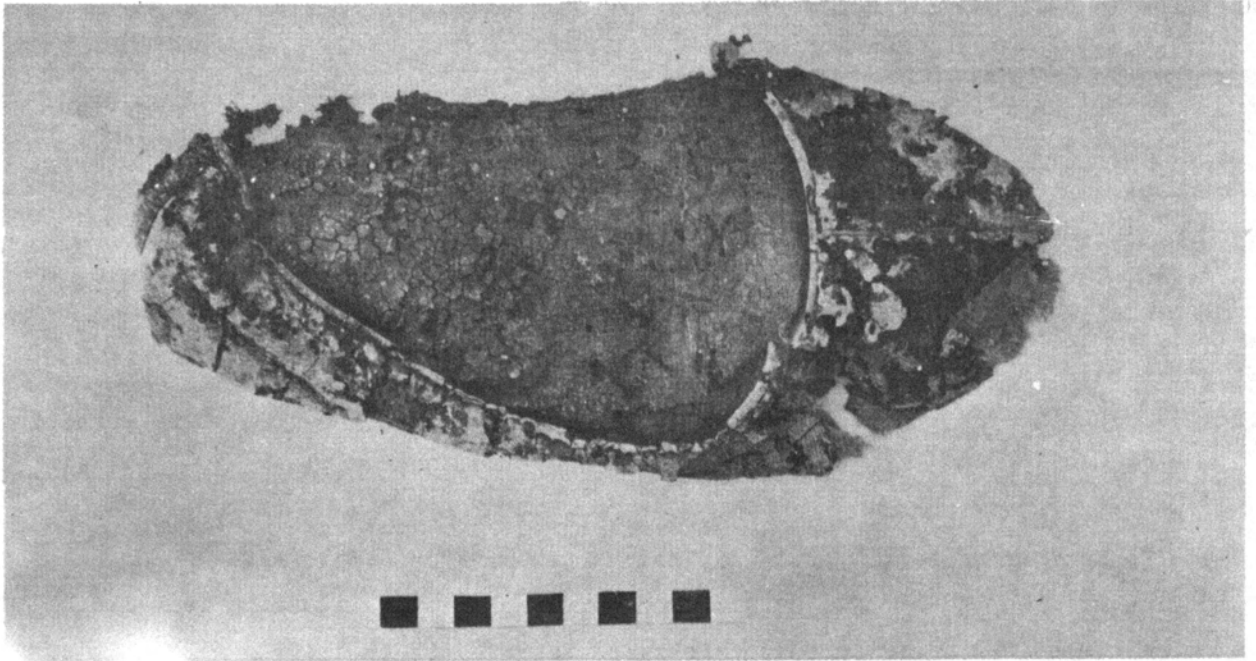


Figure 14: RN 399, P8c-14

#### Appendix: Statistics

Janet H. Johnson

For many of these patterns, only one sample was found during the first season, but others occurred more frequently. In order to determine whether there were any repeating associations among these patterns, a list was compiled of every pattern which occurred more than once, indicating all other patterns which occurred in the same loci. From this list was compiled a list indicating for each pattern all other patterns with which it was thus directly associated two or more times (see fig. 15). Then a list of associated loci (those loci within a trench which seem to form a unit) was made, noting the cloth patterns found within each such group. To the list of patterns directly associated two or more times were added patterns which were associated once directly and one or more times indirectly. Two kinds of direct plus indirect association were considered: "group associations" in which two patterns are directly associated once in a locus and one of them occurs a second time in another locus of the group of associated loci (or, rarely, both occur in other, but different, loci of the group), and "cross-square associations" in which two patterns are directly associated in one locus of one square, and both occur in the same group of associated loci, although not the same locus, in another square. The complete list of two direct, or one direct and one indirect,

check	1	with check 2, 6, 9, 11, 46, 80, 82; stripe 38, 75; tapestry 11
	2	check 1, 3, 5, 6, 7, 9, 11, 15, 20, 46, 62, 69, 74, 80, 119; stripe 6, 38, 43, 75
	3	check 2, 7
	4	check 8
	5	check 1, 2, 9, 11, 80
	7	check 2, 3
	8	check 4
	9	check 1, 2, 6, 11, 15, 20, 36, 46, 50, 62, 74, 80; stripe 1, 3; tapestry 11
	10	check 1; stripe 26
	11	check 1, 2, 6, 9
	15	check 2, 9, 16, 35, 50, 52, 69, 80; stripe 38
	16	check 15
	20	check 2, 9
	31	check 50
	35	check 1, 15, 31, 50, 80, 82; tapestry 11
	36	check 9, 50, 80
	45	tapestry 5
	46	check 1, 80
	50	check 9, 15, 31, 36, 80
	52	check 15
	61	check 80
	62	check 2, 9, 80
	69	check 2, 15
	74	check 2, 9
	78	check 1
	80	check 1, 2, 6, 9, 15, 36, 46, 50, 61, 82; stripe 1, 9, 38
	82	check 1, 80
	113	stripe 71
	117	check 137; stripe 38, 75
	137	check 117; stripe 38, 75
stripe	1	check 80
	3	check 9
	6	check 2
	9	check 80; tapestry 11
	38	check 15, 80; stripe 75
	43	check 2
	75	check 1, 2, 117, 137; stripe 38
tapestry	5	check 45
	11	check 1, 9, 31, 50, 80

Figure 15: Two Direct Associations

association is given in fig. 16. By studying this list, one sees that some patterns were associated with many other patterns (e.g., check pattern 2 with 28 other patterns); most were associated with a small number. In most of the latter cases, the associations group was found to be a subset of one large association group. Within the larger association groups, a relatively small number of associations was found to be distinctive, allowing the division of the patterns into two sections,

check	1 with	check 2, 5, 6, 9, 10, 11, 15, 35, 46, 61, 62, 74, 78, 80, 82, 117, 137; stripe 1, 9, 38, 43, 75; tapestry 11
	2	check 1, 3, 5, 6, 7, 9, 11, 15, 20, 35, 46, 61, 62, 69, 74, 78, 80, 82, 113, 117, 137; stripe 1, 6, 9, 38, 43, 75; tapestry 5
	3	check 2, 7, 15, 80; stripe 1
	4	check 8
	5	check 1, 2, 9, 11, 80
	6	check 9, 11, 15, 50, 61, 62, 80; stripe 1
	7	check 2, 3; stripe 1
	8	check 4
	9	check 1, 2, 5, 6, 10, 11, 15, 20, 25, 35, 36, 46, 50, 61, 62, 69, 74, 80, 82; stripe 1, 3, 38, 75; tapestry 11
	10	check 1, 9, 15
	11	check 1, 2, 6, 9, 61, 80
	15	check 1, 2, 3, 6, 9, 10, 16, 31, 35, 50, 52, 69, 80, 82; stripe 14, 38; tapestry 11
	16	check 15
	20	check 2, 9, 80
	25	check 9, 80
	29	check 9, 15, 31; stripe 3, 14
	31	check 15, 29, 50; tapestry 11
	35	check 1, 2, 9, 15, 31, 50, 68, 80, 82; tapestry 11
	36	check 9, 50, 80
	45	check 2, 15, 52, 69; stripe 6, 14; tapestry 5, 11
	46	check 1, 2, 35, 50, 61, 68, 80; tapestry 5
	50	check 6, 9, 15, 31, 36, 46, 80; tapestry 11
	52	check 15
	61	check 11, 80
	62	check 1, 2, 6, 9, 20, 74, 80; stripe 75
	68	check 35
	69	check 2, 9, 15, 80
	74	check 1, 2, 9, 20, 62, 80
	78	check 1, 2
	80	check 1, 2, 3, 6, 7, 9, 11, 15, 20, 25, 35, 36, 46, 50, 61, 62, 69, 74, 82; stripe 1, 9, 38, 75, 76; tapestry 11
	82	check 1, 2, 9, 15, 80; tapestry 11
	113	check 2; stripe 75
	117	check 1, 2, 137; stripe 38, 75
	129	check 1, 10, 117; stripe 38, 75; tapestry 6, 11
	137	check 1, 2, 117; stripe 38, 75
stripe	1	check 1, 2, 3, 6, 7, 80
	3	check 9
	6	check 2
	9	check 1, 2, 80; tapestry 11
	14	check 9, 15
	38	check 1, 2, 6, 9, 15, 80, 117, 137; stripe 75
	43	check 1, 2
	75	check 1, 2, 5, 9, 62, 80, 113, 117, 137; stripe 9, 38, 43
	76	check 80
tapestry	5	check 2, 15, 45, 46, 52, 69; stripe 6
	6	check 129
	11	check 1, 9, 10, 15, 31, 35, 50, 80, 82, 117, 129, 137; stripe 9, 75

Figure 16: Direct and Indirect Associations

one of which could be subdivided into two subsections. There is much overlap between the two sections in that a pattern classified as belonging in one of them may be found associated with patterns classified as belonging to the other; but it is also found associated with those—relatively few—patterns distinctive to one group or the other. These groups, and the distinctive members of them, are given in figs. 17 and 18. Since there is this overlap, and since these sections show no visible patterning across the site, it seems likely that the groups either reflect the rather short period of Islamic occupation, during which one section was slowly replaced by the other, or, perhaps more likely, reflect some distinction other than a temporal one.

Group A: check 10, 15, 16, 29, 31, 35, 45, 52, 68, 69, 82; stripe 14; tapestry 5  
 Group B, 1: check 1, 2, 5, 7, 78, 113, 117, 129, 137; stripe 6, 38, 43, 75; tapestry 6, 11  
 Group B, 2: check 6, 9, 25, 36, 50, 80; stripe 3, 76  
 Group B, undifferentiated: check 3, 11, 20, 46, 61, 62, 74; stripe 1, 9  
 Unplaced: check 4, 8, 12; stripe 30

Figure 17: Cloth Sections

Patterns in A, not B: check 16, 31, 52; stripe 14  
 Patterns in B, not A: check 5, 7, 11, 20, 25, 36, 46, 61, 62, 74, 78, 113, 117, 137; stripe 1, 3, 6, 9, 43, 75, 76; tapestry 5  
 Patterns in B, 1, not B, 2: check 78, 113, 117, 137; stripe 6, 43; tapestry 5  
 Patterns in B, 2, not B, 1: check 25, 36, 50; stripe 3, 76

Figure 18: Distinctive Patterns

## CHAPTER 6: SMALL OBJECTS

Donald S. Whitcomb

This chapter is intended as a brief introduction to the general character of the artifacts; analysis of chronological, functional, and sociohistorical importance will not be attempted. It is hoped that opportunities for more detailed research--and the larger collections resulting from a second season of excavations--will make a future discussion more appropriate. The following comments should thus be viewed as a preliminary and temporary account.

The beads from Quseir are arranged on pl. 68 in provisional temporal groupings. Beads 68:a-p appear to be Roman. The most common Roman beads were turquoise frit cylindrical shapes and, secondarily, green glass in hexagonal barrel shapes (68:c). Agate and carnelian beads are less chronologically determinate for the loci. Islamic beads, on the other hand, appear to be a folded type described by Chittick (1974: 466-67) and datable to the 14th century and later (68:u-aa). In view of the large literature on trade beads in East Africa and the Indian Ocean, these beads may hold some importance in confirming trade patterns.

The great variety of woven materials can only be alluded to here. Ropes ranged from plain strings and twines to three-ply cables, occasionally bound in large coils (see fig. 19). Most of the rope was found in small, broken pieces



Figure 19: RN 60, D4b-1

a	C4c-3	RN 139	dark blue, blue-white eyes
b	C5surf	RN 36	green glass
c	C4c-29	RN 143	green glass
d	C4c-2	RN 315	turquoise frit
e	G8d-1	RN 82	turquoise, turquoise, white
f	C4c-9	RN 142	dark blue frit, green frit
g	B4a-3	RN 140	turquoise frit
h	C8surf	RN 190	"
i	C4c-2	RN 315	"
j	F10a-8	RN 131	green glass, gold leaf interior
k	E6b-1	RN 110	turquoise frit
l	F9c-5	RN 316	"
m	G8d-1	RN 82	"
n	C4c-8	RN 141	green glass
o	D4b-1	RN 20	carnelian, agate
p	G12a-1	RN 96	agate
q	F8d-1	RN 90	agate
r	S11b-9	RN 234	blue frit
s	K9b-16	RN 177	yellow glass
t	K9b-5	RN 14	green glass
u	F9c-5	RN 316	yellow glass
v	F8d-1	RN 77	black glass, glass
w	P8c-11	RN 138	yellow glass
x	F8d-1	RN 90	carnelian
y	K9b-17	RN 178	dark green glass
z	K9b-5	RN 14	yellow glass
aa	G8d-1	RN 82	black glass

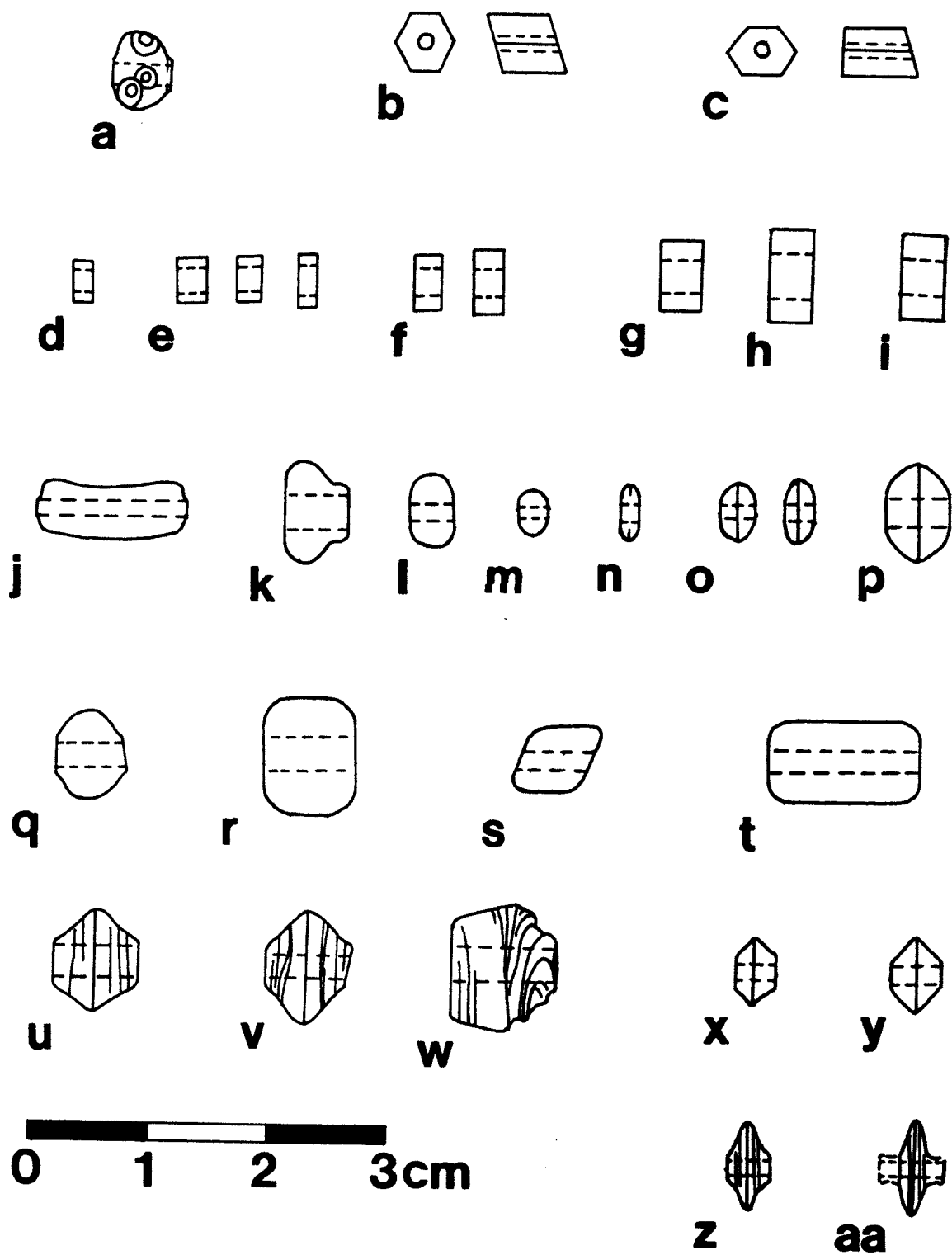


Plate 68: Beads



throughout the Roman and Islamic loci. Rope was also used for other artifacts such as woven rope floor matting (see fig. 20). Other Roman woven goods were

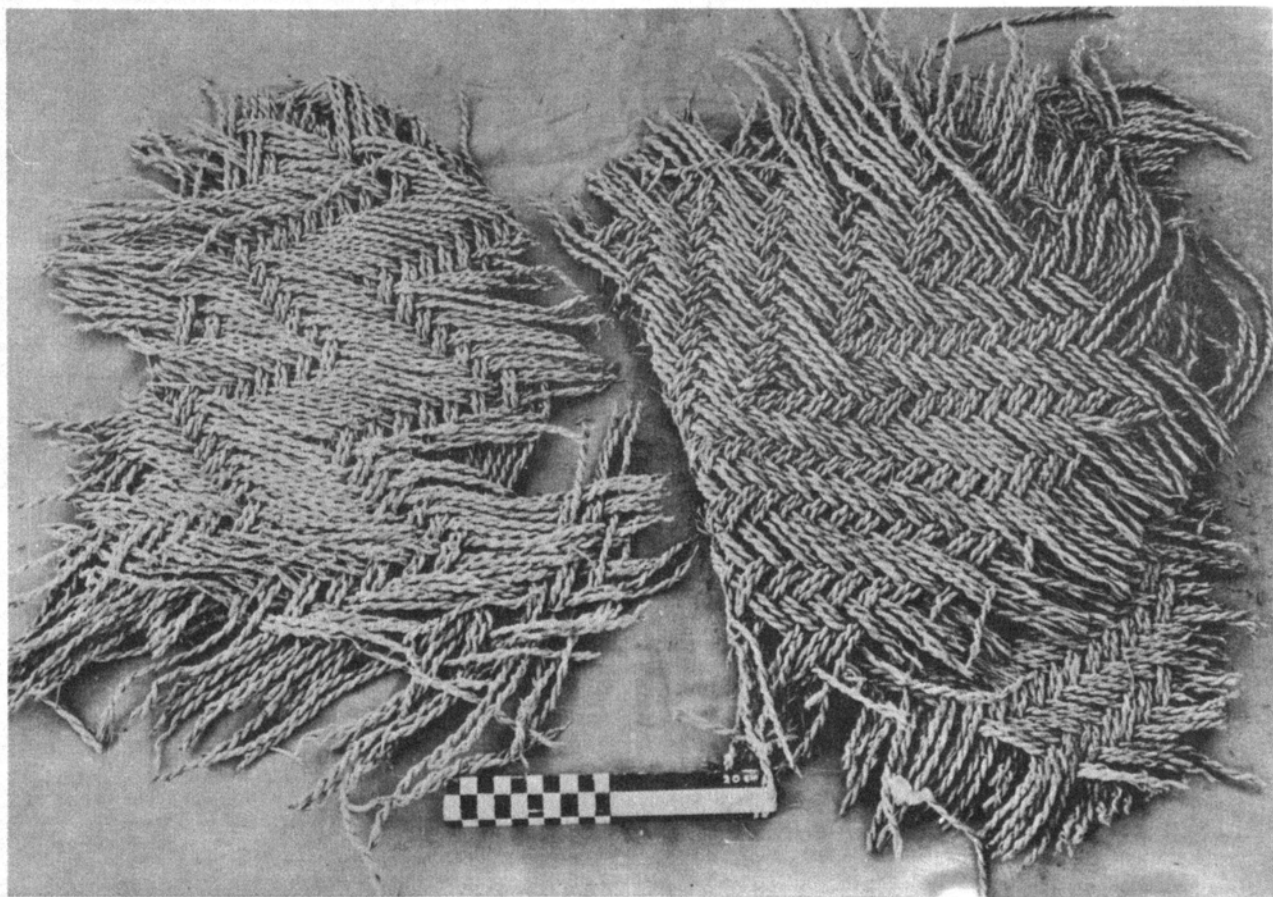


Figure 20: RN 245, P8a-8

sandals ranging from simple, crudely made togs to finely made examples (see fig. 21). This footwear was in distinction to that of the Islamic loci where cloth slippers (see fig. 14) and leather slippers and boots were found. The most common woven material was by far the simple reed matting, used for both floors and ceilings; this material was also used for baskets (see fig. 22), identical in size and construction to those used by the workmen in the course of the excavation. Other types of basketry and woven covers (see fig. 23) were also found.

The artifacts in pl. 69 include mainly metalwork and an assortment of Islamic objects. The Islamic materials include a plaster plug, a gypsum net weight (?), and glass bracelets. This last category is extremely widespread throughout the Islamic world, from the littoral of the Persian Gulf to Hama in Syria (Riis, 1957: 211); they are often assumed to be the product of South Arabia or Yemen.

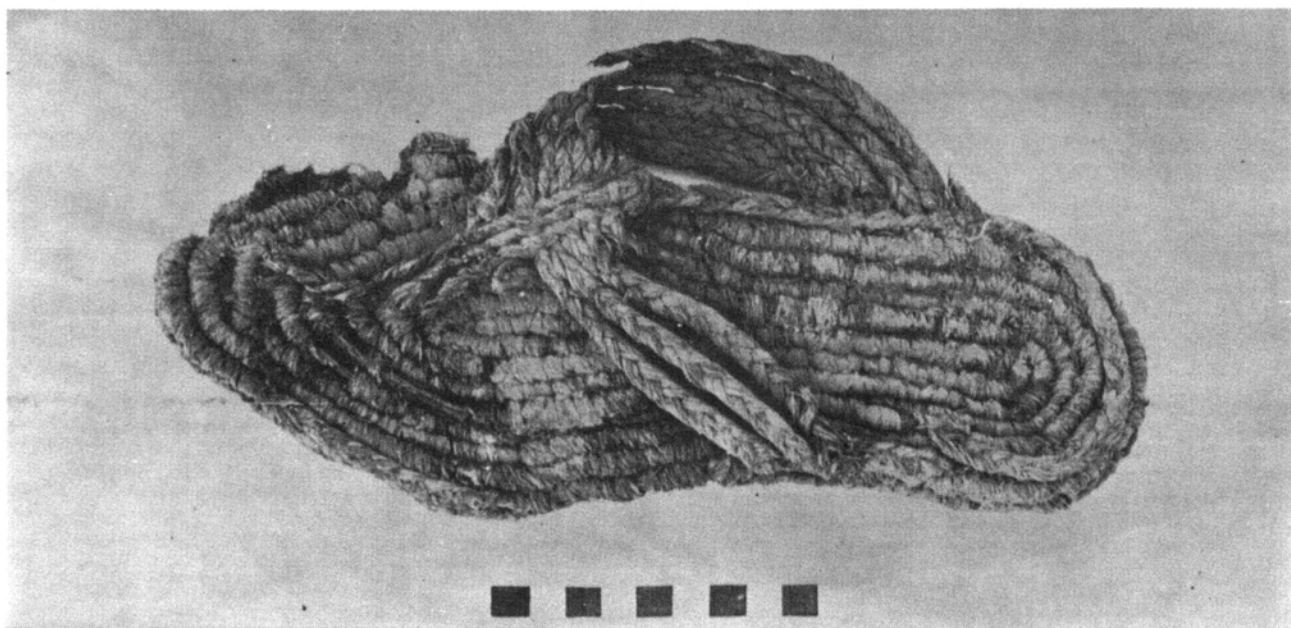


Figure 21: RN 418, B4a-3



Figure 22: RN 237, P8b-17

a	P8a-9	RN 310	plaster plug, base of round-bottom pot set in for support, ink inscription			
b	K9b-12	RN 52	clear mica			
c	S12a-1	RN 662	black wood, iron(?) rivets			
d	A22d-1	RN 575	amber glass			
e	C20-E20 surf	RN 209	dark blue glass			
f	F9c-3	RN 467	bronze			
g			iron			
h	S11b-1	RN 484	bronze			
i	D4b-1	RN 25	silver			
j	F8d-4	RN 477	bronze			
k	F8d-3	RN 473	silver-gold alloy			
l	F20surf	RN 26	bronze			
m	E7a-2	RN 468	possible Triton, bronze, gilded			
n	C4c-7	RN 430	bronze			
o	D4b-1	RN 18	"			
p	"	RN 668	gold leaf ring			
q	P8c-1	RN 480	chased bronze			
r	G12a-1	RN 129	bronze, lumps corrosion(?)			
s	E7a-4	RN 482	bronze			
t	B4a-3	RN 469	bronze cotter pin			
u	F10a-11	RN 128	mold			
v	C4c-4	RN 430	bronze			
w	S12a-13	RN 429	bronze			
x	C4c-3	RN 430	bronze			
y	P8c-7	RN 481	iron			
z	F9c-18	RN 432	iron			
aa	C4c-3	RN 430	bronze			
bb	J5surf	"	"			
cc	C4c-3	RN 487	bronze chisel			
dd	"	"	bronze handle, lead fill			
ee	G8d-1	RN 431	iron	kk	F9c-1	RN 431 iron
ff	Q2b-8	"	bronze	ll	P8a-1	" "
gg	G8d-1	"	"	mm	P8a-9	" "
hh	S12a-14	"	"	nn	C4c-5	" bronze
ii	C4c-9	RN 431	iron	oo	S12a-4	" "
jj	"	"	"			

Plate 69: Metalwork, key

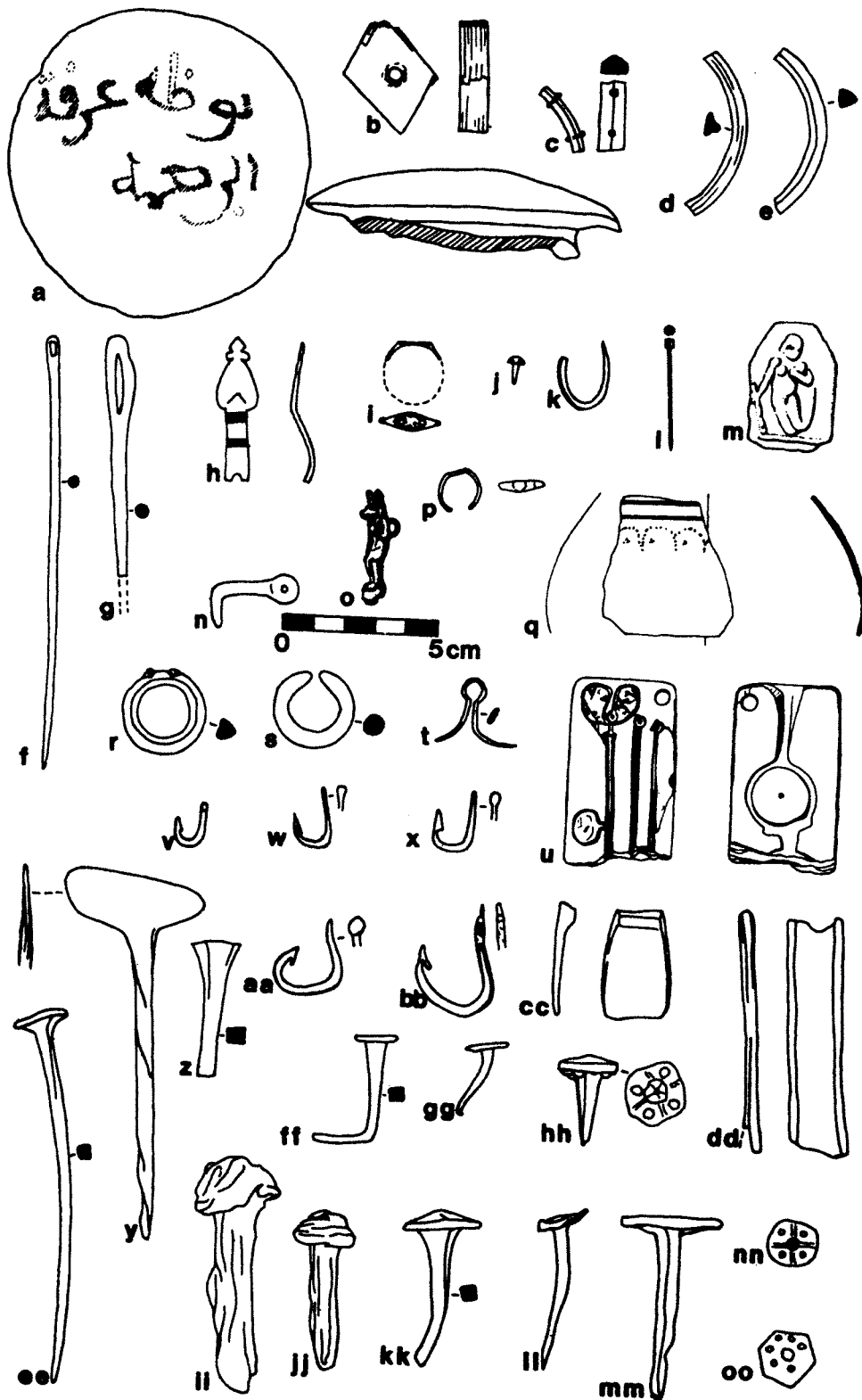


Plate 69: Metalwork

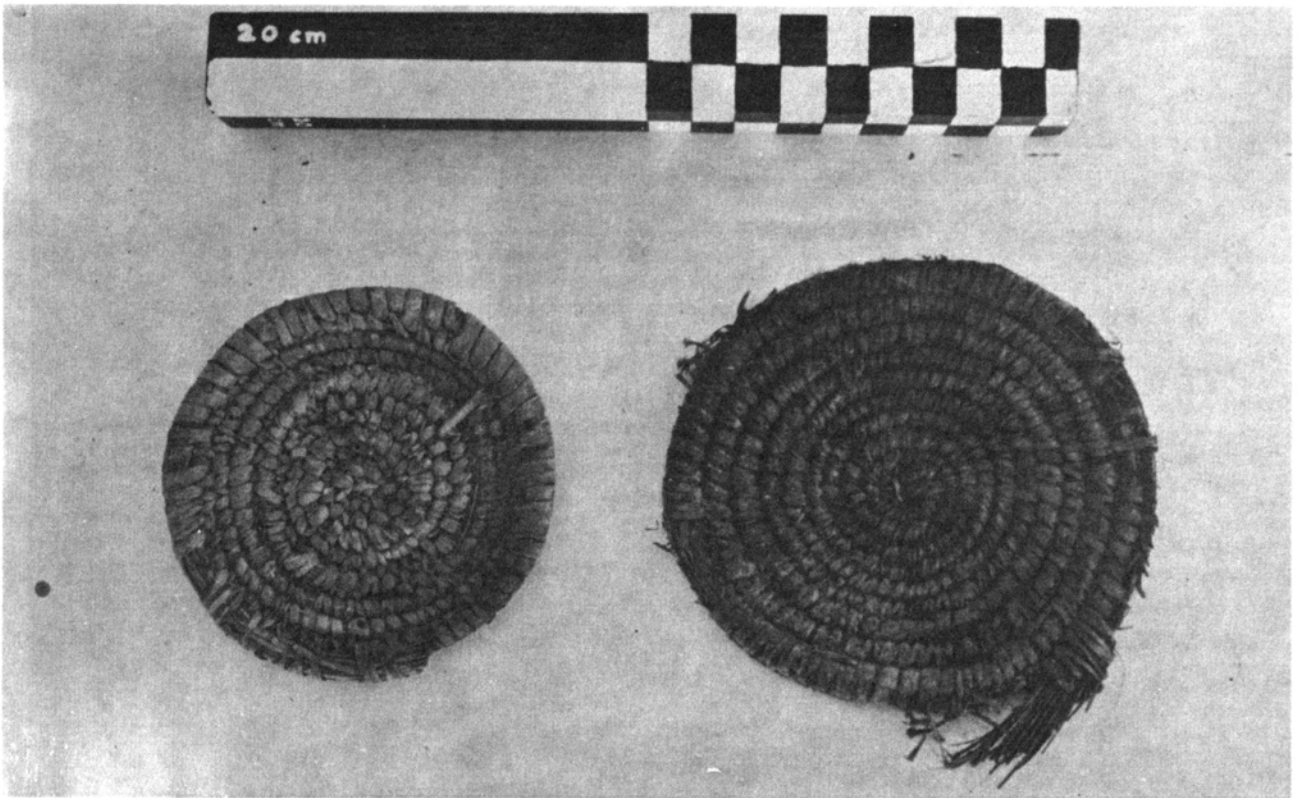


Figure 23: RN 238, P7d-2; RN 246, F9c-14

The metalwork reflects the activities of the port, indicating building activities in nails, fishing in fish hooks, and sailing in sailmakers awls and needles. Finer metal objects include small rings, a statuette of Anubis, and a plaque, probably depicting Typhon. The production of jewelry is suggested by a stone mold (69:u). Most of the metal objects are of bronze or iron, with small objects in silver, gold, or gold leaf. Also found were pieces of lead (69:dd).

One small ivory fragment was discovered (70:b). The largest class of wooden or bone objects was a type of flat ring (70:k, l, o, p, s, t). These rings have two small suspension holes and wear marks opposite the holes. It might be suggested that these rings are the guides for bracing ropes which crossed the surfaces of sails during the Roman period. Other small wooden objects include combs (70:f, j), a spoon (70:g), a tuning-peg for a musical instrument (70:c), and various toggles (70:n) and pulleys (70:u, v). On pl. 71 are depicted a possible bread stamp (71:a) and a piece of wooden inlay. Numerous vessels were found made of wood. These appear to be both Islamic (71:d, h, i, j; see chapter 7) and Roman; the painted examples would seem to occur in both periods. There was also a dish or plate made out of tortoise shell (71:l), with mend holes and repair string.

a	C4c-5	RN 576	wood
b	K9b-3	RN 10	ivory
c	D4b-1	RN 15	wood
d	S11surf	RN 83	wood
e	S11c	RN 121	wood, inscription in ink
f	E6b-9	RN 426	wooden comb
g	S12c-2	RN 556	wooden ladle
h	P8a-8	RN 111	wooden spout
i	P8c-10	RN 572	wooden ring
j	J8surf	RN 39	wooden comb
k	C4c-10	RN 572	wooden ring
l	D4b-2	RN 573	resinous bone ring
m	C4c-5	RN 576	wooden toggle
n	P8a-10	RN 557	"
o	C4c-9	RN 572	wooden ring
p	F8d-2	RN 85	"
q	P8b-8	RN 560	wooden fishnet bob
r	P8a-4	RN 100	wood
s	B4a-3	RN 572	wooden or bone ring
t	B4a-4	"	wooden ring
u	S11b-3	"	wooden pulley
v	F8d-1	RN 79	wood

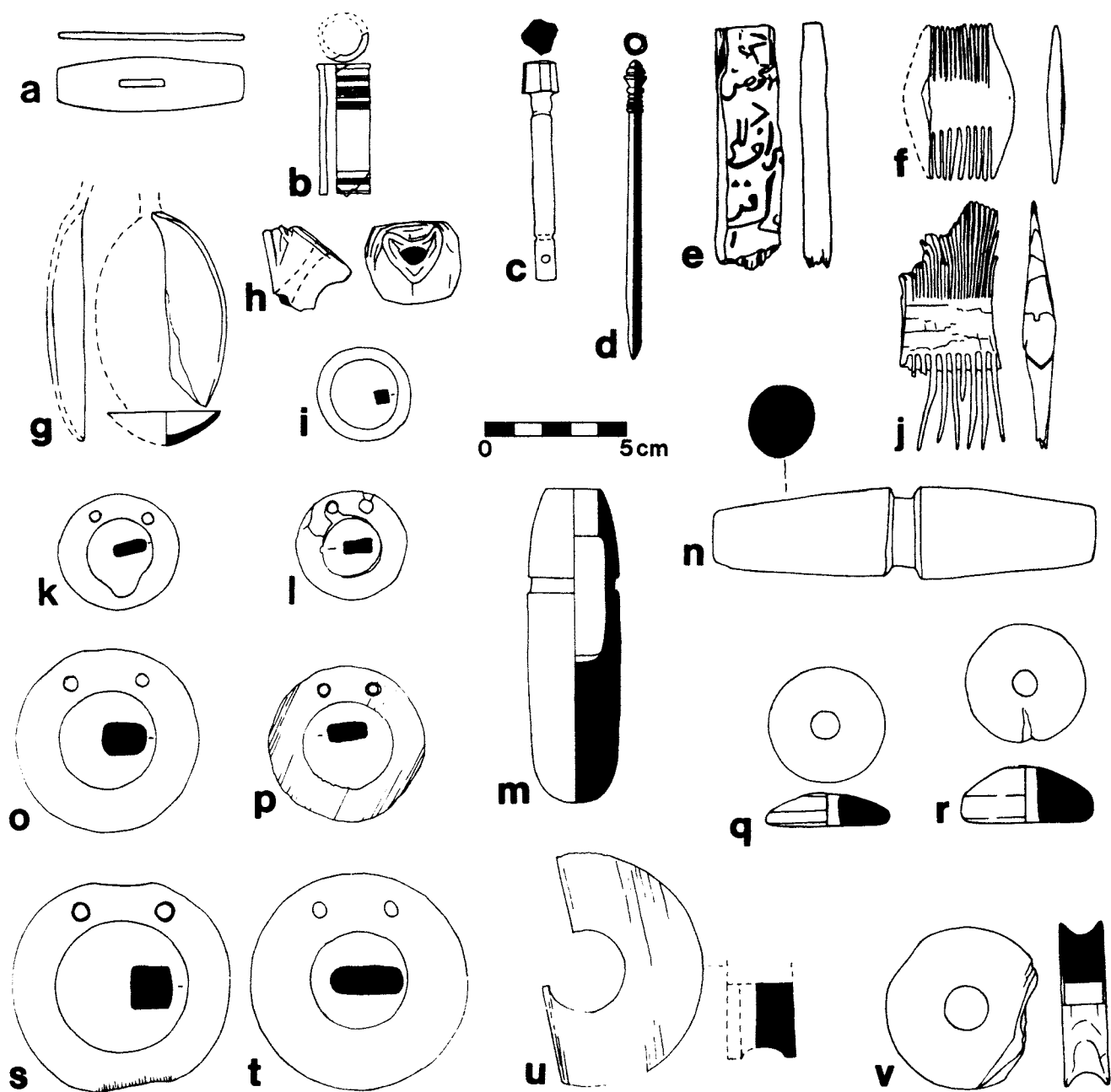


Plate 70: Wood

a	P8b-17	RN 134	bread stamp, wood
b	F9c-14	RN 118	embroidered cloth, blue check on white cloth, red border, embroidered purple background, dark blue scroll design, red inscription
c	F8d-1	RN 76	yellowish white broad cloth, embroidered decoration in yellow, red ("mountain"), dark blue (solid), light blue (hatching), reversible
d	P8c-3	RN 415	wooden lid, red paint interior, exterior cream-light orange, incised decoration with black paint
e	P8a-9	RN 649	coconut shell bowl, repair holes with rope
f	P8b-11	RN 133	wooden bowl painted in blue (hatching) and red with white paste
g	P8b-17	RN 568	wooden lid
h	F8d-1	RN 78	wooden lid, black lines
i	P7d-7	RN 416	wooden bowl, red paint inside, lightly incised background stained red, black paint, at rim red band with white lines cut through red, sgraffiato
j	C4c-4	RN 570	wooden lid, painted interior, exterior, red (hatching), blue (vertical lines)
k	P8a-9	RN 571	wooden bowl, black (solid) and red painted decoration exterior
l	C4c-9	RN 654	tortoise shell bowl, very irregular
m	P7d-7	RN 416	wooden bowl, red (hatched) and black paint, repair holes
n	F9c-7	RN 563	wood
o	C4c-11	RN 550	"
p	77surf	RN 699	"
q	D4b-2	RN 39	"



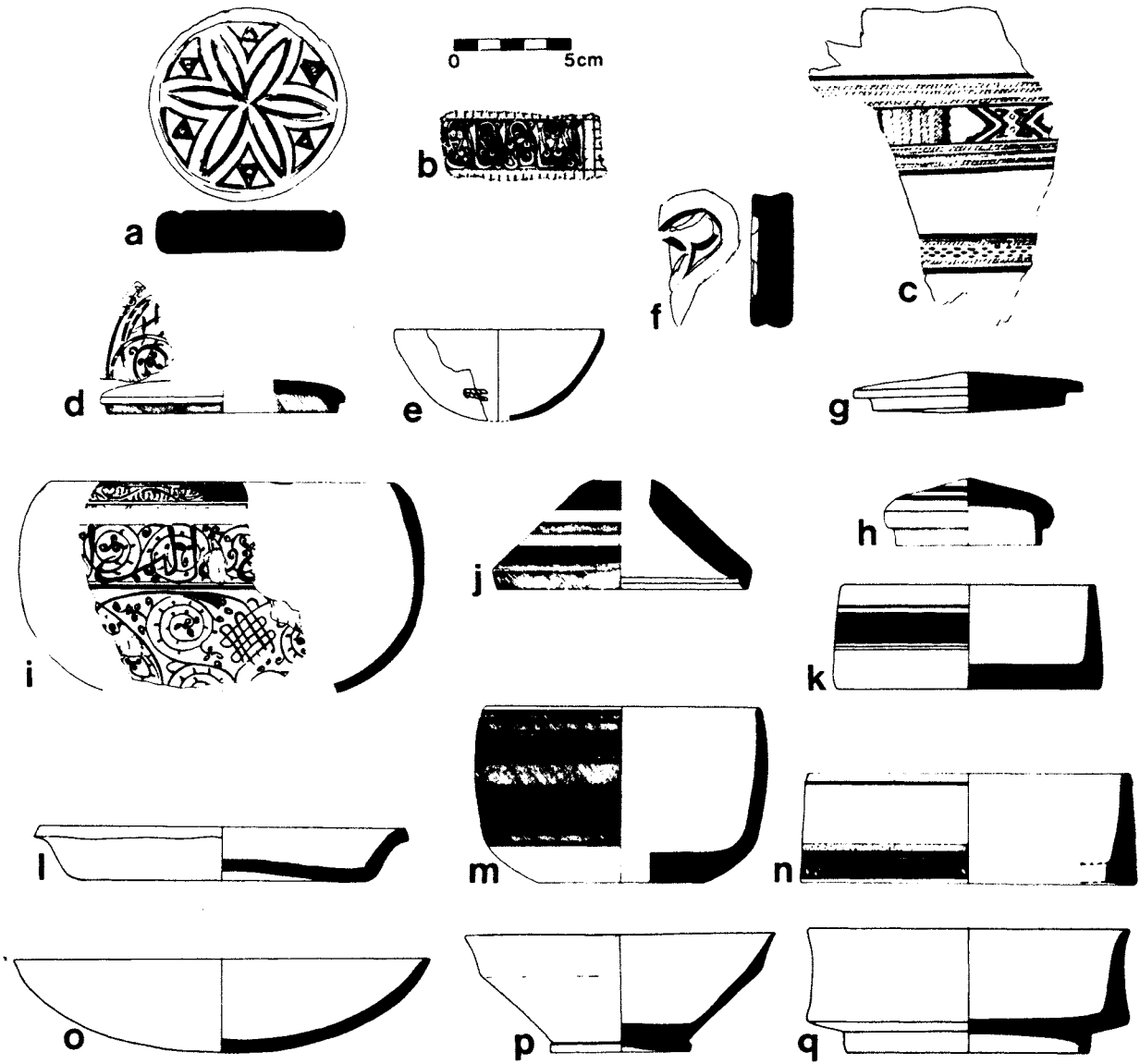


Plate 71: Wooden Bowls

a	P8b-6	RN 555	wooden key
b	P8a-9	RN 106	"
c	P8c-3	RN 559	wooden door stop
d	P8b-8	RN 560	wooden handle
e	"	"	wooden tool
f	S12c-5	RN 89	roughly carved wooden furniture leg, unfinished(?)
g	P8a-15	RN 108	wooden mold(?), staples (iron) both sides
h	K6surf	RN 174	stone
i	P8a-9	RN 167	chlorite bowl
j	P8c-5	RN 388	soft metamorphic stone with mica (schist[?]) bowl
k	P8c-2	RN 167	chlorite bowl

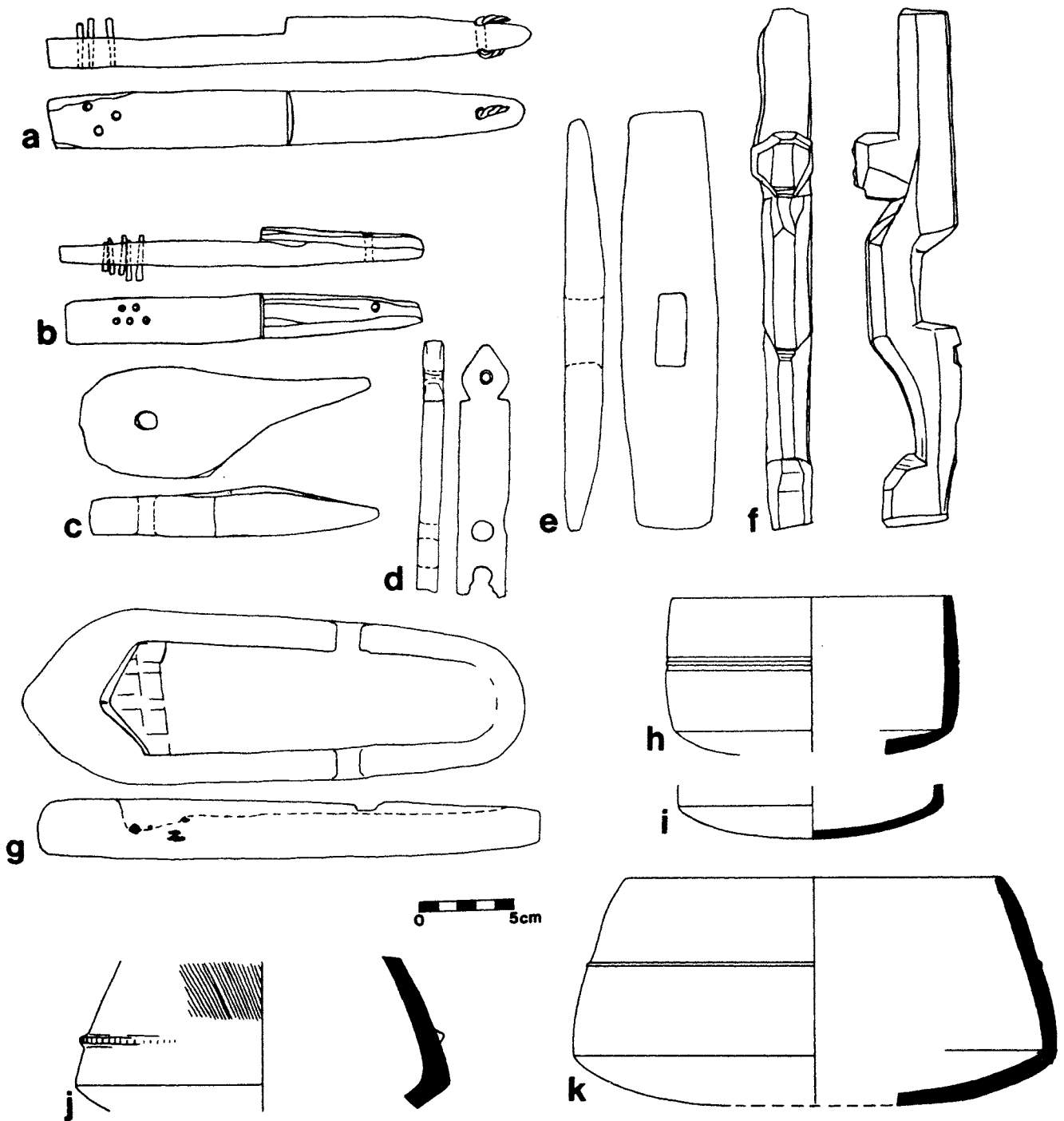


Plate 72: Stone

Larger wooden objects included furniture parts, as a carved leg (72:f), and other household equipment such as keys for door latches (72:a, b) and a door stop (72:c). It should be stressed that large structural elements made of wood were recovered and, more importantly, small, worked fragments abounded in the trash heaps on the site.

