

# The Archaeology of Oman:

## A PRELIMINARY DISCUSSION OF THE ISLAMIC PERIODS

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IN THE WINTER of 1975 the Harvard Archaeological Survey returned to the Sultanate of Oman to continue its program of recording the archaeological remains of the prehistoric and historic periods within Oman.<sup>1</sup> The primary focus was an intensive systematic survey in central Oman, from the drainage of the Wadi Bahla eastward into the Sharqiyah. In addition the survey undertook a more general reconnaissance of archaeological sites on the Batinah coast and in the southeastern region as far as Ras al-Hadd. The purpose of this study is to present the range of archaeological materials for the entire Islamic era resulting from this reconnaissance. For this archaeological outline, only a few sites have been selected as representative of particular historical periods and geographical situations in northern Oman.

The 1975 reconnaissance encountered the full geographical diversity of northern Oman, the main

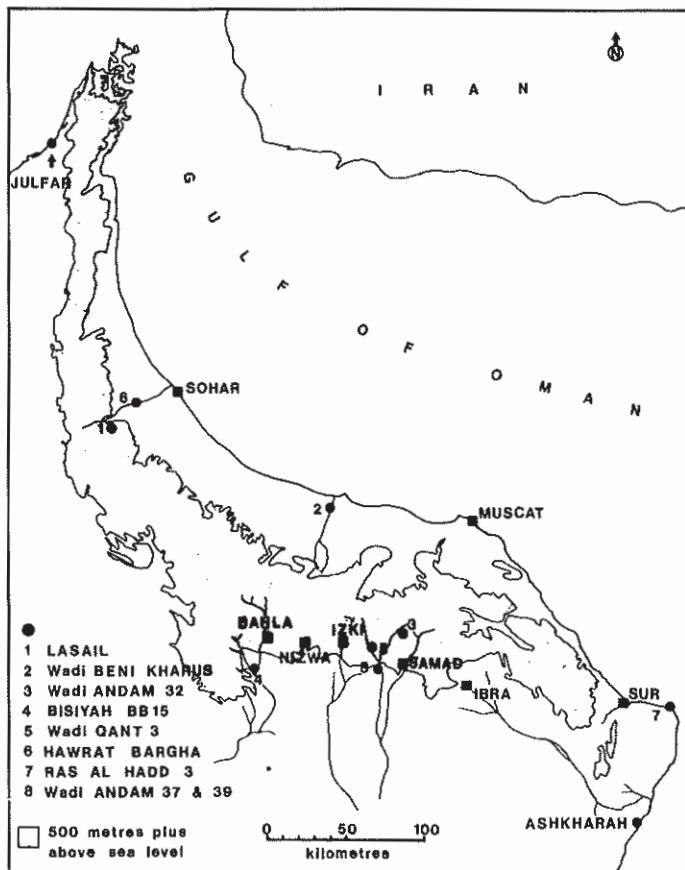


FIG. 1. Some archaeological sites of the Islamic Period in northern Oman.

characteristics of which may be briefly recounted here (Fig. 1). The foremost geographical feature is the long rocky mountain chain running from the Musandam peninsula to the Ras al-Hadd; the central portion is dominated by the Jebel Akhdar (over 3000 m. el.). On the eastern side these mountains fall into the sea except for the Batinah, the fertile littoral plain which extends from north of Sohar to the vicinity of Muscat. On the western side of the mountain massif is a wide piedmont zone (over 130 km. wide south of the Jebel Akhdar), where the mountains are broken by valleys which gradually expand into flat plains. These outwash fans, the *bajada*, lead into flat plains where the water catchment is channeled into a limited number of wadis. The wadis lead southward to progressively drier plains and finally the desert sands.

Thus, the land of northern Oman divides into three zones: the Batinah coastal strip, the mountain valleys, and the piedmont of the interior. Human settlement falls into specialized patterns within each of these zones, associated respectively with maritime, agricultural or pastoral economies. Yet those socio-economic groupings are not mutually exclusive and "all have some territorial interests in the mountain zone."<sup>2</sup> The mountains are at once symbolic of the country's unity and isolation. The isolation of Oman is reflected in its resources for historical research; a study based on internal documentary evidence has been attempted only in the last few years.<sup>3</sup> Until the eighteenth century, the history of

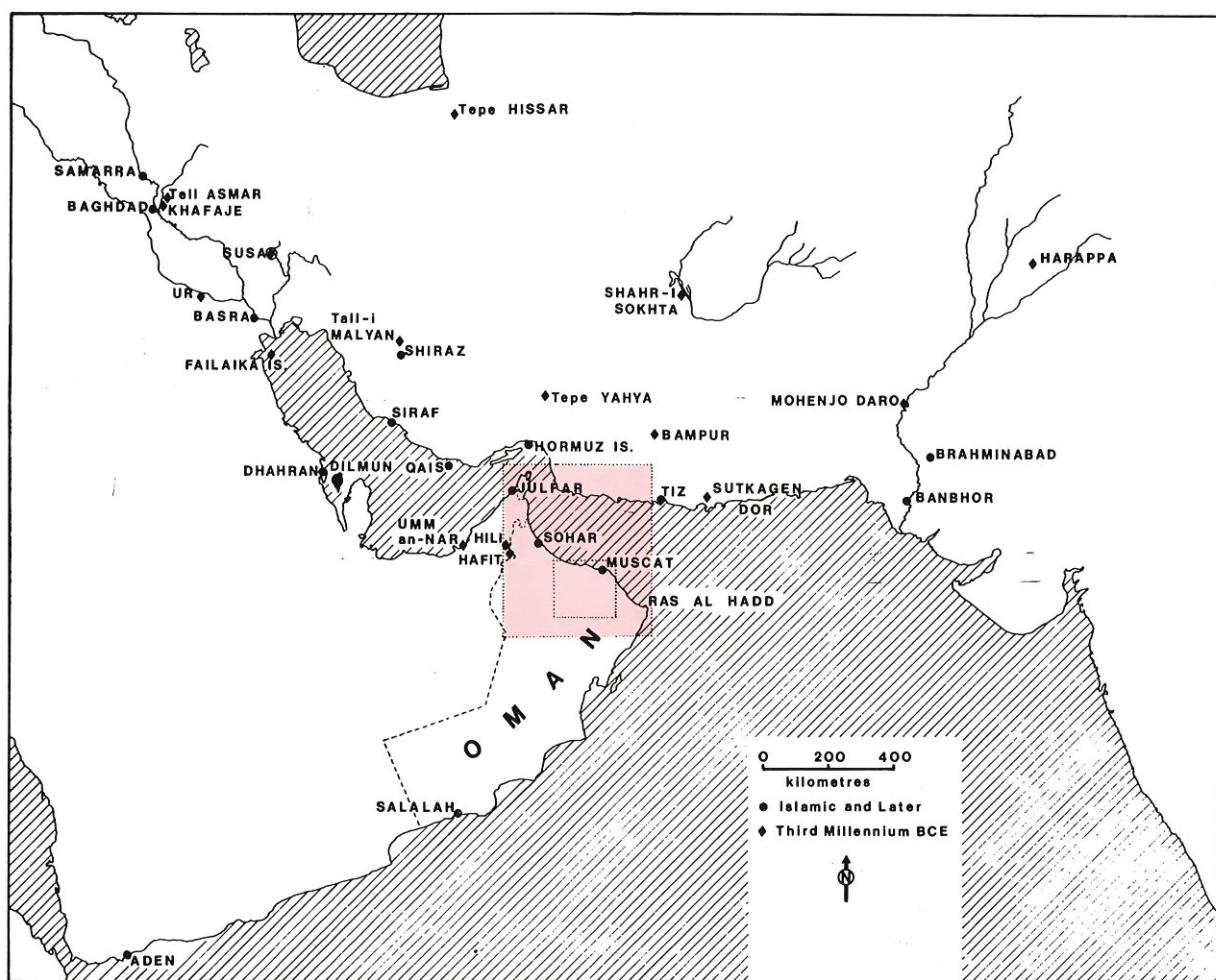


FIG. 1a. Map of some other archaeological sites relevant to Oman. (The coloured area is that of Fig. 1.)

Oman has been one of tangential contacts with better documented regions of the Gulf and the Middle East, as a commercial entrepot and more often as the object of foreign invasions.

The archaeological record must likewise rely on external contacts, generally imported ceramics, until a chronological sequence for local wares can be defined through excavated materials.<sup>4</sup> Unfortunately these imported ceramics are rarely pieces of the art of historical merit associated with ceramics of the Islamic period. Nevertheless the predominant attention paid to the fine glazed ceramics accounts, in part, for the neglect of local, often inartistic, "provincial" wares. It is, however, the discrete assemblages of these "little traditions" which will enable the utilization of ceramics not only as dating criteria but for models of economic and social development. In his pioneering study of the Diyala Basin in Mesopotamia, Adams observed that "agricultural-developmental studies lack a perspective on the massive, long-range problems of human interaction with the environment."<sup>5</sup> Wilkinson's discussions of the development of the *falaj* in Oman is an obvious example of an environmental subsistence problem for which an archaeological perspective, whether pre-modern eighteenth century or more remote, prehistoric periods, may play a limited but important role.<sup>6</sup> Unlike Mesopotamia, the archaeology of Oman does not have a long tradition, a comparative stratigraphy of archaeological materials. Rather, archaeology in Oman is growing up rapidly in conjunction with contemporary historical and geographical research. This broad and incomplete outline of the Islamic artifacts from Oman is offered as a first step toward the fashioning of a tool for utilization by other social sciences.

### The Early Islamic (630-1055 A.D./9-447 A.H.)

The earliest Islamic evidence discovered by the Harvard Archaeological Survey was along the lower reaches of the Wadi Beni Kharus on the Batinah coast. Wadi Beni Kharus 1 is not, strictly speaking, an archaeological site in terms of primary settlement. It is rather an area of field scatter of potsherds, the major accumulation of which is approximately 500 m. in diameter on either side of the wadi. The situation approximates that of the agricultural hinterland of the port of Sohar in the ninth-tenth centuries. Mr. T. Wilkinson has devoted an intensive study to the reconstruction of the patterns of ancient agriculture in the Sohar region; he suggests that the occurrence of potsherds in fields, such as those near the Wadi Beni Kharus, may be the results of ancient manuring, the non-decaying components of ancient refuse brought from the nearby city.<sup>7</sup> Low mounds in the Sohar hinterland, partially masked by subsequent dune formation, seem to represent wells and an agricultural belt above the modern edge of date palm groves. The Sohar evidence closely parallels that of the Wadi Beni Kharus in morphology and in period, that of the ninth and tenth centuries. The Wadi Beni Kharus debouches between the modern ports of Masna'ah and Birka, with no major early Islamic settlement apparent in the vicinity during the brief 1975 survey. The sherds of Wadi Beni Kharus 1 also indicate a re-use of this area in the late Islamic period, suggesting a repetition of land utilization during these two periods of prosperity on the Batinah coast.

Many of the ceramic wares found on the Wadi Beni Kharus are typical of those reported at Sohar.<sup>8</sup> Among these are the blue-green wares (Fig. 2: *aa-cc, ee, gg*), early sgraffiato wares (Fig. 2: *u*), and underglaze painted wares (Fig. 2: *k, q, r*) mentioned by Cleveland. Other types present are splashed glaze wares (Fig. 2: *s, v*), cobalt wares (Fig. 2: *w-z*) and pieces with lustre glaze (Fig. 2: *-n*), all indicative of early Islamic Mesopotamia, specifically the ceramic assemblage from Samarra. This ceramic complex is known from a number of sites on the Gulf such as Siraf, Tiz, in the vicinity of Dhahran, and in the Trucial Oman.<sup>9</sup> A smaller component of the Wadi Beni Kharus 1 sherds belongs to the late Islamic period; these include late sgraffiato wares (Fig. 2: *o, t*), porcelains (Fig. 2: *jj, kk*), and Bahla wares (Fig. 2:

*a-i*), which will be discussed below. The unglazed wares of these two periods cannot be safely separated yet; a number of these wares have affinities with undated ceramics from Aden.<sup>10</sup>

The ninth and tenth century ceramics on the Wadi Beni Kharus reflect the international trade in which Sohar played a central role and the general condition of prosperity in the Gulf.<sup>11</sup> The Abbasids and Buyids extended their direct control to Oman, not only because of its strategic importance as a commercial entrepot, but for the products of the country. As in the prehistoric periods, the copper mines of Oman were again worked; and the 1975 survey produced evidence of two of these early Islamic mines, the mines at Lasail and on the upper Wadi Andam (Wadi Andam 32).<sup>12</sup>

Lasail is located in the mountains directly behind Sohar, not far from the Wadi Jizzi pass. Mining experts have estimated that the slag mounds which cover the site may exceed 100,000 tons. The ruins of several buildings are found on the site amid the slag and gossan. The ceramics from this smelting site feature all the fine imported wares found at Sohar and the Wadi Beni Kharus.<sup>13</sup> This same ceramic complex once again appears at Wadi Andam 32, but this site is located far to the south of Muscat on the interior side of the mountains. The site is tucked into a side wadi and measures about 300 × 50 m. The slag heaps are associated with gossan and ore. On the slopes of the hills are rows of circular vats or furnaces; and in the center are the foundations of two buildings, the larger of which appears to be a series of work-rooms. In contrast to Lasail, the smelting here seems to have been a smaller operation of shorter duration, making the occurrence of these fine early Islamic imported wares the more interesting. Clearly the exploitation of copper resources in the Abbasid and Buyid periods must have been far more extensive than is presently understood and the economic role of Oman in the Gulf and the eastern Caliphate should be reconsidered. It may be noted that a mint operated during this period, the only Omani coinage until modern times.

### The Middle Islamic (1055-1500 A.D./447-906 A.H.)

With the eleventh and twelfth centuries, the traditional Gulf trade was disrupted and the old entrepôts such as Siraf and Sohar were displaced by newer centers of power, particularly Kish (Qays) and Hormuz.<sup>14</sup> One of the settlements on the coast of Oman during this period was at Ras al-Hadd. On the long sand spit which protects the Khor Jarramah is an extended area of mounds, over 2 km. long and 200-500 m. wide, with stone building foundations and thick accumulations of sherds, Ras al-Hadd 3. Situated on "land's end," this small port received ceramics from every direction: "Seljuq" wares from Siraf, Tiz, and Qalat-i Jamshid in Iran and Banbhore and Brahminabad in Pakistan;<sup>15</sup> far eastern wares including Yueh and other celadons (*Fig. 8: cc, dd, ff-hh*); and, perhaps most interestingly, a series of unglazed ceramics similar to those found at Gedi and on the Lamu archipelago in east Africa (*Fig. 9: d-f*).<sup>16</sup> Most of the ceramic assemblage from Ras-al-Hadd, with its predominant late sgraffiato wares, can be dated to the eleventh and twelfth centuries (*Fig. 8: a-u*). A few pieces of blue-green ware, splashed glaze wares and white "tin" glazes (*Fig. 8: aa-ee*) suggest a slightly earlier component for the site. This small port was eclipsed with the rise of nearby Qalhat in the thirteenth century when the domination of the Gulf shifted to Kish and Hormuz.<sup>17</sup>

A subsequent phase of this period is represented by archaeological sites in the survey area of the Sharqiyah. It should be noted that the traditional socio-economic connections of the coastal Ja'lan, including the Ras al-Hadd, are with the settlements of the Sharqiyah. Each of the three sites to be discussed here is a hilltop fortification guarding a mountain pass or a constriction in a wadi. The associated modern villages may overlie earlier villages on the edges or within the wadis. This pairing of fortresses, which rarely suggest extensive building or permanent occupation, with lower villages finds good

parallels in the settlement patterns of the great riverine systems such as the upper Euphrates.<sup>18</sup> These places of refuge may mark the defenses of informal tribal centers rather than the more formal fortified places of an external government. Wilkinson has suggested that the tribal groupings of this period underwent a "gestation" when "the impact of the sedentary environment became stronger than it has been, before or since."<sup>19</sup>

From the thirteenth century the interior of Oman was ruled by the Nabhani kings, residing chiefly at Bahla. Immediately south of Bahla is the village of Bisiyah and the nearby site of BB15, a fortified hillock guarding access to the Bahla catchment area from the southern plains. The site of BB15 was discovered by Mr. J. C. Wilkinson and was examined during the 1973 survey. Mr. James Humphries has published the earlier occupations of this mound, which he dates to the first millennium B.C.<sup>20</sup> The mound is about 100 m. in diameter at the base and bears, on the summit, the dry-set stone walls of a massive defensive structure (the outer wall of the north face is over four meters in preserved height). Associated with these walls are the plastered floors of rooms eroding out of the side of the mound. This area produced sherds on the mound surface dating to the thirteenth and fourteenth centuries, an assemblage which may be described generally as Nabhani ceramics.