A final category of artifacts is the stone bowls, made mostly of chlorite (72:h-k). This type of cooking pot has a fairly wide geographical range in the Islamic period, from Oman and the Persian Gulf to Kilwa (where this style is somewhat atypical [Chittick, 1974: fig. 163, b]).

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## CHAPTER 7: UNUSUAL ISLAMIC FINDS

Estelle J. Whelan

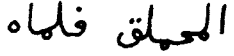
One of the many fragments of fine linen cloth found at Quseir is a piece measuring 3 x 7 cm, with an embroidered inscription band in linen and silk (71:b and fig. 24). The ground cloth is a balanced plain weave with 28 warp threads and twenty-six weft threads per square centimeter, probably woven on a two-harness loom; the threads are .2-.3 mm in diameter with a Z twist and a Z ply (the technical information presented here was furnished by Nobuko Kajitani of the Textile Conservation Center, Metropolitan Museum of Art, New York; we wish to express our thanks for her assistance). It is woven of undyed linen threads in



Figure 24: RN 118, F9c-14

groups of ten, separated by pairs of linen threads dyed dark blue. As this grouping occurs in both the warp and the weft, the result is a dark blue grid dividing the surface into rows of undyed squares. None of the selvages is preserved, but, as the embroidered band runs across the warp threads and parallel to the weft, it may have been part of a border near one end of a head cloth or other rectangular piece--turban cloths with embroidered bands are depicted in miniature paintings of the Mamlūk period (e.g., from a copy of the *Maqāmāt* of al-Ḥarīrī dated A.D. 1334, in the Nationalbibliothek, Vienna [Hussein, 1972: 118-19], where one figure also wears such a cloth tied around his waist).

The width of the embroidered band is equal to five grid squares on the ground cloth, including the dark blue lines that mark their outer boundaries. The stitching is in the undyed and dark blue linen threads of the ground cloth, as well as in three colors of silk. A strip of red-silk chain stitching one square wide and five squares high serves as the right-hand margin of the embroidery panel. These threads are quite damaged, and much of the work has disappeared. At the left the fabric has been cut; no doubt the inscription band continued almost the full width of the cloth and was bound at the end by a similar red strip. The upper and lower edges of the embroidered panel were marked by single lines of chain stitching in red silk, which have also now largely disappeared. It has not yet been possible to perform chemical analyses of the dyes, but it is likely that the red dye used was particularly destructive to the silk filaments, for the stitching in other colors has not suffered in the same way and is still well preserved.

Within its red borders, the embroidered panel is dominated by the first two words of an inscription in Arabic cursive characters without pointing; the multiple levels that frequently characterize Ayyūbid and Mamlūk epigraphy are also absent. The two words are  *al-Muḥamliq Filmāhu* "The gazer his two (?)..." (we are grateful to George Saliba of New York University for help in deciphering this inscription).

In the spaces between the ascenders of the script two decorative motifs are arranged in rhythmic repetition. The more prominent is based on the palmette leaf. Although it is in very abstract form, its origins become clear from a comparison with the only partly abstracted palmette leaves on a variety of other objects, for example, on a series of possibly Fatimid foundation-molded leather bookbindings (Ettinghausen, 1965: esp. figs. 2, 7). On the Quseir embroidery the heart-shaped outline of the leaf has been simplified into a single asymmetrical loop, open at the bottom and with the left end of the line extended downward as the "stem." Two tightly scrolled volutes at the sides represent the curled base lobes of the leaf. The surface of the embroidered "leaf" is divided into upper and lower sections by two additional, inward curling volutes. The upper section is filled with dark blue linen chain stitching, bisected by a single fine line of stem stitching in undyed linen. As the volutes recall the lobes of the palmette leaf, this line may be the last vestige of its veins. To the right of each of these stylized leaves is one (in one instance, two) S-curved lines in undyed linen, terminating in volutes. The field, as well as the lower sections of the "leaves," is filled with purple silk chain stitching.

The way in which the embroidery was executed suggests some tentative conclusions about the piece. The inscription and decorative motifs were outlined first with undyed linen thread in a simple stem stitch; small sections of the ground cloth were incorporated into the design, as the bodies of rounded letters and volutes, for example. Some of the more pronounced curves and circular forms were defined by large, loose stem stitches, which were pulled into curving lines and couched. In addition, some portions of the strokes, particularly the tops of the ascenders, were widened by means of superimposed blanket stitching, also in undyed linen. The central voids of the circular letters were filled in with a fine dark brown silk thread in chain stitch; some exterior contours were also outlined in dark brown stem stitching by means of the same couching device used with the linen thread. The dark brown thread is considerably finer than the other silk threads used; neither it nor the red silk is twisted. The purple silk thread has a Z twist.

The upper sections of the palmette leaves were then filled in with the dark blue linen, and the same thread was used to pick out details on the undyed portions, for instance, the curling internal lines of the volutes. Finishing touches in undyed linen, notably the "veins" of the palmettes, were then added. Finally, the remaining spaces were filled with purple silk; the chain stitching was applied in random directions within each area, apparently in order to cover the surface as quickly as possible, despite the rather careless finish it lends to the design. This impression of carelessness is heightened by the failure to mask the blue grid lines of the ground cloth entirely, so that they frequently show through in both the warp and weft, contradicting the embroidered design superimposed on them.

The fine quality of the linen cloth, the use of silk thread in several colors, and the clarity of the script all suggest that this piece was embroidered for use by someone other than a member of the lowest socioeconomic groups, for example, the stevedores and other manual laborers of the port of Quseir. On the other hand, the careless haste shown in some of the stitching, as well as the absence of gold thread and other marks of extreme luxury, suggest that it was also not intended for a member of the wealthiest classes.

A few related embroideries have been published and assigned to the late Fatimid or Ayyūbid period.

1. Perhaps the closest is # 3239 in the collection of the former Islamische Abteilung, Berlin, purchased from C. Reinhardt, who had collected Egyptian textiles while serving as German consul in Cairo (Kühnel, 1927). According to Kühnel, the technique is similar: on a fine linen ground an inscription band is embroidered in silk and linen stem stitching and the field filled with chain stitching. The inscription is in cursive characters rather different from those on the Quseir piece, but the decoration in the field, described by Kühnel as consisting of interlocking heart shapes, is quite similar to the stylized "palmette leaves" from Quseir. Kühnel mentioned two related embroideries, # 17483 in the Kunstgewerbemuseum, Dusseldorf, and # 1116,99 in the museum at Leipzig. He dated all three pieces to the 13th century.
2. The cursive script on an embroidery formerly in the Newberry collection (Newberry, 1940: 18, pl. 2, fig. 2; Britton, 1942: 165-66, figs. 10-11, 22) bears a marked resemblance to that on the Quseir fragment, particularly in the way that the bottom of the alif turns forward and up, ending in a tiny single volute, and the terminal hā that is indistinguishable from a terminal

yā. In addition, the field is filled with variants on the familiar heart shapes and S-curves, many of them obviously based on plant forms. Britton considered this piece to be of the 12th or 13th century because of the use of cursive script.

3. A second embroidery from the Newberry collection has no inscription but is stitched with curvilinear stylized plant forms with volutes (Newberry, 1940: pl. IX, fig. 4; Britton, 1942: 165, figs. 8, 17). In addition, there are solidly filled-in wedge shapes, apparently derived from half-palmettes, and elaborately interlaced grids and rosettes. Britton has assigned this piece to the Ayyubid period because of the association of its decorative repertoire with those of other pieces, like no. 2, that have cursive inscriptions.
4. Very similar to no. 3 is an embroidery in the collection of the *Musées Royaux des Arts Décoratifs*, Brussels (Errera, 1916: 168-69). Errera cited as parallels for it # 789-1890 in the Victoria and Albert Museum, London, said to have come from a tomb at Dayr al-'Azam near Asyut, and # 17482 in the Kunstgewerbemuseum, Düsseldorf (to which list can be added an unpublished piece in the Cooper-Hewitt Museum, # 1936-33).

Kühnel classified the Berlin piece with a group supposedly representing a folk tradition, handwork from the harims of private individuals. But, although related pieces are not common in the literature, we believe that there are sufficient to suggest a market production aimed at a segment of the middle range of society, between the wealthiest officials and merchants on one hand, and the lowest strata of illiterate peasants and laborers on the other.

It has been assumed that pieces from this group came from graves in Upper Egypt, from centers like Akhmim, Dayr al-'Azam, Asyut, and Durunka, but until now there has been little firm evidence supporting such assumptions. Although this preliminary report is not the place for lengthy investigation of origins, it should be noted that Upper Egypt, particularly around Aswan, was renowned for both linen manufacture and cultivation of indigo plants in the Islamic period. Ibn Ḥawqal and Yāqūt reported an important center of linen manufacture at Aswan; the cloths and kerchiefs produced there were shipped to the Hijaz and Cairo, apparently partly through the agency of traders from Aden who had established a station at Qus, only a short distance west of Quseir (Serjeant, 1948: 108-9). At a later period, the city of Asyut was famous for a fine linen dabiḳī cloth; the villages around it specialized in production of indigo and alum for dyes (EI<sup>2</sup>: Asyut).



The embroidered piece from Quseir is only one of more than 200 fragments of similar linen cloth found in Islamic levels (see chapter 5). The sheer quantity of these fragments points to a local or regional center of manufacture. The embroidery is thus an important pivotal piece, for the similarities of its technique, epigraphy, and decoration to those of a number of unexcavated textiles in museums and private collections serve to link the latter with the centers of production so lavishly represented at Quseir.

Aside from their obvious value to art historians and museum curators, the textile finds from Quseir are also of considerable importance for the economic history of medieval Egypt. From the planned full-scale technical analysis of this corpus it should be possible both to develop a great deal more precise information about textile manufacture and trade in Upper Egypt than is now available and to take a much-needed first step toward the establishment of a body of basic data on localized use of fibers and dyes.

Among the most unusual finds from the Mamlūk levels at Quseir were two fragments of painted wood, one from a small bowl and one from a lid probably belonging to a similar, but smaller, bowl. As the former fragment is now in the collection of the Islamic Museum in Cairo, we have not been able to examine it at first hand but have relied on photographs and drawings. The lid fragment, however, reveals a great deal about the technique and possible function of the bowl as well.

The lid (71:d) was approximately 10 cm in diameter when whole. It had a shallow, curving profile and rested on the rim of its vessel, with a projecting ridge that fitted inside the vessel walls. The entire surface, both inside and out, had been painted with a thin red wash. The upper surface and edge were then primed with a coat of dark green, which was covered on the upper surface by a layer of a cream-colored emulsion, perhaps gesso, although its chemical composition has not yet been determined (the technical information given here was kindly provided by Richard Stone of the Conservation Department, Metropolitan Museum of Art). On this ground was painted a design of interlocking circles and vine scrolls, all contained within a border that followed the rim of the lid itself; probably there was a small knob in the center. The vine stems were studded with tiny buds, and each scroll terminated in a fleur-de-lis. The lines of the decoration were apparently first traced on the surface of the emulsion. Then the design was painted black; the shiny black paint was apparently applied before the emulsion had entirely hardened, for there are several marks where the paint was smeared and the emulsion surface scarred. Finally the spaces between were entirely filled with sgraffiato cross hatching. See fig. 25.

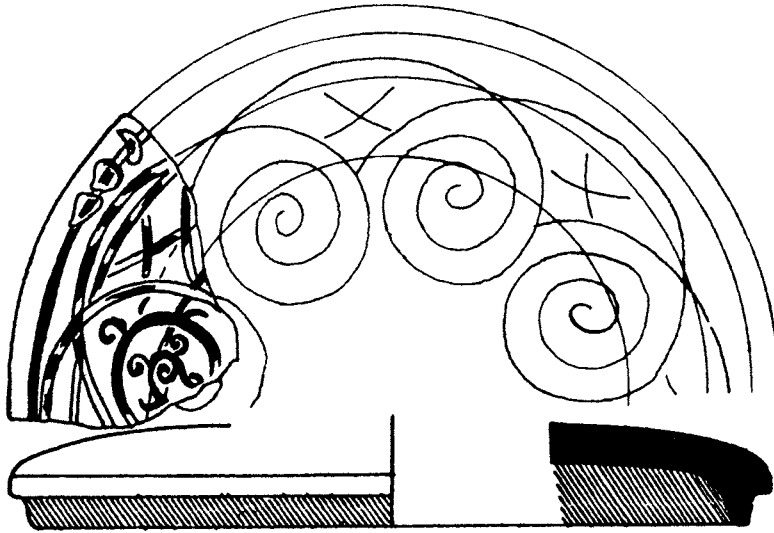


Figure 25: RN 415, P8c-3

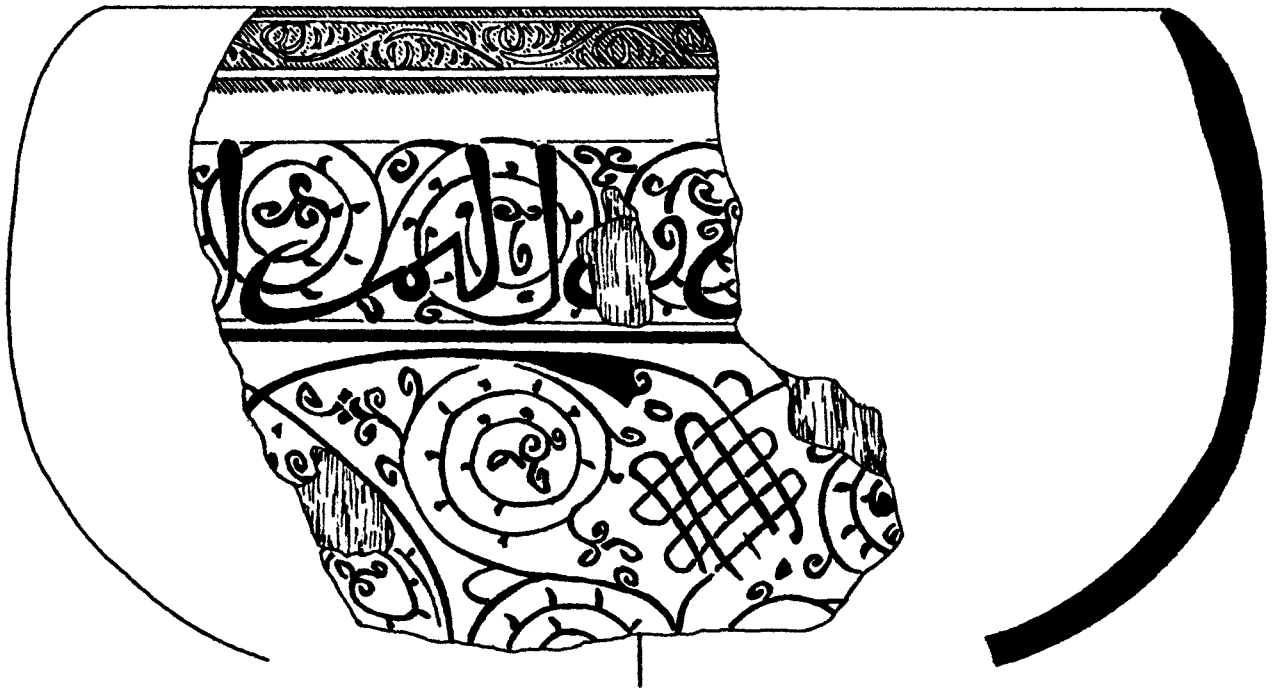



Figure 26: RN 416, P7d-7

The bowl appears to have been decorated in similar style and technique. Its diameter at the rim was 15 cm, but the greatest circumference fell at a rather low point on its rounded profile. Again, a thin red stain or paint covers the interior, as well as a band around the exterior of the rim. This band contains a continuous arabesque of stylized half-palmettes between two plain borders, all incised into the surface of the wood; they thus show white against the red surface. Beginning slightly below this band the remaining exterior surface is coated with a cream-colored emulsion; very likely the red stain or paint covers this part of the vessel as well, serving as an undercoat for the emulsion. As on the lid, a network of cross hatching in sgraffiato serves as a background for the black painted decoration. Just above its widest circumference, the bowl was encircled by an Arabic inscription in large cursive characters against a background of vine scrolls terminating in fleurs-de-lis like those on the lid. The preserved part of the inscription reads  wa'l-yumn ". . .and good fortune. . ." These words appear to have been part of a series of felicitations typical of the decoration on many Islamic objects. The inscription was bounded by thin black lines; a broader black line separated it from the decoration on the belly of the vessel. This decoration consisted of ogival forms alternating with interlaced grids and connected to them by solid wedge-shaped half-palmettes, with a small volute at the base of each. The spaces flanking the grids, as well as the ogival forms, were filled with vine scrolls similar to those on the lid.

The purpose for which this bowl was intended is difficult to determine, as very few similar objects are known. Although the interior surface has not yet been chemically analyzed, it is reported that there is no visible trace of discoloration or any residual substance that might offer a clue to its former contents. The shape, which is narrower at the rim than farther down, precludes its having had a glass or ceramic lining. The small dimensions of the vessel and the probability that it had a lid of its own thus suggest that it was a kind of covered box, perhaps for storing dry substances, coins, or bibelots.

Two other examples of similar wooden bowls have recently come to light. One large fragment was excavated at Fustaṭ by George Scanlon, who kindly made available a color slide for comparison with the Quseir piece. The Fustaṭ bowl was painted red and green. Its rim was encircled by an Arabic inscription in cursive characters; the epigraphy is of a type common to late Ayyūbid and Mamlūk inscriptions, in which words are written on more than one level, those in the upper level crossing the ascenders of the lower level. A second Arabic inscription,

in much larger cursive characters, encircled the body of the vessel on a ground of vine scrolls. The more advanced epigraphy may be evidence that the Fustat bowl is of a later period than that from Quseir, but it may also simply reflect closer proximity to fashionable courtly circles.

Fehérvári also found a fragment of a wooden bowl at Qobeyrā in Iran that he dated to the 13th or 14th century (Fehérvári, 1976: 404-18, esp. 418, fig. 15; he considers this piece to have been lacquered in red and black). It is uninscribed, and the crude, incised decoration is quite different from the graceful sgraffiato designs on the Quseir fragment.

In fact, the designs on the Quseir bowl seem to link it to the embroidered textiles that we have already discussed. For example, the solid, wedge-shaped half-palmettes and the interlaced grids are particularly close to the embroidered designs on a linen piece from the Newberry collection, number 3 in our list of parallels. Tentatively, then, we assign manufacture of this bowl and the closely related lid to an Upper Egyptian center in close proximity to the centers of production for embroidered linens and drawing on a common repertoire of decorative motifs. See fig. 26

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## CHAPTER 8: COINS AND PLASTER PLUGS

## Roman Coins

Joan Barghusen

Under the Romans the Alexandrian mint issued coins more or less continuously from 30 B.C. to 296 A.D. Both billon (debased silver, ranging from 25% to less than 1% fine) and bronze were issued during this period, only bronze until A.D. 19, then billon and bronze, until the billon became so base by the time of Commodus (180-192 A.D.) that the regular issue of bronze was stopped and, except for sporadic bronzes, only the billon tetradrachms were issued.

Coinage became common in Egypt during the reign of the Ptolemies when the Greek silver tetradrachm and its lesser bronze denominations, including the drachma, diobol, and obol, were used. After the Romans conquered Egypt, the mintage of tetradrachms at Alexandria was stopped, although Augustus did mint some bronze coins there. Under Tiberius, however, the tetradrachm of the Ptolemies was revived in 19 A.D. The tetradrachm was a coin about equal in its amount of silver to the Roman denarius, but about four times as heavy, being only 25% fine. In addition to tetradrachms, Tiberius issued obols and quarter obols. During the reign of Claudius, some experimentation with debased silver didrachmas and drachmas and with bronze diobols was done. The debased didrachmas and drachmas do not appear to have been continued, and when the drachmas appeared later, they were of bronze or copper. Under Claudius the rate of mintage increased. It has been suggested (Warmington, 1974) that this increase is correlated with an increase in trade between Rome and India, via Egypt, with the increase in trade being the result of the discovery of the monsoon winds. Under Nero, the Alexandrian mint put out its greatest number of coins, mostly tetradrachms which had been debased to 16% silver; year 12 of Nero was probably the peak year for issues at this mint. This increase correlates with the lively trade with the east known from other sources to have occurred at this time. By the time of Domitian (81-96 A.D.), the coinage consisted of tetradrachms and five denominations of bronze, including a larger coin, the drachma, corresponding in size to the Roman sestertius; this larger coin appears to have begun as early as Nero or Vespasian, becoming most numerous under Trajan, Hadrian, and Antoninus Pius, and then decreasing under Marcus Aurelius. The bronze denominations continued until the time of Commodus (180-192 A.D.), when the regular issue of bronze stopped and, aside from sporadic bronze issues, only the very debased tetradrachms were minted until these also ceased under the monetary reforms of Diocletian, at which time the Alexandrian mint lost its independent minting privileges.

The earlier tetradrachms appear silvery in color, but as the proportion of silver decreases, the appearance approaches that of bronze, until it is not always possible to distinguish the billon from the bronze. The size and weight of the coins vary widely; although diameter and weight may be an indication of denomination, this evidence is not a sure index, because sizes overlap between denominations and denominations change over time.

The Alexandrian coins, almost without exception, bear an imperial portrait on the obverse, usually with a legend which is always in Greek and usually abbreviated. The flans for bronze pieces were cast in molds with bevelled edges, especially noticeable in the larger coins, and the obverse was usually struck on the bevelled side. The date of the regnal year (Alexandrian year beginning August 29 or 30) in which the coin was issued may appear on either the obverse or the reverse, more commonly the obverse through the time of Vespasian and more commonly the reverse after that; notable exceptions are the dates on the reverse on coins of Nero. The heads of Augusti are usually laureate, those of Caesars usually bareheaded (Poole, 1892). The reverses are of many types, the types becoming more numerous from the time of Nero.

RN 447 (73:a)

Identification: Nero, year 9 (62 A.D.)

Tetradrachm, billon

Reverse: 5 grain stalks, bound.

Obverse: head or bust facing right, legend illegible.

This reverse is relatively unusual. When grain appears on reverse types, there are differing numbers of stalks or various other objects or plants are often represented. RN 447 appears to be a tetradrachm from year 9 of Nero, a rare coin (Curtis, 1969), this reverse type being limited to this year (Milne, 1933). The Dattari collection (Dattari, 1901) has two examples (261, 262) with two different obverses (busts, with radiate crown, facing left but different legends) and two different reverses (variations in placement of the star [to left or to right] and in inscription [ENA or ENA with T over the A]); the Milne collection (Milne, 1933) has two other examples (214, 215) with a third obverse (head, laureate, facing right, with legend) and the two different reverses. Thus it would appear that coins were issued with any of three obverses in conjunction with either reverse and that among these four coins there is no overlap. RN 447 would be more similar to one of the Milne examples.

a	F10a-11	RN 447
b	E7a-9	RN 450
c	C4c-2	RN 433
d	C4c-7	RN 463
e	E6b-1	RN 462
f	E6b-11	RN 442
g	G8d-1	RN 92
h	QRS-16	RN 65
i	C4c-2	RN 433



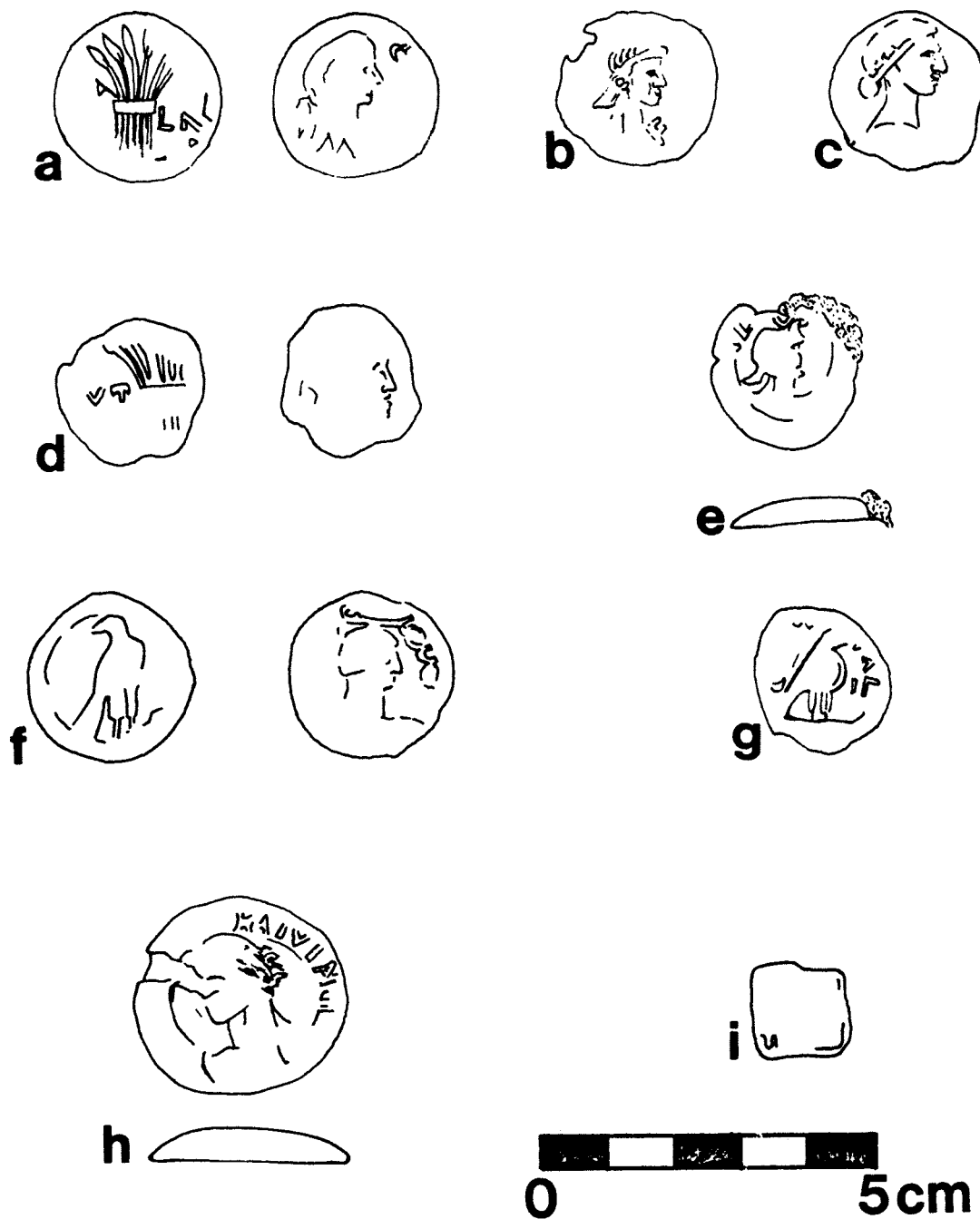


Plate 73: Roman Coins

RN 463 (73:d)

Identification: Claudius, year 10 or 11  
(51-52 A.D.)

bronze diobol(?)

General description: bronze. diameter--20 mm, weight--4.25 gm

Reverse: two grain stalks and the lower parts of three more stalks or similarly shaped objects, all bound together, with the clear letters VTO just to the left at about the level of the fillet.

Obverse: laureate head, facing right; the lines of the wreath can be seen.

This reverse type applies to Dattari (1901) 140 and 141 and Milne (1933) 114 and 119, which show a caduceus bound with four grain stalks and the complete legend AVTO to the left and KPA to the right. Since RN 463 was apparently not well centered when struck, the A did not take, and the letters to the right are no longer discernible. Milne 114 and Dattari 140 date to year 10 of Claudius, Milne 119 and Dattari 141 to year 11. The obverse head is similar to one of Claudius (Curtis, 1969: 3). This coin has been identified as a diobol because of its reverse type. However, both its diameter and weight are too small for diobols of Claudius, but fit well within the range of obols. Thus it is possible that this is an obol rather than a diobol.

RN 462 (73:e)

Identification: Alexandrian, 54-305 A.D.

General description: bronze. diameter--21mm, weight--5.4 gm

Reverse: head or bust of figure, probably female, apparently wearing a head-dress with something on top and at the front; either the headdress slopes down at the back behind the neck, or her hair hangs loose at the back of the neck. At least one letter of what appears to have been an inscription is visible at upper left--perhaps a V or an L.

Obverse: on the bevel side, head, facing right.

This vague figure could be one of the following Alexandrian types: Alexandria, Isis, Roma, Selene, Athene, Euthenia, Hera Argeia, and Nike. The last four are unlikely parallels because the proportions and other details do not seem to fit what can be seen on RN 462. The figure which most nearly approximates what is visible on this coin is that of Isis on a bronze diobol of Domitian, year 2 (Poole, 1892: # 303), showing Isis, facing right, with the inscription  $\Gamma\text{ETOVS}\Delta\text{EVTEPOV}$ . However, this is a rare coin. No other coins with head or bust of Isis contain inscriptions around the edge. The next most similar reverse type is that of Selene, who occurs with the inscription  $\Gamma\text{LAE}\Delta\text{KATOV}$  on a billon tetradrachm of Hadrian, year 10 (Milne, 1933: 1108, 1109). This is the only Selene with an inscription.

If Alexandria is the type, coins which show this reverse range from the reign of Nero to that of Claudius II (54-270 A.D.); if Roma is the type, the range is Nero to Otho (54-69 A.D.).

RN 442 (73:f)

Identification: Alexandrian

Antoninus Pius-Diocletian  
(138-305 A.D.)

General description: bronze. diameter--23 mm, weight--6.0 gm

Reverse: eagle standing with wings closed, facing right but with head turned back to the left; almost certainly a wreath in beak; traces at the upper right may be part of a vexilla or traces at the bottom right may reflect a thunderbolt on which the eagle stands.

Obverse: head.

The reverse type with standing eagle was commonly used throughout the Alexandrian mintage. Types including a standing eagle, head turned back and wreath in beak are seen on the coins of emperors ranging from Antoninus Pius through Diocletian. The reverse type which most closely approximates the features that can be seen on RN 442 is Dattari (1901) # 3416, which is a billon tetradrachm of Marcus Aurelius, year 6 (167 A.D.). However, there is enough remaining unclear on the coin to prohibit a specific identification, given the numerous varieties of this type. For example, if a vexilla is indeed represented by the traces at the upper right (in which case the traces near the foot are not those of a thunderbolt), the coin can be limited to the year 6 of Aurelius, as mentioned above. If, however, the traces near the foot represent a thunderbolt (in which case the traces at upper right cannot be those of a vexilla), the coin can be limited to the reign of Septimius Severus (193-211 A.D.). (The vexilla and thunderbolt occur together only in the reign of Commodus, and then only without the wreath in the beak.) The traces in upper right and lower right are not clear enough to support a choice between vexilla or thunderbolt, and the trace at lower right may be that of some support other than a thunderbolt. Lacking any of these more distinctive features, we are left with the range of Antoninus through Diocletian.

RN 92 (73:g)

Identification: Nero, year 13

bronze obol

General description: bronze, diameter--20 mm weight--4.3 gm

Reverse: body of a hawk, the head undistinguishable; the body is turned to the right. The remains of an inscription can be seen at the right--it appears to be an A; what appears to be the date 13 (13) can be clearly seen at the right of the hawk.

Obverse: nothing discernible.

The Greek letters of the date and the hawk, symbolizing Egypt, indicate that this is an Alexandrian coin. The hawk is not a common reverse type. It occurs on issues of bronze obols by Augustus, Nero, Vespasian, Domitian, Trajan, Hadrian, and Antoninus Pius (Milne, 1933). The only ones listed by Milne (1933) showing an inscription in addition to the date, date from years 10 and 14 of Nero. Thus RN 92 is assumed to be a member of this series. Clearly, the dates between Augustus and the end of the reign of Antoninus Pius (161 A.D.) mark the limits of this coin's manufacture; if it is, in fact, year 13 of Nero, the date is 67 A.D.

RN 65 (73:h)

Identification: Alexandrian

probably 117-180 A.D.

General description: large, thick bronze with distinctly bevelled edge. diameter--  
32 mm weight--13.58 gm

Reverse: nothing visible.

Obverse: beardless head or bust, facing left with a slight downward inclination, apparently bareheaded; remnants of Greek inscription at top right.

This appears to be an Alexandrian drachma. The drachma was a larger coin, begun possibly as early as Nero or Vespasian, but becoming numerous in the reigns of Trajan, Hadrian, and Antoninus Pius, decreasing during the time of Marcus Aurelius, and then appearing only sporadically throughout the rest of the Alexandrian mintage. Since the reverse is not distinguishable and the remains of the inscription are not distinct, the main identifying feature is the fact that the head faced left, which is less common than facing right. Such coins occur most commonly under Hadrian, Antoninus Pius, and Marcus Aurelius. Thus this coin would seem to have been issued during one of those three reigns, which covered the span between 117 and 180 A.D. Even this range, however, cannot be a certainty.

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## Islamic Coins

Michael Bates

Of the nine coins of the Islamic period found at Quseir al-Qadim, six are from the Ayyūbid era, the last quarter of the twelfth and first half of the thirteenth centuries. In addition to issues of the Ayyūbids themselves, these include one coin of the Latin Emperors of Constantinople. The remaining coins comprise two Mamlūk issues, of the fourteenth and fifteenth centuries, and a stray nineteenth century find. Save for the coin of Constantinople and one Ayyūbid import from Hamāh, the coins are all issues of the Egyptian mint in Cairo. The Muslim coins include two silver dirhams and six coppers. The identifications which follow, in chronological order, are based on examination of plaster casts as well as the drawings in pl. 74. The coins themselves are now in the Oriental Institute.

1. Ayyūbid. 74:9 Ṣalāḥ al-Dīn Yūsuf (Saladin), 564-89 H./A.D. 1169-93, with 'Abbasid caliph al-Nāṣir (575-622/1180-1225). Base AR dirham (Balog, 1952-53: 411-13). On the cast, one can clearly read the words Yū(suf) b. A(yyūb) in the obverse field and (A)bu'l-'Abbā(s) (the kunya of al-Nāṣir) in the first circular inscription, limiting the date of the coin to 1180-93.
2. RN 29 (74:i) Identification: Latin Emperors of Constantinople  
1204-1261  
Trachy, billon  
Constantinople Type B of the  
Latin Imitative Coinage

General description: thin, scyphate coin of yellowish cast; a portion of coin is broken off; diameter--ca 30 mm ; weight--  
2.6 gm

Obverse: figure of Christ, apparently seated on a throne with a back; the

a	Q8surf	RN	42	
b	S12a-13	RN	91	
c	S12a-12	RN	94	
d	F20surf			
e	A22d-2	RN	459	
f	L10c-6	RN	130	
g	N7surf	RN	41	
h	QRS-39c	RN	623	
i	B22surf	RN	29	
j	K9b-10	RN	27	green glass, stamped
k	C14surf	RN	72	white glass, stamped
l	G10surf	RN	356	opaque glass with blue-green tinge

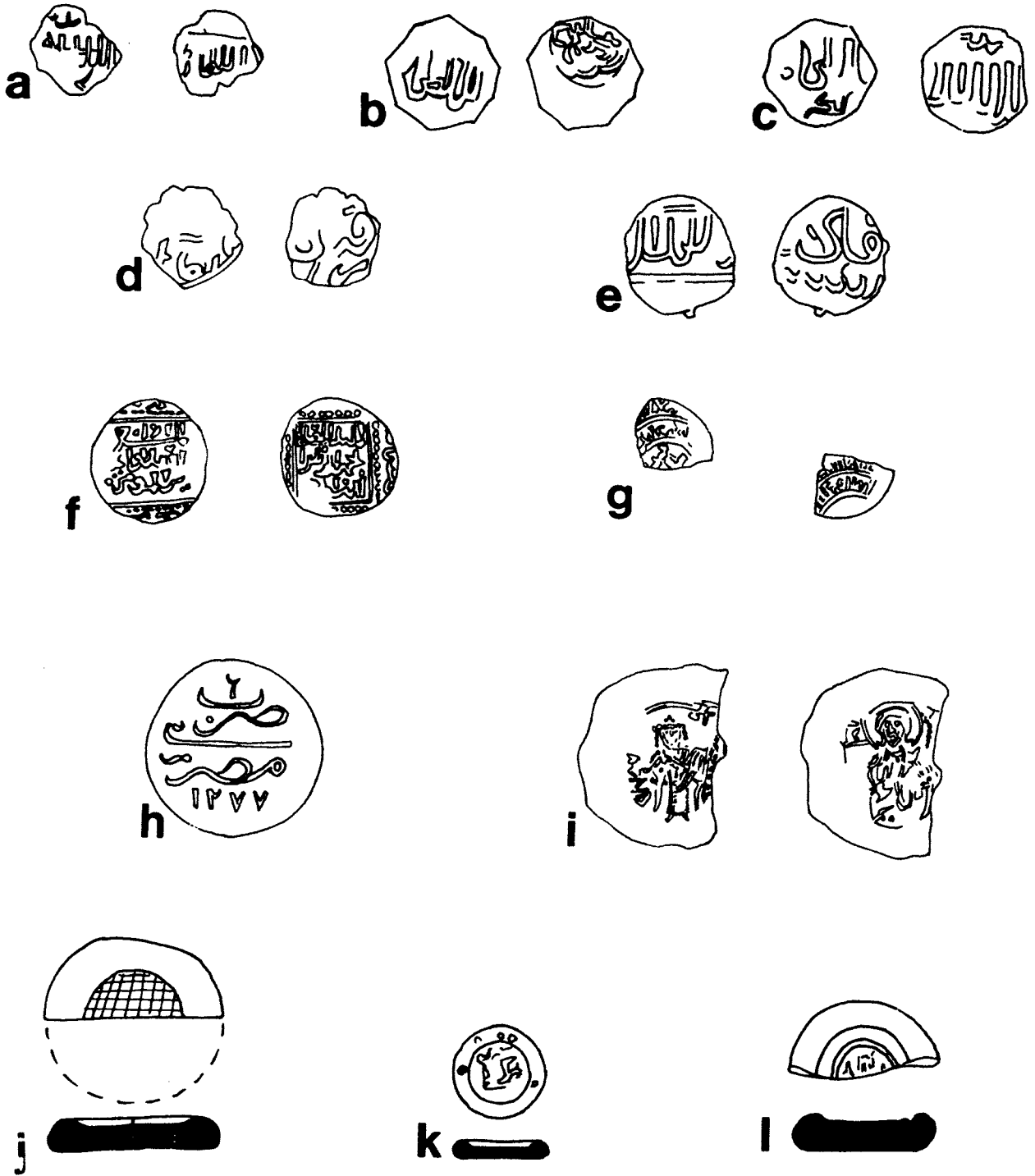


Plate 74: Islamic Coins

identifying letters  $\overline{IC}$  are at the left; other details are hard to make out.

Reverse: figure of emperor, bearded, facing, wearing stemma (crown), divitsion (tunic), and chlamys (originally a complete cloak but here a long, narrow piece of fabric, embroidered and jewelled). His right hand is on his sword, and in his left is an object which cannot be seen because the coin is broken at that point. The letters ANOV can be seen at the left, and what appears to be the letter T just to the right of the top.

One of the main identifying features of this reverse type is the fact that the emperor's right hand rests on his sheathed sword; this is not a common posture and in those other instances in which it occurs, the emperor's costume is quite different and/or he is shown in the company of another figure. Although the Quseir coin is broken, the part missing is too far to the right of the midline to have held another figure. The letters on the reverse seem to indicate the name "Manuel," the choices thus narrowing to Manuel I Comnenus (1143-1180), the Latin Imitative Coinage (1204-1261), or Manuel Ducas of Thessalonica (1230-1237). But coin types of Manuel I and Manuel Ducas are incompatible with RN 29 on the basis of one or more of the criteria mentioned above--sword, costume, inscription--or on the basis of the obverse type. The type most similar to RN 29 is Hendy (1969: pl. 25, # 11, 12; Whitting, 1973: # 352, 352) Constantinople Type B of the Latin emperors of Constantinople. Hendy (1969) has recently revamped our knowledge of the monetary system of the Latin Emperors. His Constantinople Type B, which RN 29 most nearly matches, is represented in both a larger module, such as the Quseir coin, and a smaller module. The details of the emperor's chlamys on this coin are duplicated only on coins of the same series (Constantinople Type F) and on electrum scyphates of Hugh I of Lusignan, King of Cyprus (1205-1218); the latter observation would seem to strengthen the placement of this type in the period of the Latin emperors. During this period, it is common to find the inscriptions incorrectly or incompletely rendered and, while die designs were imitated, they were usually slightly different from their models, and no attempt seems to have been made to represent both obverse and reverse of the same coin. There is some evidence that the larger module coins preceded the smaller ones in time (Hendy, 1969). Thus RN 29 seems clearly to belong to the period 1204-1261, possibly earlier in that period than later; the



extent of present knowledge does not permit a more exact dating. (The identification and description of this coin are by Joan Barghusen.)

3. Ayyūbid. 74:c. al-Kāmil Muḥammad (615-35/1218-38) with caliph al-Zāhir (622-23/1225-26). AE fals (Balog, 1977: 65, # 1).
4. Ayyūbid. 74:a. As 3, but variety not determinable (Balog, 1977: 65, # 1 or 2).
5. Ayyūbid. 74:b. As 3 and 4, but with caliph al-Mustaṣṣir (623-40/1226-42) (Balog, 1977: 65-66, # 3-6). Coins 3-5 represent Egypt's first copper coinage for nearly four centuries. Judging by the quantity of these coins found in the 1978 excavations at Fuṣṭaṭ, the issue must have been a very large one. Judging by the same evidence, the next large-scale issue of copper seems to have been under Baybars (658-76/1260-77), and the next after that under al-Nāṣir Muḥammad (693-741/1294-1340, with interruptions). Coins of the intervening rulers are extremely scarce in collections and were nonexistent at Fuṣṭaṭ, so their absence at Quseir is not surprising; but the absence so far of any coppers of Baybars or al-Nāṣir Muḥammad may be significant.
6. Ayyūbid. 74:f. al-Ṣāliḥ Ayyūb (637-47/1240-49) with caliph al-Musta'ṣim (640-56/1242-58). AR dirham (Balog, 1951-52: 29-30). Although neither mint nor date are legible, the arrangement and content of the inscriptions on this dirham are characteristic only of the mint Ḥamāh, 645-46 H.
7. Mamlūk. 74:d. Unidentifiable AE fals. Probably second half of 8/14th century.
8. Mamlūk. 74:e. Qā'itbay (872-901/1468-96). AE fals (Balog, 1964: # 841).
9. Ottoman. 74:h. 'Abd al-'Azīz (1277-93/1861-76). AE 10 piastres, Miṣr (Egypt) mint, 6th regnal year (=1283/1866-67) (Pere, 1968: # 936). From Bir Beida, QRS-39C.

Three medieval Egyptian glass coin weights were also found at Quseir. Two of these are generally regarded as products of the Mamlūk period, although neither is inscribed. One (74:j) bears a grid impression which has been identified as a chess board; the other (74:l) seems to show the upper tips of a fleur-de-lis on the fragment that remains. The third weight (74:k) is not identifiable from the drawing, and no cast was available.

The following list summarizes the information about those coins which can be identified or described.

RN	Locus	Diameter	Weight	Identification
26	F20surf	16 mm		Mamlūk
29	B22surf	30 mm	2.6 gm	Byzantine trachy, 1204-1261
41	N7surf	20 mm , whole		Ayyūbid, 1180-1193
42	Q8surf	14 mm		Ayyūbid, 1218-1238
65	QRS-16	32 mm	13.58 gm	Alexandrian drachma, probably 117-180
91	S12a-13	18 mm		Ayyūbid, 1226-1238
92	G8d-1	20 mm	4.3 gm	Alexandrian obol, possibly Nero, year 13
94	S12a-12	17 mm	2.7 gm	Ayyūbid, 1225-1226
130	L10c-6	19 mm	2.3 gm	Ayyūbid, 1247-1248
433a	C4c-2	22 mm	5.8 gm	head facing right on bevel
433b	"	14 mm	0.8 gm	possible square coin
442	E6b-11	23 mm	6.0 gm	head; eagle facing left
443	E7a-10	24 mm	3.2 gm	Alexandrian, head facing right, with wreath
444	F9c-14	15 mm	4.1 gm	flat on one side, markedly convex on other
447	F10a-11	24 mm		Alexandrian tetradrachm, Nero, year 9
450a	E7a-9	24 mm	3.15 gm	head facing right
459	A22d-2			Mamlūk, 1468-1496
462	E6b-2	21 mm	5.4 gm	Alexandrian, 54-305 A.D.
463	C4c-7	20 mm	4.25 gm	Alexandrian, Claudius, year 10 or 11
466	E6b-5	18 mm	1.65 gm	head facing right, inscription?
623	QRS-39C	29 mm	4.6 gm	ttoman, 1866-1867

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#### Plaster Amphora Plugs

W. Raymond Johnson

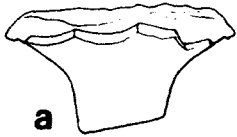
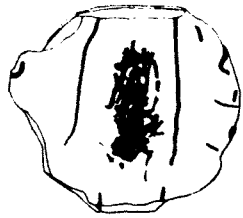
Basically two kinds of Roman plugs were recovered; one group consisting of only three examples being inscribed with black ink on the upper exposed surface (75:a-c) while the majority of plugs had been impressed with a logo with raised inscription around the rim. The impressed plugs were consistently made of plaster reinforced with small sherds (75:f has an entire vessel base as support). Most of the impressed plugs still retain on their sides and undersides impressions of the strings that were used to lower the still soft stopper into place; usually two sets of strings were used, crisscrossing beneath the stopper and giving support on four sides. The plug, once in place, was stamped and allowed to dry; it was then, in most cases, given a thin coat of red paint. Even the most weathered examples still retain some of this stain.

The plugs were found in association with first century amphorae. The impressions of amphora lips which in many instances show clearly on the sides of the plug reveal a surprising variety of first century amphora types, from the local Nile valley neck-handled type with its distinctive lip to a number of obviously Mediterranean types. If the uraeus logo, the predominant center design found on the stoppers (75:d-f and fig. 27), indicates an Egyptian origin for the sealed amphorae, the variety of amphora types may indicate a situation, in the case of the Mediterranean examples, of importation and reuse. No examples were found in place, unfortunately. The inscriptions are discussed in chapter 10.

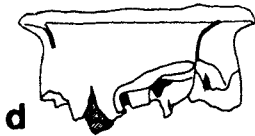
Parallels are few. Two examples of impressed, red-stained plugs are on display in the Cairo Museum, almost identical to our stoppers (numbers not visible), but published material for our time period is lacking. Later examples are known from Coptic Egypt, especially from the site of Kellia in Lower Egypt (our parallels may support the idea of an earlier local tradition there) (Egloff, 1977), but they date from the late fourth to the sixth century A.D.

- |   |         |        |   |
|---|---------|--------|---|
| a | C4c-9   | RN 181 | plaster plug, amphora bottom used as support, impression of top of amphora, sharp rim, ink inscription crossed out with ink                                       |
| b | D4b-1   | RN 16  | plaster plug, not sherd reinforced, ink inscription, sealing broken in antiquity (pick marks evident)   |
| c | C4c-9   | RN 145 | plaster plug, ink inscription   |
| d | NWsurf  | RN 146 | plaster plug, reinforced with sherds, string impressions, string still in under surface, red color on surface in spots  |
| e | S12a-17 | RN 179 | plaster plug, reinforced with sherds, red pigment on surface  |
| f | F10a-5  | RN 180 | plaster plug, sherd reinforced, bottom sherd whole (fine brown) pot, string impressions at four quarters, traces red color surface                                |
| g | F10a-4  | RN 126 | plaster plug, reinforced with sherds, no visible string impressions, impression interior of amphora, top stained red, plaster wet when stamped, did not take well |
| h | F10a-5  | RN 124 | plaster plug, sherd reinforced, string supported, surface red stained, central disk contains lightly incised lines, remnants of lettering or design(?)            |
| i | E6b-4   | RN 147 | plaster plug, sherd reinforced, some red stain on surface, design largely eroded  |
| j | "       | RN 148 | plaster plug, reinforced with sherds and wood chips, string impression, surface red stained, impression eroded, covered with pitch lower left                     |
| k | F10a-4  | RN 125 | plaster plug, sherd reinforced, possible string impression, surface red stained   |

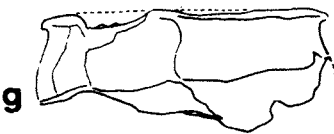
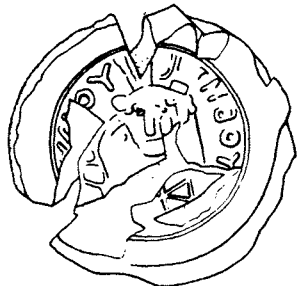
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a



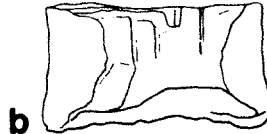
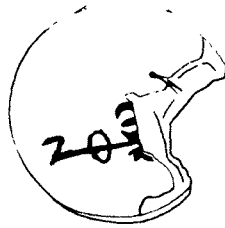
d



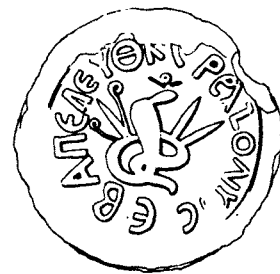
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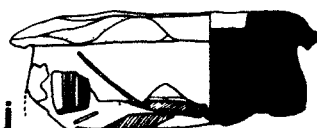
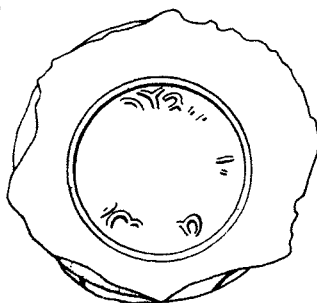
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b



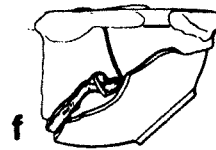
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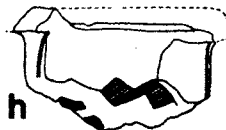
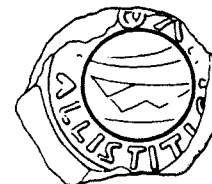
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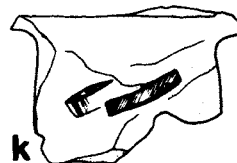
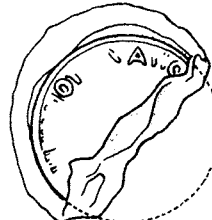
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f



h



k

Plate 75: Plaster Plugs

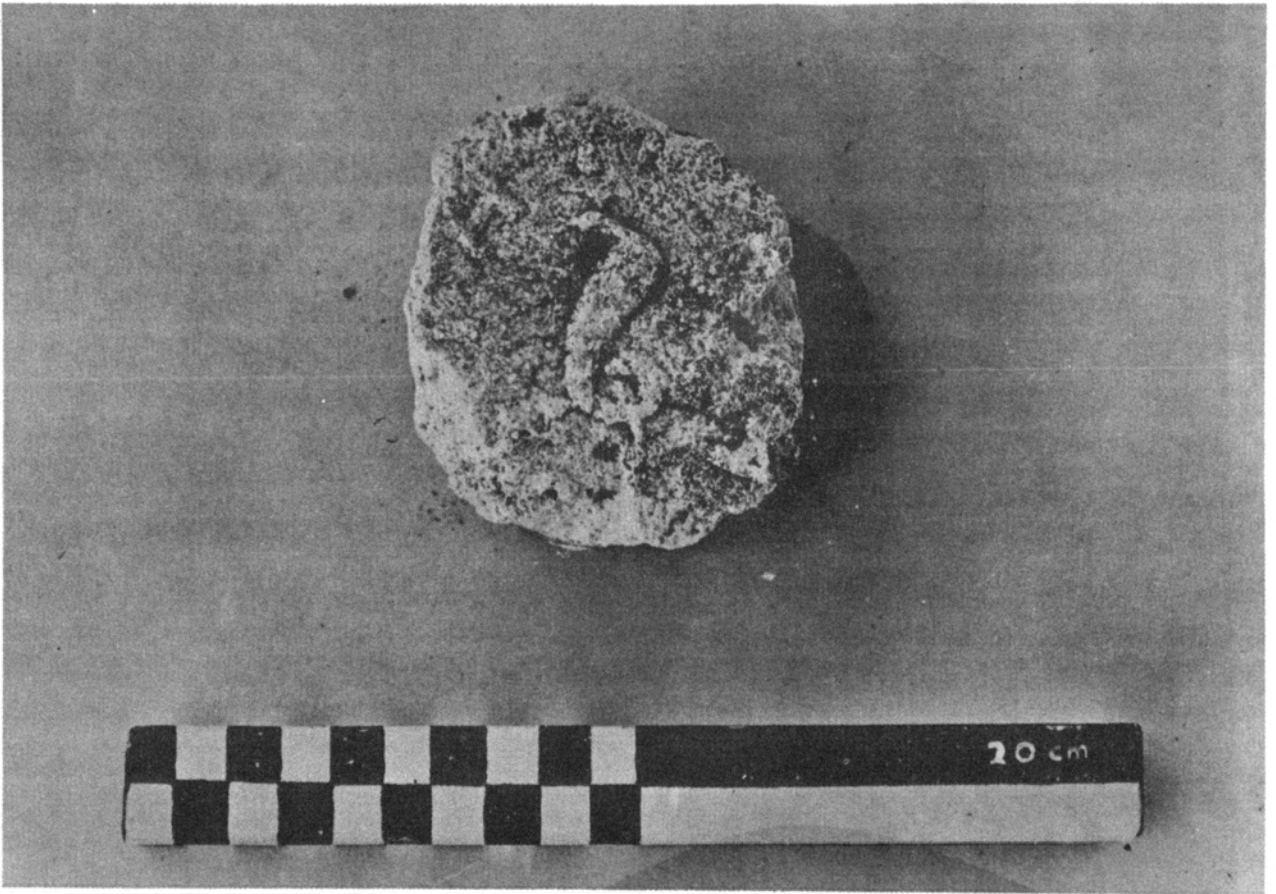


Figure 27: RN 180, F10a-5

Islamic plaster plugs were also found. In one case the smooth, rounded upper surface has an ink inscription indicating that its contents may have been date wine (75:a).

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## CHAPTER 9: CONSERVATION

Richard L. Jaeschke

The site of Quseir al-Qadim lies in a region that receives the superdry prevailing winds off the eastern desert. The direct proximity of the sea seems to have no effect on the dryness of the surface layers of the mound. Only when groundwater is approached will the active effects of moisture be seen. Consequently, metals and organic materials were found together with pottery, stone, glass, and other less fragile material. As is to be expected in arid conditions, salts are present in very large concentrations. Of concern during the conservation of the materials were the water soluble salts, presumably mostly sodium chloride and calcium chloride; insoluble salts while probably present caused no problem in working with the objects.

Water soluble salts exhibited their most dramatic effects on the pottery. Often, sherds were brought out of the excavations with large crystal encrustations on their surfaces. The surface encrustations were easily removed mechanically with a scalpel or dental pick. The bulk of salt was removed mechanically to within a few millimeters of the surface of the sherd, and then the rest of the salt was rinsed away with water. Soaking the sherd was avoided until the surface could be seen, so that possibly fugitive paint or ink on the surface would not be destroyed. Sherds were inspected during drying to determine whether any recrystallization of salts was occurring. Since the sherds had formed an equilibrium of salt content with the soil in which they had been buried, and since the soil at Quseir, being arid desert, has an extremely high salt content, a high concentration of dissolved salts was to be expected in the ceramic fabric of the sherds. These salts are subject to migration within the structure of the sherd. The moisture content of the air in Quseir was too low to affect these salts, but once the sherd had been washed, these salts could be dissolved inside the sherd and recrystallize on or just below the surface of the sherd, causing crystal expansion damage to the sherd surface. If salts were seen to be recrystallizing on a sherd, it was immediately immersed in water to soak the bulk of the salt content from the object. This procedure took from a period of several days to several weeks depending upon the size of the object.

Spot testing revealed that the ink on all the ostraca was somewhat water soluble; it would come off in water with mild scrubbing. By consolidating the surface with 10% PVA, the ostraca could be safely soaked without losing the ink inscription, the PVA (AYAA) molecule being large enough to allow the water to penetrate and remove the dissolved salts while holding stable the surface with its ink. After soaking for a suitable time, the ostraca were then air dried and the PVA coating removed with acetone.

Sherds to be rejoined were cleaned by brushing or, when extremely dirty or encrusted with salt, rinsed in water and dried. All but the finest sherds which were to be joined were glued with "Cemedine C," which is soluble in organic solvents such as acetone. For exceptional pieces, fine wares, glazed wares, and complete or almost complete pieces, "Duco" cement (a synthetic resin cement) was used. Cracked or flaking pieces were consolidated with a 10% solution of PVA (AYAA) in acetone. The 10% solution was allowed to soak into the cracks or painted on the flaking surface. Once dried, the excess on the surface was removed with a swab soaked with pure acetone.

The stone objects needed very little conservation other than cleaning. Dirt was brushed from the surface or washed off under running water. Salts posed no problem in the field; no salt crystals bloomed on the surfaces and no previous salt damage was observed. Glass was found generally in excellent condition.

Some special problems were presented by the amphora plugs. These stoppers were made of plaster (probably gypsum) and small sherds used as scrim with an identifying stamp on top. Several had red paint left on the top surface over the stamp. Dirt and salt crust covered most examples to some extent. On several pieces the stamp was completely illegible due to the encrustations. Mechanical removal was approached with caution because the plaster was often softer than some of the salt crust. However, by carefully rinsing in running water while brushing lightly with a soft brush, the salt would dissolve and the mud could be brushed away without affecting the plaster. This had to be done rapidly, as the plaster would begin to soften after the water began to soak in. The paint, like the plaster, would soften in water, but with care and close observation the salt glaze could be dissolved down to the paint and plaster surface and the object removed from the stream of water before the water had a chance to soak in. Once cleaned, it was important to let the plaster seal dry without being touched. The entire surface would be soft and crumbly until it redried. Once the plugs were dry, latex molds were made of several of the better stamps. To ensure that the paint or fragments of the surface would withstand the effects of the latex, the top surface of the plug was consolidated with 10% PVA. Several layers of latex were applied with nylon mesh sandwiched between the outermost layers to strengthen the mold and prevent distortion. With the completed latex mold still adhering to the plug, a plaster back-up was made for the latex mold. The plaster back-up would allow an undistorted cast to be made from the completed mold. The latex



was then carefully removed from the plug and the PVA removed from the surface with acetone.

The metals required the most extensive treatment of all the field conservation. All metal objects had some degree of corrosion. Often it was necessary to begin treatment just to determine the general identity of the object. Among the non-ferrous metal objects many, such as whole nails and fishhooks, could be identified by shape. However, since coins and nail heads often looked alike before cleaning, such objects were cleaned until their identity could be determined. The corrosion found on the nonferrous metal objects usually consisted of a thick crust of hard green material, probably malachite (cupric carbonate) or atacamite or paratacamite (both cupric chloride), to judge by their color. Some sulphide compounds could be present, such as cupric sulphate. Next to the base metal core a red layer of cuprite (cuprous oxide) was often found. Once the green layers were removed, the remaining red layer could be removed with special care and the original metal surface would be unscratched. This proved most helpful in our few silver objects in that they were indistinguishable from bronze or copper objects in their corroded state. The silver objects were probably alloys of silver with some copper. The copper metal migrated to the surface, the silver remaining relatively untouched underneath. Likewise, in one ring which seems to have been an alloy of gold, silver, and copper, the copper migrated to the surface and caused the characteristic green corrosion and its metal content was indistinguishable from that of other non-ferrous metal objects until the final stages of cleaning.

The object to be cleaned was first inspected for structural integrity (large cracks running through the entire object indicate that it will likely break apart or disintegrate altogether) and loose corrosion removed by brushing or picking. Then the object was immersed in 30% formic acid. Formic acid reduces the corrosion products of copper and its alloys without much damage to base metal, whether it be predominantly copper, bronze, or silver. It is also a gradual and easily controlled stripping agent, reducing corrosion layer by layer. The process can be easily stopped and restarted, facilitating frequent inspection of delicate objects or elusive features. In addition, once the object is removed from the acid, no extensive rinsing is needed as with other stripping agents, because of the volatility of formic acid. The acid vaporizes rapidly, leaving no corrosive residue. The corrosion loosened by the acid was removed by brushing with a glass bristle brush. On occasion, breaks in the metal were held together by the corrosion, only to come apart during cleaning. Broken metal objects where joins could be found were repaired with 50% Randolphs cement in acetone.

All the iron was heavily oxidized and was no more than lumps of crumbly red rust with only a general shape attributable to the original object. Often no core metal remained, although occasionally a core was observed in the cross section of an accidental fresh break. No cleaning of ferrous objects was undertaken in the field and very little treatment would be of any use to these much-corroded pieces. Small examples of lead and possibly pewter were found which needed no more than dry brushing to remove dirt and very light surface corrosion.

The organic material fared quite well in the dry conditions at Quseir. Aside from their expected fragility caused by the dessicating conditions, they were quite stable. Cleaning, strengthening, and reconstruction were performed on some. Wooden objects were generally in very good condition, although often encrusted with dirt and embedded in salt. Brushing with dry natural bristle brushes and some picking with a scalpel removed the dirt and encrustations. Several painted wooden bowls, including the carved and painted wooden bowl and lid discussed in chapter 7 (see figs. 25 and 26), were cleaned with a swab moistened in water and applied to the surface, being lightly rubbed over the encrustations. By slowly working over the surface with the moist swabs, the salts were dissolved and the dirt was washed away without soaking the wood. Bone and ivory objects needed only brushing with natural bristle brushes to clean the dirt.

Much of the cloth was matted and caked with dirt and salt when excavated. Small samples were tested and it was determined that they could be washed carefully without damage or loss of dyes. Therefore the cloth samples were rinsed in water and dried flat on blotting paper. Very delicate pieces were sandwiched between two pieces of coated wire mesh. The mesh allowed thorough cleaning while holding the fragile material in place. Once dry and free of encumbering encrustations, the cloth was much stronger and needed no extra care.

Leather objects were very dry and brittle. One whole shoe was found encrusted with dirt and salt and had been broken when removed from the ground. Careful picking with a scalpel removed much of the crust and a damp swab was used for cleaning. Once cleaned the grain of the black leather and the stitching could be seen clearly. The breaks were repaired with "Duco" cement. Fiber sandals were also found. Because of their fragile nature and their lack of a solid surface, it was necessary to pick at the encrustations with a needle or scalpel and gently tap away the loosened debris. No water was used because, although the individual plant fibers held up in water, they would relax and pull the "weave" apart. Broken parts of the fiber sandals were repaired with "Duco" cement. Cement diluted

in acetone was used first to get the cement to penetrate to some depth. More cement was applied, until a layer of cement backed up with consolidated fiber could be joined together at the break. The break was held together firmly to allow the fibers to intertwine inside the cemented join. Once completely dry, the excess cement was removed with acetone from the outer surface of the join leaving the intertwined fiber showing on the outside held solidly together by cement on the inside. The joins are virtually invisible (see the Roman sandal illustrated in chapter 6, fig. 21).

The inscribed papyrus and paper were dry and relatively brittle but quite strong. All inscriptions were written in black ink. In most cases the inscribed fragments had to be unfolded and flattened. In order to open them they were subjected to high humidity using a wide-mouthed plastic jar with a sealing lid as a humidity chamber. The fragment of papyrus or paper was placed on a wire mesh stand suspended inside the jar, several centimeters above the water level. Thymol was added to the water in the bottom of the jar to inhibit growth of algae and bacteria. The fragments could be left in for as little as a half hour or as long as overnight to soften the material. The fragment was then removed and placed on a sheet of blotting paper, where it was carefully unfolded. Immediately after complete unfolding and adjusting for flatness and proper alignment, a covering sheet of blotting paper was placed over the fragment and weight put on top to flatten it. The weight was kept on until the fragment was completely dry. No ink came off during this procedure. An Arabic inscription was found on cloth and was flattened in the same way as the papyrus and paper.

Writing was also found on fragments of ostrich eggshell. Joins were glued with "Duco" cement. One Greek inscription had been carved into what appears to be flat crystals of gypsum and then was inked. It is suggested that the white stones used as building blocks at Quseir al-Qadim have undergone a chemical decomposition called kaolinization as a result of the dry and alkaline conditions of the area. The white powdery rock now found is a weathering product of alumina-silicate materials. In association with these materials there are often found large gypsum crystals which are translucent with a flat cleavage plane much like mica. It was on one of these large crystals that this dedicatory inscription was written.

Samples of slag, charcoal, and vitrified earth were taken from the small "forge" found in E6-E7. The "forge" consisted of what was originally a hole in the earth with an amphora neck used as a horizontal draft. The heat of the fire vitrified the soil around the hole, forming a rock-like clump about half a meter

long, 30 cm wide, and 30-40 cm deep. The hole was about 15 cm in diameter and about 25 cm deep. It was mostly filled with hard, cinder-like slag cemented together in a mass. Mixed with the slag were bits of charcoal from which C<sub>14</sub> samples were removed.

I would like to give special thanks to Barbara Hall, the Conservator of the Oriental Institute, who gave me advice and recipes for the field work and helped in the acquisition of chemicals and supplies for the expedition. In addition, I owe her thanks for much of my training in conservation techniques and indeed my initial inspiration. Also thanks must go to Tony Trad, whose special efforts and expertise provided the conservation laboratory with an impressive array of chemicals and supplies acquired in Cairo. I would like to acknowledge the generosity of the Union Carbide Co. of America for their sample of PVA provided at short notice and free of charge.

## CHAPTER 10: EPIGRAPHY

Greek and Latin

Roger S. Bagnall

Among the diverse finds of the first season of excavations were some four Greek papyri, one Latin papyrus, 20 Greek and one Latin ostraca, and pieces of a Greek inscription. In addition, some sealing plugs from pottery jars were found impressed with seals bearing Greek texts. Most of the Greek and Latin written material is very fragmentary, but a brief summary will show the interest that even this small assemblage of broken items has.

The best-preserved Greek papyrus is a letter, broken at the left and upper right corner. Its fragmentary contents seem to concern the dispatch of some item or items. A second papyrus also probably belongs to a letter; the others are too small to allow any sense to be extracted at this point. The Latin papyrus fragment is very exiguous, but line 1 reads *Imus*, and in line 2 the word *supra* is visible. The very finding of a Latin text points to the presence of a military unit using that language.

This impression is confirmed by one of the Greek ostraca, a note from one Komaros, who identifies himself as  $\chi\iota\lambda(\acute{\iota}\alpha\rho\chi\omicron\varsigma)$ , or military tribune, a legionary officer, to someone who is commanded to dispatch three kolophonia of wine. Of the other ostraca, some are private letters, others seemingly lists, still others chits or tickets.

A unique part of this find is a group of three pieces of gypsum with writing. The text was first engraved on the soft stone and then filled in with writing in ink. Of these fragments, two (reconstructed from three and two pieces respectively) appear to belong certainly to the same document, and the third may well belong to the same text as well. This text was originally probably a dedication made in thanks for safekeeping of the dedicant (line 1,  $[\acute{\upsilon}\pi\epsilon\rho\ \tau\eta\varsigma\ \sigma\omega]\tau\eta\rho(\acute{\alpha}\varsigma)$ , who is named Tiberius Claudius, the date thus being after A.D. 41. The third piece, in a similar hand, is probably from a dedication to the Anatolian god Sabazios (line 4,  $\Sigma\alpha\beta\alpha\zeta\iota.$  ; line 2,  $\acute{\alpha}]\nu\acute{\epsilon}\theta\eta\kappa[εν)$ , whose cult is known elsewhere in the Roman world (e.g., in Greece, Macedonia, and Italy [RE s.v.]), but which was hitherto attested in Egypt only in the appearance of a Sabazeion (temple of Sabazios) in P. Oxy. XXXIII 2678.3, an invitation to a wedding dinner in that temple (third century A.D.).

Finally, one of the plugs deserves attention. It bears the text KEPE.ONIOZ

$\Sigma\epsilon\beta\ \alpha\pi\epsilon\lambda\epsilon\upsilon\theta$ , i.e., it is the "signature" of one Kere.onios, who identifies himself as  $\Sigma\epsilon\beta(\alpha\sigma\tau\omicron\upsilon)\ \acute{\alpha}\pi\epsilon\lambda\epsilon\upsilon\theta(\epsilon\rho\omicron\varsigma)$ , the Latin *Augusti libertus*, freedman of the emperor. As evidence for imperial freedmen in

the Greek-speaking part of the empire is comparatively exiguous (Weaver, 1972: 9), this testimony of an imperial freedman's activity in charge of a wine-producing establishment which shipped to Quseir is of some interest. It was already known that some imperial estates in Egypt produced wine, but this text is the first clear proof that one of these was headed by an imperial freedman (as had been surmised from the situation in western provinces) (Parássoglou, 1978: 44-47, 50-52). Another plug mentions someone with the name Titus Flavius ..allis, perhaps also a freedman (of one of the Flavian emperors).

To sum up briefly the contribution of the Greek and Latin documents to our knowledge of Quseir in the first and probably second centuries of our era: an army detachment, taken from one of the legions occupying Egypt, was based in or near Quseir, commanded by a *tribunus militum*; it used Latin for official records, but the officers used Greek for day-to-day ephemeral communications (Bagnall, 1976: 21). The imperial presence was also noticeable in the presence of wine evidently produced on an imperial estate under the supervision of an imperial freedman. Finally, we find the religiosity typical of a port town, with a dedication to a foreign god in the form of a plaque in thanksgiving for safe return from a voyage.

#### Demotic

Janet H. Johnson

Only one Demotic ostrakon was found during the first season, that one broken and preserving only the last line of what was perhaps a tax receipt. The one line of text provides the year date and the name of the scribe and can be read *h3t-sp 14 p3-dí-wsír s3 íw.f[* 'year 14, Petosiris the son of Ef['. The father's name was most likely *íw.f<sup>C</sup>nh* 'Efonkh' (Nur el-Din, 1974: 497) although other reconstructions are possible (Nur el-Din, 1974: 498, *íw.f...* and *íw.f<sup>C</sup>w* 'Efou'). Neither the handwriting nor the date, year 14, are distinctive enough to suggest a date for this ostrakon.

#### Himyaritic

Gene B. Gragg

One sherd was found from the shoulder of a vessel on which had been scratched the letters *ydm* in Epigraphic South Arabic. *Ydm* (probably to be read *yadūm*) is a well-known proper name in Epigraphic South Arabic inscriptions from what is now Yemen. It occurs as a personal name, both as a first name and as a second name for officials and rulers; it also occurs as a tribal name. Most of these inscriptions occur roughly between the sixth century B.C. and the sixth century

A.D. The shape of the letters looks somewhat early, but it is impossible to be sure since the few paleographic criteria that have been evolved hold only of monumental inscriptions. This sherd bears direct testimony to the long-hypothesized connections across the Red Sea between Egypt and Yemen during the Roman Empire.

#### Nabataean

Philip C. Hammond

In the course of the Quseir Regional Survey, Nabataean inscriptions, on the face of a boulder, were found and noted at QRS 14, about 10.2 km from Quseir al-Qadim. See pl. 76.

The main inscription consists of two lines, in the usual formulary style of Nabataean caravaneers' wayside greetings. Some 99 inscriptions--mainly graffiti--were last reported, in detail, by Littman (1953, 1954). This assemblage, with classical notes by Meredith, supplemented the earlier epigraphic and historical survey of Nabataean presence in Egypt (Clermont-Ganneau, 1919).

With the exception of the Tell el-Shuqafiya inscription, Littman dated the general corpus of caravan-route inscriptions to after the first decade of the second century A.D. (Littmann, 1953: 26). Hence, these inscriptions are important in marking the continuation of Nabataean caravan traffic across the eastern portion of Egypt, from Sinai and elsewhere, after the fall of the Nabataean kingdom centered at Petra, in A.D. 106.

The main inscription reads: *SLM 'USU BR 'Hail/Peace/Greeting. 'Ausu son of 'US'LHY 'Aus'allāhi.*

'Ausu (Cantineau, 1932: 57-58) is a common Nabataean proper name, appearing over 248 times alone or in combination. Of those appearances, 206 are in inscriptions from Sinai and 11 are from Egypt, particularly from the NE Delta route sites. Other occurrences extend from the Hauran to El-Hegra, although less frequently. The name is also known in Thammudic; however, despite inexactitude in statistics, the overwhelming occurrences are in Safaitic (Harding, 1971: 40-41, 84).

The root 'us fits into Cantineau's problematic emphatic state with the final wav (Cantineau, 1932: 93)--hence meaning "the gift," as an implied theophoric (i.e., of an unnamed deity). Cantineau (1930: 42-44), commenting on the transformations of the sibilants s/š, notes vacillation in ancient use, but a Greek bilingual from Sinai (1044) assures the phonetic value *s* here.

'Aus'allāhi is noted some 47 times, mainly again from Sinai (45 times) inscriptions, along with 19 other prefixes to the second part of the theophoric combination. The present form is also known in Arabic, Thammudic, and Safaitic (Cantineau, 1932: 58, 62-63; 1930: 92-93; Harding, 1971: 40).

145D  
u q f q o g k  
l w d f q o

Plate 76: Nabataean Graffito



The root form 'lh appears, generally, in combined forms as 'lhy, as here. The construct prefix 'us is the same as the uncombined form above--hence, here explicitly, "the gift of God."

Although no sure "geneology" can be worked out at this time, it is striking to note that among the various "X son of Y" inscriptions from Egypt, at least one 'Ausu has a son named Garmallahi and one 'Aus'allahi has a father of the same name (with a geneology traced back two more generations), while another mention of an 'Ausu notes a son named Lubanat, which name also occurs as a son of an 'Aus'allahi. Potentially, therefore, three generations of the same family may have recorded their names along the eastern Egyptian caravan routes, giving some hint as to the duration of traffic following the fall of Petra.

The form of the script of this inscription presents some interesting aspects. *Alif* appears in three differing forms, two vaguely "foliate" and similar (i.e., the initial one on 'Ausu and the second one in 'Aus'allāhi), while the third (the initial one of 'Aus'allāhi) is much more angular. The former examples are met in the Sinaitic inscriptions, and the angular example appears at El-Hegra.

Three forms of *wav* are also present, with that encountered first in 'Ausu being the more carefully written and again more common in the Sinaitic repertory.

Of the two *sin* examples, both are standard and easily recognizable, with little variation between them.

The *he* in the last word is in ligature on both sides, making it somewhat obscure, but the sharply bent foreleg and acute upper arm appear together in Sinaitic examples.

The final *yod* is anomalous, since the lower portion curves inversely to most other occurrences (a flourish? because of the ligature? or "final"?), although such a form occurs elsewhere in the Egyptian repertory.

The final *mem* of *slm* is also an anomalous form, although the ligature form probably accounts for it. Again, however, similar examples occur in the Egyptian repertory.

Above the end of the first line of the pecked inscription there appear traces of an earlier one, carved into the boulder. Visible letters are relatively faint, however, and the reading is quite unclear, i.e., MRU ? U.

#### Arabic Inscriptions

The Islamic loci in all areas of Quseir al-Qadim produced, in addition to other organic materials, crumpled wads of paper. A total collection of approximately two hundred of these paper fragments was recovered with writing in Arabic.

The Arabic calligraphy ranges from very cursive and unpointed script to a more finely controlled hand (fig. 28 ). Michael Dols is preparing a preliminary report on the content of these paper fragments; his initial reaction to a very small sample was that most "appear to be parts of invocations of pious blessing or perhaps magical inscriptions. The more significant are the two fragments that are the beginnings of letters--one very well written, the other very corrupt. The former addresses, after the invocation of God, one 'Isā ibn Ḥusayn al-Naqā-wiyah (fig. 28 )" (pers. comm.). A second letter shown here is of some interest in that it appears to bear a date of 615 A.H. (=1214 A.D.) (fig. 29 ). Yet another letter mentions a merchant ("We wish to thank..."). The latter two letters were read by Galal el-Nahal and Carolyn G. Killean.

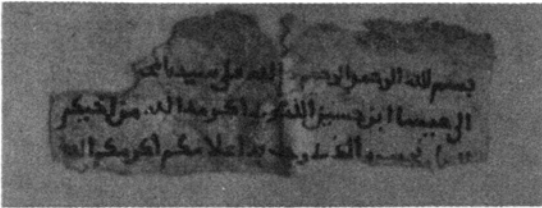


Figure 28: RN 592, P8

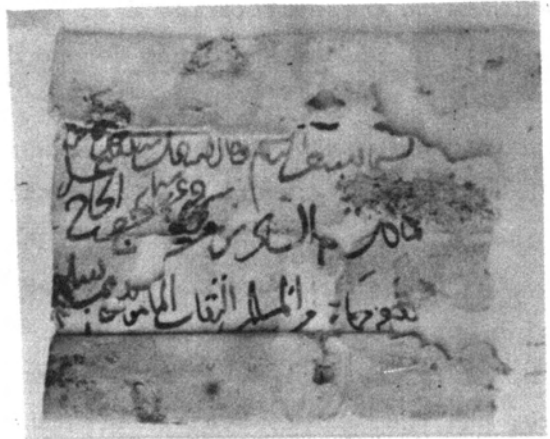


Figure 29: RN 592, P8

Other Arabic inscriptions found on the site were written on a variety of materials, the most abundant being the ostrich eggshells from A22d. In addition inscriptions are found on wood (70:e), bone (a small scapula), cloth, and potsherds.

Along the modern asphalt road to modern Quseir, beyond the gap at Bir al-Beidha, is a solitary sandstone rock outcrop (about 30 km from Quseir). This outcrop, which lies southwest of the modern road, has numerous rock drawings and tribal signs (recorded in the Quseir Regional Survey as QRS-45B). On the east end of the outcrop is a small shrine of Sheikh Abd el-'Al. The majority of the pictographs are situated on the south face opposite the modern road, suggesting that the medieval road may have passed south of the outcrop. Among these drawings is a very clear Arabic inscription, situated about eye level under a sheltering overhang on the upper portion of the outcrop.

The following transcription and translation of this inscription were prepared by Michael Bates and Donald S. Whitcomb.

حضر العبد الفقير الى الله تعالى  
يوسف ابن حاتم الشطى رده الله الى اهله  
عفر الله به و بوالديه و يجمع المسلمين امين  
بتاريخ شهر جماد الاخر سنة خمس وخمسين وسبعماية

"The poor servant of God Almighty, Yūsuf Ḥātim el-Saṭā, came here. May God return him to his people and may God forgive him and his parents and bring together all Moslems. Amen. Dated in the month of Jamādā II, the year 755" (=1354 A.D.).

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## CHAPTER 11: FLORA AND FAUNA

*Fauna*

Patricia Wattenmaker

Before presenting the data, I wish to stress the preliminary nature of the findings. Since it was not possible to ship a large amount of bone, all faunal material was presorted by excavators and only those bones believed to be diagnostic were exported for identification. It cannot be assumed that presorted material accurately reflects the actual subsistence strategy. In addition, because of the very small sample size, all interpretations of the data can be only suggestive at this stage. Only a very general view of the subsistence strategy is presented below.

## Roman Occupation

Mammals identified from this period are *Capra* (goat), *Sus scrofa* (pig), *Bos* (cattle), and possibly *Ovis* (sheep); see p. 250. An unidentified medium-large bovid was also represented. Two species of medium carnivores and one species of rodent were recovered. The measurement obtained from the third molar of a pig was 30.86 mm, which is well within the range of domestic pig. The majority of the pig bones were from immature individuals. Evidence of butchering was noted on one *Sus* pubis, a femur of *Bos* and a femur of a caprine. The only bird from this occupation is *Gallus domesticus* (chicken). The reptiles were represented by the carapace of a sea-turtle. The fish were identified as *Scarus* (parrot-fish), *Lutjanidae* (snapper, bass, or sea perch), *Rajida* (ray), *Sparidae* (porgy or sea-bream), and *Labridae* (wrasses). (I would like to thank Dr. Gerald Smith of the University of Michigan for his advice in the analysis of the fish remains.) All are marine fish. Those recovered were of moderate to large size. Nets and hooks, both of which were recovered in excavation, were probably commonly employed in the capture of the fish.

## Mamlūk Occupation

Mammals from the Islamic occupation were *Ovis*, *Capra*, *Bos*, and possibly gazelle. The unidentified bovid found in the Roman deposit was also represented. A goat horn exhibited the twisting that is characteristic of domestic goat horns. The humerus of a sheep and the radius of a sheep or goat had been sliced for marrow extraction. A mandible of sheep, goat, or gazelle was the only bone from the site that had evidence of exposure to fire. The birds from this period were *Gallus domesticus* and a wild bird that has not yet been identified. The sea-turtle was the only reptile found. Fish from this period were *Scarus* and *Sparidae*.

## Other Finds

In addition to those animals mentioned above, *Camelus* (camel), a passerine (songbird), Strigidae (owl), a small member of Phasianidae (partridge, quail, and pheasant), fragments of the exoskeleton of a crustacean, and marine molluscs were recovered from mixed deposits. The astragalus of a camel had butchering marks.

## Conclusion

The major sources of animal protein in the Roman period seem to have been goat, possibly sheep, pig, and fish, especially parrot-fish. Cattle, chicken, and probably other marine resources played a supplementary dietary role. The importance of fish is not surprising since marine resources may have been the only major locally available food source. The caprines were perhaps purchased from nomadic tribes. Goats are raised by nomads in the area today (D. Whitcomb, pers. comm.). Identification of the bovid and carnivores may provide information on hunting. Assuming that the pigs, caprines, and cattle are domestic, hunting seems to have played a minimal dietary role.

In the Mamlūk period, sheep and goat seem to have made the major contribution to diet, with cattle, chicken, fish, and perhaps other marine resources playing a supplementary role. The identification of the bovid and birds might provide information on hunting. Gazelle may have been hunted, but no bone was positively identified as gazelle. This was surprising because of their presence in the region today (D. Whitcomb, pers. comm.) and the high quality of gazelle meat. The absence of gazelle might be due to the small sample size or disposal practices.

The data suggest that fishing was more important in the Roman period than the Mamlūk period. If this is indeed the case, it might be related to differences in cultural preferences, greater access to caprines in the Islamic period, or a number of other factors. The absence of pig in the Mamlūk period is most certainly due to the Islamic injunction against pork. It seems that goat may have been more important during the Roman occupation and sheep more important during the Mamlūk period, but the sample size is, of course, much too small to be more than only slightly suggestive of the strategies of caprine exploitation. More complete analysis of a larger sample of unsorted fauna would be a promising source of information on such problematic topics as environmental reconstruction and the geographic sources of subsistence resources. An analysis of the large number of preserved fish scales might provide information on the possibility of seasonal site occupation.

## Summary Table of Analyzed Bone

	Roman	Mamlūk	Mixed
<i>Ovis</i> (sheep)		10	5
<i>Capra</i> (goat)	2	1	4
<i>Ovis-Capra</i>	14	24	17
<i>Ovis-Capra-Gazella</i>		3	1
<i>Sus scrofa</i> (pig)	9		5
<i>Bos</i> (cattle)	2	2	
Bovidae (bovid)	2	2	
<i>Camelus</i> (camel)			2
Carnivora (carnivore)	7		5
Rodentia (rodent)	<u>4</u>	—	—
Total Mammals	40	42	39
<i>Gallus domesticus</i> (chicken)	3	14	24
Phasianidae (quail, partridge, pheasant)			1
Strigidae (owl)			1
Passeriforme (songbird)			1
Unidentified	—	<u>4</u>	<u>6</u>
Total Birds	3	18	33
Cheloniidae (sea-turtle)	1	3	
<i>Scarus</i> (parrot-fish)	35	8	4
Lutjanidae (snappers)	9		
Rajidae (ray)	4		
Sparidae (porgy)	<u>3</u>	<u>3</u>	<u>1</u>
Total Fish	51	11	5
Crustacea (crustacean)			4
Bivalvia (mollusc)			5
Total	95	74	86

## Flora

Peter Lacovara

Only a small fraction of the site, especially the northwestern area, was screened consistently. No flotation was carried out. Thus there is a very great sampling bias and the following list of species identified, all of which are typical of Roman Egypt, means very little.

Phoenix dactylifera L, Hyphaene thebaica Mart, Pinus sp., Castanea sp., Tamarix sp., Cordia myxa (?), Balanites aegyptica, Phragmites comm., Juglans sp., Amygdalus pers., Cocos nucifera, and certain unidentified species were found.

## Organic Residues

Curt W. Beck and Larry Moray

The excavations of the Oriental Institute of the University of Chicago at Quseir al-Qadim have yielded a number of potsherds to whose interior surfaces a dark brown or black material adheres. Archaeologists describe such substances with the conveniently vague term 'bitumen' which embraces native as well as manufactured 'bituminous' matter without regard to its chemical composition.

Geologists, petrologists, and chemists have tried to standardize the nomenclature of these materials without appreciable success. Hanson (1964) writes

The word *bitumen*. . .has been used so loosely that it is impossible to find among the many definitions extant any precise agreement. . . .

Tomkeieff (1954) would limit the term to native substances, but that rather begs the question in an archaeological context where the problem is precisely to determine from the chemical composition of a find whether it is a naturally occurring substance or the product of human skill. To avoid that circularity, we shall modify the definition given by Abraham (1960) and use the word *bitumen, senso stricto*, to mean

. . .substances of variable color, hardness and volatility, composed principally of hydrocarbons and substantially free from oxygenated bodies.

The word 'asphalt' suffers from similar vagueness arising from uncertainty of the meaning of the Greek *asphaltos* and its correspondence to related words in ancient Near Eastern languages (Forbes, 1964) and from its inconsistent use in modern technology (Hanson, 1964). It is best avoided.

'Resin' should never mean anything but the exudate of a plant. Resins have well-defined structural features, including oxygen-containing functional groups, that permit the identification of their botanical origin (Mills and White, 1977).

In archaeological contexts, it is ordinarily not necessary to call them 'natural resins' in distinction from synthetic resins, i.e., modern plastics, from which they are easily distinguished by many analytical techniques, e.g., infrared spectroscopy (Hummel, 1968).

'Pitch' and 'tar' are terms applied to the products of heating native materials. 'Tar' describes the more volatile components which distil; 'pitch' refers to the residue of the distillation (Forbes, 1964). If the native material was a resin, the two products will be called 'wood tar' and 'wood pitch'; both have been used since very early times for hafting and caulking (Sandermann, 1965). The corresponding 'coal tar' and 'coal pitch', made by heating native coal, were apparently unknown in antiquity, although some evaporative residues of native petroleum may have been used (Forbes, 1964).

Preliminary tests show that the organic materials found at Quseir al-Qadim are not bitumens but resins and/or wood pitches. The evidence to date is as follows.

Shard P8a-10, RN 223, is the pointed bottom fragment of a large vessel (a transport amphora?) of light reddish brown clay. At the lowest part of the interior, but not extending upward by more than an inch, is a partly porous and partly glassy residue which appears black in reflected light but dark reddish brown in transmitted light.

The infrared spectrum (No. 4004) shows a strong absorption of carbonyl groups, i.e., of oxygen-containing functions. It is the spectrum of a resin, specifically of a diterpenoid resin devoid of aromatic character. The nuclear magnetic resonance spectrum confirms the absence of any significant aromatic components. That excludes all aromatic resins common in the Near East, such as benzoin or ammoniacum. A strong absorption band at about  $8.0\mu$  ( $1250\text{ cm}^{-1}$ ) suggests a pine resin but is also found in nonconiferous resins derived from the family *Burseraceae*, e.g., olibanum and bdellium (Hummel, 1968). The sample fails to give a clear Storch-Morawsky test (Wolff-Berlin, 1928), which identifies pine resins, but this failure may be the result of aging or heating of the resin. The present chemical evidence does not certainly establish that the sample has, in fact, been heated, but it does show clearly that the material is not a bitumen and that it is either a resin or a wood pitch.

Only infrared spectra have been made of the other finds.

Shard D4b-1 [a] is the solid 'toe' and bottom of a reddish brown vessel which shows signs of having been exposed to fire. The black organic residue in the interior of the fragment is porous and contaminated with inorganic matter (earth



or clay). The infrared spectrum (No. 4016) shows only broad and ill-resolved absorption bands among which the presence of oxygen-containing organic functions is strongly indicated but not unequivocally established. The material is most likely a very impure wood pitch rather than a bitumen.

Shard D4b-1 [b] is the solid 'toe' and bottom of another, more thin-walled vessel. The bottom of the 'toe' is flattened to form a heavy bulge. On the interior surfaces are very small deposits of a black, porous material which is thickly encrusted with earthy matter. The infrared spectrum (No. 4014) is similar to that of the previous sample but shows very clearly the carbonyl absorption of a resin.

Shard Q2b-2, RN 172, is the fragment of a wheel-turned flat-bottomed vessel of fine ware. The exterior has a red, terra sigillata-like glaze. On the interior surfaces are patches of a black, partly porous and partly glassy deposit. The infrared spectrum (No. 4019) is clearly that of a resin and has the same strong absorption band near  $8.0 \mu$  ( $1250 \text{ cm}^{-1}$ ) that we have noted in Shard P8a-10, RN 223.

Shard P8, RN 226, is a large fragment of the side of a wheel-turned vessel. The entire interior surface is covered with a thin deposit of a black, porous substance, heavily contaminated with inorganic, earthy material. The infrared spectrum (No. 4013) is weak, but shows the functional groups characteristic of a resin.

Shard B4a-5, RN 647, is part of the rim of a shallow, wheel-turned vessel. The exterior appears to have been blackened by fire. The interior surface is entirely covered with a thin crust of a porous, black substance which is in turn covered by earthy contaminants. The infrared spectrum (No. 4015) is that of a resin.

Shard G8d-1, RN 165, is part of the rim of a crudely made vessel of light reddish brown clay. The interior surface has a thick crust of partly porous, partly glassy, very dark red-brown material admixed with earth. The infrared spectrum (No. 4017) is that of a fairly well-preserved resin.

Shard P8c-10, RN 166, is a small fragment of the rim (?) of a thin-walled (and therefore presumably small?) vessel. The interior surface is entirely covered with a hard, glassy, black coating. The infrared spectrum (No. 4018) shows all the functional groups of a resin, including the absorption band at  $8.0 \mu$  ( $1250 \text{ cm}^{-1}$ ).

Summary: All eight organic deposits are of the same general composition. They are not bitumens in the specific sense in which the term has been defined

above. They are, rather, nonaromatic resins of either coniferous or Burseracean origin. It seems likely, from the physical appearance of the deposits and of the shards to which they adhere, that at least some of the samples were deliberately exposed to heat, so that they are, in fact, wood pitches. Work on the deposits continues, and a full report will be published at a later time.

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## CHAPTER 12. QUSEIR REGIONAL SURVEY

Martha Prickett

The regional survey was developed as an integral portion of the Quseir Project. It was designed to investigate the nature of the hinterland of the port of Quseir al-Qadim, to identify its potential resources, and whenever possible to document the extent of their use through time.