These Nabhani ceramics from BB15 include a crude variety of late sgraffiato wares (*Fig. 10: f-r*) which seems a direct descendant of the sgraffiato wares at Ras al-Hadd. Designs exhibit a very limited number of motifs and are very poorly executed.<sup>21</sup> Other glazed wares include a single earlier piece of blue-green ware (*Fig. 10: jj*), a series of Bahla wares (*Fig. 10: v-y, mm*), and a fine piece of thirteenth century celadon with a lightly carved design under the glaze (*Fig. 10: z*). Most of the unglazed pottery bear a distinctive comb incising and the large storage jars have applique chain ridges. Jars with small triangular ledge handles are similar to examples from Siraf (Site E) and in the Trucial Oman (*Fig. 10:t*).<sup>22</sup>

A second example of the Nabhani ceramic complex is from the site of Wadi Qant 3; this confirms the Islamic identification for the BB15 material (vis-a-vis that of the first millennium) and expands the

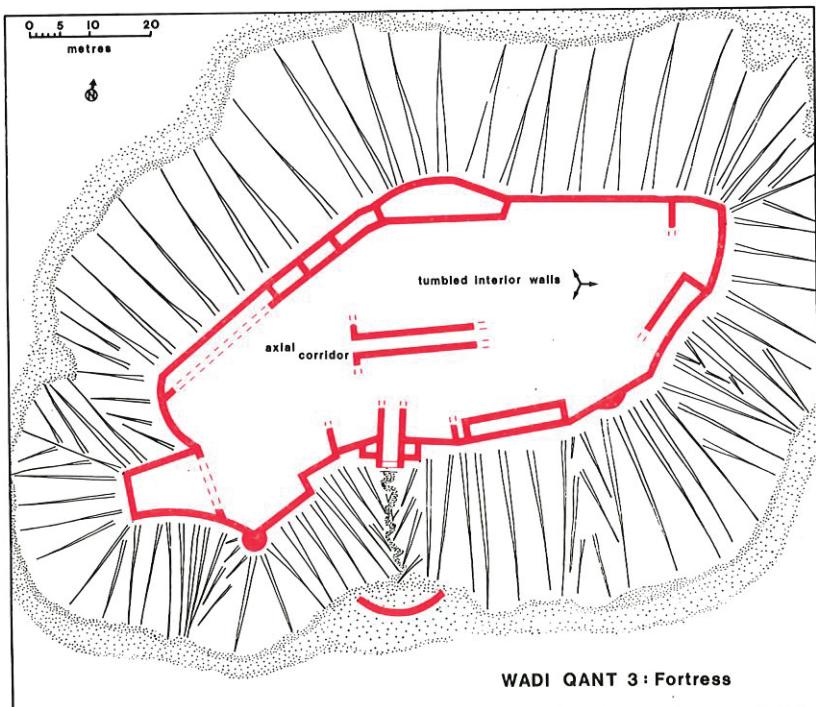


FIG. 2. Plan of Wadi Qant 3.

corpus of ceramics for this period. The site of Wadi Qant 3 sits on top of a natural hillock and controls the upper catchment area of this wadi near the village of Qaryatain (Fig. 2). The defensive wall is constructed of dry-set stones with a series of casement rooms; a fortified gateway guards the main approach on the southern side. Otherwise only a few rudimentary structures seem to be indicated in the center of the hillock. Further examples of Nabhani hilltop forts have been reported at Mazarah in the Sharqiyah (with sgraffiato wares and Martaban jars, an imported glazed ware similar to the Bahla wares discussed below) and at Hawrat Bargha in the mountains behind Sohar.<sup>23</sup> The period of Nabhani rule, a poorly documented medieval interim, has been characterized as a period of isolation in which "the last remnants of a 'national' consciousness" were preserved.<sup>24</sup> The defensive cultural orientation may be symbolized in the hilltop fortifications, but the ceramics give a clear indication that many aspects of the Nabhani rule remain to be elucidated.

### The Late Islamic (1500–1750 A.D./906–1163 A.H.)

This most recent period of the archaeology of Oman is exemplified in the dual sites of Wadi Andam 37 and 39. Wadi Andam 37 is an elaborate hilltop fort perched high above the wadi near the village of Khadra bin Jaffa (Fig. 3). The construction of the defensive walls is virtually identical to that of Wadi

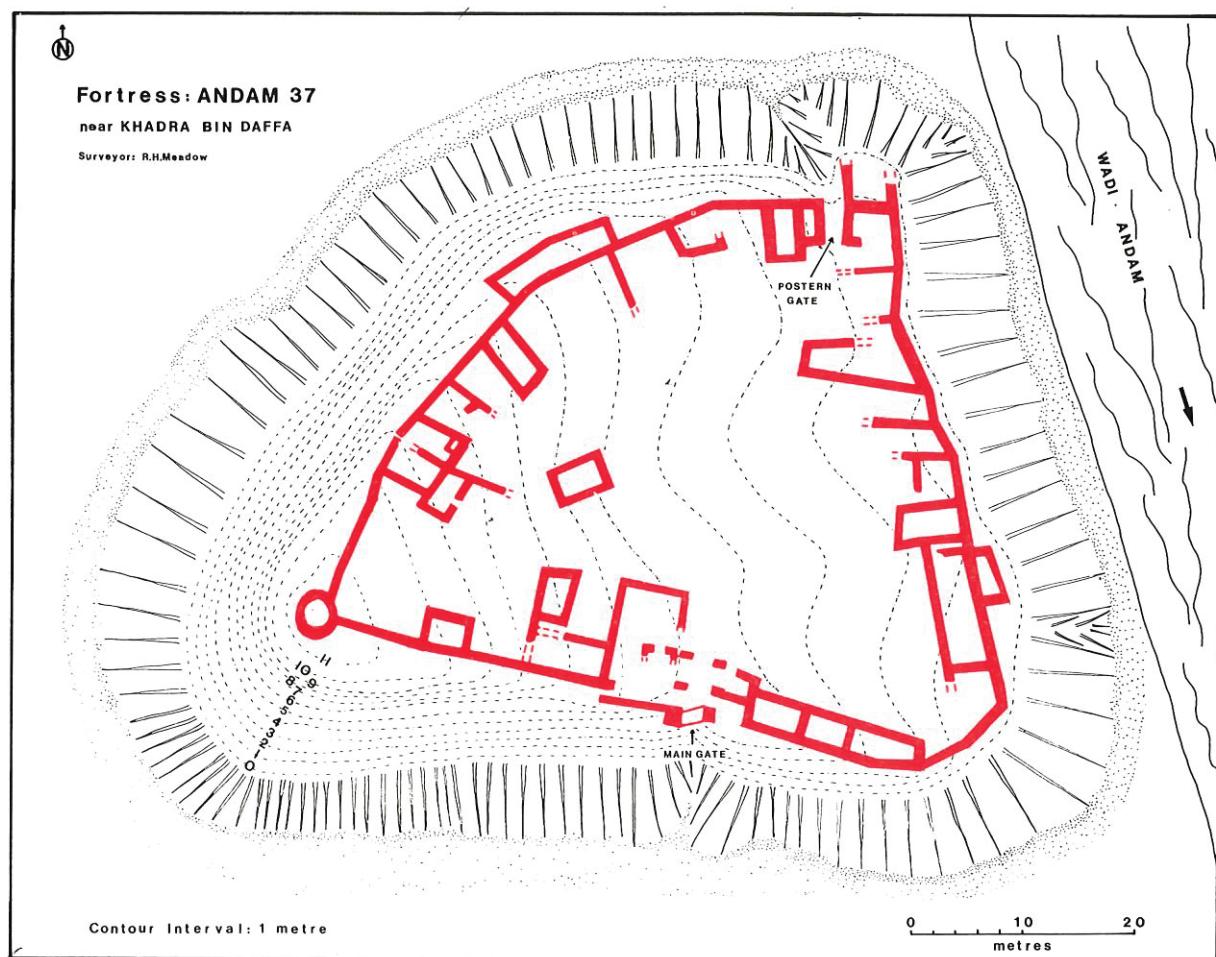


FIG. 3. Plan of Wadi Andam 37.

Qant 3, with rudimentary casement rooms and other structures clustered along the perimeter wall. At the highest corner of the hillock is a strong circular tower with loop-holes for firing. The most impressive structure is the gate-house made of well mortared stone. This building seems to have functioned as a barbican; it is essentially a high firing wall overlooking the principal access up the hillock. The high pointed arch of the gate leads into a simple pilastered room which opens immediately onto secondary rooms and the interior of the fort. A narrow and precipitous postern gate is found on the opposite side of the fort.