## THE SURVEY

In order to accomplish the survey aims, an area of roughly 20 by 20 kilometers around the ancient port was intensively investigated (see pl. 77). To the northwest, this area was extended along the length of the eastern slope of the Gebel Duwi/Gebel Um Hammad range, which provided a convenient western boundary, and undoubtedly had been an ancient as well as modern barrier to movement. Additional very cursory survey was undertaken northward along the coast as far as the mouth of Wadi Quei; eastward down the Wadi Sodmein to Wadi Saqia; along the western scarp face of the Gebel Duwi/Um Hammad; westward along the modern road to Quft as far as the Tomb of Sheikh Abdul 'Al (QRS-45), 35 km west of modern Quseir; and southward in Wadi Atshan and Wadi Kareim as far as Bir Kareim (QRS-51). Because of security restrictions in the Eastern Desert, all reconnaissance beyond the intensive survey area was severely limited, and no work was attempted to the south of modern Quseir.

The survey method was to explore all wadi bottoms intensively. This was primarily accomplished by crisscrossing coverage patterns in a four-wheel-drive vehicle. The wadis were especially closely observed because they are the most intensively used of the topographic features. Their beds serve as the most natural and easiest routes of communication, the loci of springs and wells, the most convenient places for camping, and the source of vegetation for grazing. However, the location of remains in stream channels makes them most susceptible to flood destruction or covering by late flood siltation. As the wadi edges provide the greatest shade for camping and are less heavily eroded than the centers, these areas were most carefully explored, by foot when vehicular access was restricted. The hilly areas between wadis were explored less thoroughly. Ridges and hilltops were climbed when deemed appropriate for evidence of possible use, especially when in the vicinity of sites in the wadis, in the region of potential mining areas, passes, or watchposts, or in areas providing exceptional panoramas. Areas inaccessible by vehicle were explored on foot, as was the whole coastal strip north of Quseir al-Qadim to the Qasr Hadie ridge (QRS-6). The *sabkha* flats, terraces, and hills fringing the basin at the mouths of Wadi Quseir al-Qadim and Wadi al-Anz, surrounding the port of Quseir al-Qadim (fig. 30),

[illegible]

Plate 77: Survey Area

were also covered with greater intensity. Statistically generated patterns of site sampling, either random or nonrandom, were not employed. The area, including



Figure 30: Coastal plain facing north from QRS-105. Quseir al-Qadim is in the middle distance to the left of the road. The break in the reef is the harbour entrance. QRS-5, route cairn, and QRS-6, watchpost, are on east end of the ridge in the background. Pockmarked ridge top in the foreground is from quarrying the surface rock for construction of the QRS-105 structure.

all topographic zones, was covered as completely as possible. The various zones were distinctively different in the nature of their potential resources, as well as in their remains. Although the coverage in most areas was quite intensive (as is indicated by the small size of most sites -- median site size is .0054 hectares), additional work in the region undoubtedly would produce more sites. Furthermore, it is difficult to estimate how much the site sample has been biased by burial or erosion. The aridity of the region provides magnificent preservation, restricts the amount of fluvial erosion and prevents obstruction of views by covering vegetation, but winter flash flooding (intermittent, about once every

twenty years) is extremely destructive of remains in or associated with wadi bottoms, and aeolian processes both deface and bury archaeological evidence. Moreover, no survey coverage, however carefully done, can ever be "complete," even with total walkover. It is, for example, alarmingly simple to miss flint artifacts on pediment surfaces covered with natural flint gravels. In other instances, many activities have undoubtedly effected such minor alterations in the environment that they have gone unnoticed or have been easily obscured by time, weathering, or more recent human activities.

Thirty-three days of field work were undertaken during the period from mid January to mid March 1978. During this time 120 sites (208 subdivisions/localities) were recorded. Their locations are indicated on pl. 78, and their complete listing is presented in the Appendix. To accomplish the aims of the survey, all human alterations of the environment were considered "site." The site data, therefore, record many different types of activity areas, the precise natures of which are not always evident. The majority of the sites on the list do not represent habitation areas in any continuous sense, and thus their areas do not permit the types of population estimates frequently generated from site survey data. Rough calculations of the population at a few settlements may be possible after further study of the numbers of buildings and rooms, their dimensions and aggregate floor space, and the numbers of associated graves. However, the length of occupation, the age/sex composition of the population, the ages and causes of death, and the amount of subsequent erosion will probably always remain important, uncontrollable variables in such population estimates.

In addition to the archaeological remains, various aspects of the physical environment were also observed, since man's activities are closely affected by his surroundings. Observations were made on the geology and potential mineral resources, water supplies, fauna and flora, and the contemporary patterns of use of the region. Some of these may have varied significantly since the Late Pleistocene with fluctuations in climate and changes in human subsistence adaptations and exploitation patterns. It is hoped that these observations of the modern environment will begin to provide a datum for the investigation of the changes.

#### THE REGION -- THE PHYSICAL ENVIRONMENT AND ITS USE

All aspects of the physical environment are interdependent and provide an interlocking web into which the human population must fit its activities. As the earth's surface is the foundation across which man operates, the geology

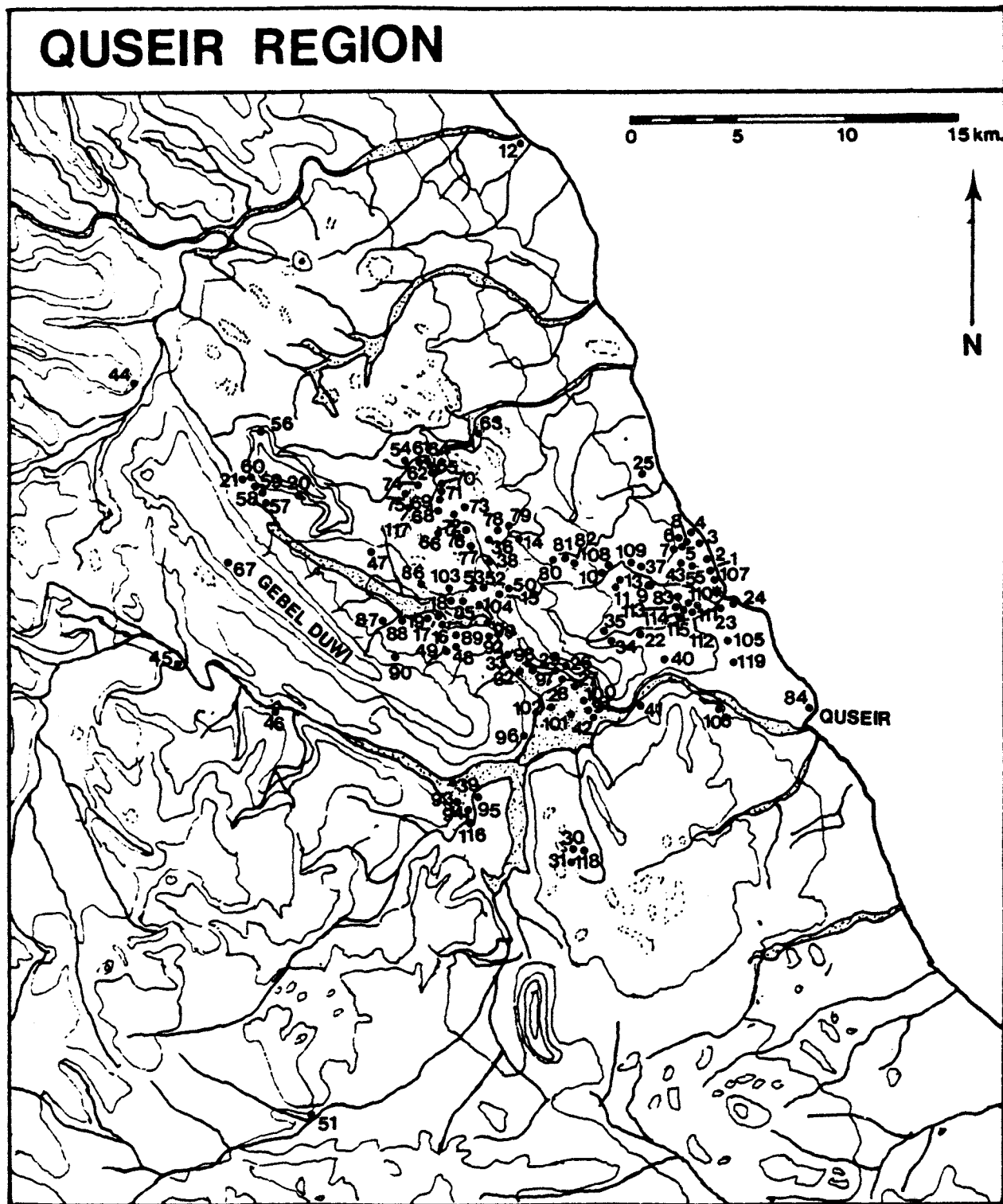


Plate 78: Site Locations

of a region, for example, intimately affects many of his activities. It provides for the availability of stones and minerals, for the character and fertility of the soils, for the location and supplies of ground water. The latter two then strongly affect the availability of vegetation and the size and composition of the animal population. Moreover, the lithology of the rock units and their structural relationships (and weathering developments) also determine the character of the topography and thereby strongly influence how man can utilize a region. Thus, geology (and the other interrelated aspects of the physical environment) becomes an important factor affecting man's behavior, not just the source of his stones and minerals. As this environment is the resources of the region, the observation and description of it was a major component of the survey work. The following section briefly details a number of aspects of the physical environment of the survey area -- the geology, mineral resources, water resources, wildlife and vegetation, marine resources -- and the available evidence of their use, both modern and ancient. The section concludes with a brief description of the modern population, its settlement, subsistence and employment patterns, and their parallelism with the evidence from the archaeological record.

Geology: Because of the location of the modern port of Quseir and the presence of several routes of access to the Nile Valley, portions of the survey area were visited and described by many travellers, as early as the beginning of the 19th century (Burton, 1822-23; Wilkinson, 1831, 1835, 1847). The geology also received many passing observations, as well as careful, intensive study by Schweinfurth (1878 and later works), Klunzinger (1878b, 1879), and others. The first compendium of this research was produced by Barron and Hume in 1902 and has been updated in more concise fashion by Said, 1962, and Issawi et al. 1971. Recently, intensive work has been undertaken on the phosphate areas (Issawi et al. 1968) and in the Miocene to recent coastal sediments (Mazhar, in progress).

Geologically the survey region can be subdivided into three distinctive units.

- 1) The Precambrian basement complex includes igneous and metamorphosed sedimentary and volcanic rocks forming schists, gneisses, and granites. They constitute the backbone of the Red Sea Hills but because of faulting movements, occur primarily to the west of the survey area. However, they do form the broad area of complex low dark hills with granite inliers north of Gebel Nakheil, as well as most of the area to the south of the modern Quseir to Quft highway in the upper Wadi Atshan and Wadi Kareim.
- 2) The overlying Mesozoic through Tertiary sedimentary sequence began after a



considerable erosional unconformity. The weathered surface of the metamorphosed volcanics and other rocks was covered by a thick sequence of variegated Cretaceous sandstones of the Nubia Formation. This was then followed by a sequence of marine deposits, shales, marls, and limestones (including the phosphate beds of the Duwi Formation), which continued upward through the Lower Eocene. The latest limestones in this sequence, the Thebes Formation, are increasingly silicified toward the top and are extremely important as the units capping the topography of a large portion of the interior of the survey area, all of the Gebel Duwi/ Um Hammad range and the mountains between the head of the Wadi al-Anz and Wadi Nakheil. Furthermore, these Thebes limestones are of considerable importance archaeologically as their beds of tabular and nodular flints (and their erosional detritus) provided a ready resource of material for tool production for Palaeolithic man.

3) After an unconformity (with uplift and faulting) through the remainder of the Eocene, Oligocene and Early Miocene, marine sediments (sandstones, shales, reef limestones and gypsum) were deposited along a 5 to 10 km wide strip on the modern coast from Middle Miocene through the Pleistocene. This last sedimentary sequence was gradually uplifted and slightly tilted seaward during the Plio-Pleistocene. The tectonism and the variations of the Pleistocene sea levels encouraged dissection and the rapid erosion of these soft sediments into a complex bad-lands topography in the area immediately behind the coastal plain (fig. 31). The shore itself, fringed by modern coral reef, is composed of Pliocene and Pleistocene detritus and reef formations. Pleistocene raised beaches and benches indicate widespread high sea levels at 14-20 and 6-8 meters, as well as local instances of other heights (Sandford and Arkell, 1939; Said, 1962:119; Issawi et al. 1971:15-17; at Mersa Alam, Butzer & Hansen, 1968:429, reporting 5 higher shore lines, at 10, 8.5, 6-5, 3.5 m ).

In the interior of the survey area, the substantial faulting activity during the Eocene to Miocene cut the earlier metamorphosed basement complex and overlying sediments into multiple small block units which have been variously tilted and juxtaposed. For example, the faulting has articulated blocks of the Precambrian granite (e.g., Gebel Hamrawein) against various Mesozoic and Tertiary sediments (as in figs. 47 & 48). Thus, many of the features of the modern landscape are fault controlled. Among these are the linearity of the northwest-southeast axis of the folded and faulted mountain blocks, such as the Gebel Duwi/Um Hammad range, and the intermediate alluvial valleys such as the Wadi Um

Hammad, Wadi Nakheil and the Kab Ageb (fig. 47 and background in fig. 46). The wadis transecting these structures, such as the Wadi Sodmein (fig. 39) and the

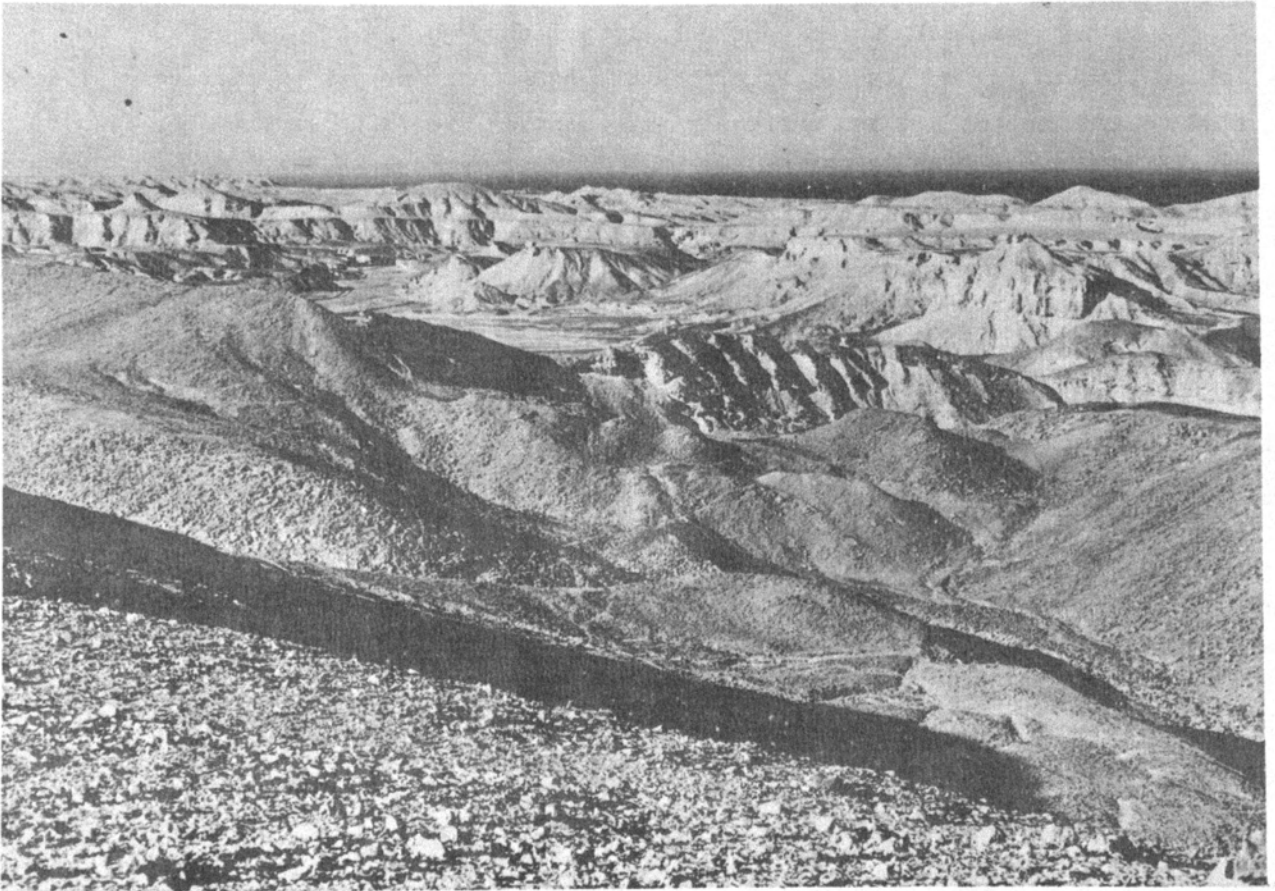


Figure 31: Wadi al-Anz cutting through the dissected Miocene and later sediments behind the coastal plain. Facing east about 3.5 km behind Quseir al-Qadim, where the footpath route to the northwest changes drainages.

Wadi Ambagi (fig. 45) are also most probably along lines of cross-faulting.

In the coastal region, with the uplift and downcutting of the Miocene and later sediments, many small contorted wadis and independent drainage systems were developed perpendicular to the coast (including the Wadi al-Anz (fig. 31), Wadi Quseir al-Qadim, Wadi Abu Shiqeili, Wadi Hamrawein, Wadi Abu Hamra, Wadi Quei). Consequently, although the coastal terrain was dissected and difficult to traverse, many wadis provide access to the interior. Thus, the location of any east-west route from the coast would be determined as much by the desired location of the terminus for other considerations as by the possible access routes, since many are provided by both the major cross-faults and the many minor wadis.

The Mineral Resources and Their Exploitation: By far the most extensive evidence for exploitation in the survey region was the production of its mines and quarries. However, many of the localities found show minimal production. Many small disturbances may be testings of ancient prospectors rather than actual established workings. Indeed, even the small volume of the mines/quarries associated with the two major "mining" settlements at Bir Kareim (QRS-51) and Bir Nakheil (QRS-18), raise the possibility that the mines were secondary developments by people living in the vicinity rather than economically substantial developments occupying the majority of the resident populations. However, in the former instance, future explorations may reveal more evidence of mining activity.

The dating of the mining operations is frequently uncertain. The quarrying of building stone in the vicinity of Quseir al-Qadim was probably undertaken during the whole duration of port use (Roman, Ayyūbid, and Mamelūk). The only other datable exploitations are most probably at least partly Roman. These are the Manganese oxide quarrying at QRS-18J (fig. 32); the mining of iron ?carbonate from a quartz vein (fig. 33) and other nearby outcrops at QRS-51; and possibly the mining of gold from quartz veins in the granite of Gebel Hamrawein at QRS-20.

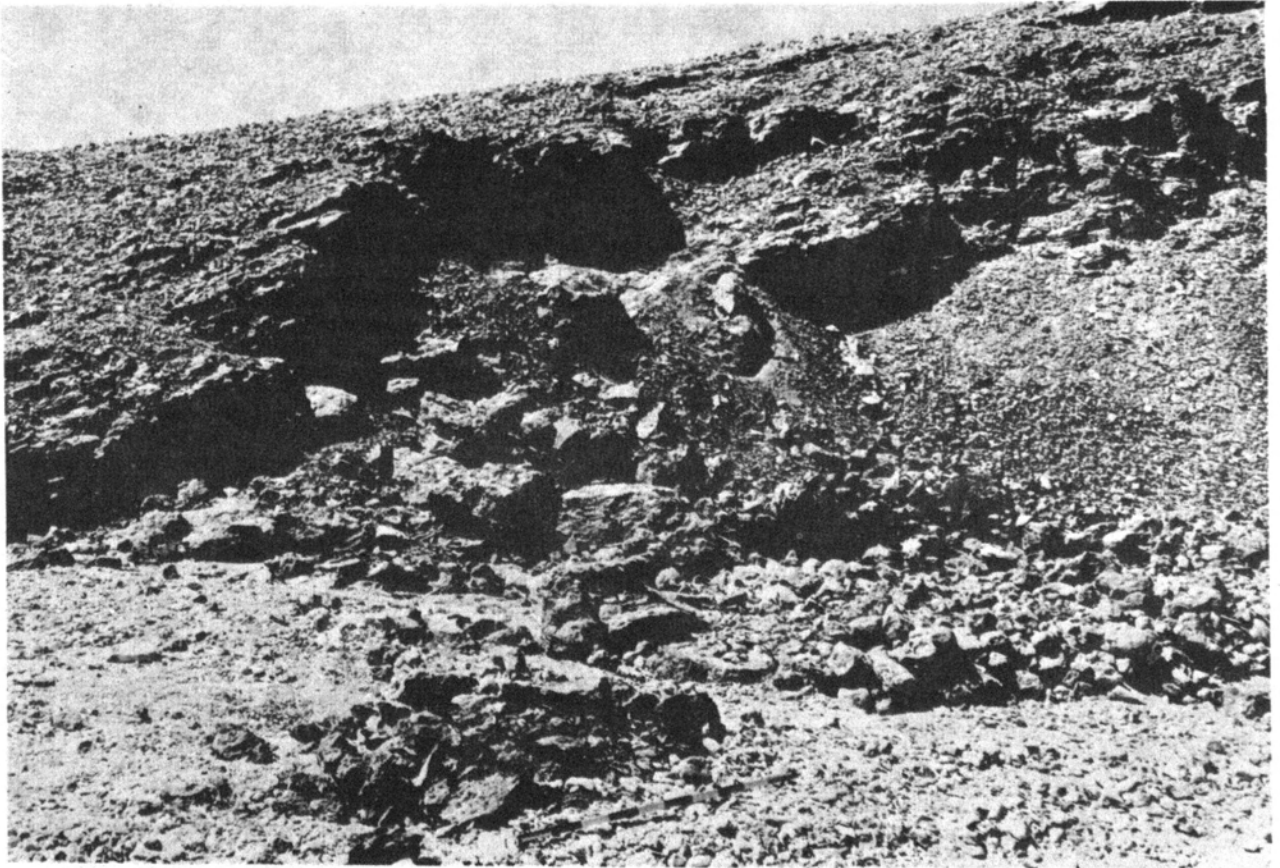


Figure 32: Area of Manganese oxide quarrying in the Thebes Formation limestones. QRS-18J, Gebel Nakheil. Facing southwest. Late Roman. Scale is 1 m.

Both gold and pyrolusite (and even meteoric iron) occur in archaeological contexts before the end of the Predynastic period in the Nile Valley (Hume, 1937: 699-700; 847-848; 981). Thus, the apparent Roman dates for the earliest mining in the survey area might seem to confirm arguments of Hume (1937:867; Barron and Hume, 1902:86) that the Ancient Egyptians generally restricted their mineral explorations to localities closer to the Nile, and that the major mineral exploitation of the Eastern Desert did not occur before Roman times.

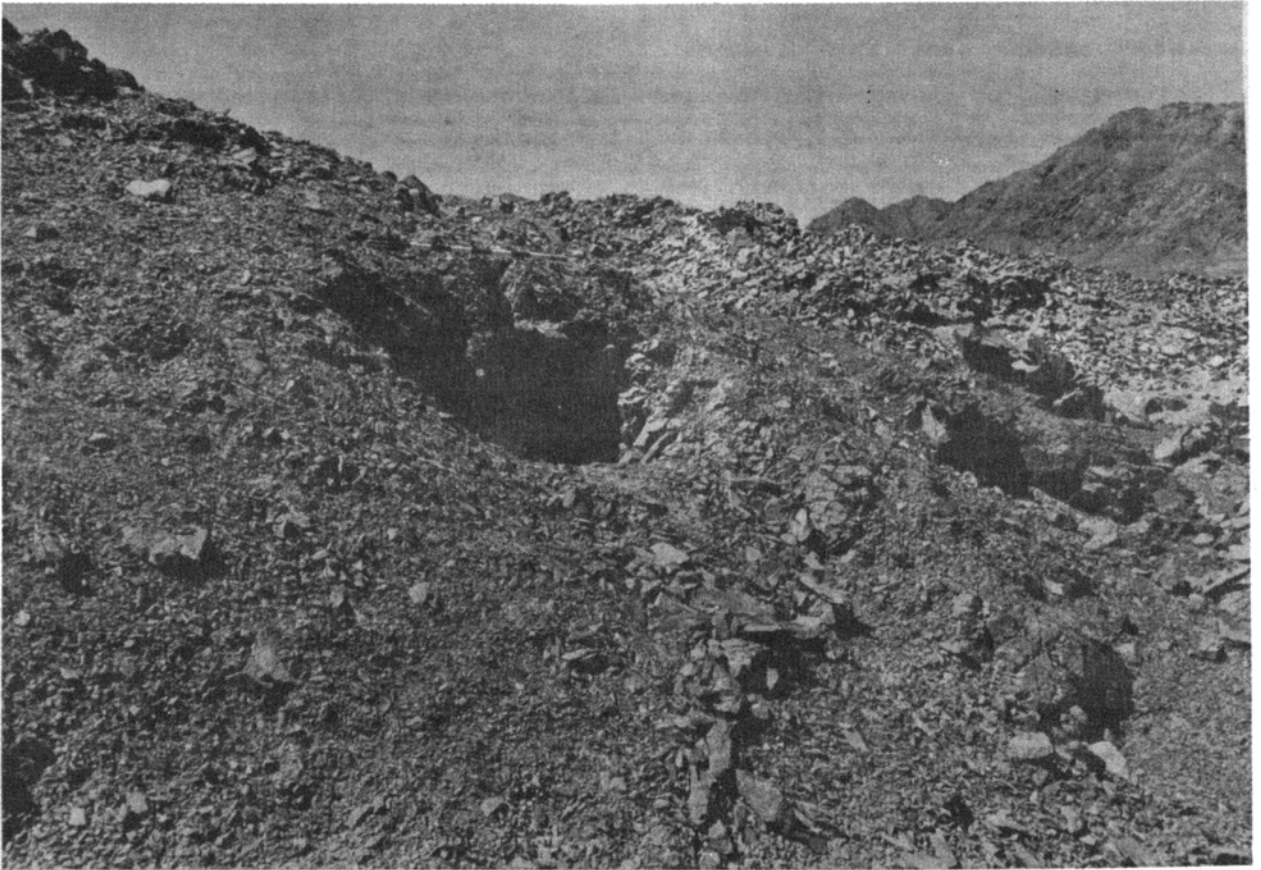


Figure 33: Mine shaft in a quartz vein with iron ?carbonates in the Precambrian basement complex, QRS-51D Bir Kareim. Facing west. Roman. Scale is 1m.

Totally undatable mining activities include minor quarrying at outcrop of iron oxides in the Nubian sandstone off Wadi Um Ushra (QRS-50) associated with three stone building foundations. Elsewhere, at QRS-35 on the Wadi Quseir al-Qadim, rich oxide mineralization in the Nubian sandstones produces soft various colored beds (dark red, light and dark purple, yellow, orange, rust browns, and black) of fine grained sediments located close to the port on a major access route. These are easily collectable for use as pigments. On the Wadi Atshan,



a small shaft mine and many localized hammerings at the outcrops (QRS-30a and vicinity) in search of an as yet unidentified mineral occurred in the metamorphosed sandstones of the basement complex. These Wadi Atshan areas are associated with localities in which small pits have been dug on the edges of the wadi alluvium (QRS-30b, 31a & b, 118a, b & c). Although definitely not natural in origin, the purpose for these pits is unclear. As they are very irregular and shallow, with the removed gravels heaped along their edges, they may represent some kind of prospecting in the wadi bed gravels, although one would expect such activities to have been more thorough and organized. They may be the pits associated with camping activities, but their small size (rarely over 2m sq.), irregularity, actual pitting (up to 90 cm deep), lack of artifacts, and close packed nature would raise questions of such an origin. Furthermore, a large concentration (over 60) of similar pits was found at the edge of Gebel Nakheil (QRS-52, fig. 34).

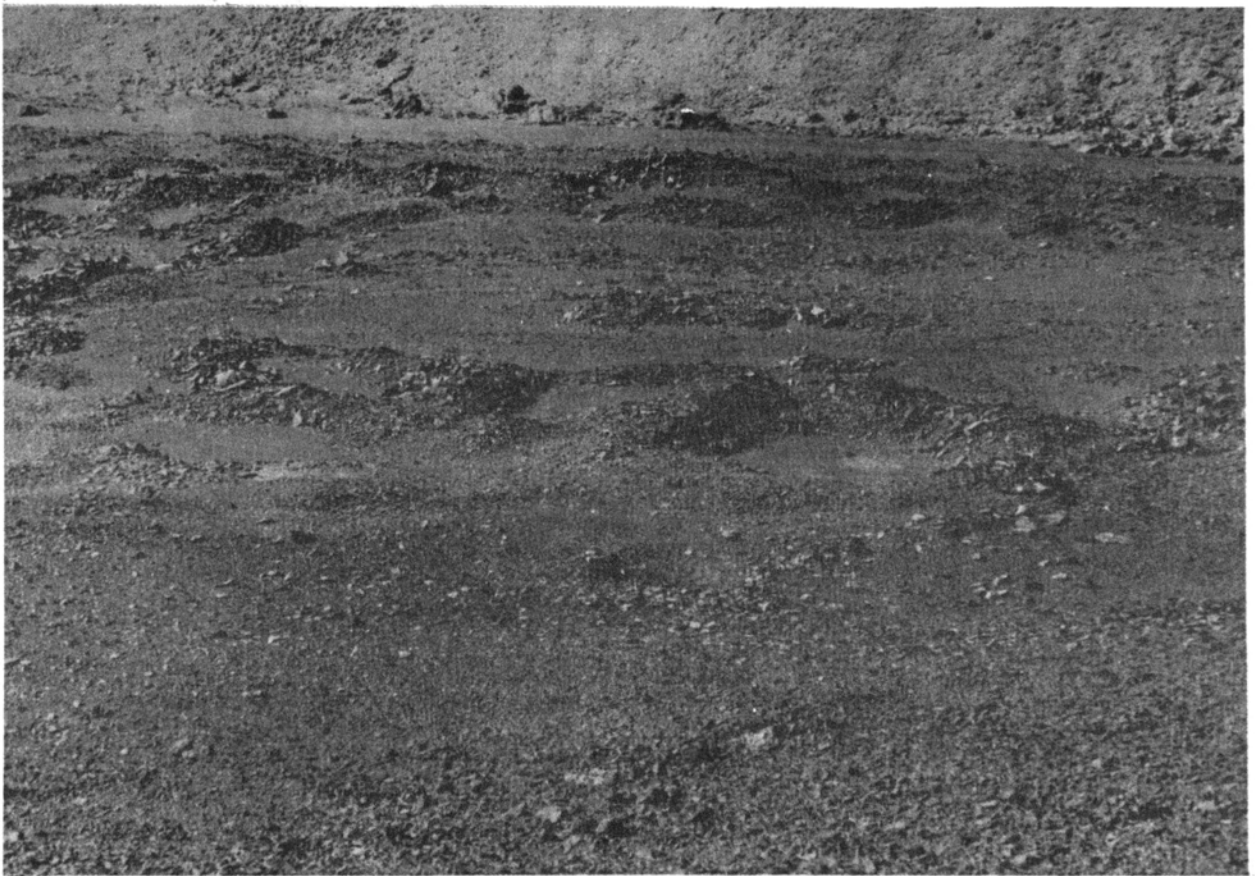


Figure 34: Pits of uncertain purpose, perhaps the remains of camping or gravel quarrying. QRS-52. Tributary of Wadi Nakheil. Facing west. Undatable.

This group is not associated with other evidence of mining, (QRS-18j is about 1500 m away). The large number and density of pits would make camping an equally unconvincing explanation. The age of all of these features is unknown, and it is unclear how long they could have survived heavy flooding in their respective wadis. Two other undatable localities of possible mineral prospecting in the basement complex rocks of Gebel Hamrawein were observed, one (QRS-47) in the metamorphosed volcanics, and the other (QRS-56) in quartz veins in the granites.

The amygdaloidal, occasionally porphyritic lavas of the dark basement complex hills to the east and north of Gebel Hamrawein contained vesicles later infilled with quartz. Some of these approach the color and clarity of good carnelian. A number of localities occur (QRS-54a, b & c) where these may have been quarried. Even more importantly, the quartz pebbles (including the carnelian and jasper) weathered out from these lavas and were concentrated on the erosion surface prior to the deposition of the Nubian sandstone. Thus, the basal bed of the Nubian Formation contains a quartz pebble conglomerate with a fair concentration of rounded and subrounded carnelian pebbles. Although not generally of high quality, these may well have been collected in the past from localities such as QRS-54d & e, 72a, 82a, or most anywhere along the contact of the Nubian sandstone and the basement complex.

No other exploitation of "valuable" stones was observed within the survey region. Although both granites (pink and red) and porphyritic, dense-textured purple lavas, some approaching the colors and textures of stones quarried elsewhere in the Eastern Desert (Gnoli, 1971:87-135), occur in the survey area, no evidence for their ancient or modern quarrying was observed. Nor was there any evidence for use of the Miocene anhydrite and gypsum for the production of alabaster vessels or other objects (although fragments of selenite were observed on the site of Quseir al-Qadim). It is uncertain whether the local gypsum is sufficiently crystalline for such purposes. Concretions in the Nubian sandstone often form natural vessel shapes, and some of these have been used, for example, as incense-burning containers associated with the graves at QRS-88 and 104. It is reported that the alluvial gravels at Bir Seyala, on the modern road, only 6 km to the west of QRS-45, produce amethyst. Moreover, talc (chlorite schist) is still obtained from the surrounding outcrops by the Ababda (the local bedouin tribe). This stone was used as late as the 19th century by the bedouin for the production of stone vessels and pipes (Klunzinger, 1879b:257; Schweinfurth, 1897:272-274; Barron and Hume, 1902:265; Whittemore, 1912:124-125; Murray, 1923:421).

However, no outcrops of talc were observed in the survey area.

The ubiquity of the flint bands and nodules in the Thebes Formation limestones provided a copious supply of raw material for tool-making or other uses throughout the western portion of the survey area. Its prevalence in the wadi alluvium of that area in the gravels capping the Miocene sediments to the east (e.g., QRS-9 and along the terraces behind Quseir al-Qadim) means that no portion of the survey area is far from a ready supply. Whether flint was ever actually quarried at any locality is difficult to determine. It is certainly most conveniently available in the walls of the Palaeolithic cave on the Wadi Sodmein (QRS-44). The sharp-edged outcrops and masses of flint at QRS-103, just behind the Middle Palaeolithic ?campsite at QRS-18, may indicate that it was quarried in this vicinity. It is, however, generally impossible to determine whether artifacts were worked from the deflated flint cobbles and boulders available on the surface, or from material actually "quarried" from the bedrock.

In the vicinity of the ancient port there is considerable evidence for the quarrying of more resistant surface beds of the Miocene limestone/anhydrite over a large area, mostly to the north (QRS-43, 105a & b). From the evidence at Quseir al-Qadim, this stone, the cause of the whiteness of the buildings and the origin of its ancient name, Leucos Limen/Albus Portus, was used for building. The quarrying was most probably accomplished by prying off slabs of the thin, resistant capping stratum from the softer rock below. This produces a very characteristic, pockmarked surface (foreground in fig. 31) which gradually refills with erosion and aeolian deposition. Dating the quarrying activity is virtually impossible, other than by the amount of weathering of the remaining pits and the fact that the stone was incorporated into the structures at all periods of the port's use.

From the evidence at Quseir al-Qadim itself, the use of the Nubian sandstones as construction material was less common. Its quarrying is more difficult to verify, although it outcrops nearby in the Wadi al-Anz. Certainly some was used, as it occurs in the structures found in the excavations of the ancient port. At the present time the Nubian Formation is being quarried, in the vicinity of QRS-11, 13 and 108, for building construction in modern Quseir. This is probably also happening with some of the Miocene surface rock near QRS-43. Neither stone is of the hardness that would be expected of quality construction material.

Although no evidence for copper occurrence was found in the area, nor was it known to the Geological Survey (Hume, 1937; Said, 1962; Issawi, personal communication), a reference to copper mining "near the Red Sea coast on the route from Koptos to Koser" was mentioned by Frankfort (1924:137). Said to have been exhausted by the 1st Dynasty, it was used as evidence for the early use of this route between the Red Sea and the Nile Valley. Other than this reference, attributed to the lectures of Prof. Georg Moller, copper mining is unknown near this central route. However, it is important to note in this respect that the mountain immediately south of the Wadi Haramiya (i.e., south of QRS-45 and '46 on the Wadi Hammamat route) and east of the Wadi Kareim, immediately southeast of the corner of the survey area, was called Gebel Nuhas (Copper Mountain) by Klunzinger (1879:425 and map). It is hoped that exploration in these hills in the next survey season may yield some indication of the reason for this name.

The only other major mineral resource of the survey region, and the basis of its modern economy, is the Cretaceous phosphates from the Duwi Formation. These, however, had no ancient value.

Water Resources: The survey region is hyperarid. The mean annual rainfall is 4 mm and falls from October to March (Jackson, 1961:pl. 11) as localized storms, often many years apart. The temperature (at least in Quseir itself, where it is perhaps moderated by the presence of the sea) is less extreme than much of Egypt. The mean daily maximum for July is 33° C., and the mean daily minimum for January is 13.5° C. (Jackson, 1961).

Three spring areas were identified (pl. 79). Only one, at Ambagi (QRS-41a) is now perennial. A line of dry springs behind Bir Nakheil (QRS-16d to 17e), and one in the Wadi al-Anz at QRS-109b are both said to flow with rainfall in the vicinity. All three are salt, with the surrounding soils showing the crusted but soft puffy structure of saline soils. Some travertine has been reported to be forming at Ambagi (Barron and Hume, 1902:56). Assuming that the water from the wells adjacent to these dry springs is indicative of that from the springs themselves, the water from Nakheil is brackish, marginally better than the other two, and reportedly is acceptable for human consumption if better water is not available. The other two are salt, good for consumption by camels only.

Eighteen modern or ancient wells were found dug into the wadi floor alluvium within the survey area (pl. 84). Other than the fresh water from Bir Kareim (QRS-51e), all those with water were either brackish (Bir Beida, QRS-39c; Bir Nakheil, QRS-16, 16e, and presumably the other dry wells in the Wadi Nakheil,



QRS-97, 98, 100a, 100b, 101, 102) or salt (Bir Quei, QRS-12a & b; Bir 22 or Bir al-Anz, QRS-37; Bir Aweina, QRS-84b). Some of the series of six dry square shafts located in the southern end of Wadi Nakheil may be left from deep soundings excavated by geological exploration parties in the late 1960s (Issawi, personal communication). However, it seems unlikely from their proximity to flood channels, their shallowness, and the freshness of some of the spoil heaps, that they would have remained so uniformly open had there been any major flooding in the Wadi Nakheil. As a general rule, it appears that the wadi mouth gravels produce shallow wells (1.9-8.8 m) with salt water, while those in the interior are deeper, 1.42-18.2 m, with generally brackish to good water, (except QRS-37, in the coastal mountains, which is salt).

As the wells are located in the alluvial beds of the wadis (or on their edges), heavy flooding can rapidly cover all traces. Therefore, the only old wells found are those missed by flooding, those more slowly destroyed because they are encased in concrete, or those inside and protected by Roman structures (as at the hydreuma, QRS-16 and 46c). This indicates that ancient wells may have been located elsewhere, if there was adequate ground water supply, and their traces would most likely have been totally removed by later flooding. The most recent wells, lined with boulders set in concrete, are square in form, while the older, sub-recent ones seem to have been circular (QRS-12, QRS-39c).

The closest well providing sweet water for the town of Quseir is Bir Kareim (QRS-51). Its water is reported to have been transported to Quseir by camel before the construction of the desalinization plant at the turn of the century. It was probably so used in the early 19th century, as Burton (1822-23:I,126) reports the Quseir water came from "Kreimusif." However, Wilkinson (1831-32:57 & map) who accompanied Burton places a "Kreimouseef" to the north of Quseir, at what is now Bir Semna, which is further than Bir Kareim. Moreover, later in the century Klunzinger (1879:104) reports that Quseir water was then transported from Bir Tarfawi, 8 km to the south of Bir Kareim. Bir Kareim and Bir Edeid (40.5 km west of modern Quseir) are the closest of the modern good wells to Quseir al-Qadim. Thus, they may have supplied its drinking water in the past, for all the other known wells within this season's survey area and for some distance beyond are either brackish or salt.

The amount of change in ground water supplies is difficult to ascertain. Two of the three springs were dry in the winter of 1978 but, as they both had associated wells containing water, it is impossible to demonstrate that their flow was ever perennial. Wells are reported to fill or go dry, but not to change

in salinity. With the exception of the largely infilled open cistern (?and well) at Wekalet Iteima (QRS-46c, fig. 42), those sites with evidence of wells and established Roman period habitation still have water available today (QRS-16, 18, 51). There is no evidence of *qanats* (*kariz* or collecting galleries) or elaborate reservoirs or other surface run-off collection systems, such as those reported by Murray (1955) elsewhere in Egypt. This probably reflects both the sparseness of the rainfall and its unpredictable nature, which would make most constructions for run-off collection so rarely functional that the investment for their development would be uneconomic.

However, two ancient structures were identified which may have had some function related to water control or supply. Both are in the area of Bir Nakheil and are, by association, most likely to be Roman or Late Roman in date. The first is an 80 cm wide, double faced, mortared boulder and cobble wall which still stands as much as 40 cm (2 courses) in the flood bed of Wadi Nakheil (fig. 35, QRS-99a). The three segments which still survive are not in a totally straight alignment and are 89, 38, and 26 m long, with intervening distances of 16 and 58 m. None of the Roman period constructions, except one portion of the QRS-16 *hydreuma*, show the use of mortar. The length, solidity, the lack of articulating walls, the distance from any other major construction (over 700 m), and its location in the modern flood channels of the Wadi Nakheil all raise considerable question concerning the original purpose of the construction. It may have been intended as a retaining wall along the edge of the wadi (now cut by meandering flood channels) to deflect flood water from an eroded low area immediately downstream where a series of 30 flood-washed cairns (most likely graves, QRS-99B) are found. The alternative possibility that the wall was the foundation for a water channel (top now destroyed) leading from the spring area to some undefined locality downstream is less likely since some remains of such a solid construction would probably also occur closer to the source area at the spring (1.4 km away) instead of only in the eroded wadi floor.

The second possible hydraulic feature is an 8 by 2.4 m boulder structure standing 80 cm high, QRS-17b. This elongated mass of stones extends about half-way across the bed of a small wadi as it emerges from the edge of a hill onto the pediment. Its function is not apparent, although it may have been a low ?dam now cut through by the wadi. But, such a minimal catchment area, low height, small reservoir volume, and lack of any apparent structure within the boulder "pile" would leave this interpretation in doubt, as does the fact that

percolation would have rapidly depleted any stored water supply unless the upstream slope had been plastered or "waterproofed." That it may have functioned as flood control rather than water supply also seems dubious, as it is



Figure 35: Double-faced, mortared cobble and boulder wall, QRS-99A in three segments cut by wadi flood channels, perhaps constructed for flood deflection. Boulder ?grave cairns of QRS-99B are in the center distance facing south-east. Wadi Nakheil. ?Roman. Scale is 1 m.

situated on a very small catchment. However, it is located just above QRS-19, so once again it is immediately upstream of a field of ?grave cairns. There is, then, the outside possibility that the structure, now breached, was intended for flood control, to slow run-off sufficiently to prevent overbank flow and sheet flooding of the cemetery area.

Fauna and Vegetation: The only wildlife observed during the seven weeks of field work were gazelle, either as individuals or groups of up to four in both the Wadi Nakheil and the Wadi Sodmein (most frequently in the vicinity of Bir Nakheil, where they apparently come for water); and a small, dark mammal, probably a hyrax (*Procavia sp.*), or possibly a small cat (?*Felis chaus*; Anderson, 1902) was seen at dusk along the edge of Wadi Nakheil.

The vegetation of the region is extremely sparse, as is fitting for such low rainfall. It was described in detail by Klunzinger (1878a, b) and Barron and Hume (1902:91-104). Tackholm (1956) provides a useful update and identification from the Arabic names. Although plant specimens were collected and notations made on the vegetation resources, observations on the plant communities await more thorough study.

In passing, it should be noted that the rare vegetation is restricted to low, often thorny, shrubs, such as "bisilla" (*Zilla, sp.*) and "chai gebali" (*Pulicaria undulata*), a few "seyal" trees (*Acacia, sp.*), and other xerophytes along the alluvial wadi floors. Halophytic grasses ("half") and larger shrubs, such as "markh" (*Leptadenia pyrotechnica*) and sometimes "atla" (*Tamarix, sp.*) occur in the vicinity of springs (especially Ambagi, the only one now perennially active) rarely even at wells.

The whole length of the Wadi Nakheil/Kab Ageb now contains less than a hundred *Acacia*, considerably fewer than ten to twenty years ago (el-Zeiny, personal communication). This is probably the result of its collection for firewood and other use by the inhabitants of the nearby phosphate mining villages, and, considering the quality of the road access, perhaps even charcoal seekers from Guseir or the Nile Valley. A cluster of stumps of recently felled *Acacia* on the slopes of Gebel Duwi indicated a scattered density of perhaps one every 50 m, in keeping with the description of the area in past decades. It might also be noted that the area of tamarisk mentioned by Klunzinger (1879:422) and Barron and Hume (1902:58) at the join of Wadi Sodmein and Wadi Saqia has also virtually disappeared. As these two species have great potential for human exploitation, it is impossible to ascertain what changes (if any) in the vegetation patterns may be the effect of minor climatic variations. As a result of the absence of rain for several years no grazing was possible in the survey area during the 1978 winter, except at the Ambagi spring area (QRS-41). Other than at this locality, no shrubs or grasses considered by the Ababda to be acceptable grazing for sheep or goats were observed.

In addition to the exploitation of the vegetation for fuel and grazing, other plants of the wadi bottoms and hill slopes, such as "atna" (*Doemia tormen-tosa*) and "afain" (*Cleome droserifolia*) are still used by the Ababda for their medicinal properties.

Marine Resources: In addition to the resources of the interior, the coastal zone of the Red Sea, with its well-developed fringing reef (figs. 30 & 36), is rich in its variety of edible marine resources, both fish and shellfish. These have been well described (Klunzinger, 1878b:334-381; Leigh, 1968; among many other works), as have the 19th century methods of their exploitation (Klunzinger, 1878b:303-318).