Around the base of the hillock are the standing walls of about ten dwellings made of mud brick on stone foundations. The pottery from this settlement and the fort is identical to that of Wadi Andam 39, about two kilometers south of the fort. This site consists of the ruins of a large building with at least four principal rooms, an inner courtyard and a central tower. Near this building are other structures and a large slag heap from copper smelting measuring 200 × 50 m. Flood washed pieces of this slag are found as far away as the foot of the fort itself. This copper production may be the mine mentioned by Miles, one of the most recent copper mines reported in Oman.<sup>25</sup>

The ceramics found on these sites retain strong affinities with the unglazed wares of BB15 and Wadi Qant 3. The closest ceramic parallels are reported from Kashm Nadir near Ras al-Khaimah, which de Cardi dates to the sixteenth and seventeenth centuries.<sup>26</sup> The distinctive comb incised jars of the earlier Omani period are continued (*Fig. 13: h-k, m, p*) and are now linked with wares with paddle-stamped globular bodies.<sup>27</sup> One ceramic type conspicuous in its absence is the so-called "Julfar" ware, an unglazed red-painted pottery.<sup>28</sup> A single specimen was found at Wadi Didu 1 on the eastern edge of the Sharqiyah, probably derived from the coast where this ware has been reported.<sup>29</sup>

The majority of the glazed pottery from Wadi Andam 37 and 39 belongs to a type known as Bahla ware. This ware is either a dense grey-orange or softer buff paste with a yellow-chocolate and olive-dark green glaze. The name derives from the town of Bahla in central Oman where an identical glazed ceramic is currently manufactured; this ware is the dominant glazed pottery throughout Oman today.<sup>30</sup> Some of the Bahla wares on Wadi Andam 37 and 39 are much finer than their modern counterparts; these include sherds with a lustrous black glaze (*Fig. 12: j-, s*) upon which appear circular stamped impressions (*Fig. 12: j* appears to give the name of the artisan). Simple incised designs occasionally occur on Bahla sherds (*Fig. 12: o*; *Fig. 5: d*; *Fig. 11: g*). The forms of the Bahla wares are directly inspired by the "Martaban" wares from south China and Indonesia in the Ming period.<sup>31</sup> De Cardi has reported comparable wares from Julfar and Kashm Nadir and refers to both south-east Asian and African (at Gedi) examples, all dating to the sixteenth and seventeenth centuries.<sup>32</sup> The wares from Trucial Oman are almost entirely from coastal sites, whereas the Bahla ware occurs on almost all the Islamic sites in the survey area of the Sharqiyah and on many of the pre-Islamic sites. Whether the wares found on the Omani coast, or even those in the Trucial States, are Bahla wares or imported pieces from south-east Asia would depend on the date of the beginnings of the Bahla industry. Careful analysis of the wares and glazes should readily solve this problem.

### Conclusions

The problem posed in the Bahla wares graphically illustrates one of the more general problems of Omani archaeology and history. This is the interrelation of Oman and the great trade routes which passed by her coasts and the interrelation of interior Oman and the Batinah coast. The settlement and ceramic evidence resulting from the Harvard Archaeological survey suggests an hypothetical outline for the Islamic archaeology in three phases (*Fig. 4*).

The great prosperity of the Gulf in the early Islamic period was reflected in the port of Sohar. While there were extensions into the interior for the exploitation of resources such as copper, the coast remained essentially separate until the end of Buyid domination. The interior during the first Imamate was certainly settled but the ceramic indicators are not yet identifiable or ceramics were not extensively utilized.<sup>33</sup> The middle Islamic period was exemplified by a small port closely linked with the twelfth century trade in the Gulf, presaging the subsequent ports of the south-eastern Oman, Qalhat and Sur, with strong ties with the Sharqiyah. The interior is characterized by the fortified settlements of the Nabhani kings in the thirteenth and fourteenth centuries, the first strong centralized power to appear in interior Oman. The late Islamic period continues the tradition of fortifications, but, with the ascendancy of the Yaaraba dynasty in the seventeenth century, an Omani state controlled both maritime enterprise and the interior. There was a development of industries such as copper mining and possibly ceramics and the expansion of this "industrial base" resulted, by the end of this period, in the active maritime dominance of the Al bu Said dynasty.

Further archaeological materials will amplify this preliminary outline and interpretation, particularly for the economic bases of Oman in the Islamic period. Archaeological evidence for the production

	Interior	OMAN Coast	GULF	IRAQ & IRAN	INDIA CHINA
700	Julanda ↑ first Imamate	?	"Umayyad"	"Umayyad"	Pratihara Pala
800	Nizwa ?		Sohar Wadi Beni Kharus 1	"Abbasid"	T'ang
900	Wadi Andam 32 Lasail	"Abbasid" Wajhid	Siraf Carmathian		
1000	?	Buyid		Buyid	Cholas Rajputs
1100	second Imamate	?		Tiz	Seljuq
1200	Bahla ?	Kish Ras al-Hadd 3	Kish (Qays)		Sung
1300	Nabhani	BB15	Qalhat		Ghurid Deli Sultanate
1400	Wadi Qant 3	Hormuz	?		Yüan
1500	?	Sur Quriyat Sohar Muscat	Hormuz Bahrain Siraf	Timurid	Ming
1600	Wadi Andam 37 39	Portuguese	Portuguese Bandar Abbas Julfar	Safavid (Ottoman)	Mughal
1700	Yaaraba	Yaaraba			
1800	Al Bu Said	Al Bu Said		Afshard Zand Qajar	

FIG. 4. Chart of the Islamic periods for Oman (archaeological sites appear on the right side of each column).

of copper in the ninth and tenth centuries and of pottery in the seventeenth (or eighteenth) has now been determined. Archaeological surveys of both interior and coastal Oman will provide an increasingly clear picture of the configurations of settlement and organization of agriculture. Such research will contribute important additions to historical and geographical studies of Oman and provide a link for the interpretation of the more remote, prehistoric past.

<sup>1</sup> Summaries of the results of the 1973 Harvard Archaeological survey in Oman have been published in the *Proceedings of the Seminar for Arabian Studies*, vol. 4 (1974). The Islamic remains from the 1973 survey were undertaken by the late Mr. Andrew Williamson, who generously made this survey material available for me, particularly the site BB15 which is presented in this study. I wish also to extend my gratitude to members of the 1975 survey for their help and patience in making collections from recent, hardly "archaeological", sites.

<sup>2</sup> This geographical interpretation owes much to the concise descriptions in J. C. Wilkinson, *The Organization of the Falaj Irrigation System in Oman*, School of Geography, Research Papers, no. 10 (Oxford, 1974). The term "bajada" is defined in J. C. Wilkinson, "Arab-Persian Land Relationships in Late Sasanid Oman," *Proceedings of the Seminar for Arabian Studies*, vol. 3 (1973), p. 43.

<sup>3</sup> J. C. Wilkinson, *Arab Settlement in Oman: The Origins and Development of the Tribal Pattern and its Relationship to the Imamate*, unpublished D.Phil. thesis, Oxford, 1969. See J. C. Wilkinson, "The Origins of the Omani State," in *The Arabian Peninsula: Society and Politics* (D. Hopwood, ed.) (London, 1972), pp. 86-88, for a concise description of these resources.

<sup>4</sup> B. de Cardi, "Archaeological Survey in the Northern Trucial States," *East and West*, n.s.s., vol. 21 (1971), p. 237, recalls the same limitation in her survey of Trucial Oman.

<sup>5</sup> R. McC. Adams, *Land Behind Bagdad* (Chicago, 1965), vii.

<sup>6</sup> J. C. Wilkinson, *op. cit.* (1974).

<sup>7</sup> A. Williamson, *Sohar and Omani Seafaring in the Indian Ocean* (Muscat, 1973), pp. 17-19, fig. 4; T. Wilkinson, "Ancient Land Use and Water Supply of the Sohar Region," *Historical Association of Oman Bulletin* (Muscat, March 1975).

<sup>8</sup> R. Cleveland, "Preliminary Report on Archaeological Soundings at Sohar ('Oman)," *Bulletin of the American School of Oriental Research*, vol. 153 (1959), pp. 11-19; and recent excavations under the direction of Mr. Andrew Williamson and Mr. Peter Farries in 1975.

<sup>9</sup> F. Sarre, *Die Keramik von Samarra* (Berlin, 1925); D. Whitehouse, "Excavations at Siraf: First Interim Report," *Iran*, vol. VI (1968), p. 14; A. Williamson, "Persian Gulf Commerce in the Sasanian Period and the First Two Centuries of Islam," *Bastaishenasi va Honar-e Iran*, vol. 9-10 (1972), fig. 5; Sir M. A. Stein, *Archaeological Reconnaissances in Northwestern India and Southeastern Iran* (London, 1937), p. 197; A. Hastings "Some Islamic Pottery from the Eastern Province of Saudi Arabia" (MS); B. de Cardi, *op. cit.*, p. 268, fig. 49; T. G. Bibby, "Bahrain Oldtidshovedstat Gennem 4000 Ar.," *Kuul* (1957), p. 146; N. Chittick, "Discoveries in the Lanu Archipelago," *Azania*, vol. II (1967), Pl. II.

<sup>10</sup> G. L. Harding, *Archaeology in the Aden Protectorates* (London, 1964), Pl. IV, VII.

<sup>11</sup> A. Williamson, *op. cit.* (1973).

<sup>12</sup> Copper is mentioned as a product of Oman in the tenth century by Mas'udi. Lasail is probably the mine reported by J. C. Wilkinson, "A Sketch of the Historical Geography of the Trucial Oman down to the Beginning of the Sixteenth Century," *The Geographical Journal*, vol. 130 (1964), p. 347, n.4. This site was first visited by the late Mr. Andrew Williamson in 1973 when a member of the Harvard Survey, and later by Dr. Edward Keall following reports of Prospections Ltd. Dr. Keall has also discovered a third mine of the same period at Musfa, near Wadi Andam 32. I wish to thank Dr. Keall for discussing these sites with me.