In addition to food, the maritime zone also produces other resources of value. Raised reefs provide a brittle, sharp coralline limestone used at Quseir al-Qadim for building construction. Shells or their contents (i.e., pearls) have been collected for ornament and jewelry. Evidence of the prehistoric use and trade of Red Sea shells appears in the Nile Valley by the early 5th millennium B.C. with strings of Red Sea shells and organ corals in Badarian contexts and, by the Archaic Period, bracelets were cut from *Pteroceras* shells, a genus restricted to the Red Sea/Indian Ocean (de Bono 1951; Hume, 1937:903; Lucas, 1948: 50-51). Mother-of-pearl, most probably from the Red Sea, was used from Predynastic times onward (Lucas, 1948:48, 458).

However, both the settlement pattern and the artifacts found during the regional survey indicate very little reliance on the maritime zone and its resources. Other than Quseir al-Qadim itself and the unknown possibilities buried or destroyed by the Phosphate Company shipping constructions at Quseir at the mouth of the Wadi Hamrawein, there is no evidence of established coastal settlement. As these three localities and the mouth of the Wadi Quei (QRS-12) are the only ones in the survey area where breaks occur in the fringing reef, they are the only localities at which trading ports were likely to have been developed. At least in the Quseir region, it appears that established settlement on the coast was restricted to this trading function. Beyond the major ports, the only evidence of coastal use were a few outbuildings and ?graves related to use of the port at Quseir al-Qadim (QRS-1, 23, 24, 83b, 110-115), watchposts on the coastal route (QRS-5, 6, 7, 8, 105, 119), and a few circles of cobbles or boulders which may indicate windbreaks and brief camping activities (QRS-4b, 25, 55, 107).

The excavations at Quseir al-Qadim revealed extensive use of food from the maritime zone, including fish bones, shells, and dried fish and shellfish.

However, elsewhere the surface evidence of the exploitation of the marine resources was extremely restricted. Other than the shell scatters on the coast (QRS-2a-h, 3a-c, 4a & b) shell was found only at a group of eight boulder ?grave circles (QRS-78), 8 km inland. No other sites produced shell or fish remains. This may, however, be in part the result of surface weathering processes.

Only 13 shell heaps and scatters were recorded along the 5 km strip of coast. (A larger area of intensive investigation on the immediate coast strip was impossible for military security reasons.) Although generally located atop the 5-6 m beach terrace, a few (QRS-2d, f & g) were related to the edges of small wadis (as in fig. 36), one of which (at QRS-2d) showed additional downcutting since the shell deposition. QRS-2f (fig. 36) was the largest of the heaps found, but most, like QRS-2e-1 & 2, are scatters of only a few shells and cobbles

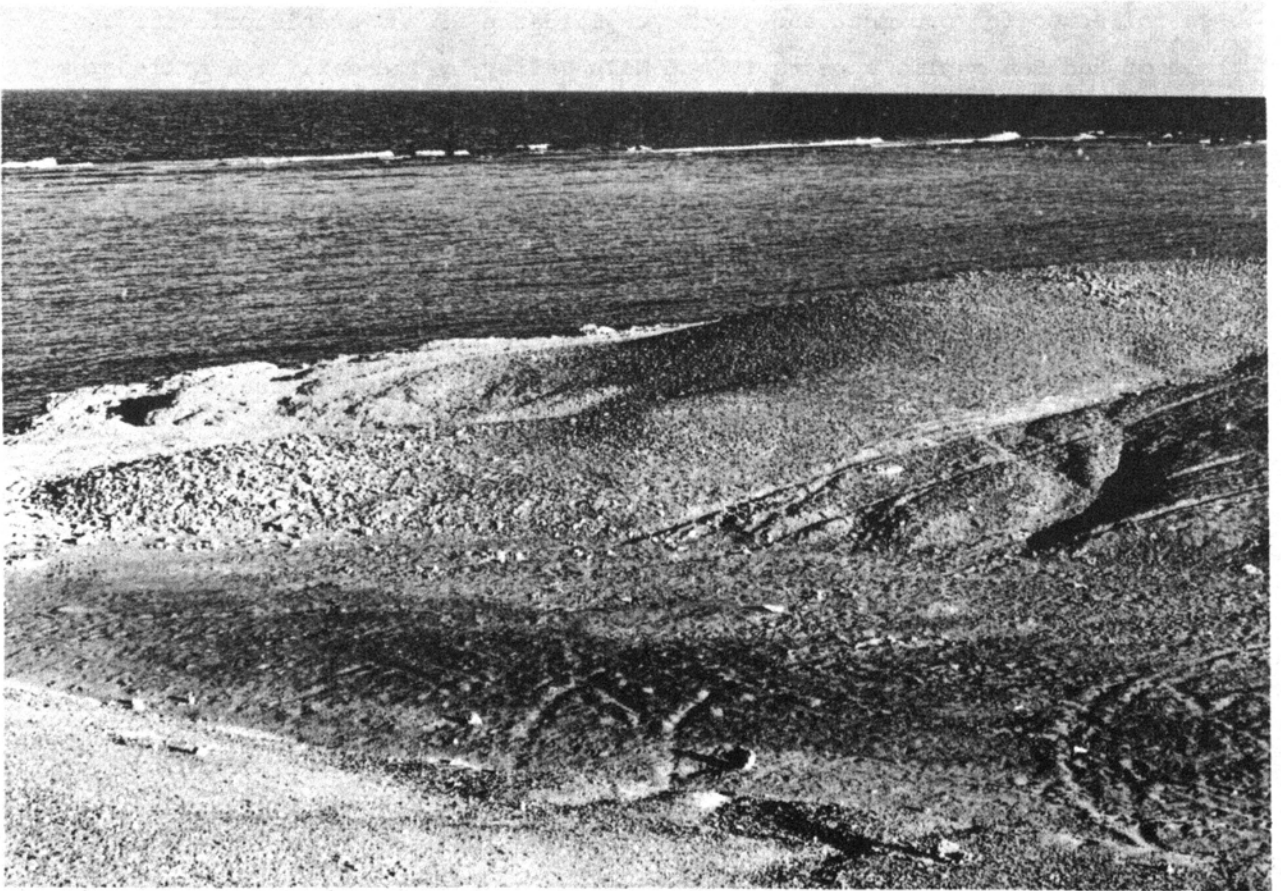


Figure 36: Shell heap, QRS-2f, *Tridacna* and *Lambis* with beach rock pebbles and cobbles in small wadi channel (on left) and small scatters, QRS-2e-1 & 2, of *Tridacna* and small cobbles on the 6 m terrace (on right). Coastal plain, 1.8 km north of Quseir al-Qadim. Facing southeast. Breakers mark the fringing reef. Undatable. Scale is 50 cm.

and must represent very minimal food collecting activities. Despite the large variety of edible species present in the shore and reef zones, the shell scatters were apparently restricted to two species, *Tridacna* ("bosr," a giant clam) alone or in combination with *Lambis* (*Pteroceras*, "sormbak" a spider conch). No evidence was seen of scatters or heaps of the pearl oyster, *Margaritifera*, sp., which might demonstrate pearling activities such as those undertaken by the Hedjazi coastal Arabs camped at the mouth of Wadi Quei (QRS-12) and reported by Klunzinger (1878b:310-314). This may be the result of the trade in those shells for mother-of-pearl (ibid.).

The restriction in the species collected is in keeping with the modern (19th century) pattern of exploitation and choices of species reported by Klunzinger (1878b:308), and may imply no great age for the scatters. However, the weathering of the scatters varies considerably. This, and the evidence of stream rejuvenation at QRS-2d, probably since shell deposition, would indicate that some of the scatters may be of considerable antiquity. The total absence of datable materials (except at QRS-4b, modern) leaves the report of Predynastic tombs and shell heaps on the Red Sea coast in the vicinity of Quseir still unverified (de Bono, 1951). Since fishermen singly or in pairs today still fish from the reef north of Quseir al-Qadim, and probably also gather mollusca along this coast, some of the scatters are likely to be 20th century.

In conclusion, the archaeological and modern evidence clearly indicate that the established trading communities relied heavily on the marine resources for subsistence. But both the lack of shell heaps or other archaeological remains and the modern ethnographic information indicate that use of the marine resources by the other Egyptian inhabitants of the region has been minimal to nonexistent. This is perhaps not in conflict with the classical references to the coast as the land of the Ichthyophagi -- undoubtedly a reference to the inhabitants of the ports visited by the classical authors or their informants -- not to the peoples of the hinterland and the interior.

Population: The settled, modern population of the survey area is concentrated into a single port town, now modern Quseir, and a number of outlying mining settlements. The same pattern apparently obtained in the past. Although the mining economy of the area is based on the exploitation of phosphates, a "new" mineral, the settlement pattern seems identical to that observed in the Roman period of the same region, company/government constructed villages (Hamrawein, Nakheil, Nasser, Abu Unis, Abu Shigeili, Mine 22 or al-Anz, versus QRS-51 and

QRS-18) inhabited by the workers. Some of the larger settlements include schools, rest houses, mosques and provide other vital services. As the mining areas are worked out and close (Mine 20, Hammadat, Farah, Atshan) the settlements are abandoned to the desert, leaving modern "ghost towns" on their way to becoming the archaeological remains of 20th century mining camps.

In terms of the bedouin settlement, only one group of two tents (actually huts) with 3 camels, a donkey and less than 30 sheep and goats were observed in the survey area. This group was camped at Bir Ambagi. Members of another group who were reported to be camped in the central portion of Wadi Quei were also encountered. This sparsity of bedouin population most likely reflects the lack of local rainfall in past years. It is reported that other groups have moved south for better grazing. Similarly, the 18th-19th century travellers report minimal nomadic occupation (but slightly more than at present). "Some" Ababda huts were reported at Ambagi, QRS-41a (Barron and Hume, 1902:55); "a few" Ababda huts at Bir Beida, QRS-39c (Barron and Hume, 1902:55; Weigall, 1909:70; Klunzinger, 1879:406); a single Ababda hut in the Wadi Sodmein (Klunzinger, 1879:422); and 50 tents of Hedjazi coastal Arabs with a maritime exploitation economy at Bir Quei, QRS-12 (since departed; Klunzinger, 1878b:315-318, 1879:423; "a few," Barron and Hume, 1902:62).

Survey at these localities and throughout the region shows that this modern bedouin, fluid pattern of settlement produces very minimal remains even at these known camp sites. Many of the "sites" located by the survey, especially the clusters, circles, and piles of stones throughout the region, undoubtedly are the only remains of a similar, diffuse pattern extending through many centuries, if not millennia.

Like the near identity in ancient and modern settlement patterns, the evidence of the patterns of modern subsistence and other exploitations by the inhabitants of the survey area reveals close similarity with the archaeological evidence from the past. The 1917 census statistics (unfortunately not including the bedouin population) confirm the continuing patterns of exploitation seen in the archaeological remains, especially those of the Roman period. Out of a total population of 1,446 for the whole Red Sea district, the subdivision by occupation showed that 31% were engaged in mining, only 4.8% in fishing (and hunting), and 4.5% as sailors and shipping agents (anon., 1917:v.1:36; v.2:44-73). For these latter two occupations, the majority most probably resided in the port towns themselves, as the census recorded only settled population. By 1964, the pattern



was virtually unchanged, although the proportion of those involved in mineral exploitation had increased even further with the modern development of the petroleum and phosphate industries. Out of a population of 25,000, 3.2% were employed in fishing (and agriculture), 4% in all forms of transport and commerce (not only shipping), and 69% of the population were supported by mining and quarrying (anon., 1965:48-51). These statistics, indicating minimal fishing, shipping, herding and hunting but extensive mining activity, precisely fit the evidence of the archaeological record for the use of the region: 1) the sparseness of any indications of the use of maritime resources for subsistence or otherwise except in the remains found inside the ancient and modern ports themselves. 2) Outside the ports, the only signs of established settlement are the mining camps and the military checkpoints (the *hydreumata/praesidia*, watchposts, and towers of the Roman Period) along the main routes.

Although the nomad tribal population was not included in the early statistics, its presence is recorded by travellers such as Wilkinson (1847), Klunzinger (1878b, 1879), Barron and Hume (1902), and Weigall (1909). Despite the greatly increased population of the Red Sea district with modern mining development, the nomad population in 1966 still composed 18% of the total (anon., 1973: 11, 12). Unfortunately, as the earlier statistical works did not record data on the nomads, it is impossible to document whether this is a substantial change. Although some Ababda still continue traditional herding and hunting activities and migration patterns, many have abandoned the traditional way of life for the income, the housing, the education, and other benefits concomitant with labor in the mines. That the bedouin could compose 18% of the population and be represented within the survey area by only two tents demonstrates the difficulties in recognizing a very real but "ephemeral" population and subsistence pattern of nomadic herding and hunting by contemporary observation, let alone through the interpretation of minimal archaeological remains.

#### THE SITES

The remainder of this report is a preliminary discussion of the archaeological sites. The complete listing is given in the Appendix with the barest essential descriptive data. Further descriptive details, plans and interpretative conclusions will be presented with the completion of the Quseir Project Survey, after the closest wells providing sweet water (all beyond the 1978 intensive survey area -- Bir Kareim, Bir Tarfawi, Bir Edeid, Bir Semna), the major routes to the Nile and more of the coastal plain have been explored in greater

detail. This first season of the survey project has dealt with the intensive exploration of the ancient port's immediate hinterland. The sites discussed below have been divided by major chronological period, first the prehistoric (Palaeolithic and Predynastic) and then the historic (Roman and Islamic) materials. This is followed by a brief description of the variety of the rock art, most of which is still undatable.

Prehistoric -- Palaeolithic: Prior to the 1978 survey Lower and Middle Palaeolithic implements had been reported from only a few localities in the Central Eastern Desert. Both periods were reported from west of the Red Sea Hills at Lageita (de Bono, 1951). To the east, lower Palaeolithic bifaces had been reported by Sandford and Arkell from the ground surface above Wadi Saqia and on the surface of the 25 ft terrace gravels at Wadi Safaga ((1939:91), 60 km north of Quseir al-Qadim (pl. 79). "Primitive" middle Palaeolithic implements were recovered by the same authors in the gravels of the 10 ft wadi terrace at the mouth of the Wadi Hamrawein and a few on the surface of the 50 ft terrace at the same locality (1939:65). Sterns (1917) reported on collections of middle Palaeolithic implements from Wasif and Rabah along Wadi Safaga, to the north of the survey area. Middle Palaeolithic material was also reported on the "surface" of the coastal plain between Wadi Safaga and Wadi Guwaisis; on the surface of the 70 ft terrace behind Quseir al-Qadim; and a waterworn collection, possibly representing two middle Palaeolithic industries, from the gravels 10-15 ft above the surface (in the Wadi Ambagi/Wadi Duwi/Wadi Um Hammad) near the phosphate mining area on the west face of the Gebel Duwi (Sandford and Arkell, 1939:67, 91).

The 1978 regional survey identified 24 localities with Palaeolithic materials. A single rolled Lower Palaeolithic biface (fig. 37) was found on the surface high on the slopes of an outlier of Gebel Duwi west of Bir Nakheil (QRS-90). Flakes from QRS-60 may also have a premiddle Palaeolithic date (Timms, personal communication). The middle Palaeolithic period was the best represented in the survey collections. Found on eleven sites (QRS-9, 13, 16 -- whole area, 17e, 18, 41b, 44, 57, 103, and possibly 53 and 60), the material includes an assortment of medium and large flakes (80:c, d, e) and retouched flakes (80:a, b, f); some Levallois flakes, a few with faceted striking platforms (82:d & e); and a few bifacially worked pieces (82:a & b). Other than a mention of Late Palaeolithic at Lageita on the western side of the Red Sea Hills (de Bono, 1951), the Late Palaeolithic from this survey, found on four sites (QRS-17, 44, and possibly 53 and 94a), is the first reported from the Eastern Desert. Characterized by a

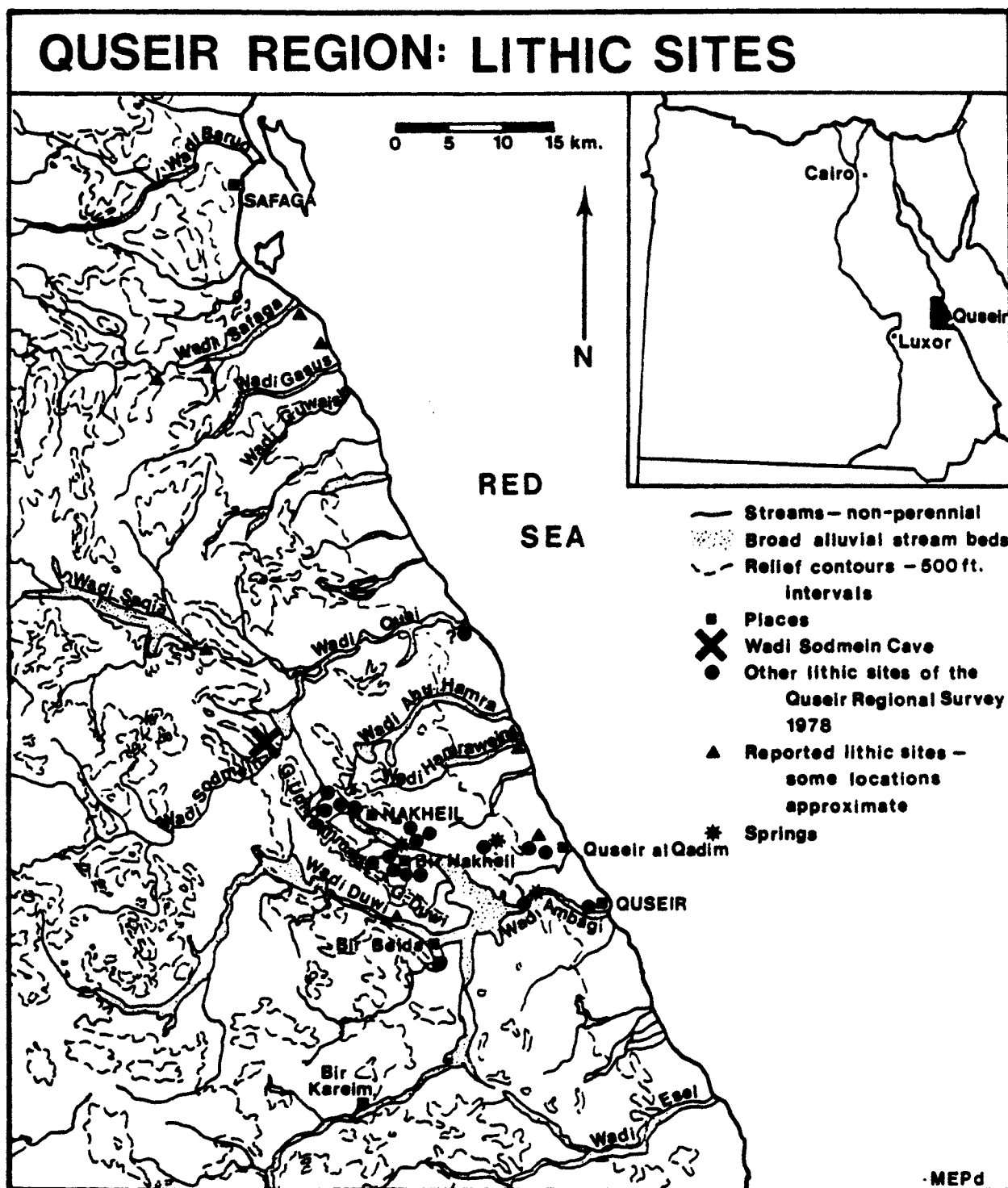


Plate 79: Springs and Lithic Sites

diminution of flake size, the only substantial collection from QRS-17, contained retouched and unretouched small flakes as well as small blades, bladelets, blade

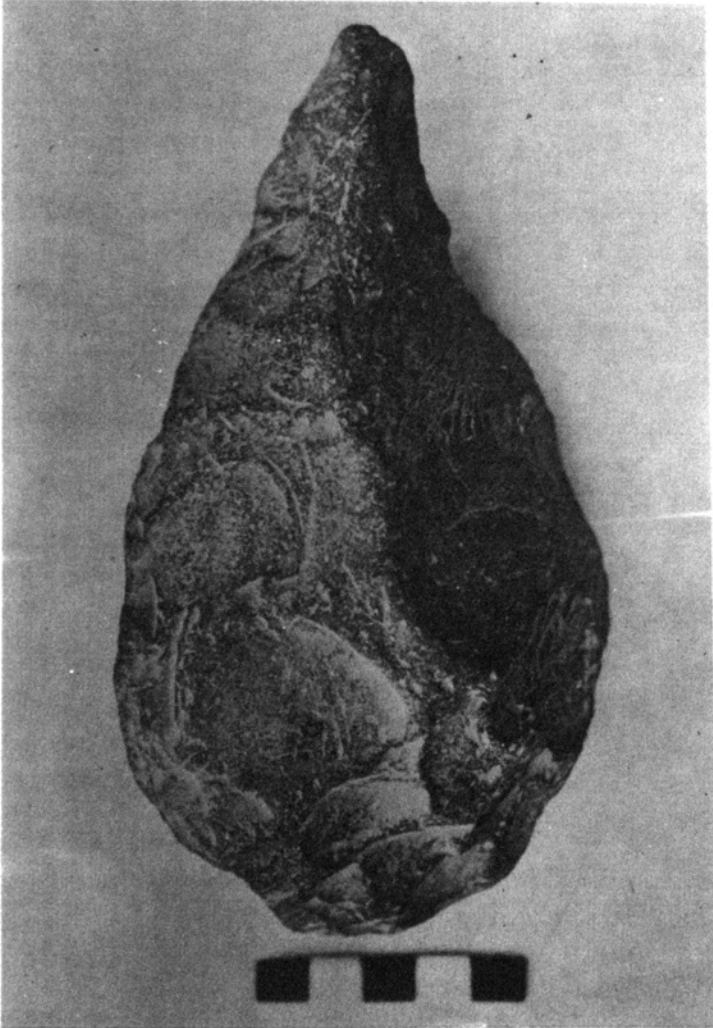


Figure 37: Biface. Lower Palaeolithic -- Acheulean. From gravel covered surface, upper slope of an outlier of Gebel Duwi, QRS-90. Wadi Nakheil. RN 537. Scale is 5 cm.

blade cores, and even a few burins (fig. 38). Five sites (QRS-10, 12b, 58, 59, and 84b) had such limited collections that period attributions were impossible and for some, human workmanship was questionable.

Most of the Palaeolithic material was from surface localities on the gravel pediments at the edge of the broad alluvial valleys of the western portion of the survey region. Many were associated with spring areas (pl. 79 -- QRS-41b, Bir Ambagi; QRS-16, 17, 17e, 18, 103, Bir Nakheil) while a number were also situated along the edge of wadis (currently nonperennial -- QRS-16, 17, 18, 57, 13, 41B, 84b -- the latter three on wadis with considerable incision). A few

occur on low erosional remnants resembling mounds (under 2 m high), QRS-53 and 57. Others (QRS-58, 59, and 60) are on old wadi edge terrace remnants 4-8 m above the modern valley edge deposits, similarly situated to that of the Wadi Duwi/Wadi Um Hammad material from the other side (west) of the Gebel Duwi (Sandford and Arkell, 1939:67, 91). The flints from QRS-10 and 12b were found in the flood beds of the modern wadis. The outcrops of flint bands in the vicinity of QRS-103 may have been a flint quarrying locality.

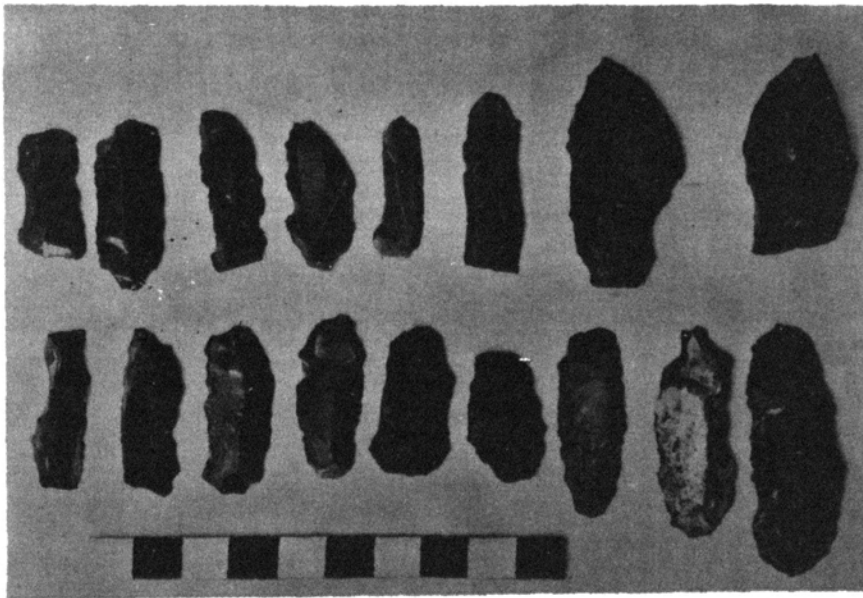


Figure 38: Retouched and unretouched small flakes, blades, bladelets, and blade cores. Late Palaeolithic. Surface of QRS-17. Wadi Nakheil. RN 528. Scale is 10 cm.

The coastal localities had less appearance of permanent continued use than those of the interior, Wadi Nakheil drainage. Although the single flint from QRS-12 is uncertain, the presence of Palaeolithic material in that locality would be most likely since Sandford and Arkell (1939:65, 91) reported materials from not far to the north and south.

Another coastal site, QRS-9, is a general scatter on the surface of Pleistocene gravels capping the Miocene strata, and is probably associated with the +10 m coastal terrace (Giegengack, personal communication). This locality, or another in the near vicinity, is probably the one cited by Sandford and Arkell (1939:91) behind Quseir al-Qadim. A small excavation was undertaken here (QRS-9a) to ascertain whether the artifacts were incorporated into the terrace gravels.

As the work area was limited (1 by 1 m ) and the excavation was forced to stop at 45 cm depth because of the solidity of the salt cementation of the gravels, the results were inconclusive. Although middle Palaeolithic flakes were found on the surface of the square tested and within a 25 m radius around it, no artifacts were found within the excavated gravels (composed entirely of angular flint pebbles and cobbles). The flint in the gravel deposit was frequently fractured into thin, platy fragments, probably the effect of salt induration and thermal action. A pockmarked, honeycomb surface from pot-lid fracture was characteristic of much of the flint from this locality -- both the natural and the worked.

In contrast to the maze of low Precambrian hills and the contorted valleys of the Miocene coastal area (fig. 31), both terrains difficult to negotiate, the broader alluvial valleys of the interior of the survey area (fig. 40, 43, 47, 48) would have provided much finer areas for hunting whenever sufficient water and grazing were available. Although most of the "sites" of the survey are sparse or individual finds, a few sites probably have enough material to constitute good camping sites (QRS-13, 16c, 17, 44, and perhaps 53 and 57). These are all situated near springs or wadis. All but QRS-13 are in the interior.

A substantial cave (QRS-44, fig. 39) was found on the pass where the Wadi Sodmein transects the northern portion of the Gebel Um Hammad/Gebel Duwi range. With an entrance over 12 m high, and its floor 17.7 m above the modern wadi, the flat floor of the entrance area is 39 m by 19 m. Behind this the floor slopes steeply upward for an additional 36 m depth into the mountain. The boulder scree outside the cave entrance yielded a collection of 46 flint flakes and a single quartz flake. The artifacts (pl. 80, 81, 82) include large unretouched flakes (80:c, d, e), large retouched flakes (80:a, b, f), Levallois flakes (82:d & e), two small bifaces (82:a & b), small flakes (81:d, e, f, g), small cores (81:d, e, f) and a blade (82:c).

Other than the reference to a cave somewhere in the Eastern Desert with Palaeolithic remains in front (Sterns 1917:79), this appears to be the first cave reported with definite Palaeolithic remains. The deposit is most likely to be stratified, since the artifacts (including possible late Predynastic ceramics, pl. 83) indicate that use extended over a long period (at least middle Palaeolithic to Neolithic). It is hoped that further investigations at this cave and several of the other Palaeolithic sites during the next season of the Quseir Project will produce the first Palaeolithic sequence in the Eastern Desert.

Despite the problems of this survey for Palaeolithic materials -- (the difficulties of working in the dissected coastal landscape; the ease of missing



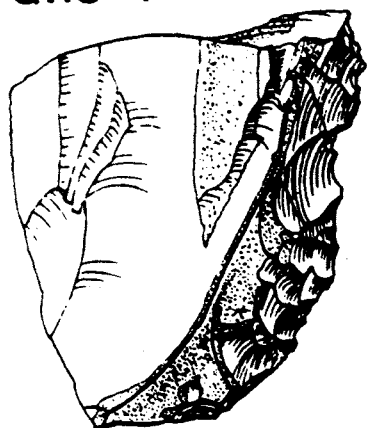
Figure 39: Wadi Sodmein transecting the Lower Eocene (Thebes Formation) limestones of the Gebel Um Hammad, forming the pass on the route north from Quseir al-Qadim through Wadi Nakheil and Kab Ageb to Wadi Saqia, Semna, and Mons Claudianus, and the Wadi Hamama route to the Nile Valley. Facing South. Striated appearance of the bedding is emphasized by flint bands. QRS-44, Wadi Sodmein Cave (documented used Middle and Upper Palaeolithic and ?Late Predynastic) is on the right.

flint artifacts in areas of the flint-bearing limestones and on terraces where all the surface rock is flint; the restricted size of most of the collections and the difficulty of dating) the combination of the survey information with that from the literature shows 33 Palaeolithic localities within 60 km of Quseir al-Qadim. In contrast to the dearth of Palaeolithic material further south (Butzer and Hansen, 1968:396), this would indicate the widespread use of the Central Eastern Desert during portions of the Late Pleistocene by lower, middle and upper Palaeolithic groups. As has been recently demonstrated by work in the

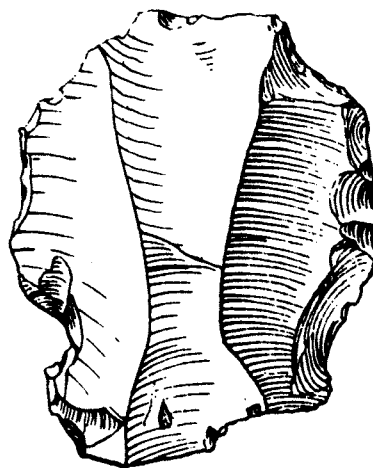
- a RN 535 denticulate
- b RN 535 convex scraper
- c RN 535 large flake
- d RN 535 large flake
- e RN 535 large flake
- f RN 535 retouched flake



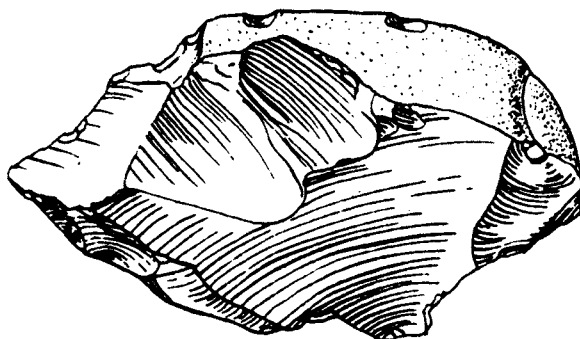
QRS-44



a



b



c



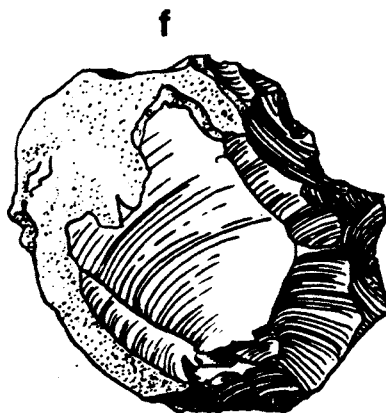
3cms



d



e



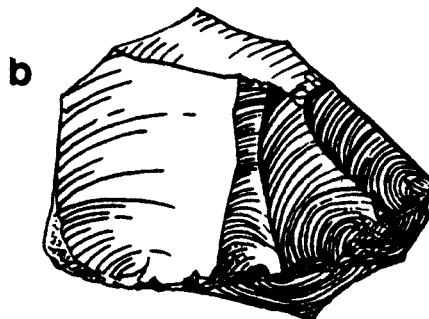
f

a	RN	535	small core
b	RN	535	small core
c	RN	535	small core
d	RN	535	small flake
e	RN	535	small flake
f	RN	535	small flake
g	RN	535	small retouched flake

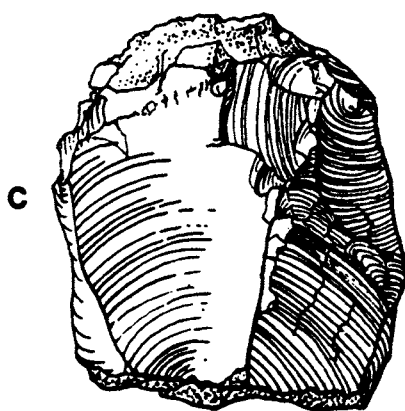
**QRS-44**



**a**



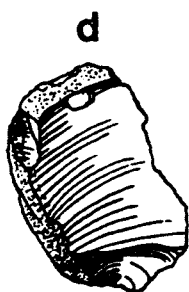
**b**



**c**



**3 cms**



**d**



**e**



**f**



**g**

- a RN 535 biface
- b RN 535 biface
- c RN 535 blade
- d RN 535 Levallois flake
- e RN 535 Levallois flake

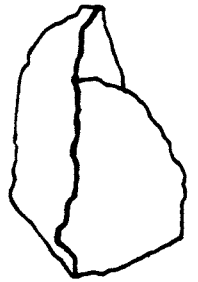
**QRS-44**



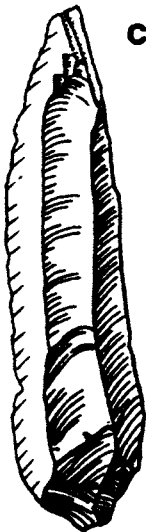
**a**



**b**



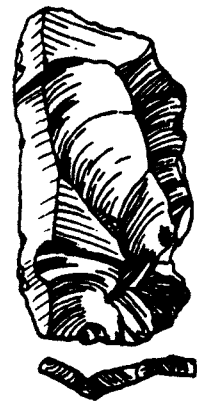
**3cms**



**c**



**d**



**e**

Western Desert (Schild and Wendorf, 1975), both the environment and the continuity of cultures were most likely heavily affected by the Pleistocene climatic variations. It is hoped that the forthcoming excavations at QRS-44, the only site discovered with a clear depth of deposit, will define the sequence of cultures and their subsistence adaptations as well as provide evidence concerning the environmental fluctuations. The close association with spring areas of 42% of the Palaeolithic sites from the survey may indicate that the water supplies were not much more plentiful than today, even during the periods of greatest rainfall. This would be in keeping with the interpretation of arid or semi-arid conditions and not more than 100 mm of rainfall in the Red Sea coastal hills in the vicinity of Mersa Alam, 130 km to the south of Quseir (Butzer and Hansen, 1968:426-430). Other than the use of flint and the single instance of quartz, no evidence was available from the Palaeolithic sites to indicate the use of other mineral resources of the region, nor was any shell observed, either inland or on the coast. This may, however, reflect weathering rather than disinterest in maritime resources.

Predynastic: The Predynastic is minimally known from the coastal regions of the Eastern Desert. A single Predynastic grave was reported 8 km inland from Ras Samadai, 140 km south of Quseir (Murray and Derry, 1923). Tombs have been mentioned from unspecified localities on the coast to the east of the Wadi Hammamat (as well as in the Wadi Hammamat and at Laqeita, de Bono, 1951). The locations of any of these graves, some perhaps in the survey area, remain to be identified, and any Predynastic attribution awaits confirmation. Although Murray and Derry (1923:129) consider circular rings of large stones to be characteristic of pre-Islamic graves of the Eastern Desert, there is no particular evidence for a Predynastic (or even pre-Roman) date for any of the various stone circles, boulder piles, possible graves, or shell heaps found during the 1978 survey. However, the content, weathering, and style of some of the rock drawings is similar to some generally considered Predynastic (Winkler, 1938), although such date attributions for the survey material are probably premature without further study.

The only survey site of probable late prehistoric date was the Wadi Sodmein Cave, QRS-44 (see p. 283). A collection of 139 sherds from the scree at its entrance produced an extremely uniform collection, with virtually no variation in forms or fabric (pl. 83). The majority of the ceramics (83:a, b, c) were

red-brown slipped with broad (1-1½ cm ) vertically scraped facets and slight burnishing in a well levigated, orange-brown fabric with little visible tempering. Interior circular smoothing of the out-turned rim of the open beaker forms continued down about 8 cm , and the unevenness of the surface below indicates that the vessels were handmade rather than wheel thrown. The single example of another form, a vase (83:d), is in a similar but sandier fabric without the exterior faceting and burnishing and, like the others, lacks the circular smoothing below the base of the neck. The ceramics are probably of very late Predynastic or slightly later date (somewhat similar to sherds found on the surface at the 2nd Dynasty fort, Um al-Kab, at Abydos) and are unlike any other ceramics found during the regional survey. The uniformity and sparsity of these ceramic finds would imply short duration camping use. At all times, the cave most likely presented a desirable shelter on one of the two major east-west routes cutting through the Gebel Duwi/Gebel Um Hammad ridge (fig. 39; pl. 84).

Although there is archaeological evidence for a number of the resources of the survey area in Predynastic contexts in Nile Valley sites: Red Sea shells, mother-of-pearl, gold, pyrolucite, carnelian (Hume, 1937:699-700, 847-848, 903, 981; Lucas, 1948:48, 448, 458), there is no direct evidence that any of these were extracted from the Quseir region. The presence of ceramics made of the red firing Nile Valley clay (Lucas, 1948:440) at QRS-44 would indicate that several of the routes of this portion of the desert were in use, since the use of the Wadi Hammamat route from the Nile Valley to the Red Sea coast has been accepted for years on other evidence (Frankfort, 1924:137-138; Hume, 1937:903, *inter alia*). Certainly the extent of settlement in the Eastern Desert, the mechanisms for the discovery and exploitation of its resources, and the trade networks for the transfer of goods from the coast to the Nile Valley during Predynastic times remain ill defined.

**Pharaonic:** No evidence of Pharaonic material was identified within the survey region. The closest material (Middle Kingdom) is at the ports on the mouths of Wadi Gasus (52 km to the north of Quseir al-Qadim) and Wadi Guwaisis, 2.5 km to its south (Wilkinson, 1835:364; Schweinfurth, 1885), and recently excavated by Dr. Abdel Monem A. H. Sayed, University of Alexandria. The next closest Pharaonic material is 95 km to the west on the central route from Quseir to the Nile Valley, the inscriptions of the Wadi Hammamat (and perhaps at the slightly closer gold mines at Bir Fawakhir). Beginning as early as the Fifth Dynasty, these document not only mining operations in the Eastern Desert throughout the Old,

- a RN 524 orange-brown mica & rare fine holes, handmade, exterior broad (1-1½ cm ) vertical scrapes, slight burnishing, red-brown slip, interior smoothed part way down
- b RN 524 orange-brown mica & rare fine holes, handmade, exterior broad (1-1½ cm) vertical scrapes, slight burnishing, red-brown slip incised lines, interior smoothed part way down
- c RN 524 orange-brown mica & rare fine holes, handmade, exterior broad vertical scrapes, slight burnishing, interior smoothed
- d RN 524 orange-brown, rare sand, exterior red-brown slip



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QRS -44

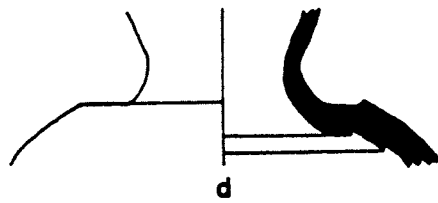
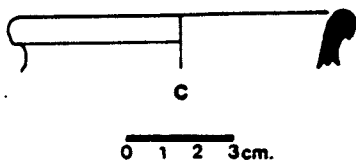
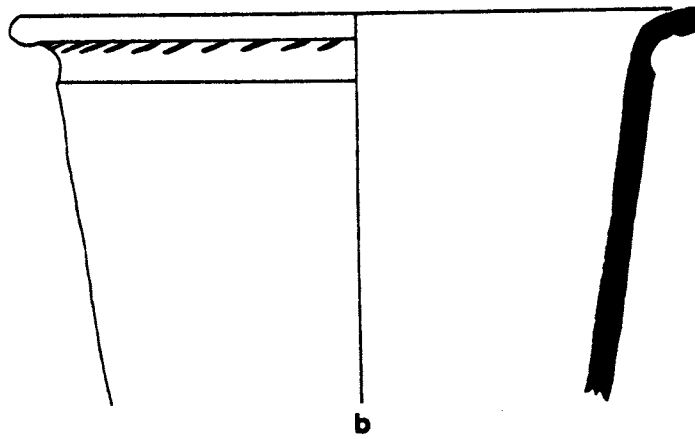
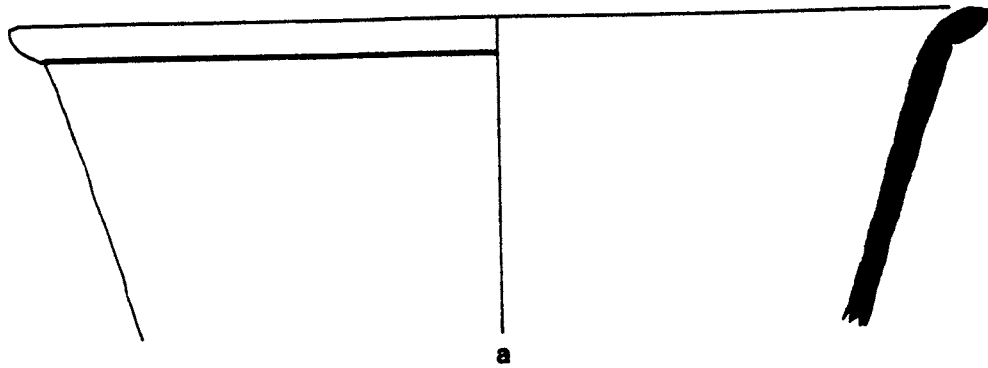


Plate 83: QRS-44 Pottery

Middle, and Late Kingdoms, but also the use of this route to the coast. As a route to the sea, the inscriptions record use for the trade with Punt and the Divine Land (to the south and east) as early as the Eleventh Dynasty in the account of Henu. Unfortunately, other than the indications from the Nile Valley ceramics at QRS-44 that the northern Wadi Hamama/Wadi Saqia/Wadi Sodmein route was also being used at the end of the Predynastic period or in the earliest dynasties, no archaeological material attributable to Pharaonic times was found on survey to supplement the information provided by the inscriptions and the excavations at Wadi Gasus and Wadi Guwaisis.

Ptolemaic: Several inscribed stone blocks, probably from a Ptolemaic temple, were located in modern Quseir by Weigall (1909:60-61, 81). This is the only recorded material of this date within the survey region. The excavation by Dr. Abdel Monem A. H. Sayed of the University of Alexandria of additional blocks from the location specified on the Quseir town plan as the locus of the original discovery would indicate that the original finds were not a few allochthonous blocks. It is most probable that a Ptolemaic temple was indeed located in this vicinity, near the shore in the modern town of Quseir. However, surface survey through the town revealed virtually no evidence of such early use, and the majority of the port construction is generally attributed to the developments by the French in the late 18th century, and later by Mohammad Ali (Weigall, 1909:79; Klunzinger, 1878b:271). The coastal portion of the modern town is densely built up and the few open areas are covered with trash and rubble of decaying buildings of the past several hundred years. No evidence of the incorporation of earlier stonework in the modern buildings was observed and the sherds along the beach (QRS-84a) were heavily rolled and weathered beyond diagnostic value. However, a few ceramic fabrics not found elsewhere in the survey region were identified, including a mustard yellow with red and brown grog tempering, and a red-brown with an exterior cream slip and red grog with white inclusion tempering. However, unique wares from the beach of an ancient port could be imports from foreign regions as much as representatives of missing chronological periods. Any constructions on the north side of the harbor (the typical location for ports along the west coast of the Red Sea) have been covered or destroyed by the Phosphate Company installations.

It may be that the square route-marking towers generally attributed to a Roman date along the central, Wadi Hammamat, route are instead slightly earlier, Ptolemaic. This is discussed below.

Roman: The majority of sites with an attributable date belong to the Roman period (pl. 84). These include outlying occupation associated with the settlement at Quseir al-Qadim (QRS-1, 24, 83a & b, 112); military watchposts on the major routes of access (QRS-6, 26); *hydreumata/praesidia* or fortified rest stops, watering places, and perhaps military posts on the routes (QRS-16, 46c, and perhaps 51); and cairns or towers marking the routes (perhaps also with a military watchpost function -- QRS-5, 32, 33, 40, 42, 45a, 46a, 95, 96). The only definite habitation areas outside Quseir al-Qadim itself and the two *praesidia* are two major settlements, at Bir Kareim (QRS-51) and Bir Nakheil (QRS-18), and two low erosional remnants, perhaps partly mounds of occupational debris (QRS-28 and 46b) adjacent to more important installations (the QRS-46c station and the QRS-26 pass watchpost).

The two major settlements were both at loci of water supplies (although Bir Nakheil is brackish). The establishments differ considerably in layout and construction technique.

The Nakheil mining camp (QRS-18) is composed of 187 structures (contra 70 of Murray, 1925:149) grouped into 9 complexes. Although these vary in size, there is no apparent patterning or orientation either within or between complexes. The rubble structures are built of flint cobbles collected from the nearby ground surface. The buildings, mostly one or two small rooms, sometimes three, show considerable variation in room size and floor area, varying from as little as 2.25 to over 55 sq. m. Many of the smaller structures have rounded corners and are hut-like in appearance, while the more carefully constructed, rectangular structures (fig. 40) are less common. Along an interior wall of virtually all the buildings was a soil-filled, stone-outlined, low platform (?*mastaba*) about 75 cm x 2 m. Many have a second, generally outside, within a cobble outlined entrance enclosure. Many walls are standing almost 1 m; the entrances constructed of larger, flatter stones instead of cobbles are frequently the highest. None of the structures have enough associated rubble or collapse for the walls to have provided much headroom; nor is there any indication of the nature of the roof supports or the method of covering. Some of the largest and best built of the structures are strung along the mountain edge of the site (complex G), and may represent its administrative center, while the other complexes developed in a more haphazard fashion over a considerable period of time. The confirmation of such hypothesis awaits further analysis of the ceramics which were collected by individual building unit.