<sup>13</sup> The early Islamic ceramic types are: Splashed glaze wares (fig. 4; m-q), under-glaze painted wares (fig. 4: g), blue-green wares (fig. 4: f), fine lustre glaze wares (fig. 4: k, l), and a fine "turban" handle (fig. 4: j) identical to those illustrated in R. McC. Adams, "Tell Abu Sarifa," *Ars Orientalis*, vol. VIII (1970), fig. 8.

<sup>14</sup> J. Aubin, "La Ruine de Siraf et les Routes du Golfe Persique aux XIe et XIIe Siecles," *Cahiers de Civilisation Medievale Xe-XIIe Siecles* (Poitiers, 1959).

<sup>15</sup> D. Whitehouse, *op. cit.*, p. 15; Sir M. A. Stein, *op. cit.* Pl. IV; F. A. Khan, "Excavations at Banbhore," *Pakistan Archaeology*, vol. 1 (1964), Pl. XXIII; R. L. Hobson, "Potsherds from Brahminabad," *Transactions of the Oriental Ceramics Society 1928-1930*, Pl. VIII, IX; A Williamson, *op. cit.* (1973), p. 19. The succession of Tiz as a trade center after Sohar is mentioned by Ibn Mujawir, see J. C. Wilkinson, *op. cit.* (1964), p. 343.

<sup>16</sup> G. Liesegang, "Archaeological Sites on the Bay of Sofala," *Azania*, vol. VII (1972), fig. 3, 4; J. S. Kirkman *The Arab City of Gedi* (Oxford, 1954), fig. 21; N. Chittick, *op. cit.*, fig. 9 (late sgraffiato: Pl. Ia, IIb).

<sup>17</sup> A. Williamson, *op. cit.* (1973), p. 57, *passim*.

<sup>18</sup> T. Wilkinson, personal communication.

<sup>19</sup> J. C. Wilkinson, *op. cit.* (1972), p. 81.

<sup>20</sup> J. Humphries, "Harvard Archaeological Survey in Oman: II—Some Later Prehistoric Sites in the Sultanate of Oman," *Proceedings of the Seminar for Arabian Studies*, vol. 4 (1974), p. 52, figs. 8, 9, 10. This site may be identified with the ancient town of Salut, see J. C. Wilkinson, *op. cit.* (1974), p. 7.

<sup>21</sup> The flower motif is also found at Gedi, see J. S. Kirkman, *Men and Monuments on the East African Coast* (London, 1964), Pl. 2; examples in Oman were found at Wadi Qant 3 and Wadi Beni Kharus 1 (fig. 2: o; fig. 7: p; fig. 8: w).

<sup>22</sup> B. de Cardi, *op. cit.*, p. 271, fig. 50; this also occurred at Wadi Beni Kharus 1 (Fig. 3: f) and Wadi Qant 3 (fig. 8:).

<sup>23</sup> Anon., *Historical Association of Oman Bulletin* (Muscat, January, 1975); J. Humphries, personal communication.

<sup>24</sup> J. C. Wilkinson, *op. cit.* (1972), p. 81.

<sup>25</sup> S. B. Miles, *The Countries and Tribes of the Persian Gulf* (London, 1919), p. 400.

<sup>26</sup> B. de Cardi, *op. cit.*, p. 270, fig. 15.

<sup>27</sup> Paddle stamping occurs earlier at Ras al-Hadd 3 (fig. 5: j) on a late sgraffiato bowl. See B. de Cardi, *op. cit.*, fig. 50, 1.

<sup>28</sup> B. de Cardi, *op. cit.*, p. 270, fig. 15.

<sup>29</sup> A. Williamson, personal communication.

<sup>30</sup> This contemporary ceramic industry is currently being studied by Mrs. W. Peyton.

<sup>31</sup> B. Harrison, "Upusing—A Late Burial Cave at Niah," *Sarawak Museum Journal*, no. 25-26 (1965), pp. 83-116; the affinity with the Dusun wares found at Siraf should be noted, though the dating remains problematical. See A. Williamson, *op. cit.* (1972), pp. 103-105, fig. 7.

<sup>32</sup> B. de Cardi, *op. cit.* pp. 266-267, figs. 15, 48.

<sup>33</sup> B. de Cardi, *op. cit.*, p. 259, also was confronted with scarcities of ceramics; she rather simplifies the situation by attributing this phenomenon to economics "which barely rose above subsistence level."

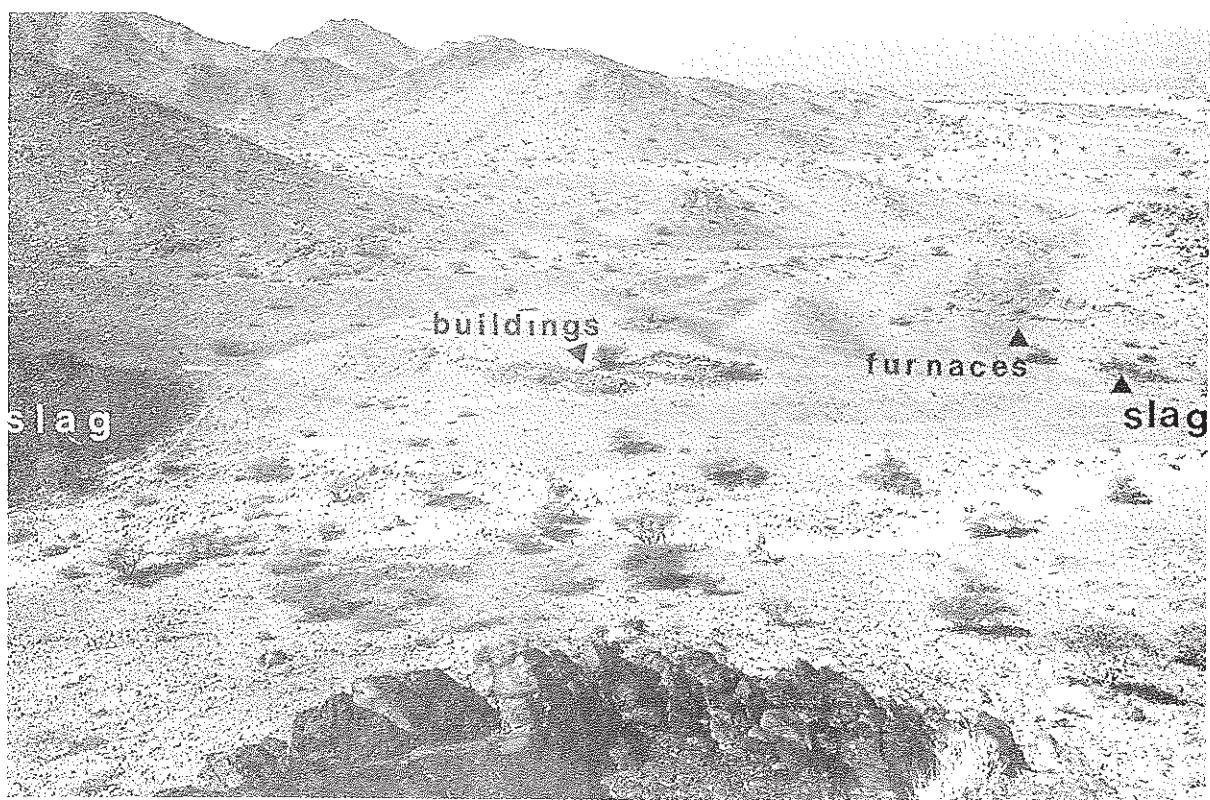


PLATE IA. General view of *Wadi Andam 32*.

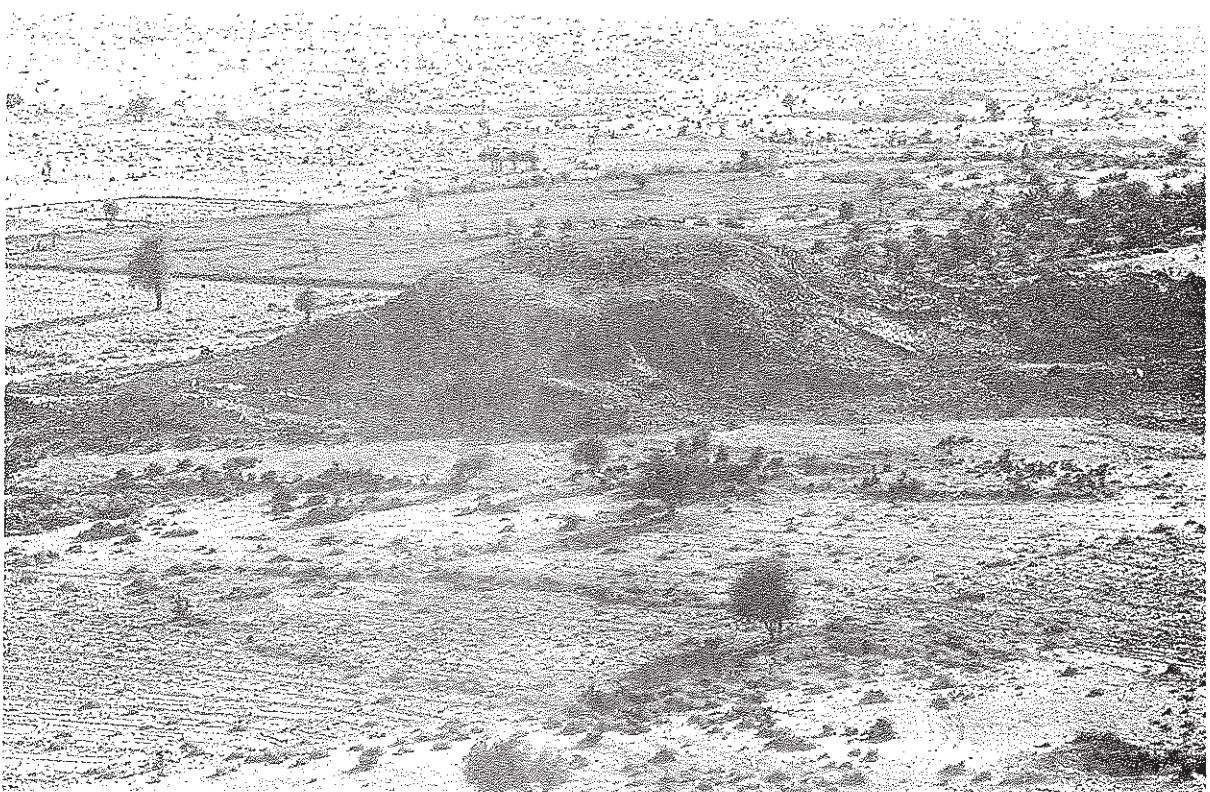


PLATE IB. General view of *BB-15*.



PLATE 2A. *View from the summit of Wadi Qant 3.*

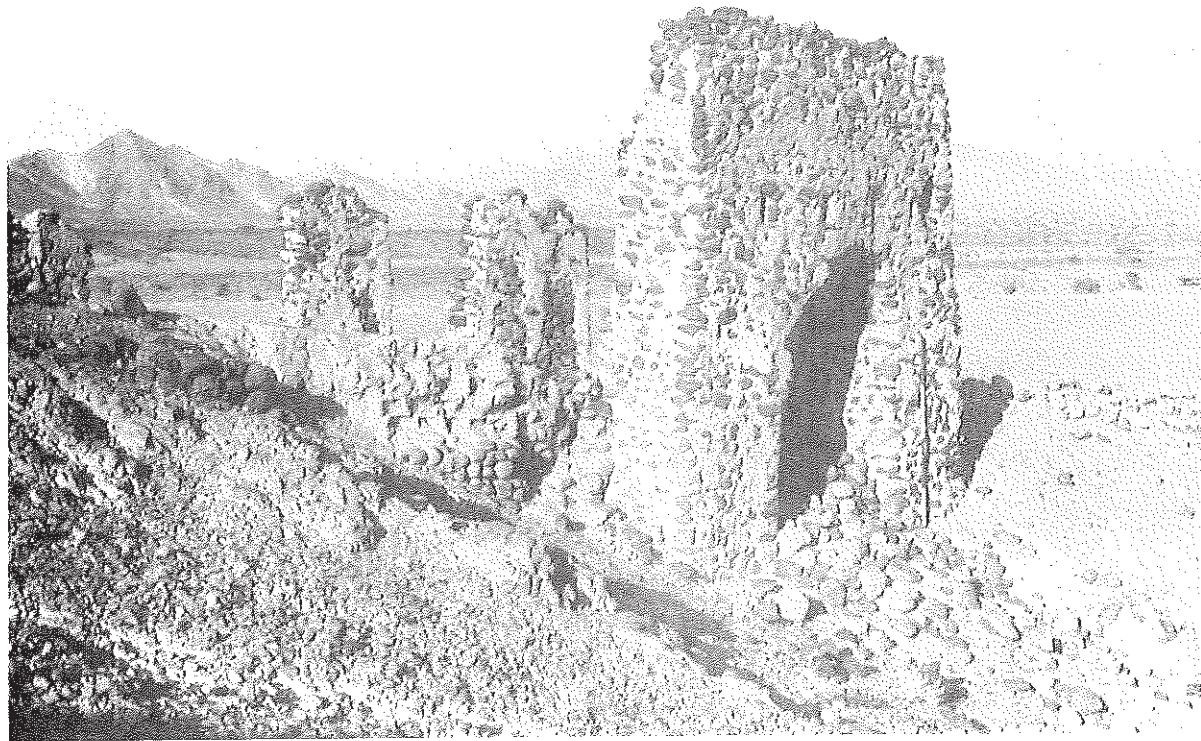


PLATE 2B. *Gate-house at Wadi Andam 37.*

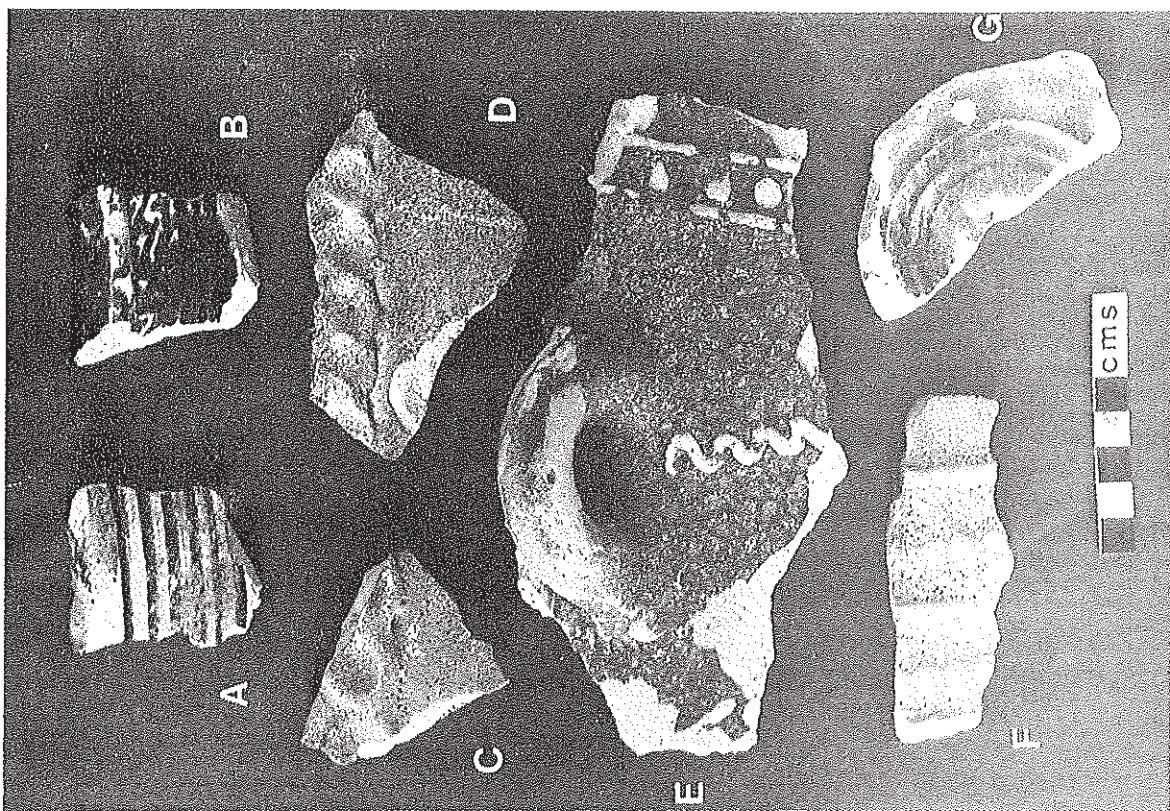
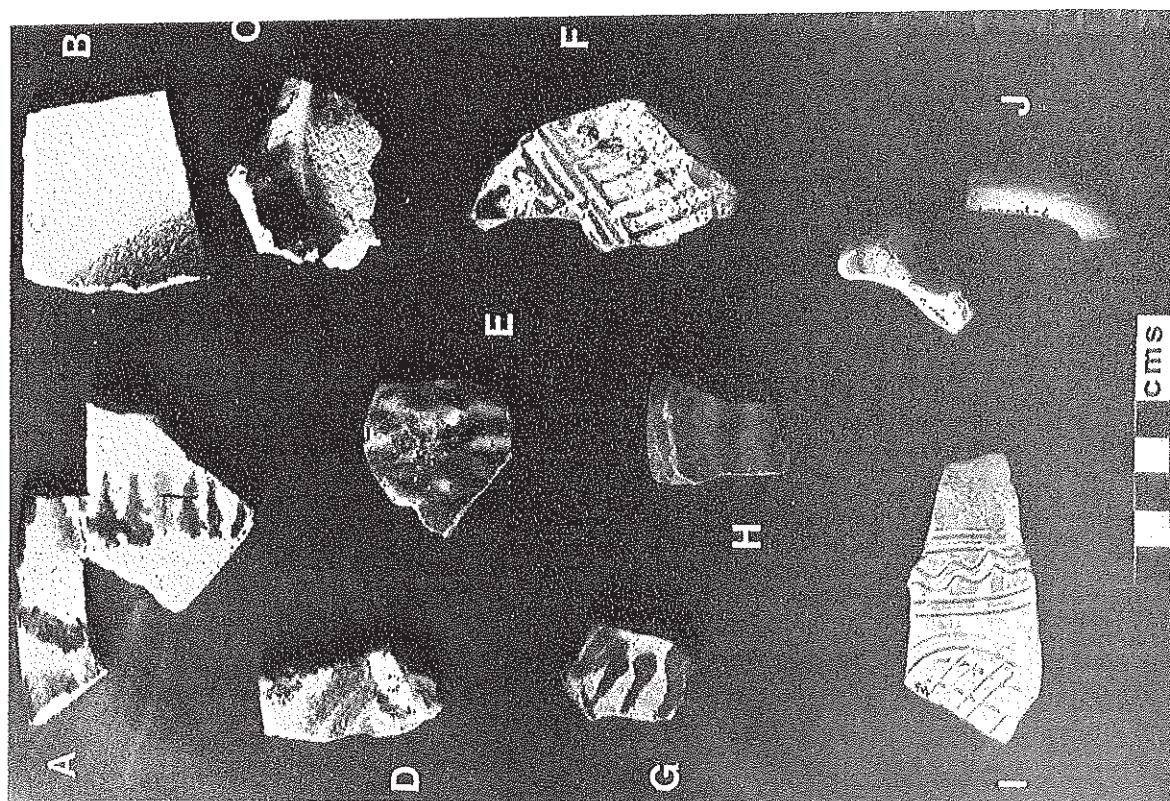