# QUSEIR REGION

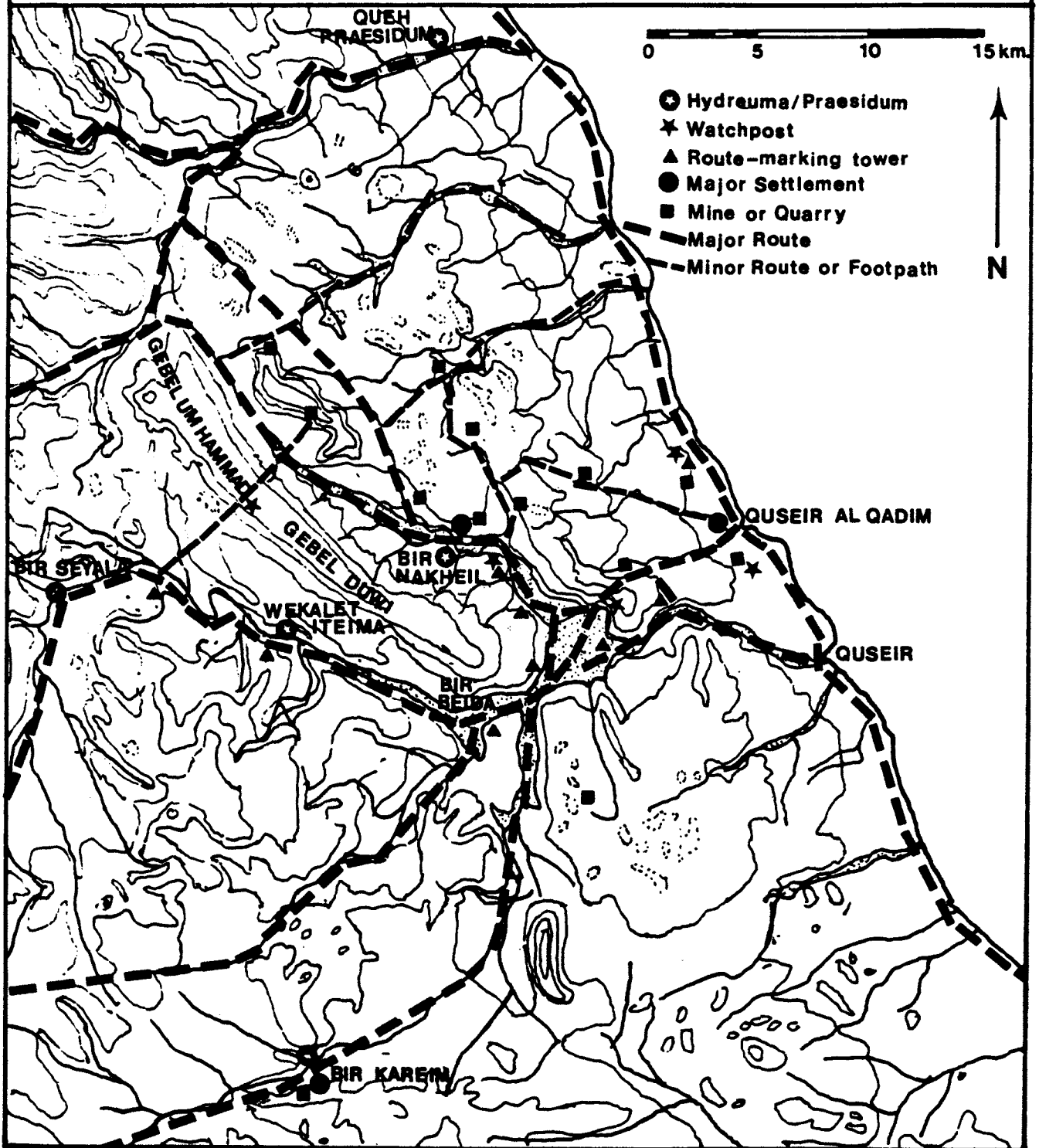


Plate 84: Historic Period Sites and Routes

The lack of an alternative explanation for such a large assemblage of workers' huts leads to the conclusion that it must be a mining settlement. A military encampment would almost certainly show a more orderly arrangement, and there are no indications of slag, technological activities, or workshop areas. The fact that the larger structures of complex G are the closest to a narrow wadi extending into Gebel Nakheil where the limestones have been quarried in several places, QRS-18j, (fig. 32) would further corroborate the mining camp interpretation for



Figure 40: Single room, rubble-constructed "workers' huts," Bir Nakheil mining camp, QRS-18. Wadi Nakheil. Facing west. Late Roman. Scale is 1 m.

this settlement. Although there has been working of pockets of manganese oxide ore (?pyrolucite) in these Thebes Formation limestones, the size of the quarrying operations does not appear to have been substantial enough to maintain an encampment of over a hundred workers.

An alternative explanation for the settlement is that it was used by the workers of the Nakheil gold mine (QRS-20) because of its proximity to water supplies. This would be supported by the absence of industrial buildings in the

vicinity of the now collapsed mine itself (although they may have been destroyed by the construction of the modern village of Nakheil, in which no careful survey was undertaken). Moreover, logistically it seems less feasible to move the work force the 9.5 km between QRS-18 and the mine every day than to transport the necessary water. Other evidence would further support the location of the gold-mine settlement near the mine itself rather than at QRS-18. Roman sherds were found on the pass across the Gebel Um Hammad immediately opposite the modern village of Nakheil, at QRS-67. As the climb for this pass is difficult, the route is passable only by foot. It would only provide a shortcut for persons coming from the Bir Seyala/Abdul 'Al (QRS-45) area on the central (Wadi Hammamat) route and going directly to the locality of the ancient mine or modern Nakheil (pl. 84). If going to the Bir Nakheil area (QRS-16 and 18) travellers would take a similar "shortcut" pass across the Gebel Duwi further south; if going to the coast or if with loaded animal transport, they would cross the range by the simple flat routes of either Wadi Ambagi to the south (fig. 45) or Wadi Sodmein (fig. 39) to the north. In addition, the QRS-67 ceramics are Roman in date, while those from QRS-18 (pl. 85) seem to be Late Roman. Thus, the evidence of the use of the QRS-67 pass, the difference in date between QRS-18 and 20, and the greater logic of transporting water than workers leave the reason for the large size of the encampment of workers at QRS-18 inadequately explained. The poor quality of the housing construction and the paucity of artifacts (scattered sherds, mainly outside the buildings, no mounding or debris accumulation, no glazed ceramics or glass) would indicate considerable poverty. This is in contrast to the richer but generally earlier material from the station at Bir Nakheil (QRS-16) and the large settlement at Bir Kareim (QRS-51). The buildings seem even less spacious, more poorly constructed, and with considerably less artifactual remains than those observed in the contemporary Late Roman mining camps near Bir Fawakhir, 80 km to the west, at the east end of the Wadi Hammamat. Although the majority of the ceramic remains were a range of domestic bowls, cooking pots, and amphora (pl. 85) there were a few examples of finer wares, including Late Egyptian red slip A (85:e, f, k, n) and some Late Roman painted ware (85:g).

At Bir Kareim, the other major settlement, large, multiroomed dry stone rectangular buildings are scattered for a distance of over 400 m along both the northern and southern edges of the broad Wadi Kareim (fig. 41). They are well constructed of the local, angular metamorphic rock, some with walls standing over a meter high. Rather than individual workers' huts on the style of QRS-18, liv-

ing quarters here were larger rectangular structures subdivided into small rooms. An 11 x 13 m building at the base of one of the mountains on the south (QRS-51b, fig. 41), may possibly be a temple, with three cellae and two forecourts, and

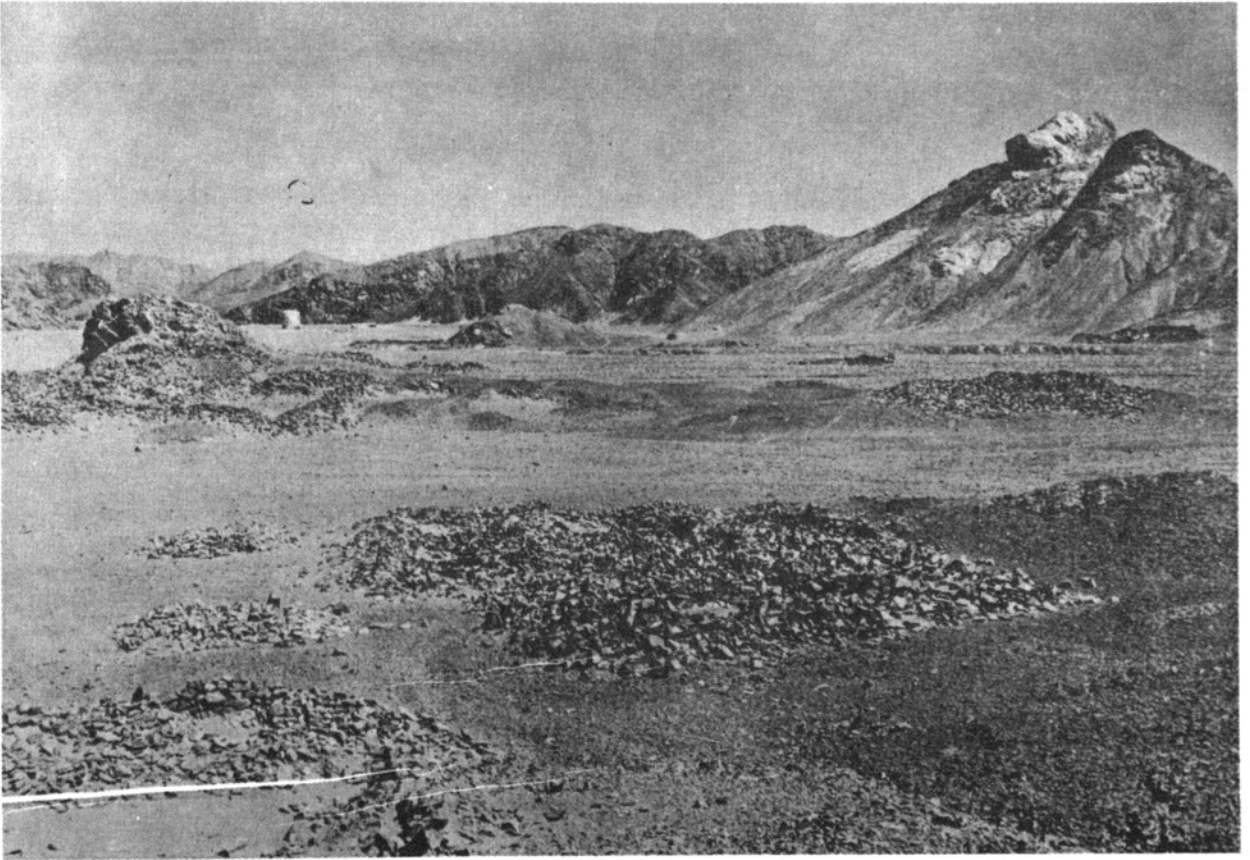


Figure 41: Rectangular, multiroom building complexes, QRS-51s, Bir Kareim. Facing east from QRS-51d mine. Possible temple, QRS-51b, is on far right at base of mountain. Roman.

containing several pieces of worked stone. Two areas of limited mining activity were identified, at QRS-51d and another further west. The former (fig. 33) is a shaft into a quartz vein cutting the metamorphic rocks, and containing iron (possibly carbonates, Said, 1962; Francis, personal communication), not gold (contra Farrar, 1913; Murray, 1925:XI; Hume, 1937:733). Thus, in contrast to Farrar (1913) the site is most unlikely to be the locality of the Turin Papyrus gold mines, which have since been generally accepted as the mines at Bir Fawakhir. However, contrary to the arguments of Jenkins (cited in Hume, 1937:696-697), the locality does indeed have mining activity. But, the limited areas worked would seem insufficient to maintain such substantial settlement. Further exploration of the area in the next season may reveal additional mining in the vicinity.

a	C20o	RN	661	light tan, white and black coarse sand, fine to medium holes
b	D3i	RN	661	brown, rare medium sand and fine holes, uniform texture; handle-coarse-- coarse sand and medium chaff holes
c	B1o	RN	659	brick brown, purple core, a few fine chaff holes, uniform texture, interior and exterior red-brown slip
d	G23o	RN	661	brown, medium sand, chaff and holes, friable texture
e	G13o	RN	661	light orange, fine sand, rare fine holes and red-brown grog, no evidence of slip
f	I41o	RN	660	pink, fine sand of various colors, interior and exterior orange-brown slip, interior burnished, exterior eroded, ?Late Egyptian red slip A
g	BIi	RN	659	brick brown, mica, medium sand and holes, red-brown slip, black exterior painting
h	B10o	RN	659	brick brown, red-brown interior and exterior surface, medium chaff holes, medium to coarse sand
i	E2o	RN	659	rust brown, purple core, a few chaff holes, interior and exterior purple brown slip
j	I41o	RN	660	brick brown, medium chaff holes and sand, interior purple-brown surface, exterior buff slip
k	I43o	RN	660	pink, fine and medium sand, rare fine holes, interior and exterior orange-brown slip, interior burnished, exterior eroded, ?Late Egyptian red slip A
l	C22o	RN	661	brown, coarse sand, lots of medium chaff holes, interior and exterior purple-brown slip
m	G16o	RN	661	rust-brown grey interior, friable texture, medium sand and chaff holes, light tan exterior slip
n	G27o	RN	661	light orange, mica and fine to medium sand, interior and exterior orange-brown slip, burnished, incised circular groove
o	H14o	RN	660	rust brown, exterior purple, interior and exterior of rim black, black core, mica, medium sand, fine chaff holes
p	G15o	RN	661	rust-brown, medium sand, occasional chaff and chaff holes, exterior purple-brown, brown slip
q	H6o	RN	660	rust-brown, purple black core, fine and medium sand, fine chaff holes, interior and exterior purple slip
r	I9i	RN	660	light brown to grey, medium and coarse sand, medium chaff holes, buff to brown slip
s	D7o	RN	661	fine to medium coarse sand and holes, red-brown slip
t	C22o	RN	661	rust brown, fine to coarse sand, medium chaff temper and holes, interior and exterior red-brown slip



## QRS-18

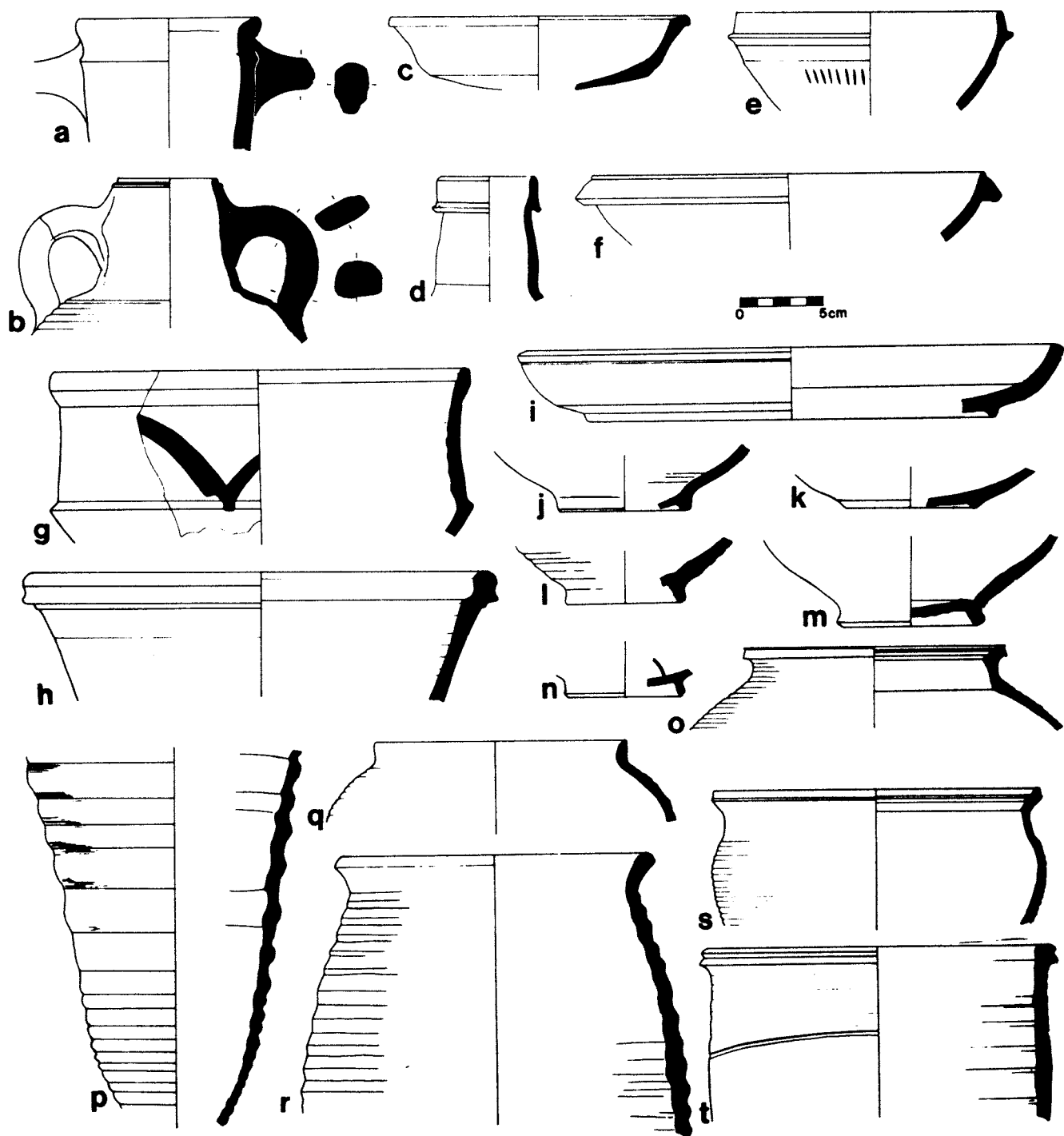


Plate 85: QRS-18 Pottery

Moreover, as Bir Kareim is the closest modern sweet water well to Quseir al-Qadim (35 km ), the settlement may have included persons involved with its supply and military providing for its protection. Bir Kareim is also situated on one of the southern routes from the Nile Valley to the Red Sea coast (Wadi Gash, Wadi al-Muweilih, Wadi Hammuda, Wadi Kareim, Wadi Ambagi). Thus, part of the population may have been directly involved with the activities of a station or *hydreuma* on the major trade routes.

The greater wealth and perhaps different status of the inhabitants of Bir Kareim, when compared with those of QRS-18, shows in the larger, better construction (perhaps partly the effect of the greater angularity of the fracture in these metamorphic rocks) and in the masses of broken ceramics, even including evidence of imported wine (see Greek stamped amphora handle, 86:c). Although masses of sherds could be the effect of the water supply and breakage during transport, it seems most likely that water supply caravans would have used less fragile containers such as skins. The Bir Kareim ceramics (pl. 86 & 87) are similar to those from Quseir al-Qadim itself, which would indicate that the site is earlier than the late Roman camp at QRS-18. This difference in age is perhaps partially responsible for the differences between the settlements (in addition to the greater wealth from better water, a more major route to the west, and perhaps even more valuable minerals.

In addition to QRS-51, which undoubtedly filled a water supply function, the survey area contained two *hydreumata* (caravan rest stops and watering stations), or perhaps more precisely *praesidia* since they are fortified. One (QRS-46c, was the first of the series of eight located at intervals of 9.5 to 19 km on the central (Wadi Hammamat) route from Quseir al-Qadim to the Nile Valley. The other (QRS-16) was the first of three on the route from the ancient port to Semna and Mons Claudianus (Murray, 1925:148-149; Wilkinson, 1831-32:57; 1847:399), or alternatively, on the northernmost route from Quseir al-Qadim to the Nile via the Wadi Hamama. QRS-46c, Wekalet Iteima (fig. 42) appears to be a typical example of this class of fortified *praesidium* structure which was used on the Roman routes throughout the Eastern Desert (see Murray, 1925:140, pl XII, XIII, 3, XVI, 3; Tragenza, 1955:opp. 169). It is built on a square plan in dry stone, with some walls still standing over 2 m high. The exterior is ditched and circular fortification towers project at the corners with single semicircular towers in the intermediate positions but paired ones flanking the lone entrance in the center of the south wall. A single tier of small rooms are attached along the interior of

both the northern and western walls. The large central open space contains a partly infilled deep central excavation, probably originally the well and perhaps

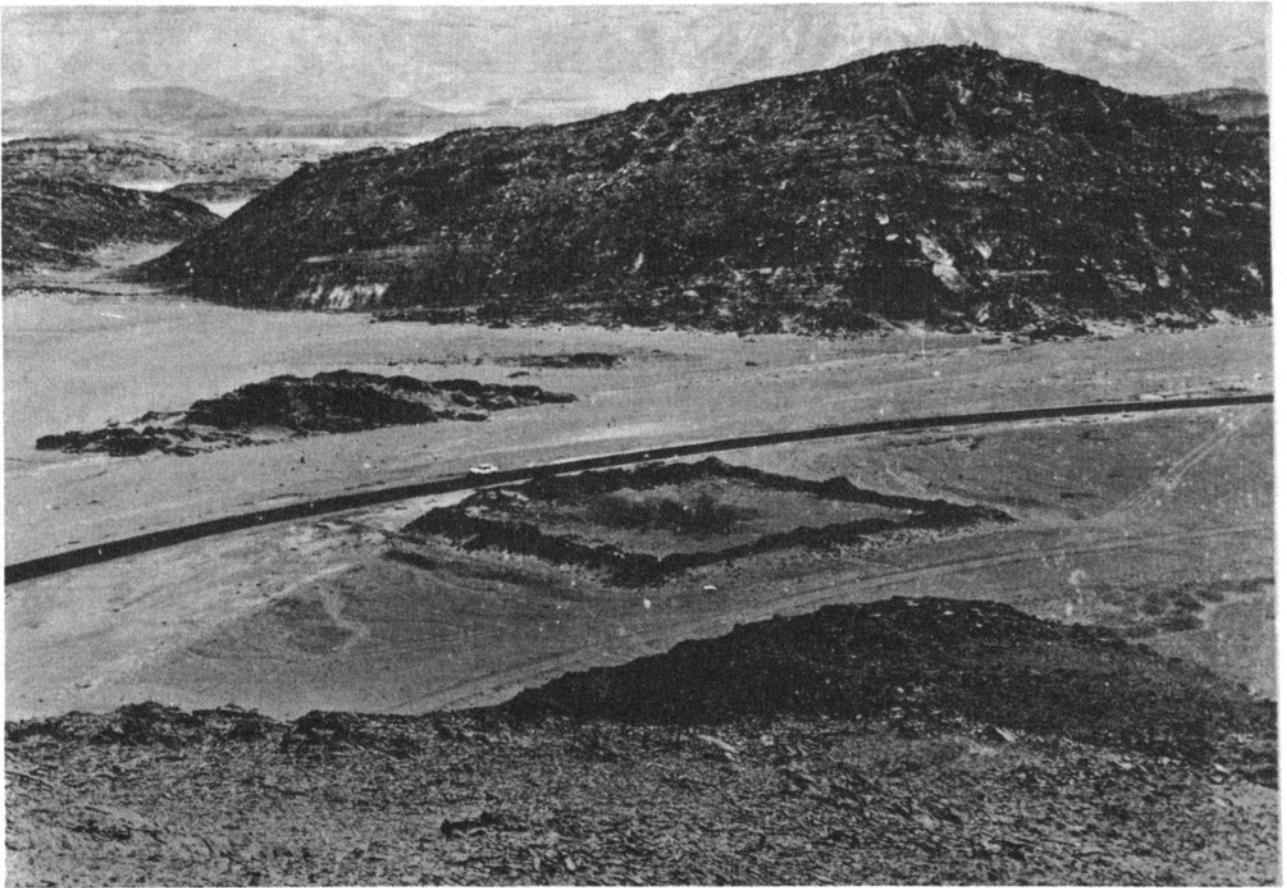


Figure 42: Wekalet Iteima, QRS-46c, *hydreuma/praesidium*. The first station west of Quseir al-Qadim on the central (Wadi Hammamat) route to the Nile Valley. Facing northeast. Entrance in center of south wall. Edge of disturbed mound-ing, QRS-46b, on right beyond foreground mountain edge. Western, scarp face of Gebel Duwi in background. Wadi Haramiya. Roman.

with an associated cistern or reservoir area.

From the only available descriptions of the other *praesidium*, the station at Bir Nakheil (QRS-16; Barron and Hume, 1902:57; Murray, 1925:149), it was most probably very similar before it was largely destroyed in the early 1950s. The density of the remaining ruins, the presence of 1.4 m of deposit of organic and other debris, and the evidence of at least two construction phases (the second resting on as much as 60 cm of debris) would indicate considerably longer use and accumulation than at any of the other survey sites. Indeed, the only other site with evidence of accumulated organic debris was the large, ?mortuary related building behind Quseir al-Qadim (QRS-83b). From the ruins still remaining around

a	QRS-51d	RN	523	brown speckled with yellow, medium and coarse sand, fine holes, interior and exterior green-buff slip
b	QRS-51s	RN	502	dark pink, black core, dark purple-brown surface, large, very coarse chaff holes, large rare blow holes and white limestone fragments, very hard-fired, exterior green-buff slip
c	QRS-51n			tan, medium sand, cream slip, pitted surface
d	QRS-51d	RN	523	tan, fine to coarse sand and chaff holes, exterior buff slip
e	QRS-51d	RN	523	medium brown, fine holes, mica, medium sand, exterior light brown slip
f	QRS-51n	RN	626	brown, fine to coarse sand, few holes, some with white infilling, exterior surface crackled.
g	QRS-51d	RN	523	brown, mica, much medium and coarse sand, few medium chaff holes, exterior green-buff slip
h	QRS-51d	RN	523	rust-brown, purple core, medium and fine chaff and holes, interior and exterior red-brown slip, few lines of chaff drag on surface
i	QRS-51d	RN	523	brown, much coarse sand, some medium and coarse straw holes, interior orange-brown slip, exterior purple-brown slip
j	QRS-51n	RN	626	orange-brown exterior grading to dark purple-brown interior, much fine chaff and chaff holes, a few coarse sand, interior and exterior cream slip
k	QRS-51n	RN	626	brick orange, coarse sand, medium chaff holes, pinkish cream surface
l	QRS-51b	RN	521	purple-brown, buff slip, very coarse straw and coarse sand
m	QRS-51b	RN	521	purple-brown, orange-brown exterior, very coarse straw and sand
n	QRS-51n	RN	626	rust-brown, purple-brown core, much coarse sand, red-brown grog, mica, medium chaff and holes
o	QRS-51n	RN	626	brown, coarse sand, medium chaff and holes, buff slip interior, upper exterior with drip below
p	QRS-51n	RN	626	orange-brown, grey core, coarse sand, coarse chaff holes.

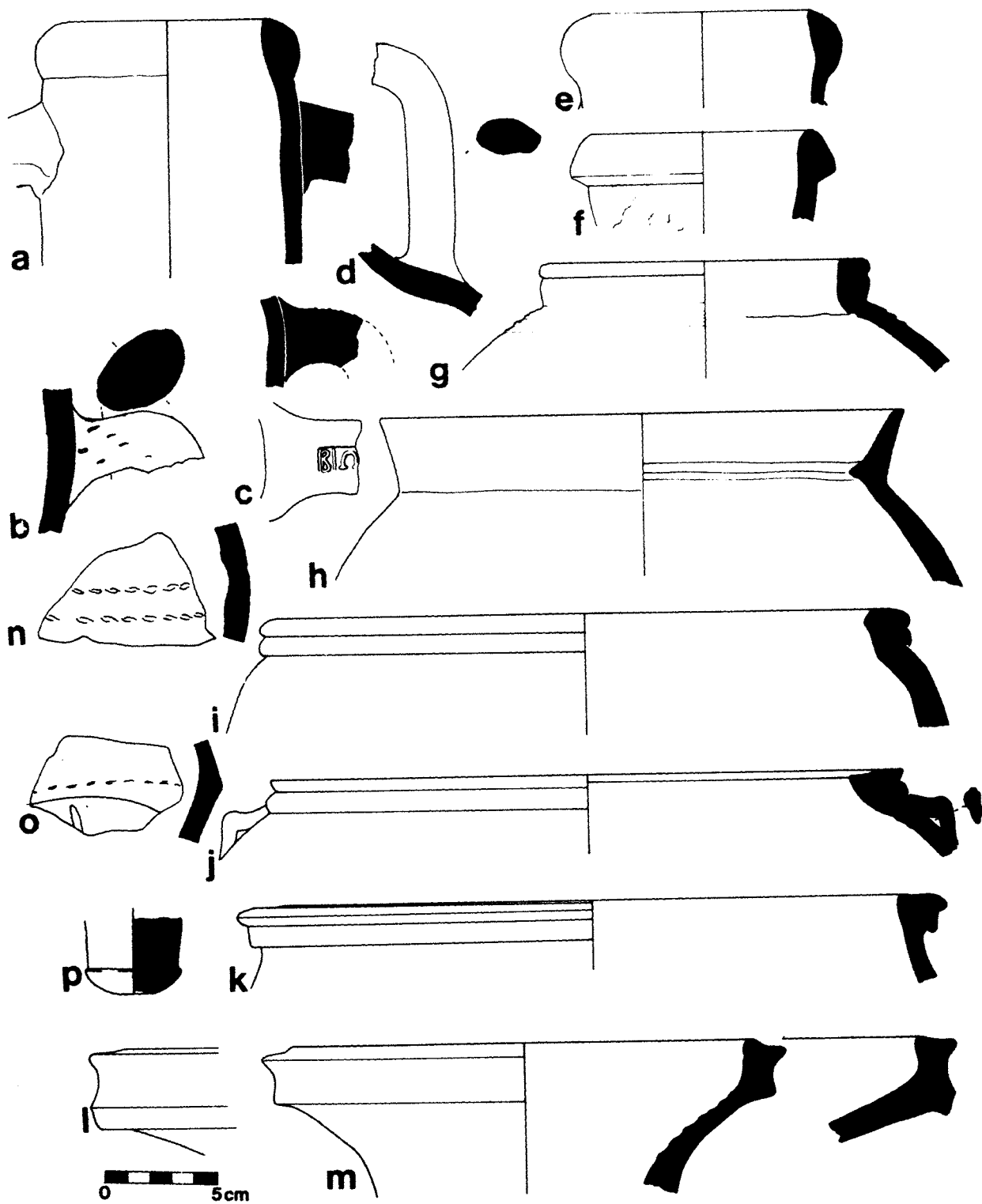


Plate 86: QRS-51 Pottery

a	QRS-51d	RN	523	grey with rust-brown edge, orange-brown slip, exterior burnish; shown inverted -- is a base
b	QRS-51n	RN	626	light tan, coarse sand and fine chaff, green-cream slip
c	QRS-51s	RN	502	rust, fine holes, white medium sand, interior and exterior purple-brown slip
d	QRS-51b	RN	521	brick, black core, many medium holes and sand, interior pink-tan surface, exterior purple-brown slip, black interior painting
e	QRS-51	RN	626	red-brown, coarse sand, large holes from chaff, red-brown slip, traces of purple-brown ?paint
f	QRS-51n	RN	626	orange-brown, gray core, many fine holes, mica, no other visible temper
g	QRS-51n	RN	626	red-brown, black core, some coarse sand, many fine to medium chaff holes, hard fired
h	QRS-51d	RN	523	light brown, medium and coarse sand, a few holes, interior and exterior purple-brown slip
i	QRS-51d	RN	523	orange-brown core, medium chaff and holes, coarse sand, interior purple-brown slip
j	QRS-51b			stone bowl, brown and white inclusions
k	QRS-51d	RN	523	brick-brown, brown core, medium to coarse sand and chaff
l	QRS-51n	RN	626	brick, exterior red-brown, purple-brown core, coarse sand, medium holes
m	QRS-51s	RN	626	orange-brown, purple-brown core, red-brown surface, much medium sand and holes, surfaces relatively smoothed
n	QRS-51d	RN	523	brick-brown, brown core and exterior, medium to coarse sand, some medium chaff holes, exterior eroded
o	QRS-51n	RN	626	brick-red, brown core, coarse sand, lots of medium chaff holes

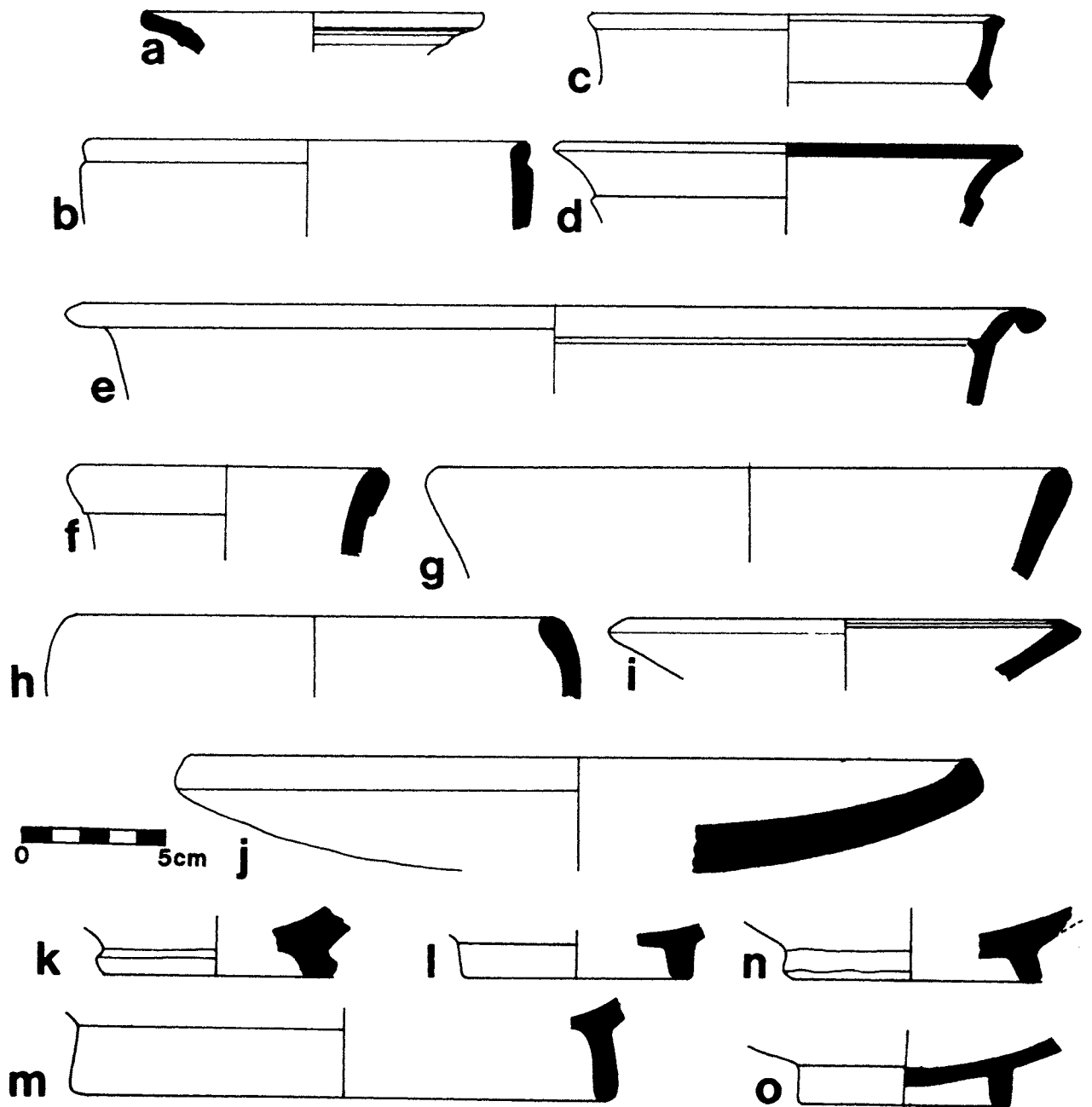


Plate 87: QRS-51 Pottery

the old well excavation at QRS-16, it appears that this station lacked much of the open central space which was present at QRS-46C and many other stations. Thus, it may have been closer in plan to the station at Deir al-Atrash (Murray, 1925:XII), although after bulldozing insufficient structure remains to be certain.

Despite the architectural and refuse evidence for extended use of QRS-16, the large majority of the artifact material is Roman, and (like Quseir al-Qadim itself) probably mostly predates the Late Roman assemblage at the nearby mining camp, QRS-18. In keeping with the evidence for more intensive and extended use (density of rooms, rebuilds, organic deposit) the range of finds is also richer than that at other contemporary survey sites. In addition to a range of domestic forms, amphoral (88:p, q), everted rim bowls (88:f, g, h, i, k), and more closed cooking pots (88:l, m, n, o), the surface finds included blue glazed frit fabric wares (88:d, f), glass, copper/bronze nails and even a coin with Latin script.

There is a cluster of other sites in the Bir Nakheil area. On the basis of their ceramics they also seem to be early, contemporary with the QRS-16 station. In addition to the outlines of small hut-like cobble buildings, much like those of QRS-18, but with single rooms and lower walls at QRS-16b, 16c, 17, 48c-1, 89, two more substantial buildings (QRS-48a & b) were found on an outlying ridge of Gebel Duwi behind the well. Beyond the possible flood control related structures (QRS-17b & 99a) discussed above (p. 270), the only other probable Roman remains in the Bir area are three fields of low boulder piles probably marking graves. These three clusters (fig. 43 -- QRS-19, 49, 99b) are all situated in flat or sloping alluvial areas to the side of the flood channels of the Wadi Nakheil or its tributary branches, and total over 133 cairns. Formless, random piles composed of boulders or boulders and cobbles from the adjacent ground surface, they are generally about 2 m in diameter and 75 cm high and smaller (most over 40 cm high), and the largest of those measured was 2.5 to 3.8 m (in QRS-49). Although probably marking the graves of the inhabitants of the well area *praesidium* and other buildings, and thus most likely of Roman date, there is virtually no associated pottery from all three sites. Only a single, small sherd of ?Arretine ware was found from the ground surface (not in a cairn) at QRS-19. It is important to bear in mind that cairns or even sizeable groups of them need not be cemetery areas, as the modern Ababda frequently build cairns to mark vows and commemorate events rather than deaths (Murray, 1935:194-195), and a field of stone grave cairns in the Wadi Shurafa al-Sharki was found through excavation to mark the location of cattle, not human burials (Murray, 1926:248).



In addition to the mining settlements and fortified constructions for water supplies along the routes, there are several other archaeological indications



Figure 43: Group of boulder cairns, ?graves, QRS-19, Wadi Nakheil. Facing northwest. Roman. Scale is 1 m.

for the routes and their defense. The platform structure at QRS-67 on the crest of the pass over the Gebel Um Hammad from the Nakheil mine (QRS-20) mentioned above (p. 298) has a superb view of the central, Wadi Hammamat route even beyond QRS-45, six km away, and may have been a watchpost on this footpath shortcut route to the gold mine (QRS-20) at Nakheil. Military(?) watchposts with considerable Roman period ceramics were also situated on two of the main approaches to the port of Quseir al-Qadim itself. One, a small, 13 by 9.7 m dry stone building with walls standing 2.27 m called Qasr Hadie (QRS-6), was first planned by Burton (1822-23). It controls a commanding view of the coast (fig. 30) and the route of the Via Hadriana all the way to Quseir al-Qadim 2.8 km to the south (although no remains of the road itself were observed within the survey area). Several potential watchposts were located south of Quseir al-Qadim (QRS-105 and 119) with fine control over the southward continuation of the same route (fig. 30)

a	QRS-17			tan, coarse, angular sand of various colors
b	QRS-29	RN	686	tan, sand temper, roughened surface
c	QRS-29	RN	686	red-tan, medium to coarse sand, cream slip interior and exterior
d	QRS-16	RN	686	white frit, blue glaze
e	QRS-28	RN	686	dark red, slight grey core, medium sand
f	QRS-16	RN	686	white frit (faience), blue glaze
g	QRS-16			orange-brown, brown interior, much medium and coarse sand and mica, exterior buff slip with black ash
h	QRS-16			red, medium to coarse sand, red slip exterior
i	QRS-16			pink-salmon, coarse and fine sand and rare red grog, a few chaff holes, exterior red slip continuing into interior as a band, slight interior rippling
j	QRS-16	RN	67	grey, fine texture, some dark sand
k	QRS-16			grey, fine chaff holes, uniform texture, exterior brown
l	QRS-16	RN	686	pink medium to coarse sand, rim blackened, exterior red paint
m	QRS-16			dark purple, rust interior and exterior surface, fine sand and a few chaff holes
n	QRS-16			brick red, medium sand, surface smooth and slightly darker than interior, ?self-slip, interior and exterior slight ripples, very hard fired
o	QRS-16			dark red ware, grey core, medium to coarse sand
p	QRS-16			rust brown, occasional coarse sand and some fine chaff holes, exterior red-brown slip, interior traces of resin
q	QRS-16			brown, jumbled texture, fine to coarse sand, many white specks of chaff, some chaff holes, very flakey, friable surface, interior traces of resin

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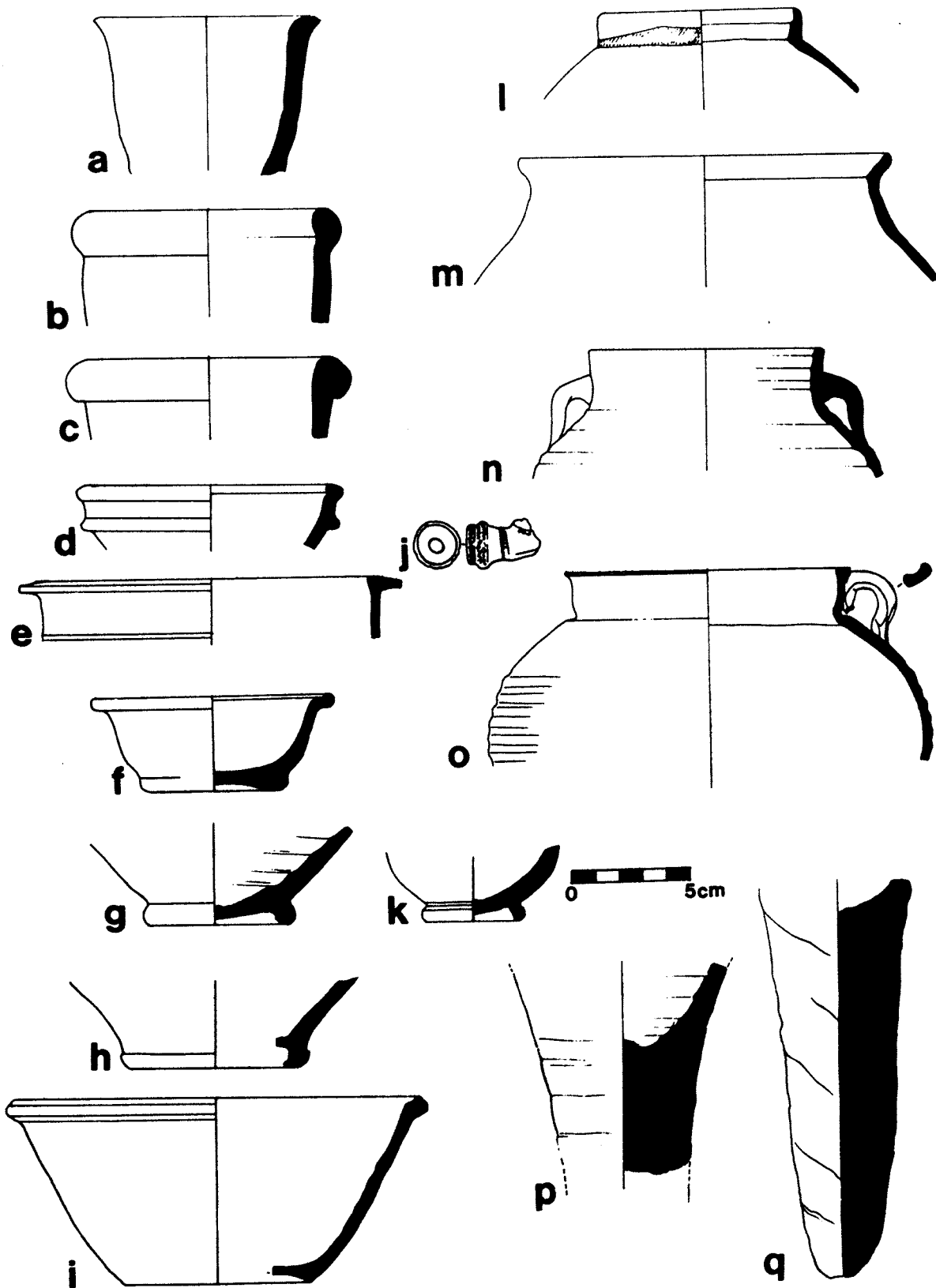


Plate 88: QRS-16 Pottery

but the lack of any associated ceramics prevents confirmation of their use in Roman times. The main route to the interior, through the Wadi Quseir al-Qadim, also had evidence of a watchpost (QRS-26a) on the low pass into the Wadi Nakheil (fig. 44). Although it had very little evidence of construction, a scatter of cobbles and boulders showed surface disturbance and considerable quantities of

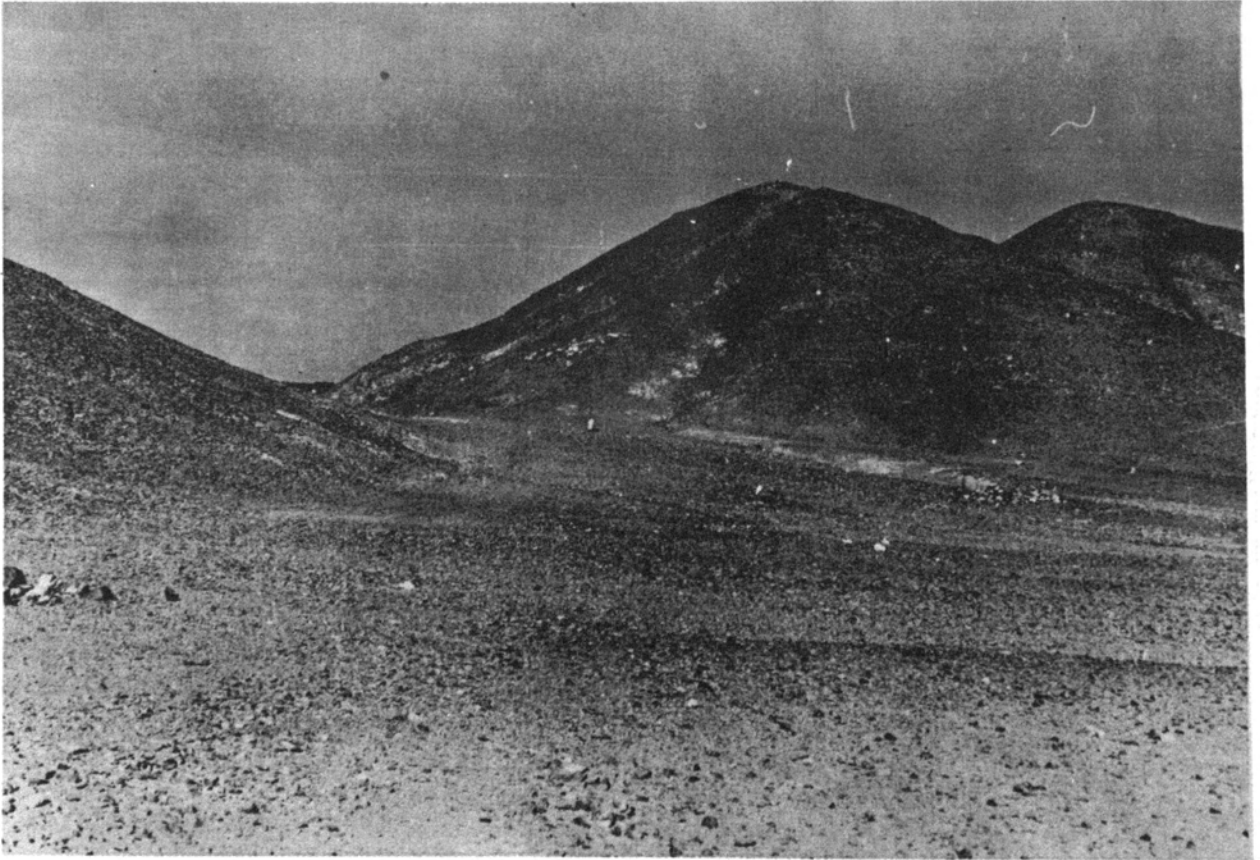


Figure 44: Watchpost, QRS-26a (on peak to right of center) on the pass from Wadi Nakheil into Wadi Quseir al-Qadim, the main route to Quseir al-Qadim from the Nile Valley and the west or from Semna and the northwest. Facing southeast. Roman.

ceramics had accumulated on the slopes of the hills (QRS-26a and b) flanking the entrance. These were primarily the fragments of large amphora (pl. 89), including an eroded stamped amphora handle, several pilgrim flasks (89:g), and smaller open bowls (89:b, h, j, k, l, o). Sherds with several incised ?Latin letters and part of a hollow, moldmade ceramic horse figurine (89:f) were also found. The similarity of the ceramics with those from the excavations at Quseir al-Qadim would confirm that this watchpost was contemporary with the Roman port. No evidence of any military fortifications or watchposts were observed on the

other two routes of access to the ancient port (pl. 84). These include the most direct route from Quseir al-Qadim to Bir Nakheil, starting through the Wadi al-Anz into the Wadi Um Ushra and passable by foot only (fig. 31). All camels or donkey caravans heading north or to the interior (if they did not take the Wadi Quseir al-Qadim) would have had to travel along the coast past the QRS-6 watchpost before turning inland along any of a number of drainages, such as the Wadi Siyatin or the Wadi Abu Shiqeili. Likewise, there was no evidence of a post on the possible route into the Wadi Quseir al-Qadim from the Wadi Ambagi, just to the east of the Ambagi spring. However, this route could have been covered as well, as it passed directly beneath one of the route-marking towers (QRS-40). But QRS-40 lacks any archaeological indications that it had been manned (no sherds or building construction) and there is no proof that the towers had such a police/military function.

Nine of these square, dry stone towers (fig. 45 & 46) were located in the survey area. Only one, QRS-5, was located on the coast, on the Via Hadriana.



Figure 45: Square route-marking tower, QRS-95, partly collapsed. Confluence of Wadi Hamariya and Wadi Ambagi, where the central (Wadi Hammamat) route transects the Gebel Duwi (in background). Facing north. Roman (possibly Ptolemaic). Scale is 1 m.

a	QRS-26als	RN	393	rust brown, medium sand, fine chaff holes
b	QRS-26als	RN	693	rust brown, grey core, medium sand, fine chaff holes, interior and exterior purple-brown slip, slight burnish
c	QRS-26a	RN	692	tan, very coarse angular sand of various colors, many fine holes
d	QRS-26a	RN	688	red-brown, coarse sand of various color, exterior tan slip
e	QRS-26a	RN	692	brown, rust brown core, fine to coarse sand of various colors, a few holes, porous, interior and exterior buff slip, ?pilgrim flask
f	QRS-26a	RN	692	red-brown, medium sand, white slip
g	QRS-26a	RN	692	rust brown, light brown interior, medium and coarse sand medium chaff holes, buff exterior slip, porous, pilgrim flask
h	QRS-26a	RN	688	brown, medium sand, fine chaff holes, soft friable texture
i	QRS-26als	RN	693	orange, coarse sand, uniform texture, interior and exterior buff slip
j	QRS-26als	RN	693	light orange, fine sand and red-brown ?grog, interior and exterior orange-brown slip
k	QRS-26a	RN	688	rust brown, few medium sand and fine holes, interior and exterior purple-brown slip
l	QRS-26als	RN	693	pink, medium white sand and brown ?grog, exterior brown slip, interior eroded, ?Late Egyptian red slip A
m	QRS-26a	RN	695	dark red brown, much angular very coarse sand of various colors, angular fracture, interior brown surface, exterior buff slip
n	QRS-26a	RN	695	tan, angular coarse sand of various colors, exterior buff surface, interior eroded
o	QRS-26als	RN	693	rust brown, uniform texture with rare large limestone fragments, buff exterior slip
p	QRS-26a	RN	695	brown, very coarse angular sand of various colors, angular fracture, exterior tan slip
q	QRS-26a	RN	686	brown, medium to coarse sand and chaff holes, friable texture
r	QRS-26als	RN	693	rust brown, some medium to coarse sand and white inclusions, friable texture
s	QRS-26a	RN	692	rust brown, coarse sand, chaff and chaff holes, surface eroded
t	QRS-26a	RN	692	light brown, fine to coarse sand, fine to medium chaff holes, surface eroded

## QRS-26

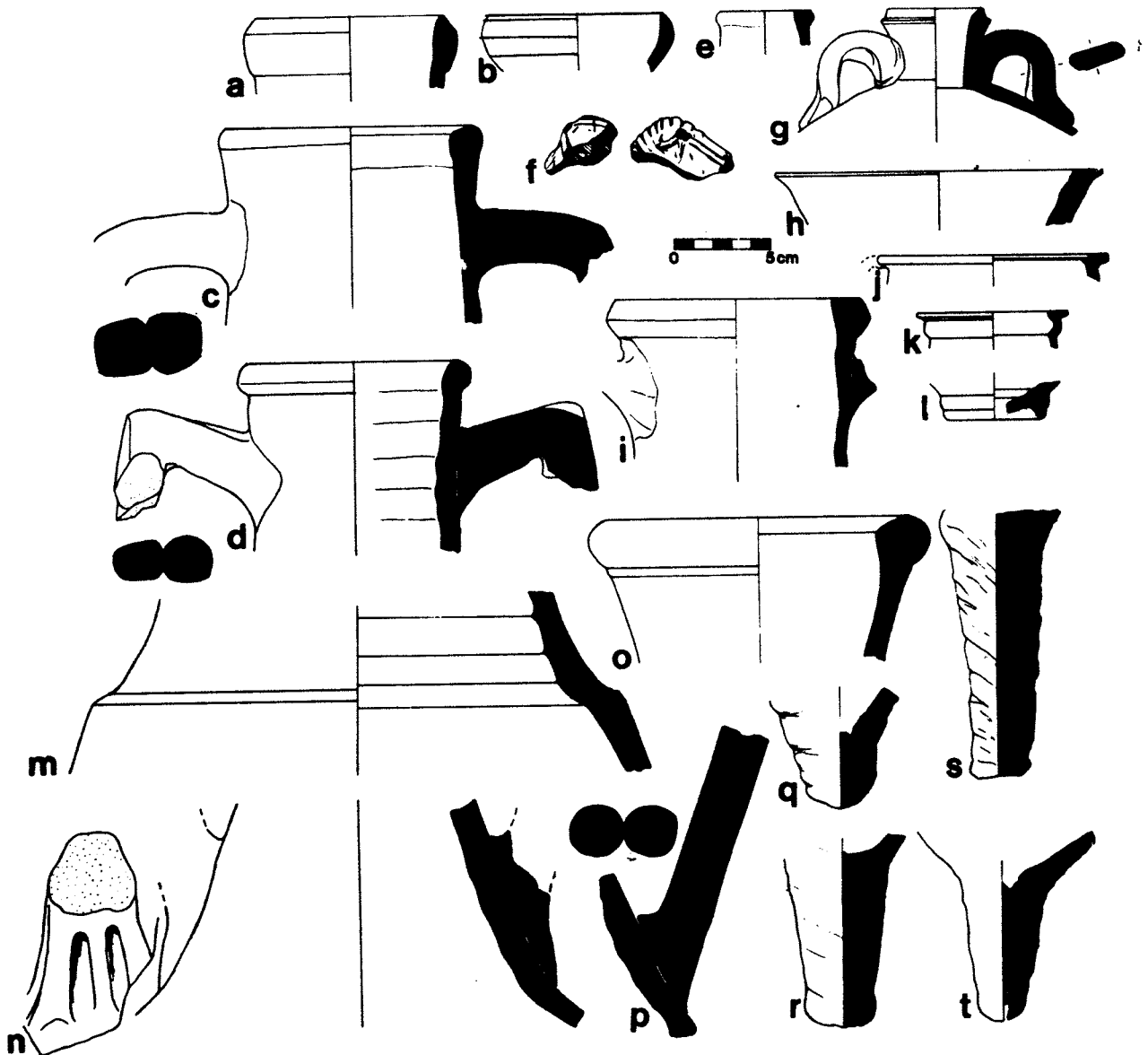


Plate 89: QRS-26 Pottery



Six others were along the central (Wadi Hammamat) route to the Nile Valley (QRS-40, 42, 45, 46, 95, 96) and two more marked the branch northward from this route to the station at Bir Nakheil (QRS-32, 33). All but QRS-42 were situated on ridges along the edges of open valleys.

Although the remains do not now all show the same square structure, this is almost certainly the result of differential collapse. Those which are well preserved (fig. 45; Murray, 1925:XVI, 2) are about 3 to 3.5 m square, constructed of dry stone, flat faced but not cut, and apparently infilled with rubble and

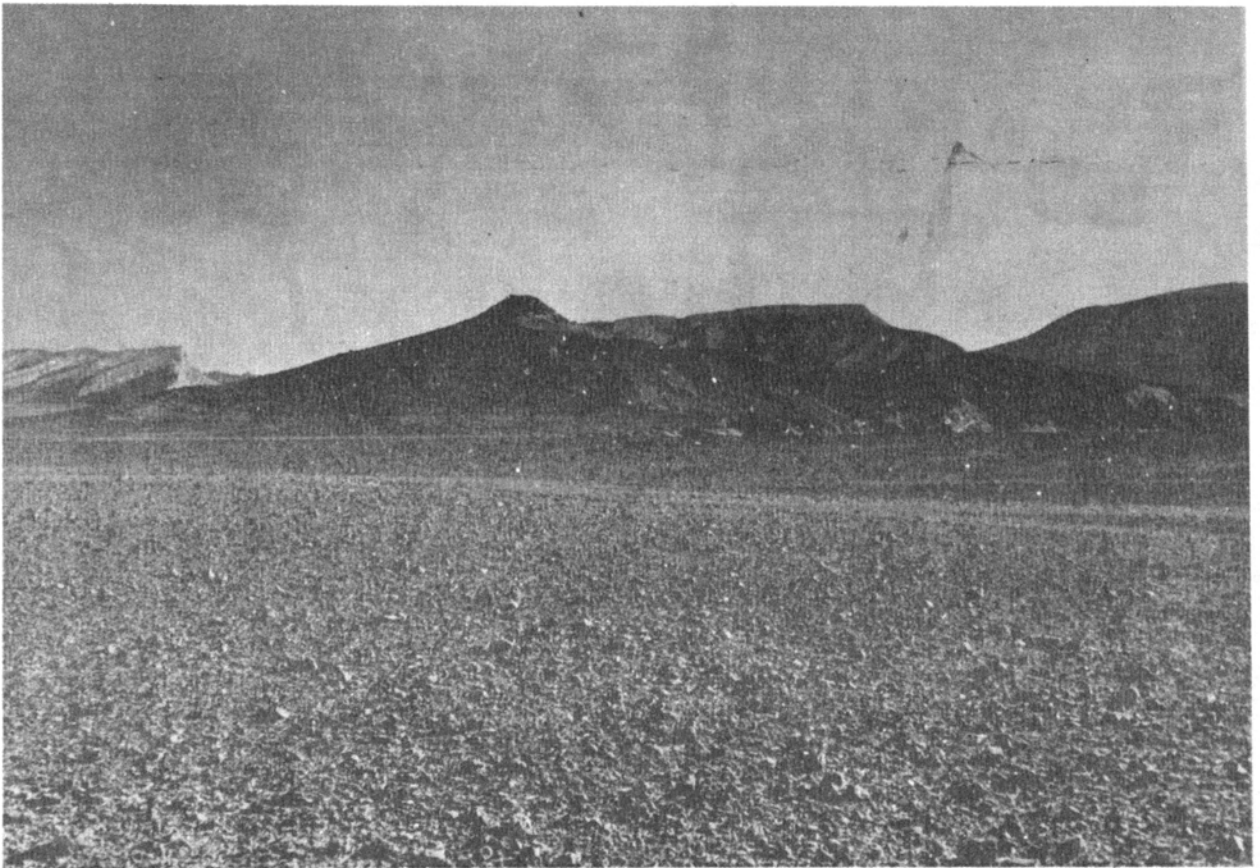


Figure 46: Collapsed route-marking tower forming a large stone cairn on valley edge hilltop. Facing southwest. Eastern slope face of Gebel Duwi in background. Roman (possibly Ptolemaic).

soil or windblown silts. They stand as a solid mass 2 to 2.5 m high. Above this solid base the exterior faces continue upwards as much as an additional 95 cm (well preserved only on QRS-46a, also partly on QRS-95) forming a low wall around a central depression. All but three (QRS-5, 32, 96) had some traces of the original square form, while these three appeared to be virtually formless large cairns of stones (fig. 46). Most probably, considering the larger area



but lower height (under 2 m ) of these piles, their similar positioning, and the Roman date of the ceramics at two of the three (QRS-5 and 32), they were probably all of similar form before collapse.

There is no direct evidence from the survey to disprove the general attribution of these towers to the Roman period. Six of the nine had some associated sherds, most of Roman date. However, these associated Roman ceramics may not date the construction, as they may be the refuse of Roman period visitation by travellers or curiosity seekers using the same route. Considering the well-documented development of the Eastern Desert in Roman times, (Barron and Hume, 1902:86; Hume, 1937:867; Murray, 1925) the towers could belong to that period. However, several strands of evidence may indicate a slightly earlier, Ptolemaic date when there was also considerable trading activity across the Eastern Desert area. It was in the mid third century B.C. that Ptolemy Philadelphus developed the port and route to Berenice and renamed the earlier port at Wadi Guwaisis, Philoteras. Likewise, although Quseir al-Qadim itself does not appear to predate the first century A.D., the Ptolemaic temple remains at Quseir would indicate that in Ptolemaic times the routes would have been operating to that point on the coast, not to Quseir al-Qadim. One of the survey route-marking towers, QRS-40, would, by its location, seem to be marking the route to Quseir rather than to the Roman site. It is situated to the east of Ambagi, east of the logical shortest route to Quseir al-Qadim past QRS-26 (pl. 84). However, no other towers were found east of QRS-40 to confirm this argument, although they were perhaps unnecessary as the sea becomes visible and the Wadi Ambagi is clearly a major artery heading directly toward it. An alternative possibility, allowing instead for a Roman date for the tower construction, would be that QRS-40 marked the turning northward into Wadi Quseir al-Qadim (used by Barron and Hume, 1902:56) for those who chose to take a slightly longer route and water their camels at the Ambagi spring. Thus a Ptolemaic rather than Roman date for the route towers remains moot.

Despite the frequent mention of these "towers" along the route from the Nile Valley to Quseir, only two of these nine were previously designated on the Survey of Egypt maps (QRS-45a and 95). Whether they are indeed intervisible (Murray, 1925:145) has not been confirmed. The QRS-40 to 95 group are, although it seems doubtful, further west, unless some have been destroyed. Intervisibility would have been necessary if they functioned as unattended route markers or as signal towers, rather than as military watch posts. Certainly, if used for

night-time signals (Murray, 1925:145; Klunzinger, 1879:427) the fire would have had to be some sort of torch or raised flame since the side walls on the tower tops would have hidden a bonfire built directly on top of the solid structure. None of the towers showed any evidence of charring or burning. The paucity of ceramics around their bases (compared even with virtually architectureless watchposts such as QRS-26) would imply that they were not used as permanent posts for soldiers. Furthermore, only one (QRS-95) had any evidence of associated building, for the circle of stones at QRS-42 could have been constructed at any more recent period. If, instead, the towers were only route markers, the function of the wide walls and depressed center remains enigmatic.

Portions of three major routes are marked by the route towers, the Via Hadriana along the coast from Arsinoe to Berenice; the central (Wadi Hammamat) route from Quseir or Quseir al-Qadim to the Nile Valley (Darb al-Rassafa); and a branch from the central route to the Bir Nakheil (QRS-16) *praesidium*. This route continues northward via the Wadi Saqia to Semna, and from there northward to Mons Claudianus or westward to the Nile Valley via the Wadi Hamama. Although no additional towers were seen in the survey portion of this route north of QRS-16, they are reported from further north, in the vicinity of Mons Claudianus (Wilkinson, 1831-32:57).

However, it cannot be emphasized enough that along the Red Sea coast there are many possible routes from the coastal plain to the interior. Even just within the survey area, the Wadi Ambagi, Wadi Quseir al-Qadim, Wadi al-Anz, Wadi Siyatin, Wadi Abu Shiqeili, Wadi Hamrawein, Wadi Abu Hamra, Wadi Mareikha, and the Wadi Quei all provide sufficiently simple access to the interior that the upper reaches of only one, the Wadi al-Anz, are not passable by automobile. Once in the interior, the routes across the Red Sea Hills are more restricted, since only some of the major drainage systems transect them. But once again the possibilities are many. For the port of Quseir and Quseir al-Qadim alone there are at least six possible routes to the Nile Valley in the area of Coptos (Quft) and Kainopolis (Qena; Wilkinson, 1847:398-399). There are other alternative routes to the other ports to the north and south, such as Philoteris, Myos Hormos, Nechesia, and Berenice.

For the Central Eastern Desert area the historical and archaeological emphasis has been placed on the central route (Wadi Hammamat or Darb al-Russafa). This route is actually only the Wadi Hammamat for a short portion of its length; for the remainder it follows the Wadi Abu Kwei, Wadi Abu Ziran or Wadi Russafa, Wadi al-Haramiya, and the Wadi Ambagi. It has been portrayed as the corridor

for trade and migration throughout Egyptian history. Its importance should not be down played, as it is the shortest route between Quseir and the Nile Valley. (Coptos is only 173 km away). However, it is not the shortest from that portion of the Nile Valley to the Red Sea, as the Kainopolis (Qena) to Philoterias (mouth of Wadi Guweisis) route is 22 km shorter than the Coptos (Quft) to Quseir route via the Wadi Hammamat (Murray, 1925:146). It requires only 43 hours (4 days with stops) by camel or 15 hours by dromedary to cross from Quseir to Coptos (Wilkinson, 1835:591, 593). Being "improved" with rest stations and route-marking towers for the ease and safety of its travellers, it may well have been the most used, if other conflicts or rewards did not require the choice of an alternative port, such as Berenice or later Aidab in Roman and Islamic times.

However, even for the routes within the Central Eastern Desert area, there are in addition to the central route at least five other major possibilities from the Nile Valley to Quseir/Quseir al-Qadim (Wilkinson, 1847:398-399; Barron and Hume, 1902:45-60; Klunzinger, 1879:423-427; Burton, 1822-23:I, 126). These five, and related alternatives, are primarily variations on the locations of access and departure from three paired drainage systems, the southern (Wadi Qash-Wadi Hamariya) and the northern (Wadi Hamama--Wadi Saqia), as well as the central (Wadi Hammamat-Wadi Abu Ziran). The three or more variants of the southern route (via the Wadi Kareim and Bir Kareim, via Bir Tarafawi, via the Wadi Haramiya, *inter alia*) all follow the Wadi Ambagi (and the central route) until they separate southward in the vicinity of Bir Beida (QRS-39) after crossing the Gebel Duwi on the southern, Wadi Ambagi, pass (fig. 45). The antiquity of the Beida locality as a crossroads is indicated by the quantity and variety of its rock art. The central route (and its variants, such as those which turn northward beyond Bir Seyala) crosses the Gebel Duwi at the same location but travels virtually directly westward. The northern route, which crosses the survey area from south to north, crosses the Gebel Duwi/Gebel Um Hammad range further north, either through the Wadi Sodmein (fig. 39) or even further north, in the Wadi Saqia itself.

Each of the more than five additional routes has possible subvariations. For example, for the northern route alone there are a number of possibilities even within the short distance of the survey area itself. One alternative runs northward to the east of Gebel Hamrawein (pl. 84), parallel to the Kab Ageb and into the Wadi Saqia where it joins with the Wadi Sodmein. The other, nearly parallel, runs along the Wadi Nakheil and Kab Ageb (fig. 47 & 48), through the Wadi Sodmein pass (fig. 39), and into the Wadi Saqia further to the west. The

use of both is well documented. A third possibility, further east, is the Um Ushra route with its many rock drawings pl. 84. It is equally passable, although its use is not documented and it does not lead toward any known terminus.



Figure 47: Camel tracks to right of modern road just south of Wadi Sodmein and the pass across the Gebel Duwi/Um Hammad range (along far right) on the northern route via Wadi Saqia and Wadi Semna to the Semna gold mines and Mons Claudianus or to Wadi Hamama and the Nile Valley. Dark mountain on left is the granite of Gebel Hamrawein. Its juxtaposition with light colored limestones in front marks a major fault line. Facing south. Kab Ageb.

The eastern route was that followed by both Klunzinger (1879:421) and Barron and Hume (1902:57-58) during their explorations of the region. The use of the most western, Kab Ageb route is also well documented, but by a different type of evidence. It is well marked by multiple, parallel camel tracks (fig. 47) indicating considerable, if undatable, use. As it lies on the direct route from Quseir al-Qadim, via Bir Nakheil, to Semna (which had a Roman station, sweet water, and the gold mines) and then northward to Mons Claudianus, it was certainly in use in Roman times. This is further confirmed by the presence of occasional sherds in the camel track areas, including a small fragment of ?Arretine ware in the Kab Ageb.

Indeed, in the survey area the hills are crisscrossed with possible routes and old footpaths, as there are few impassable barriers to foot travel. The 'logic' of route choice undoubtedly depended primarily on the location of the termini, but certainly a number of other factors would have been important. Even when the termini are evident, varying factors (time, distance, ease of travel, form of locomotion or transport, location of water and supplies, safety, other tasks en route, *inter alia*) can result in choices other than the shortest or the topographically most "logical." Indeed, routes are constrained by only the major topographic barriers. Even the worst of these barriers may present route variations not impossibilities. For example, despite the presence of easy routes across the Gebel Duwi/Um Hammad ridge in the Wadi Sodmein to the north and the Wadi Ambagi to the south, QRS-67 documents the use of a much more arduous "shortcut" across the center of the range. Likewise, the rock drawings on the upper reaches of the Wadi Siyatin indicate use of a similar type of footpath shortcut to Quseir al-Qadim through the Wadi al-Anz (fig. 31).

The distribution of the rock drawings provides another prime example of the difficulties of finding and interpreting routes in such an area. The concentration of drawings in the upper reaches of the Wadi Hamrawein and Wadi Um Ushra are not along the shortest route between any identified termini or sites found on the survey. They raise a very interesting problem when viewed in the light of the fact that such drawings, although restricted to areas of outcropping of the Nubian sandstones, are not equally distributed through all areas of the Nubian Formation. Not a single rock drawing was found along the entire length of the Wadi Quseir al-Qadim. The only plausible explanation for this strange distribution seems to be that the drawings were the production of nomadic tribesmen avoiding the major trade routes, such as the Wadi Quseir al-Qadim, which were controlled (watchposts and towers) by Roman "authority." However, this doesn't explain why there are no drawings on the Wadi Quseir al-Qadim sandstones from other periods, when Quseir al-Qadim was not inhabited and no authority patrolled the wadi. A similar type of question is posed by the Nabatean inscription from QRS-14. While located in a very passable valley, it is not on a direct caravan route between any identified sites.

The problems presented by the many possible route variations and unknown termini prohibit simple conclusions about the route networks and their use, even after intensive survey of the region. During the well-documented Roman period, and undoubtedly at all periods, there was a wide choice of major routes between the Red Sea coast at Quseir or Quseir al-Qadim and the Nile Valley. QRS-67

demonstrates that more arduous shortcuts were employed, dependent on specific termini and other choice factors. The use of such high cost (high energy) shortcuts greatly increases the possible routes and variations in any given area. Moreover, the rock art documents the use of valley corridors for which there are no pinpointed termini. In the light of such considerations it is important not to restrict reconstructions of past activity patterns and trade networks in the Central Eastern Desert to the possibilities provided by only a single corridor, such as the central (Wadi Hammamat) route between the Nile Valley and the Red Sea coast.

Islamic: Despite the documentary information on the area, the functioning of Quseir al-Qadim as the "natural" port of Qus (Garcin, 1976), the undoubted use of the routes to the Nile Valley, and perhaps also some minor exploitation of the mineral wealth, the archaeological evidence for use of the survey area after the close of the Roman era is meager. The Arabic inscriptions from QRS-45B are the only pre-20th century inscriptions found. Beyond the outlying buildings and building stone quarrying areas related to the use of Quseir al-Qadim (QRS-1, 23, 43, 105, 107) there are no habitation sites of definite Islamic date. However, many of the stone circles, stone piles, *inter alia* found during the survey undoubtedly are the remains of this, the most recent period (and thus most likely the best preserved). Most such constructions are undatable, and are more likely to be the remains of nomadic tribal groups such as the Ababda or their ancestors, than evidence of the pilgrims, merchants, soldiers, or miners who frequented the trade routes between the Red Sea and the Nile Valley.

Some stone grave circles (such as QRS-87, 88, 104 -- fig. 48) of considerable but unknown age, still retain ritual functions. Their orientation indicates Muslim practice and local tradition ascribes them to the Ababda and consider them to be over 100 years old. In addition to the small (about 3 by 3.5 m) open oval of stones outlining the grave itself, the surrounding areas comprise a nondelineated complex including stone filled fire and blood collection pits related to animal sacrifice which is still celebrated on Muslim feast days. In addition to the marking of the grave circle by cloth "flags," the stone circles usually contain ceramic water jars, incense burners (small natural "vessels" of the Nubian sandstone), lidded tin cans, glass bottles, and at one, a small metal teapot. These variously contain water, tobacco, incense, and a few piasters change. Other stone circles, also probably graves, such as the vertical stone arrangement at QRS-34, would indicate considerably greater age (by amount of weathering and destruction) but show close similarity in size and construction

with the (?modern) grave of a Bisharin *weli* in the Wadi Osir Eirab (Murray, 1927: pl. II, 2), or the vertical stones outlining the area in front of the building containing the grave at the Tomb of Abdul 'Al (QRS-45C). This latter building is probably also not of any great age. Behind the site of Quseir al-Qadim a small (2.1 x 2.45 m ) hilltop prayer area (*zawya*) outlined by a single line of cobbles and associated with several stone circles and six pits, probably graves (QRS-115), undoubtedly indicates an Islamic, if not modern use. A substantial portion of the rock drawings may date to the time since the Islamic conquest, if the traditional criteria for dating this material be accepted (Winkler, 1938: I & II).

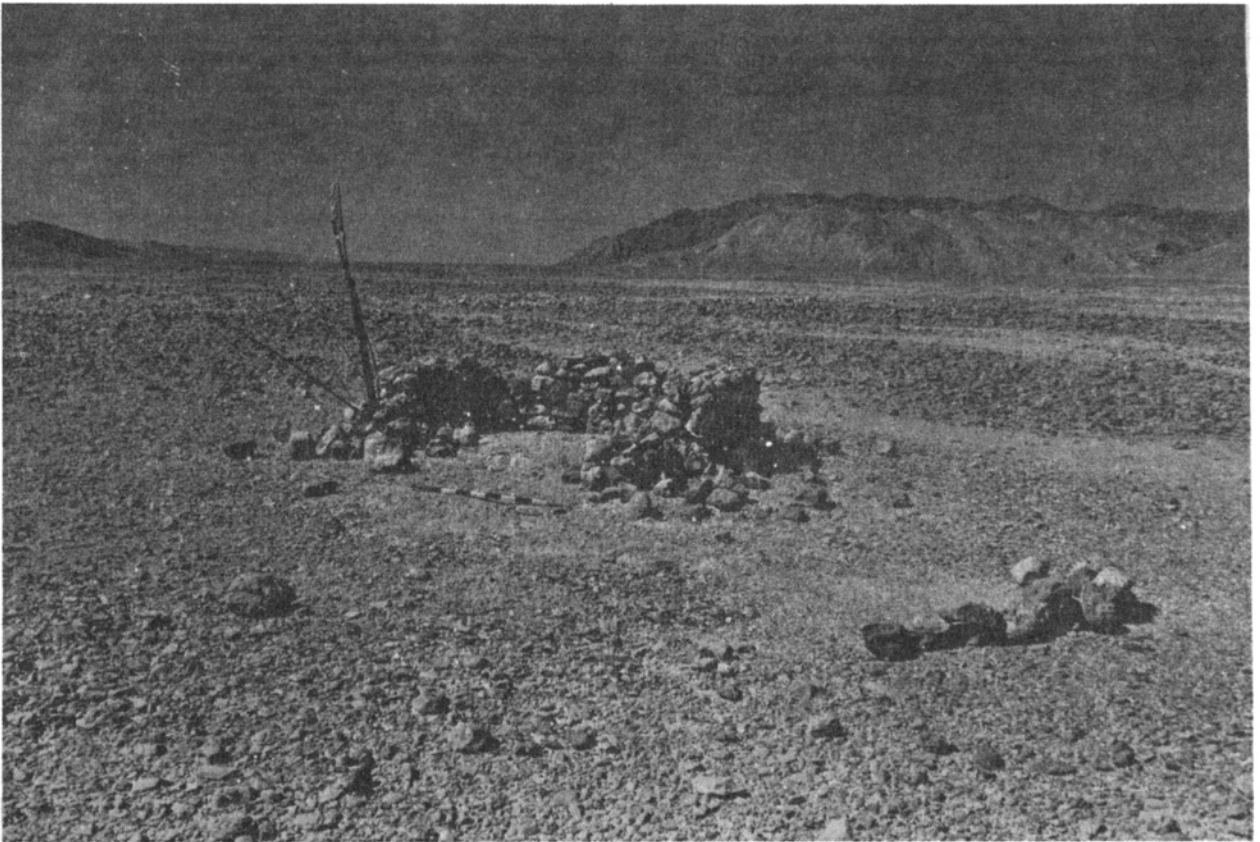


Figure 48: Built-up open boulder grave circle and surrounding ritual area. Grave of Sheikh Abu Rayaat, QRS-87, Wadi Nakheil. Facing north. Note that contents include cloth "flags," water jar, and incense burner. Gebel Um Hammad ridge along left and dark granites of Gebel Hamrawein faced with light limestones along the fault line on right. Islamic/?submodern, considered to be over 100 or 200 years old. Scale is 1 m.

Other than the evidence of the graves and rock drawings and the documentary knowledge that the routes (and thus the wells) were in use, the archaeological evidence is enigmatic after the end of the Late Roman period. The information for the more recent past is equally sparse. Other than the recent inscriptions

at QRS-14a, 15, and 38, the archaeological evidence that the routes to the Nile Valley were used even after the beginnings of the travels by Europeans comes only from the major stopping places on the central, Wadi Hammamat route and at Bir Nakheil, and includes graffiti from QRS-39a (Weigall 1909:70), pipes from QRS-18 (88:j) 42 and 39a, as well as a sherd of English export stoneware and the pictograph of a European-style ship from the latter locality. The other evidence of modern use was restricted to the improvement and asphaltting of the main routes; the concrete reinforcement of the wells and associated water troughs; the construction of numerous phosphate mining camps and narrow gauge railways, military installations and checkpoints; and the bulldozing of part of the *praesidium* at QRS-16.

The sparsity of the Islamic and modern remains outside the port sites and the major 20th century mining establishments would indicate that little datable archaeological material is not synonymous with nonuse. This must be borne in mind when considering the long chronological range from the Neolithic until the Roman, from which there is virtually no data. It is hoped that more information on these important periods will be found with the expansion of the survey area in future seasons.

Rock Art: Pictographs and inscriptions were observed at 44 localities, which involved 111 rock outcrops or associated freestanding boulders. Except for a passing comment by Weigall (1909:70) concerning a boulder at Bir Beida (QRS-39a), none appear to have been previously reported.

All occurrences were restricted to outcrops or boulders of the Nubian Formation sandstones, despite considerable effort to disprove the rigidity of the association. No pictographs were found in areas of limestones, even when occurring in similar types of locations -- large boulders with suitable shade and associated with well-used routes. The localities were mostly situated along the edges of wadis (fig. 49). Most drawings were incised or pecked onto free-standing boulders on the scree of the outcrop, rather than on the bedrock itself. Although many of the boulders or their associated outcrops were large enough to provide shadow during some portion of the day, many other boulders were too small or too low to provide shade. Some were even on small, easily moveable rocks (fig. 50). Despite the lack of shadow at some localities, it would appear most likely that the drawings were associated with resting or camping places along well-frequented routes. The variety of styles frequently displayed at a single locality would also support this interpretation of long use as stopping



places along routes. None were associated with modern or ancient evidence of springs, perhaps because none of the three spring areas identified (pl. 79) occurred in Nubian standstone areas.



Figure 49: Pictographs. Typical large boulder providing shade. Drawings include fighting men, mounted soldiers, ibex, antithetical lions with central standard, tribe signs (*Wusum*), and other marks. Both pecked and scratched techniques, mostly stick-figure representation. QRS-66b#3, Wadi Um Ushra. Scale is 1 m.

The pictographs rarely occurred singly, and in at least two such localities (QRS-11 & 108) their individual occurrence probably results from the destruction of other drawings by more recent quarrying. The mean number of boulders or outcrops in a single locality was three. As the survey method included a more intensive search in the vicinity of any single discovery, the data may have been

slightly skewed toward localities with several occurrences. Whatever the precise factors controlling the choice of localities for pictographs, many apparently

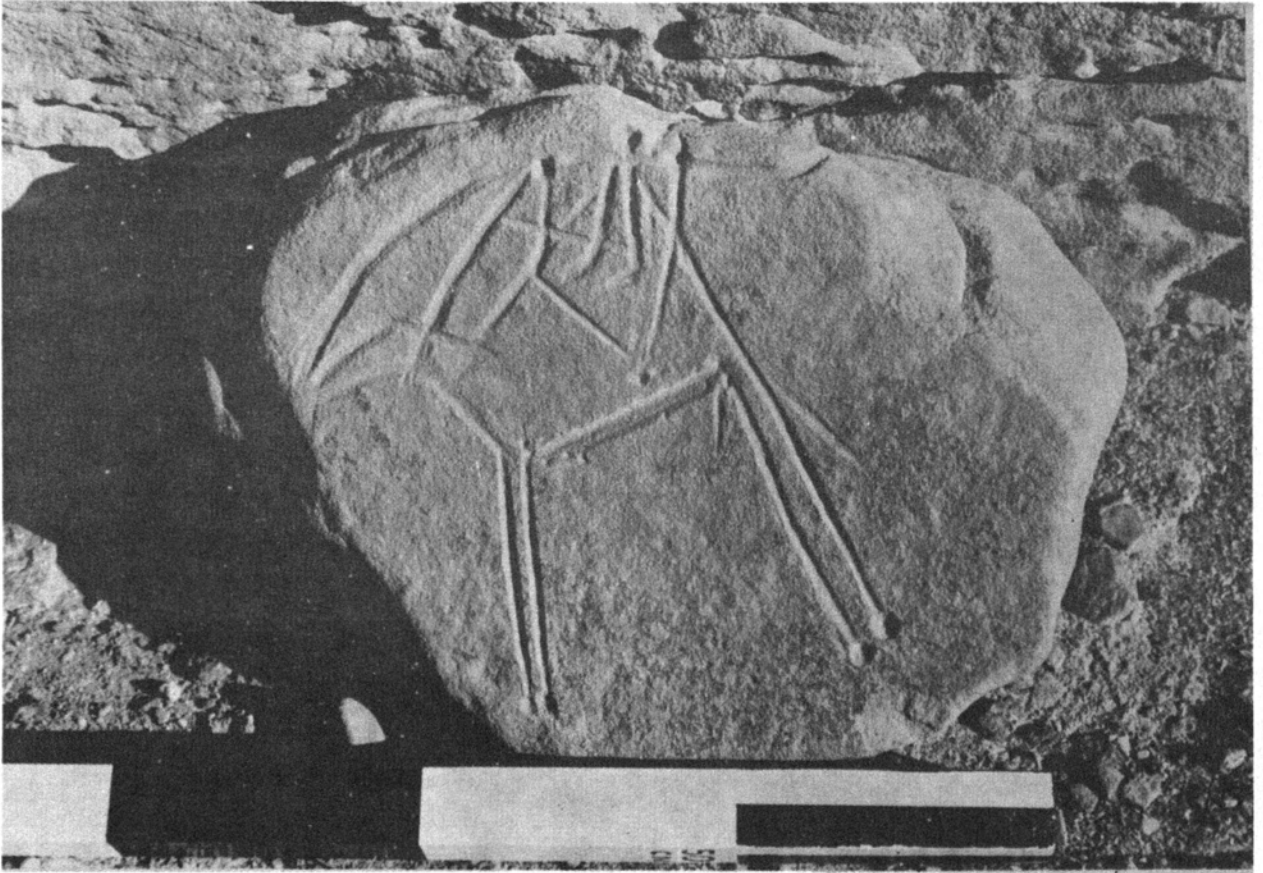


Figure 50: Pictograph. Hunting scene. Ibex or oryx with ?two spear-wielding hunters. Incised, squared, stick-figure style with drilled hands, feet, and heads. On a "portable" boulder. QRS-71, Wadi Hamrawein. Scale interval is 10 cm.

equally good localities on the same routes, with similarly large or remarkable boulders providing equal or even better shade, were devoid of any carvings. Furthermore, not a single pictograph or inscription was located in the entire area of Nubian standstones outcropping in the Wadi Quseir al-Qadim.

A wide variety of artistic styles and techniques of production were present. Pecking or hammering, deep incision, light scratching, and drilling were all employed. Although in some places all the drawings on an individual boulder were restricted to a single style and technique (fig. 51), generally the boulders showed mixed techniques (fig. 52). Examples combining pecked and incised techniques in a single drawing were not infrequent (fig. 53).

The style of the drawings varied considerably with both outlined and stick-figure forms. The outlined bodies were frequently infilled, or some only

partially so. A variety of stick-figure styles occurred, including highly abstract forms displaying an energetic line (fig. 51, 52, upper right) and a



Figure 51: Pictographs. ?Horses and riders. Abstract, incised stick-figure style. QRS-15b#2, Wadi Um Ushra. Most figures c. 15-25 cm long.

more squared, static abstraction (fig. 50). Much more diffused, more crudely executed stick figures occurred among the pecked designs (fig. 54). The distinction between the linear stick figure and outline portrayal of body mass was probably not always an essential categorization in the artist's mind, since some scenes combined both types of figure (fig. 54). Other scenes showed more abstract, energetic, outlined forms together with more static ones, and other figures are even infilled (fig. 55). The difference in effect between these two nearly identical hunting scenes is remarkable (fig. 54 & 55, ibex chased by dogs). Figures in the thinly scratched style (fig. 53 central ?horseman) are generally more sloppily executed.

The content, too, was varied, although restricted to terrestrial creatures. Neither marine fauna nor birds (other than ostriches -- fig. 56) were found.



Animals were more abundant than human figures. The most common animals were related to domestic species, camels, horses, and cattle. Other domestic animals,

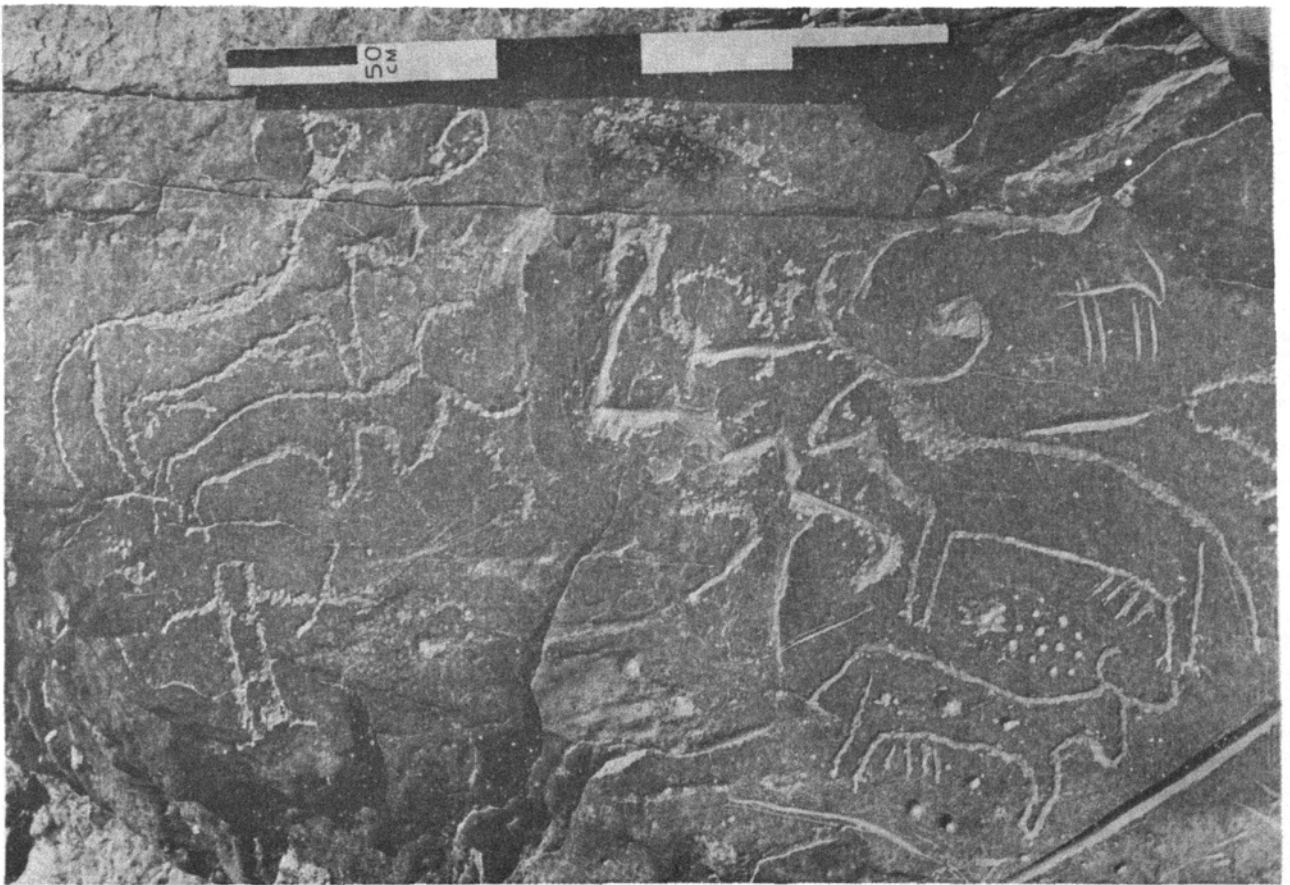


Figure 52: Pictographs. Hunting and fertility (copulation) scene. Long-horned cattle, perhaps with bent horns, and hunter with bow and arrow. Pecked outline; incised gazelle on upper right in abstract stick figure style. QRS-68a#2, Wadi Hamrawein. Scale is 50 cm.

including dogs and possibly asses, were also found. The dogs, apparently used for both hunting and herding, occurred in scenes with both wild and domestic animals. The only wild species in abundance were a variety of long-horned antelope, including the most common, gazelle, and perhaps a few oryx. There were occasional occurrences of unreal, composite beasts (fig. 56) and a number of wild species, including ostrich (fig. 56), ?hyena or fox, ?elephant, crocodile, and lion (fig. 49). Wavey line symbols may depict snakes, although they may be magical symbols (Winkler, 1939:32). No astronomical indications or plants were recognized. The only evidence of any maritime activity for the whole area (never over 30 km from the sea) was a single post-15th century, European-style, 3-masted square-rigged boat from QRS-39A.