PLATE 3A. Blue-green wares. 3B. Splashed Under-glaze Painted and Associated Wares.

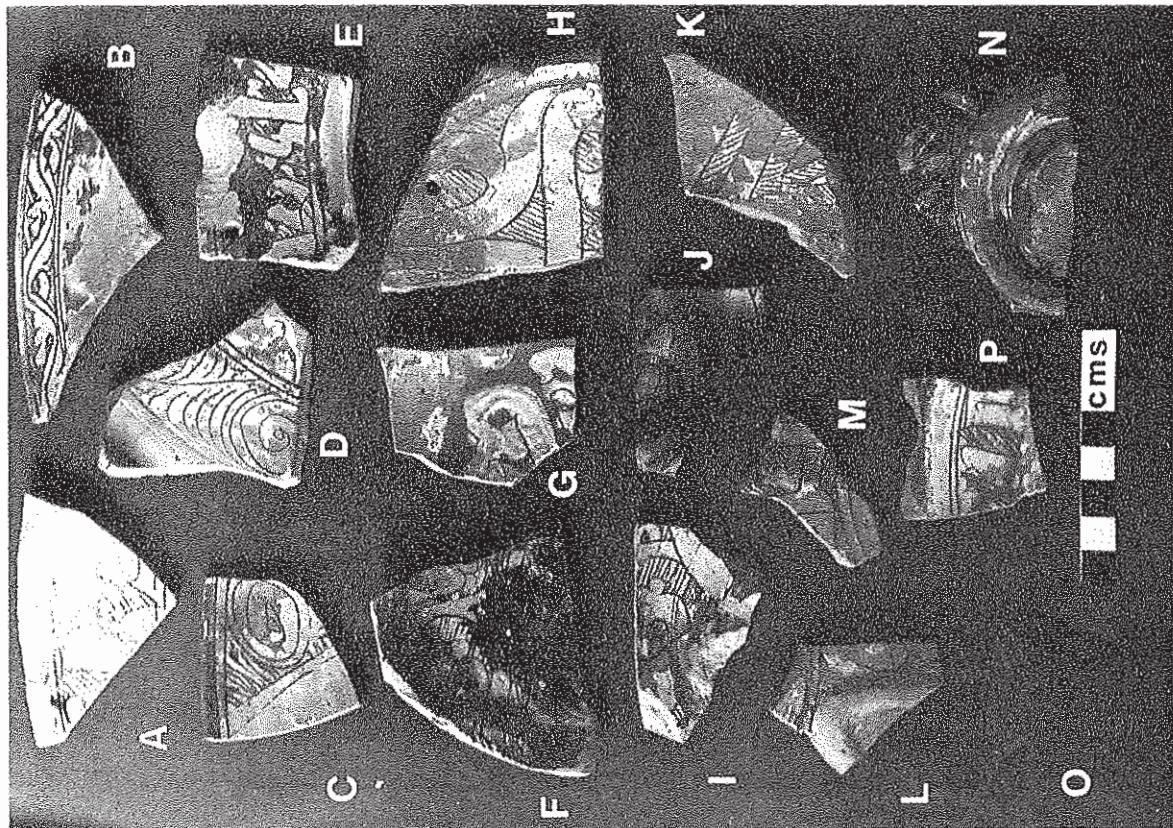
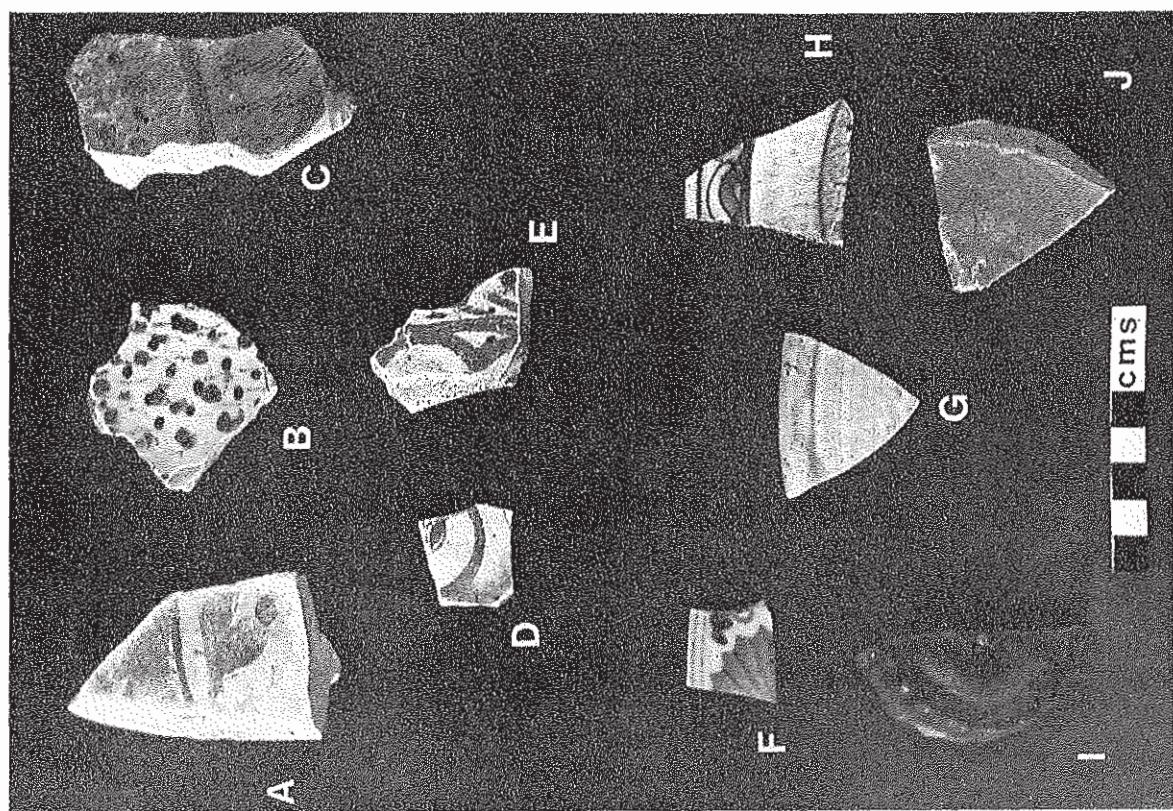


PLATE 4A. Lustre and other Imported Wares. 4B. Late Graffato Wares from Ras al-Hadd 3.