The human figures were much less abundant than the animals. They were most frequently single, often armed, frequently mounted on horse or camel, and sometimes engaged in activities involving animals, such as hunting. Multiple-figure

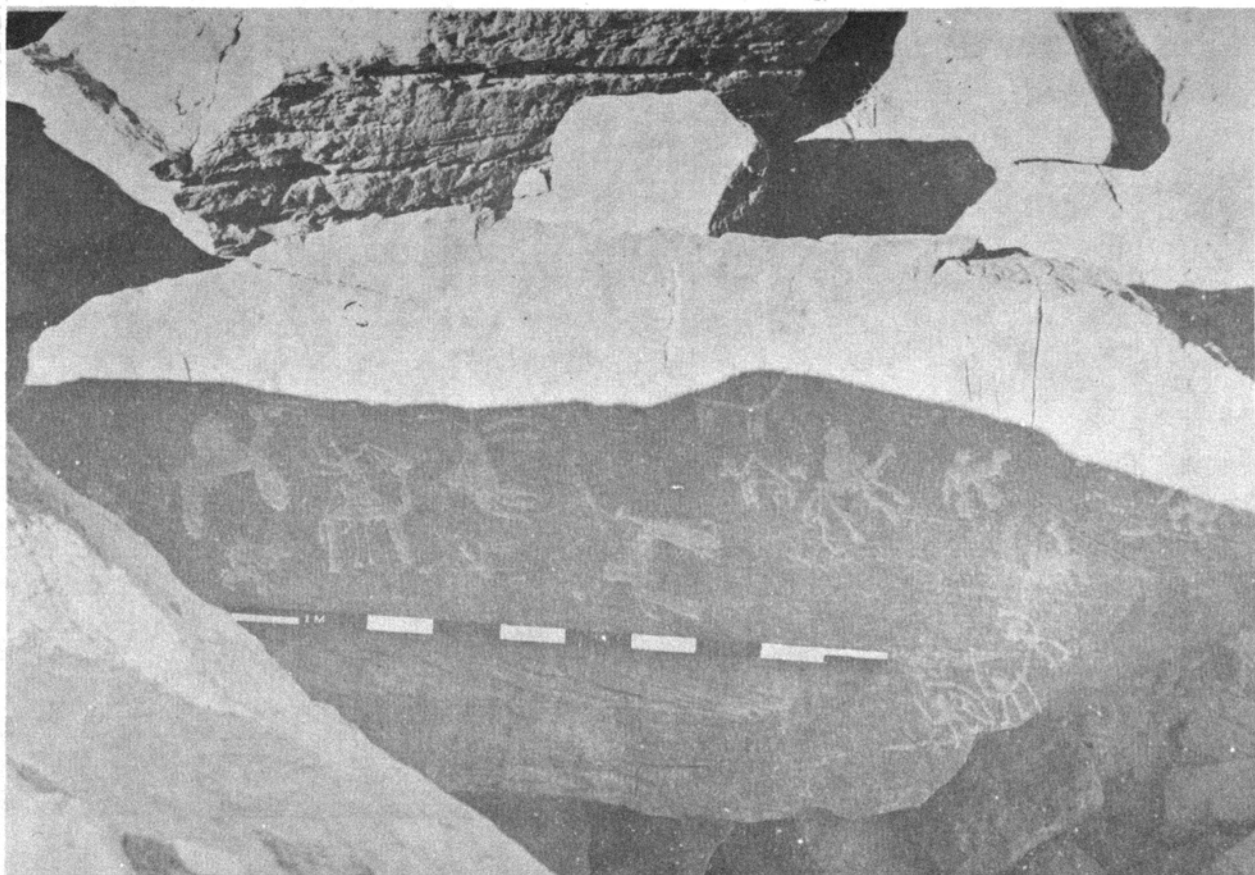


Figure 53: Pictographs. Camel scene including mothers with young, riders, and warriors. Also a group of fighting men. Mostly pecked, outlined and infilled; some scratch-incised stick figures center top; weapons, reins, and legs of pecked, camel-back warrior on left also incised; pecked stick figures on lower right. QRS-66b#4, Wadi Um Ushra. Scale is 1 m.

human groups were generally engaged in fighting activities, either in antithetical pairs or in groups of three, but rarely more (fig. 49 & 53). Their weapons included straight and curved swords, spears, bow and arrow, and round and rectangular shields. Hunting groups also occurred occasionally (fig. 50, 52).

The anatomical detail was generally highly abbreviated and always stylized. The human figures generally lacked all indication of dress or even most physical features. There was, however, an intriguing accentuation of feet. These were often shown as rounded drill holes on the squared, linear, incised figures, and as elongated blobs, more often on the pecked figures (fig. 53 & 56). Frequently, nearby figures remained footless. There were no indications of sex, other than

those implicated by activities (hunting and fighting generally assumed to be male roles). No women have been identified with certainty. In contrast, animals

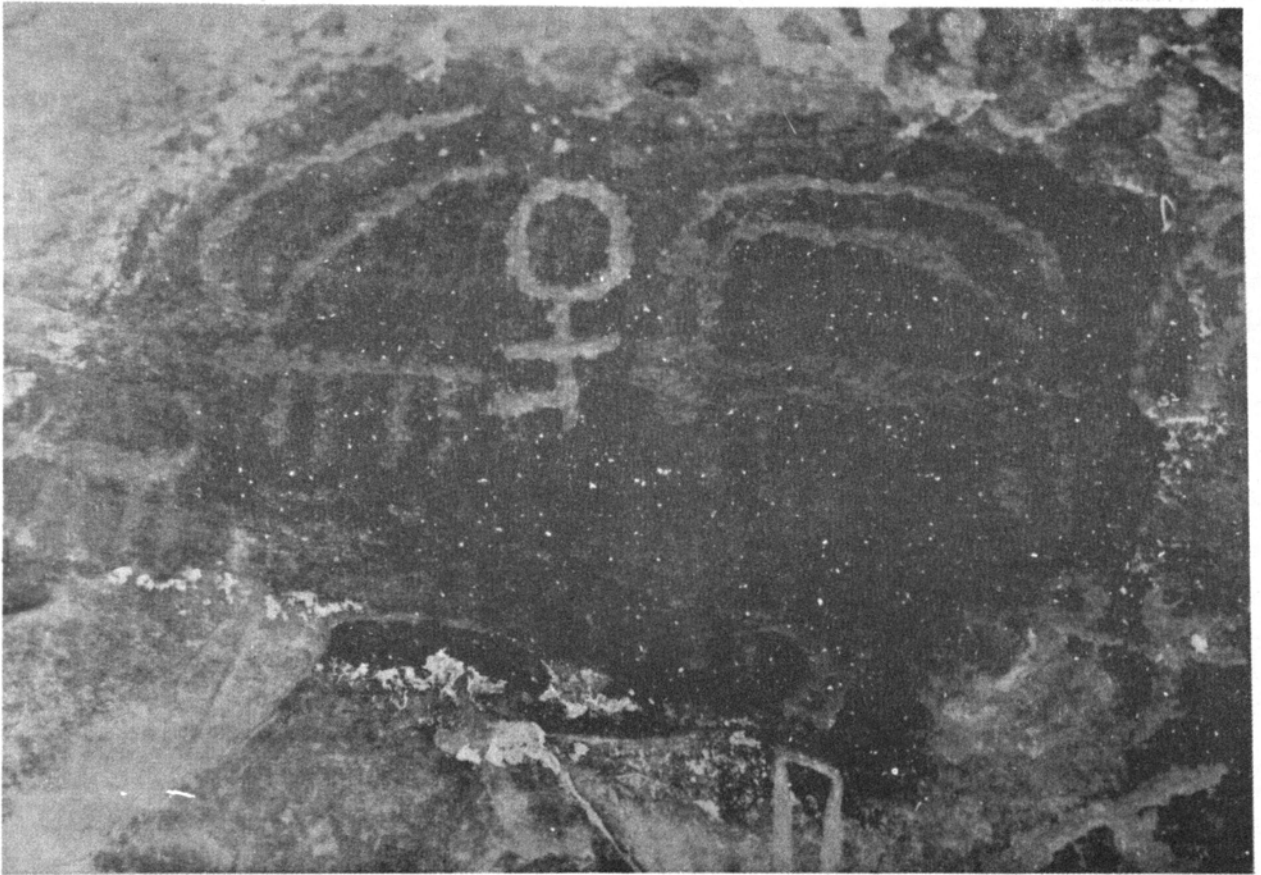


Figure 54: Pictographs. Hunting scene. Two ibex and two dogs. More recent tribe sign (*wasm*) in center. Pecked, mostly stick figure. QRS-14#1e, Wadi Abu Shiqeili. Right ibex is ca 15 cm. long.

are occasionally depicted with sexual attributes, and some scenes are fertility related (copulation, fig. 52; mothers with young, fig. 53).

Many square and other complex geometric patterns were observed (fig. 57). These were more often incised than pecked. Nomadic tribal identification signs (*wusum*, fig. 54) were frequent.

Inscriptions were found on a number of sites. The only pre-Islamic one, Nabatean, from QRS-14#4, is reported by Hammond in this volume. Three Arabic inscriptions were found on the outcrops of QRS-45b. One was dated 755 A.H. (Whitcomb, this volume) while the other two were undated but probably not modern. A number of modern Arabic graffiti were found. Those with dates had been left within the past 20 years. Two scratched English graffiti from QRS-15a & c read "impeach Nixon," and thus probably date from late 1973 or early 1974. Several



of the modern Arabic inscriptions had been painted rather than cut.. These were the only instances of such a technique, and figurative painting, such as occurs at Gebel Uweinat in the Western Desert (Van Noten, 1978), was never observed.



Figure 55: Pictographs. Hunting scene. Two ibex and dog. Pecked outlines and some infilling. QRS-39a, Wadi Ambagi. Upper ibex is ca 20 cm long.

Because of their locations, no inscriptions provided direct dating of associated drawings. Dating by other methods (superposition, production technique, weathering, style, and content) are all fraught with difficulties. Examples of superposition are extremely rare, usually only camels or tribe signs over earlier work. Production methods are limited, and other than the drilling, appear to crosscut various drawing styles. As they are not chronologically restricted, production techniques will probably hold little dating significance. Although weathering can be a helpful indicator of relative date, the variability in the consolidation of the Nubian sandstone produces considerable local variation in weathering. Thus it must be employed with caution, especially when comparing different localities.

Several distinctive drawing styles were identified. Many of these show close similarity with other rock drawings of the Eastern Desert (Winkler, 1938; Hume, 1937:907-908; Murray and Myers, 1933) as well as some parallels with more distant work (Winkler, 1939; Van Noten, 1979; Anati, 1968). Further study will

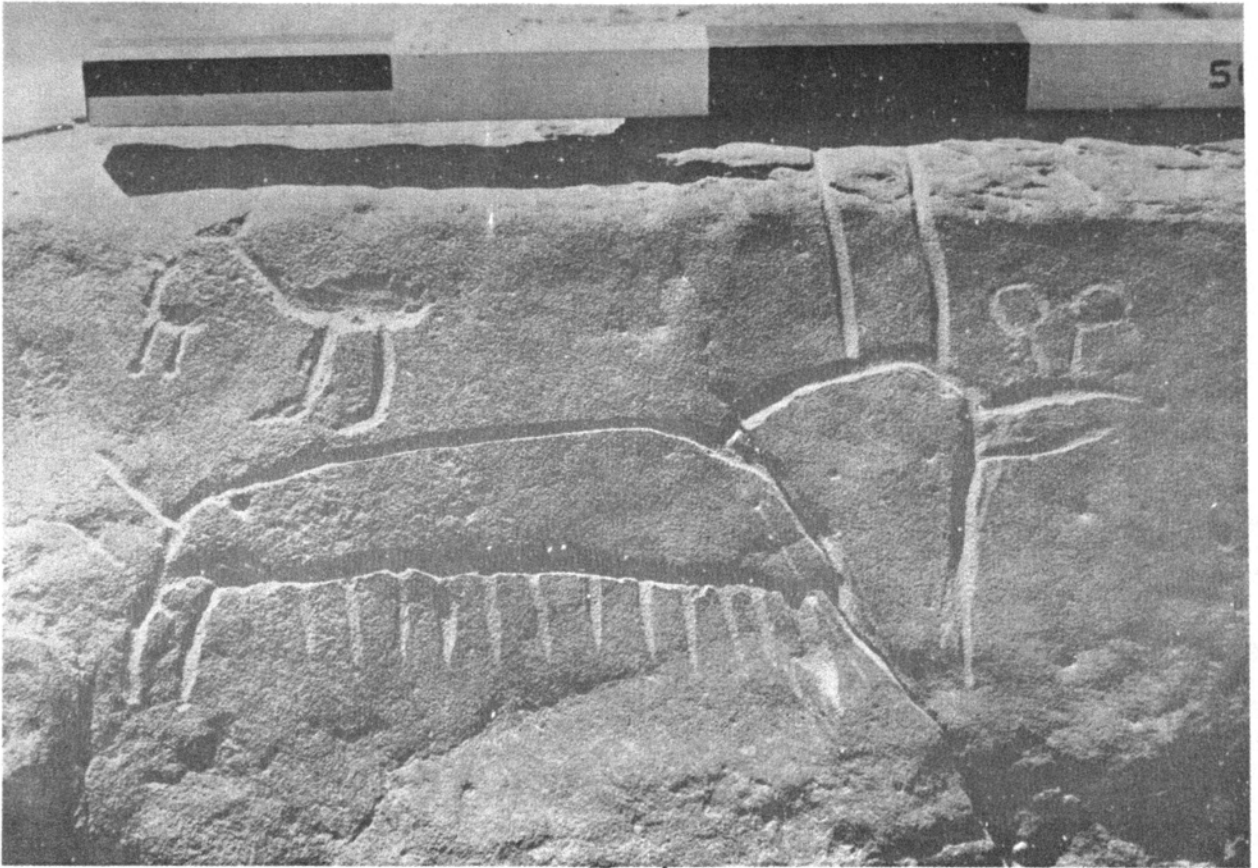


Figure 56: Pictographs. Two ostriches, pecked and infilled, with incised legs (and drilled feet) and composite horned beast, incised outline. QRS-68a#2, Wadi Hamrawein. Scale interval is 10 cm.

undoubtedly provide considerable information on date and group attributions. Likewise, study of the content will produce ethnographic as well as chronological data. Some of the species depicted (e.g., long-horned cattle, camels) have chronological value. It is expected that continuing study using both interval and the comparative dating techniques will provide dates for a portion of the rock drawings. However, as most localities show a mixture of techniques and artistic styles (and thus probably of date), this may not yield much information on diachronic changes in the routes or the exploitation patterns of the region.

#### APPENDIX = SITE LIST

This appendix presents only the briefest description of all sites found



during the 1978 survey season. In order to obtain the detailed data necessary for the study of the economic exploitation of the hinterland of the port at Quseir

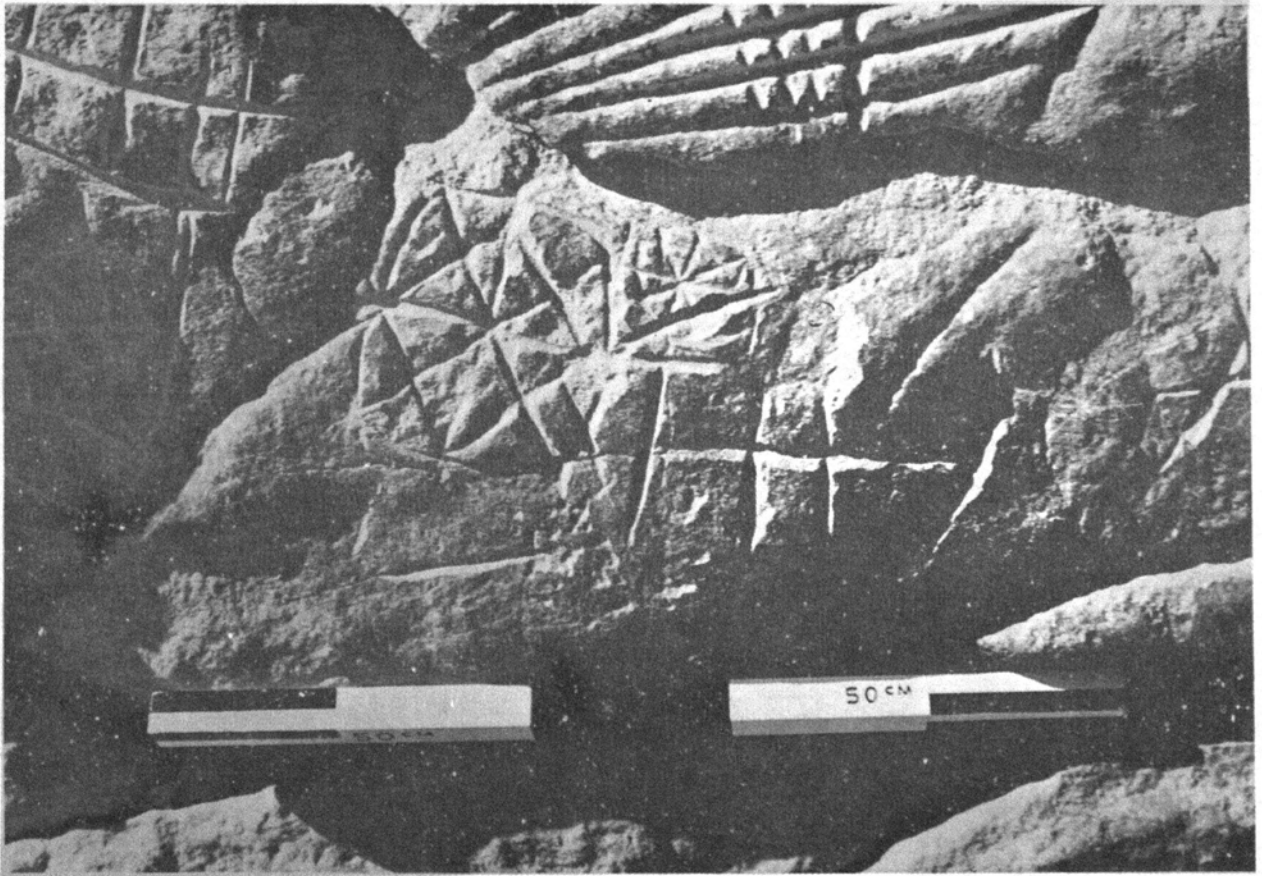


Figure 57: Pictographs. Incised geometric motifs. QRS-76#4, Wadi Um Ushra. Scale is 50 cm.

al-Qadim, any and all indications of human activity or nonnatural alterations of the environment were recorded as "site." Thus, the 120 sites presented here represent not only habitation areas (relatively rare), but also many indications of other human activities. Considerable additional data have been gathered, and fuller descriptions and plans will be presented in future publication.

The site numbering is approximately the chronological order in which the sites were first located. The change of site number versus the subdivision of the same site into A, B, C, localities was dependent on the locational discontinuity and the dissimilarity of site attributes.

Locations are by map designations on the Survey of Egypt, 1:100,000 Qena-Quseir Road Series. Consult plate 78 for precise map locations. Locations in parentheses are the place names used in current Ababda terminology when different.

It should be noted that these terms appear at times to be more closely related to a geographical area than to the specific geomorphological feature, such as an individual wadi or mountain. Thus, for example, three distinct wadis on the Survey of Egypt map (Wadi al-Anz, Wadi Abu Shiqeili, and a third, unnamed wadi, are all currently called Wadi Abu Unis. In other instances, the reverse appears to be the case, and the same limited drainage system can change name several times in the course of only a few kilometers. For example, the map Wadi Hamrawein includes segments called Wadi Abu Adla, Wadi Abu Ghalga (also applied to part of map Wadi Um Ushra), Wadi Abu Hamra (the coastal portion designated Wadi Hamrawein on the map), and Wadi Hamrawein. Furthermore, names appear to be continuously shifting with local changes. For example, map Gebel Hamrawein is now called Gebel Nakheil, perhaps because of the location of the modern phosphate mine and village designated by that name. The comparison of the location designations recorded by Klunzinger (1879, pl. VII) with those of Barron and Hume (1902) and the more recent Survey of Egypt publications re-emphasizes these terminological inconsistencies and the pitfalls they may present to the unwary field worker.

Sites were located by compass triangulation using the same 1:100,000 map series as for the place identifications. All sizes are presented in hectares. The original field measurements were varyingly taped, paced, estimated (rarely), calculated from plans based on plane-tableing or compass triangulation, or measured by odometer. Height was measured by tape or Abney level. Most localities were recorded photographically. An Ababda tribesman resident in the area was employed as guide. He had extremely accurate information on wells, mines, vegetation, and other aspects of the landscape over an area considerably beyond the survey area. However, many aspects of the past human use of the region -- the ruins, graves, and other clusters of stones, localities of pictographs, and lithic sites were not within his general knowledge.

An \* indicates that the presence (not always a description) of the site has been mentioned in the literature. These include: QRS-6 (Burton, 1822-23; Klunzinger, 1879:428); QRS-12 (Klunzinger, 1879:410, 423; Barron and Hume, 1902: 61-62, 252); QRS-16 (Barron and Hume, 1902:57; Murray, 1925:149); QRS-16e (Wilkinson, 1831-32:57-58; Klunzinger, 1879:408; Barron and Hume, 1902:57, 252-255; Murray, 1925:149); QRS-18 (Barron and Hume, 1902:57; Murray, 1925:149); QRS-39a (Weigall, 1909:70); QRS-39c (Burton, 1822-23:147, 156; Wilkinson, 1847:398; Klunzinger, 1879:406; Barron and Hume, 1902:55, 252; Weigall, 1909:69-70);

QRS-41A (Burton, 1822-23:147, 156; Wilkinson, 1847:398; Klunzinger, 1879:406; Barron and Hume, 1902, 55-56; Weigall, 1909:70-71); QRS-46c (Weigall, 1909:69; Green, 1909:320; Murray, 1925:145-146); QRS-51 n & s (Ferrar, 1913; Hume, 1937:695-697; maps of Murray, 1925, pl. XI and Said, 1962, fig. 45); QRS-84a (Weigall, 1909:60-61, 8 ); QRS-84b (Weigall, 1909:75); QRS-84c (Klunzinger, 1878b:271, 273; Weigall, 1909:79-80, pl. XIV); and one of QRS-19, QRS-49, or QRS-99b (Murray, 1925:149). Only two of the route-marking cairns found during the survey (QRS-45A and 95) were recorded on the Survey of Egypt maps. Two additional towers, shown on these maps along the westward extension of the survey area between Bir Beida (QRS-39) and Wekalet Iteima (QRS-46), were noted but not visited. As caves are rare in the Eastern Desert, QRS-44 may be the one mentioned by Sterns (1917:79).

The Nabatean inscription of QRS-14 #4 is published by Hammond, this volume, as is one of the three Arabic inscriptions of QRS-45b (from 45b #1), by Whitcomb, also in this volume. The presence of the mine at QRS-20 and the pictographs of QRS-39a were kindly pointed out by Dr. el-Zeiny, who had previously visited both localities.

The criteria used for site dating are the following:

- |                           |   |
|---------------------------|---|
| A. Ceramics               | E. Association or Proximity               |
| B. Lithics                | F. Other Artifacts                        |
| C. Rock Drawings          | G. Coins                                  |
| 1) Content                | H. Glass                                  |
| 2) Style                  | I. Oral Reports                           |
| 3) Inscription            | J. Weathering/Destruction (or lack of it) |
| D. Architecture           | K. Bones                                  |
| 1) Form                   |   |
| 2) Construction Technique |   |
| 3) Function               |   |

<u>QRS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
1	Square Stone Building	Coast, North	(ha) .00078	undatable; probably Roman or Islamic	E
2a	Shell and Stone Open Square	Coast, North	.00025	undatable	--
2b	Shell and Stone Scatter	Coast, North	.00077	undatable	--
2c	Shell and Stone Scatter	Coast, North	?	undatable	--
2d	Shell and Stone Scatter	Coast, North	?	undatable	--
2e-1	Shell and Stone Scatter	Coast, North	.0015	undatable	--
2e-2	Open Square of Cobbles	Coast, North	.0001	undatable	--
2f	Low Pile, Shell & Stone	Coast, North	.0045	undatable	--

<u>QRS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
2g	Shell and Stone Scatter	Coast, North	.0025	undatable	--
2h	Shell and Stone Scatter	Coast, North	.00023	undatable	--
3a	Shell and Stone Scatter	Coast, North	.0026	undatable	--
3b	Shell and Stone Scatter	Coast, North	.0006	undatable	--
3c	Shell and Stone Scatter	Coast, North	.002	undatable	--
4a	Shell Scatter	Coast, North	.0006	(?) modern	A, E, F
4b	Windbreak/Shelter Camp	Coast, North	.0036	modern	A, F
5	Ridge top with Structures including Stone Route Cairn	Coast, North	.031 .0028	Roman	A, D1, E
6*	Stone Watch Post (Qasr Hadie)	Coast, North	.037	Roman	A
6a	Sherd Scatter--Washed	Coast, North	.0032	Roman	A
7	Ridge Top Hole	Coast, North	.0006	undatable (?) Roman	E
8	Open Boulder Square	Coast, North	.00024	Roman	A
9	Lithic Scatter	Wadi al-Anz (Wadi Abu Unis)	.23	middle Palae- olithic	B
10	Rare Lithic Scatter	Wadi al-Anz (Wadi Abu Unis)	--	possible Palaeolithic	?B
11	pictograph -- 1 Boulder	Wadi al-Anz (Wadi Abu Unis)	--	undated -- ?middle Palaeolithic	E
12a*	Recent Bir-water at 8.80 m. - salt	Wadi Quei	.024	modern	D1, D2
12b*	Older Bir & camp water at 3.40 m - salt	Wadi Quei	.01	submodern; possible Palaeolithic	D1, D2, F, ?B
13	Lithic Scatter	Wadi al-Anz (Wadi Abu Unis)	.18	middle Palaeolithic	B
14	Pictographs & Inscription 4 boulders	Wadi Abu Shi- qeili (Wadi Abu Unis)	--	Nabatean & undated	C3
14a	Inscriptions & Pictographs 1 boulder	Wadi Abu Shi- qeili (Wadi Abu Unis)	--	modern - 1967	C3, C1
15a	Pictographs & Inscription & Cup holes (?) 10 boulders	Wadi Um Ushra -- (Wadi Abu Ghalga-S)	--	undated, including modern	C1, C3
15b	Pictographs - 4 boulders	Wadi Um Ushra -- (Wadi Abu Ghalga-S)	--	undated	--
15c	Pictographs & Inscription 3 or 4 boulders	Wadi Um Ushra -- (Wadi Abu Ghalga-S)	--	undated, including modern	C1, C3
16*	Praesidium & Walled Garden water at 4.20 m brackish	Wadi Nakheil	1.08	Roman & sub- modern (Italian)	A,G,D1,D2,H, I, B
16a	Stone Buildings-2	Wadi Nakheil	.28	Italian (modern)	D2, E, I

<u>QRS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
16b	Building Foundations N-6	Wadi Nakheil	? .04	Roman	A, B
16c	Building Foundation & Boulder Piles-W, over 15; and Lithic Scatter	Wadi Nakheil	?1.18	?Roman & modern (?Italian), ?other Middle Palaeolithic	E, F, I B
16d	Lithic Scatter (spring area)	Wadi Nakheil	? .18	middle Palaeolithic	B
16e*	Bir & Camp area water at 1.42 m brackish	Wadi Nakheil	.098	modern	F. B
17	Stone Building Foundations 17; & Lithic Scatter - ?camp	Wadi Nakheil	.28 .16	Roman, ?other late Palaeolithic	A B
17a	Boulder Piles "Cairns"-3	Wadi Nakheil	.015	undatable-?modern	I
17b	Boulder Wall/Dam	Wadi Nakheil	.0019	undatable - ?not modern	I
17e	Lithic Scatter -?camp (spring area)	Wadi Nakheil	.0032	middle Palaeolithic	B
18*	Stone Building Foundations-- 187 structures in 9 complexes, 18A to 18I; & Lithic Scatter, ? camp	Wadi Nakheil	ca6.3 over .5	late Roman, middle Palaeolithic	A B
18j	Stone Building Foundations-1	Wadi Nakheil	.0013	late Roman	E
18k	Manganese Quarrying Area (Manganex Oxide - ?Pyro-lucite	Wadi Nakheil Gebel Nakheil	.0015?	lower Eocene- Thebes Formation; use ?late Roman ?submodern	A, J
19*	Boulder Cairns/Graves-58	Wadi Nakheil	2.71	?Roman	A, E, D1?
19a	Boulder Circles? Buildings -11	Wadi Nakheil	.0086	?Roman	A, E
20	Collapsed (?) Gold Mine	Gebel Hamrawein over (Gebel Nakheil)	over .06	undatable? Roman; reportedly had an inscription before collapse	E, I
21	Stone Cairns-?Graves-3	Wadi Nakheil	.0066	Roman	A
22	Sherd Scatter ?Camp	Wadi Quseir al-Qadim	.004	submodern (early 20th century)	A, I
23	Stone Building & Stone Piles-13	Wadi Quseir al-Qadim	.014	Mamelūk &/or modern	A
24	Stone Building Foundation	Coast, South	.014	Roman, ?other	A, H
25	Series of Holes-5	Coast, North	.002	undatable	--

<u>ORS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
26a	Dense Sherd Scatter & Stone Circle (Watchpost)	Wadi Nakheil/ Wadi Quseir al-Qadim Pass	.88	Roman, ?other	A, F
26b	Dense Sherd Scatter (Watchpost)	Wadi Nakheil Wadi Quseir al-Qadim Pass	1.08	Roman, ?other	A
26c Base	Sherd Scatter	Wadi Nakheil/ Wadi Quseir al-Qadim Pass	.0012	?Roman	A
26d Base	Sherd Scatter	Wadi Nakheil /Wadi Quseir al-Qadim Pass	.0006	Roman, ?other	A
26e	Stone Circle & Route Marker	Wadi Nakheil/ Wadi Quseir al-Qadim Pass	.0004	Roman, ?other	A
27	Camp Area	Wadi Nakheil	.17	modern	I, J
28	Settlement, ?Mounded or on erosional remnant	Wadi Nakheil	.55	Roman, ?other	A
29	Wall Line	Wadi Nakheil	.032	Roman, ?other	A, F
30a	Mine - Shaft type	Wadi Atshan	.00008	basement com- plex, use undatable	--
30b	House Pit Foundations or Gravel diggings-10	Wadi Atshan	.017	undatable	--
31a	House Pit Foundations or Gravel diggings-8	Wadi Atshan	.018	undatable	--
31b	House Pit Foundations or Gravel Diggings-?6	Wadi Atshan	? .0054	undatable	--
32	Boulder Route Cairn(S)	Wadi Nakheil	.0036	Roman	A
33	Boulder Route Cairn(N)	Wadi Nakheil	.0056	Roman, ?other	A
34	Vertical Stone Rectangle 2	Wadi Quseir al-Qadim	.0012	undatable	--
35	Pigment Quarrying Area	Wadi Quseir al-Qadim	.03	upper Creta- ceous-Nubia Formation; use indeterminate	--
36	Stone Circle - Grave with inscription (Sheikh Abdul Karim)	Wadi Um Ushra (Wadi Abu Ghalga -S)	.00058	submodern-1919	C3
37	Bir 22, water at 11.70 m salt	Wadi al-Anz (Wadi Abu Unis)	.0009	submodern	I
38	Pictographs & Inscriptions 1 outcrop	Wadi Um Ushra -- (Wadi Abu Ghalga -S)	--	modern - 1964	C2, C3

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<u>QRS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
39a*	Pictographs - 1 outcrop 3 boulders	Wadi Ambagi	--	undated, including "Pre-dynastic" + post 16th century; ceramics ?Roman & submodern	C1, C2, A
39b	Stone Pile ?Building ?Grave	Wadi Ambagi	.0013	undated - ?submodern	A, E
39c-1	Bir Beida - water at 4.85 m brackish	Wadi Ambagi	.002	modern and submodern	D2, G
39c-2*	Bir Beida - filled	Wadi Ambagi	.00038	submodern	E, J
39d	Stone Circles-Graves	Wadi Ambagi	? .0015	submodern	I
40	Stone Route Cairn/Tower	Wadi Ambagi	.0012	Roman	D1
40a	Bir - Dry at 13.35 m	Wadi Ambagi	.0025	modern	J
40b	Rock Shelter	Wadi Ambagi	? .0006	modern; earlier use indeterminate	E
41a*	Bir Ambagi (spring) water at 30 cm below road - salt	Wadi Ambagi	.00064	modern	D1, D2, F
41b	Camp Area	Wadi Ambagi	1.0	modern, ?Islamic, ?middle Palaeolithic, ?other	A, B.
42	Stone Route Cairn	Wadi Ambagi	.0054	Roman; 18th-19th century	A
42a	Stone Circle	Wadi Ambagi	.00058	undatable - Roman or later	E
43	Building Stone Quarry Area	Coast, North	over 54.0	middle Miocene Gypsum Formation, use undatable ?Roman, ?Mamelūk & modern	E
44*	Cave	Wadi Sodmein, Pass through Gebel Um Ham- mad	.14 .06	lower Eocene- middle & late Palaeolithic ?Protodynastic	A, B
44a	Sherd Scatter	(Gebel Abu Hammad) Wadi Sodmein	.0006	?Protodynastic	A
45a*	Stone Route Cairn/Tower	Wadi el Sheikh	.0001	Roman	D1, E
45b	Pictographs & Inscriptions 3 outcrops, 1 boulder	Wadi el Sheikh	--	Islamic (755 A.H.), Roman & late Roman, ?other	A, C3, J, E

<u>ORS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
45c	Stone Building - Tomb of Sheikh Abdul 'Al	Wadi el Sheikh	?0046	submodern/ ?Islamic	D1, D3
46a	Stone Route Cairn/Tower.	Wadi Haramiya	.001	Roman	A
46b	Mound or erosional remnant	Wadi Haramiya	.074	Roman	A, E
46c*	<i>Praesidium</i> (Wekalet Iteima)	Wadi Haramiya	?5	Roman, ?other	A, D1
46d	Stone Building	Wadi Haramiya	?0025	?Roman	E
47	Mining/Quarrying Area	Wadi Nakheil	.0012	basement complex, use undatable	--
48a&b	Stone Building Foundations-2	Wadi Nakheil	.017	Roman, ?other	A
48c-1	Pits & Stone Circles - Building Foundations -9	Wadi Nakheil	.2	Roman, ?other	A & E
49*	Stone?Grave Cairns-45	Wadi Nakheil	2.09	Roman?	E, D1(?)
50a	Stone Building Foundations-3	Wadi Um Ushra (Wadi Abu Ghalga -S)	.04	undatable	--
50b	Iron Mining Area (Iron Oxide)	Wadi Um Ushra (Wadi Abu Ghal- ga-S)	.003	upper Cre- taceous-Nubia Formation; use undatable	--
51*	?Hydreuma & Settlement (=51n) over 7 complexes	Wadi Kareim	?1.48	Roman, ?other	A, F
51s*	Stone Building ?Mining Camp over 15 complexes	Wadi Kareim	?6.5	Roman	A
51a	Stone Retaining Wall & Buildings-3	Wadi Kareim	.038	Roman	A
51b	Stone Building, ?Temple	Wadi Kareim	.022	Roman	A, D1
51c	Stone Building	Wadi Kareim	.0072	Roman	A
51d	Mine-Shaft Type (?Iron Carbonate)	Wadi Kareim	over .00014	basement com- plex use, Roman	E, A
51e-1	Birs-2 & Water Storage Tank Dry at 10.30 m & 13.90 m	Wadi Kareim	?02	submodern	D1, D2, J
51e-2	Bir- Encased Pipe Water at 18.20 m good	Wadi Kareim	?015	modern	D1, D2
52	House Pit Foundations or Gravel Diggings - over 60	Wadi Nakheil	.58	undatable ?Is- lamic-sub- modern	J
53	Lithic Scatter ?mounded or on erosional remnant	Wadi Nakheil	.028	?middle or late Palaeo- lithic	B
54a	Carnelian Quarrying Locale	Wadi Hamrawein. (Wadi Abu Adla/ Wadi Abu Hamra)	.08	basement com- plex use undat- able	--



<u>QRS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
54b	Amygdaloidal Lavas with Carnelian	Wadi Hamra-wein (Wadi Abu Adla/Wadi Abu Hamra)	c. 35.?	basement complex use undatable	--
54c	Carnelian Quarrying Locale	Wadi Hamra-wein (Wadi Abu Adla/Wadi Abu Hamra)	.07	basement complex use undatable	--
54d	Carnelian in Pebble Conglomerate	Wadi Hamra-wein (Wadi Abu Adla/Wadi Abu Hamra)	? .05	upper Cretaceous-base of Nubia Formation; use undatable	--
54e	Carnelian in Pebble Conglomerate	Wadi Hamra-wein (Wadi Abu Adla/Wadi Abu Hamra)	? .3	upper Cretaceous-base of Nubia Formation; use undatable	--
55	Stone Building Foundation ?Windbreak-1	Coast, North	.00032	undatable, ?submodern	H
56	?Mine	Gebel Hamra-wein (Gebel Nakheil)	.0015	basement complex use unverified	--
57	Lithic Scatter ?mounded or on erosional remnant	Wadi Nakheil	.23	middle Palaeolithic	B
58	Single Lithic	Wadi Nakheil	.064	possible Palaeolithic	?B
59	Rare Lithic Scatter	Wadi Nakheil	.41	possible Palaeolithic	?B
60	Rare Lithic Scatter	Wadi Nakheil	1.0	?middle Palaeolithic, ?earlier	B
61	Pictographs-8 Boulders	Wadi Hamra-wein (Wadi Abu Hamra)	--	undated ?some Predynastic	C1, C2, J
62a	Rock Shelter with Pictographs - 4 Boulders	Wadi Hamra-wein (Wadi Abu Hamra)	.00084	undated, some old	J
62b	Rock Shelter	Wadi Hamra-wein (Wadi Abu Hamra)	.0027	use unverified	--
62c	Rock Shelter	Wadi Hamra-wein (Wadi Abu Hamra)	.0013	use unverified	--
62d	Rock Shelter	Wadi Hamra-wein (Wadi Abu Hamra)	.0024	use unverified	--

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<u>QRS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
62e	Rock Shelter	Wadi Hamra-wein (Wadi Abu Hamra)	.0013	use unverifiable	--
62f	Rock Shelter with Pictographs-1 Boulder	Wadi Hamra-wein (Wadi Abu Hamra)	.002	undated-old	J
63	Boulder Circle	Wadi Hamra-wein (Wadi Abu Hamra)	.00034	undatable	--
64	Rock Shelter with Pictograph-1 Boulder	Wadi Hamra-wein (Wadi Abu Ghalga-N)	.004	undated	--
65a	Pictographs-2 Boulders	Wadi Hamra-wein (Wadi Abu Ghalga-N)	--	undated, ?recent	C1, J
65b	Pictographs-3 Boulders	Wadi Hamra-wein (Wadi Abu Ghalga-N)	--	undated	--
66a	Pictographs-1 Boulder	Wadi Um Ushra (Wadi Abu Ghalga-S)	--	undated	--
66b	Pictographs-4 Boulders	Wadi Um Ushra (Wadi Abu Ghalga-S)	--	undated	--
66c	Boulder Circle ?Hut Foundation & Pictographs-1 Boulder	Wadi Um Ushra (Wadi Abu Ghalga-S)	.0015	undated	--
66d	Pictographs-6 Boulders	Wadi Um Ushra (Wadi Abu Ghalga-S)	--	undated	--
67	Camp Area & Watchpost	Gebel Um Hammad Pass (Gebel Abu Hammad)	.4	Roman	A
68a	Pictographs - 3 Boulders	Wadi Hamra-wein (Wadi Abu Ghalga-N)	--	undated ?some Pre-dynastic	C1
68b	Pictographs - 1 Outcrop	Wadi Hamra-wein (Wadi Abu Ghalga-N)	--	undated	--
68c	Pictographs - 1 Outcrop 2 Boulders	Wadi Hamra-wein (Wadi Abu Ghalga-N)	--	undated	--
69	Pictographs - 1 Outcrop	Wadi Hamra-wein (Wadi Abu Ghalga-N)	--	undated	--

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<u>QRS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
70a	Pictographs - 1 Outcrop 2 Boulders	Wadi Hamra- wein (Wadi Abu Ghalga-N)	--	undated	--
70b	Pictographs - 2 Boulders	Wadi Hamra- wein (Wadi Abu Ghalga-N)	--	undated	--
71	Pictograph - 1 Boulder	Wadi Hamra- wein (Wadi Abu Ghalga-N)	--	undated	--
72	Pictographs - 1 Boulder	Wadi Um Ushra -- (Wadi Abu Ghalga-S)	--	undated	--
72a	Carnelian Locality	Wadi Um Ushra ? (Wadi Abu Ghalga-S)		upper Cre- taceous - ?base of Nubia Formation; use unverified	--
73a	Pictographs - 4 Boulders	Wadi Um Ushra -- (Wadi Abu Ghalga-S)	--	undated	--
73b	Pictographs - 1 Boulder	Wadi Um Ushra -- (Wadi Abu Ghalga-S)	--	undated	--
74	Pictographs - 3 Boulders	Wadi Hamra- wein (Wadi Abu Ghalga-N)	--	undated	--
75	Pictographs - 4 Boulders	Wadi Hamra- wein (Wadi Abu Ghalga-N)	--	undated	--
76	Pictographs - 1 Outcrop 2 Boulders	Wadi Um Ushra -- (Wadi Abu Ghalga-S)	--	undated	--
77	Pictographs - 1 Outcrop 3 Boulders	Wadi Um Ushra -- (Wadi Abu Ghalga-S)	--	undated	--
78	Stone Circles ?Graves-8	Wadi Abu Shi- qeili (Wadi Abu Unis)	.072	undated - Ceramics unassigned	A
79	Boulder "Cairn" ?Grave	Wadi Abu Shi- qeili (Wadi Abu Unis)	.00029	undatable	--
80	Pictograph - 1 Boulder	Wadi Siyatin -- (Wadi Abu Shiqeili)	--	undated	--
81	Pictographs - 3 Boulders	Wadi Siyatin -- (Wadi Abu Shiqeili)	--	undated	--

<u>QRS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
82	Pictographs - 1 Boulder	Wadi Siyatin (Wadi Abu Shiqeili)	--	undated	--
82a	Carnelian Locality	Wadi Siyatin (Wadi Abu Shiqeili)	wide- spread contact	upper Creta- ceous-base of Nubia Forma- tion; use unverified	--
83a	Pits-Graves?	Wadi al-Anz (Wadi Abu Unis)	.13	Roman	A, H, K
83b	Stone Building Foundation-1	Wadi al-Anz (Wadi Abu Unis)	.079	Roman	A, F
84a*	Sherd Scatter	Quseir Coast	over 6.0	modern, ?others	A
84b*	Sherd Scatter Bir - water at 1.90 m - salt	Bir Aweina to Cemetary	over 10.	modern, possible Palaeolithic, ?others	A, B
84c*	Stone Fort of Mohammed Ali	Quseir	under 1.0	submodern & modern, ?Roman	A, I
85	Stone Circle ?Grave	Wadi Nakheil	.00034	undatable	--
86	Boulder Circle ?Grave	Wadi Nakheil	.00058	undatable	--
87	Stone Circle - Grave of Sheikh Abu Rayat	Wadi Nakheil	.00098	submodern ?earlier, modern ceramics	I, A
88	Stone Circle - Grave of Sheikh Suliman	Wadi Nakheil	.0012	submodern, ?earlier, modern ceramics	I, A
89	Stone Circle ?Building-1	Wadi Nakheil	.0031	?Roman	E
90	Single Lithic	Wadi Nakheil	--	lower Palaeo- lithic-Acheu- lean	B
91	Single Pot	Wadi Nakheil	--	?Roman or? other	A
92	Boulder Circle ?Watchpost	Wadi Nakheil	.00038	Roman	A
93	Sherd Scatter	Wadi Hamariya	.002	Roman & other	A
94	Pictographs - 2 Boulders	Wadi Hamariya	--	undated	--
94a	Single Lithic	Wadi Hamariya	--	late Palaeo- lithic or later	B
95*	Stone Route Cairn/Tower	Wadi Hamariya	.0052 cairn .025 com- plex	Roman	A

<u>QRS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
96	Stone Route Cairn	Wadi Ambagi	.0077	?Roman	D1, D3, E
97	Bir - dry 4.30 m	Wadi Nakheil	.0025	modern	A, J
98	Bir - dry 7.40 m	Wadi Nakheil	.0036	modern	J
99a	Boulder Wall	Wadi Nakheil	.021	?Roman, ?other	A, E
99b*	Stone Cairns-?Graves-30	Wadi Nakheil	2.02	?Roman	E, D1
100a	Bir - dry 4.20 m	Wadi Nakheil	.0025	modern	J
100b	Bir - dry 5.28 m	Wadi Nakheil	.0042	modern	J
101	Bir - dry 5.25 m	Wadi Nakheil	.0042	modern	J
102	Bir - dry 5.08 m	Wadi Nakheil	.0049	modern	J
103	Chert Quarry Area	Wadi Nakheil over -Gebel Nakheil	5.0	lower Eocene- Thebes Forma- tion use ?mid- dle Palaeo- lithic	B
104	Stone Circle - Grave of Sheikh Abu Rayya	Wadi Nakheil	.001 grave .013 complex	submodern ?earlier	A, I
105	Stone Building -1	Coast, South	.0019	undatable, ?not modern	E
105a	Building Stone Quarry Area	Coast, South	.04	Miocene- ?Gabus Forma- tion use undat- able, not modern	J
105b	Building Stone Quarry Area	Coast, South	?1.0	Miocene- ?Gabus Forma- tion use undat- able, not modern	J
106	Stone Building Foundation-1	Wadi Ambagi	.0018	undatable	--
107	Open Stone Rectangle 3 sided	Coast, North	.00019	undatable	--
108	Pictograph-1 Boulder	Wadi al-Anz (Wadi Abu Unis)	--	undatable	--
109a	Camp Area	Wadi al-Anz (Wadi Aub Unis)	.16	submodern, ?other	A
109b	Stone Building Foundation & spring - dry	Wadi al-Anz (Wadi Abu Unis)	.08	submodern ?other	A
110	Open Stone Rectangle ?Grave - 3 sided	Wadi al-Anz (Wadi Abu Unis)	.0006	undatable	--
111	Open Stone Rectangle ?Grave - 3 sided	Wadi al-Anz (Wadi Abu Unis)	.00026	undatable	--

<u>QRS-#</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>	<u>AREA</u>	<u>DATE</u>	<u>CRITERIA</u>
112a	Open Stone Rectangle ?Grave -3 sided	Wadi al-Anz (Wadi Abu Unis)	.0002	?Roman	A
112b	Open Stone Rectangles-2 ?Graves - 3 sided	Wadi al-Anz (Wadi Abu Unis)	.00077	?Roman	A
113	Stone Circles ?Graves-12	Wadi al-Anz (Wadi Abu Unis)	.28	undated - ceramics unassigned	A
114	Open Stone Rectangles-2	Wadi al-Anz (Wadi Abu Unis)	.0082	undatable	--
115	Pits & Stone Circles ?Graves and Prayer area	Wadi al-Anz (Wadi Abu Unis)	.16	Roman, Is- lamic, ?other	A, D1
116a	Pictographs-1 Boulder	Wadi Hamariya	--	undated	--
116b	Pictographs-1 Boulder	Wadi Hamariya	--	undated	--
117	Pictographs-1 Boulder	Wadi Hamra- wein (Wadi Abu Ghalga-N)	--	undated	--
118a	House Pit Foundations or Gravel Diggings-?8	Wadi Atshan	?0014	undated	--
118b	House Pit Foundations or Gravel Diggings-?8	Wadi Atshan	?007	undated	--
118c	House Pit Foundations or Gravel Diggings-6	Wadi Atshan	.0035	undated	--
119	Stone Cairn or Building	Coast, South	c. .002	unvisited	--
120	Pictograph-1 Outcrop	Wadi Abu Ziran	--	undated	--

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