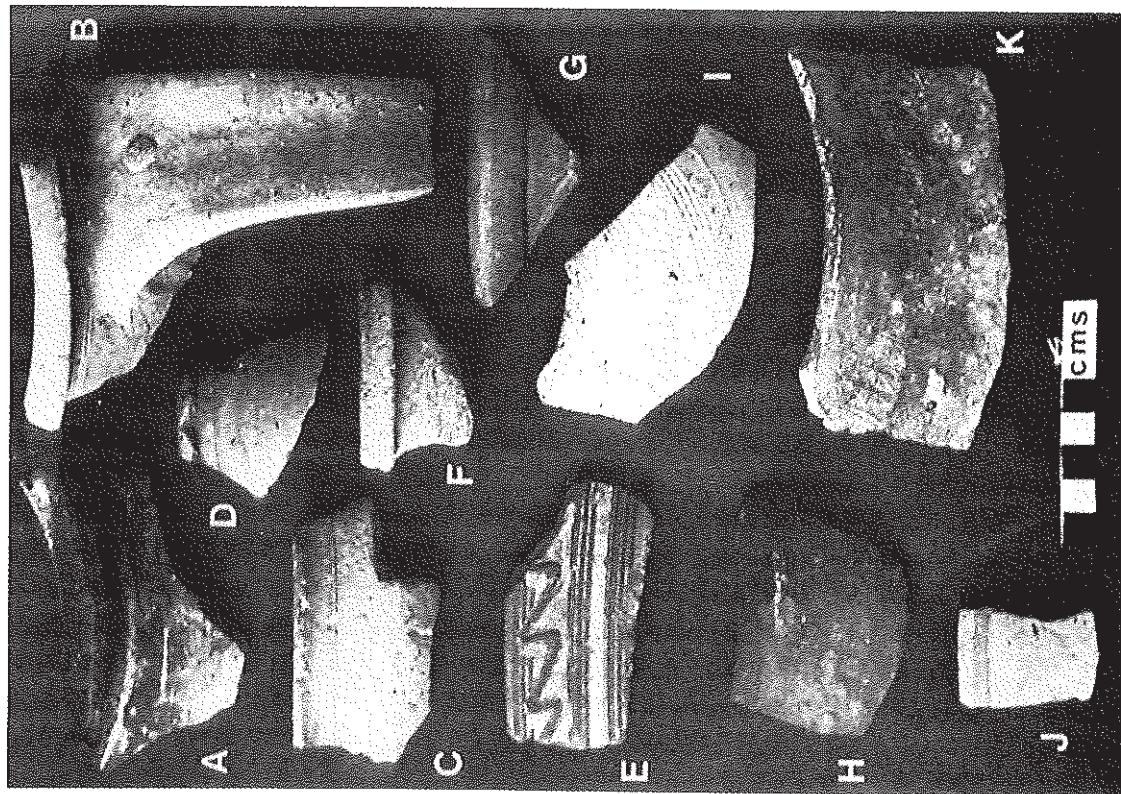
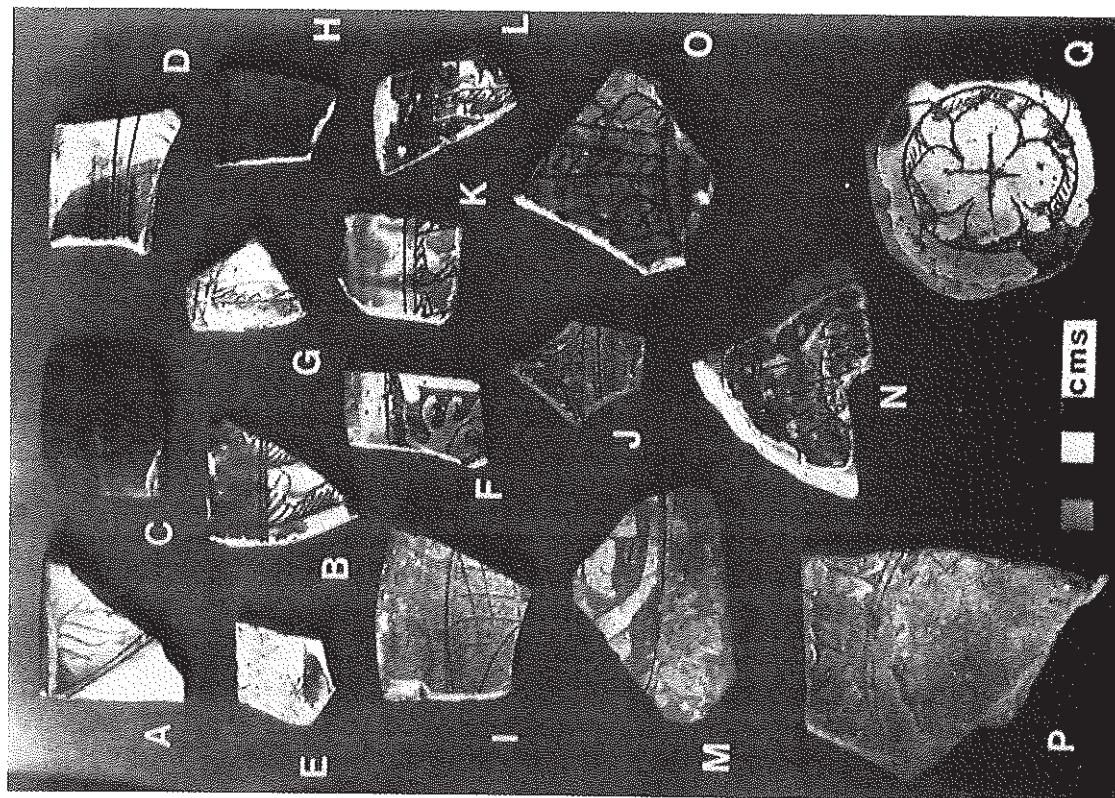


PLATE 5A. Late Graffito Wares and Associated Wares. 5B. Unglazed Wares of the Middle Islamic period.



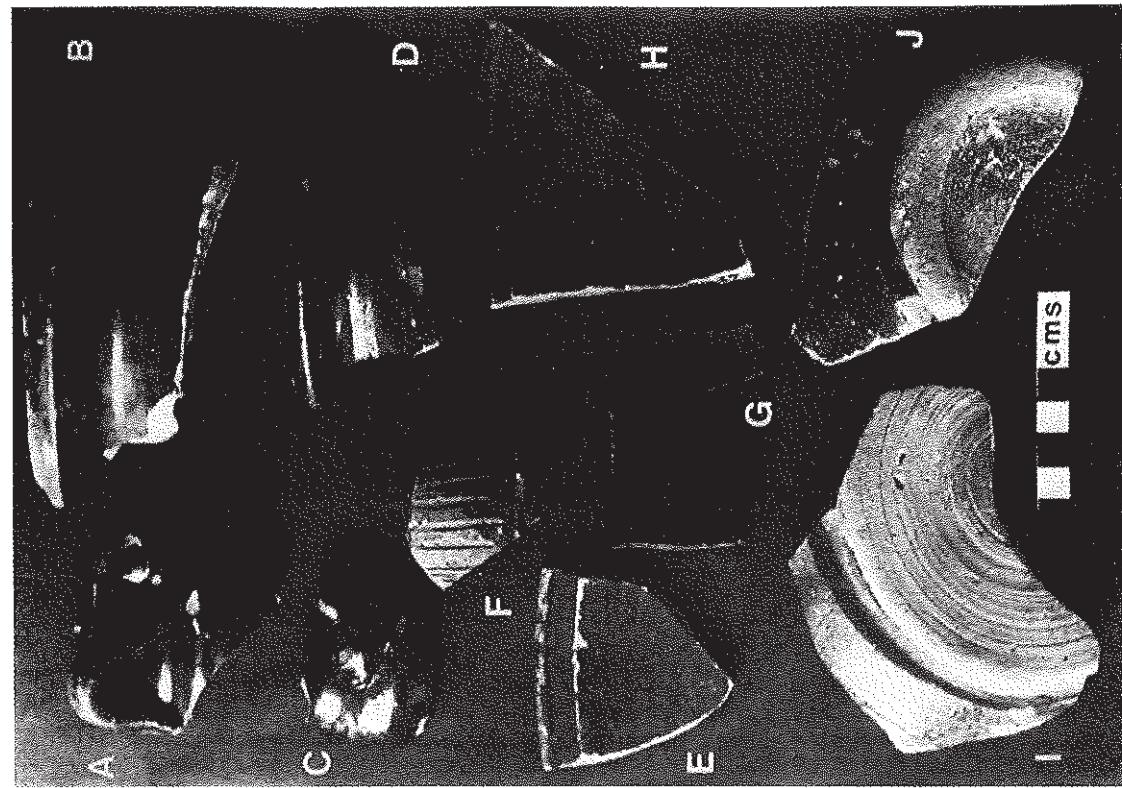
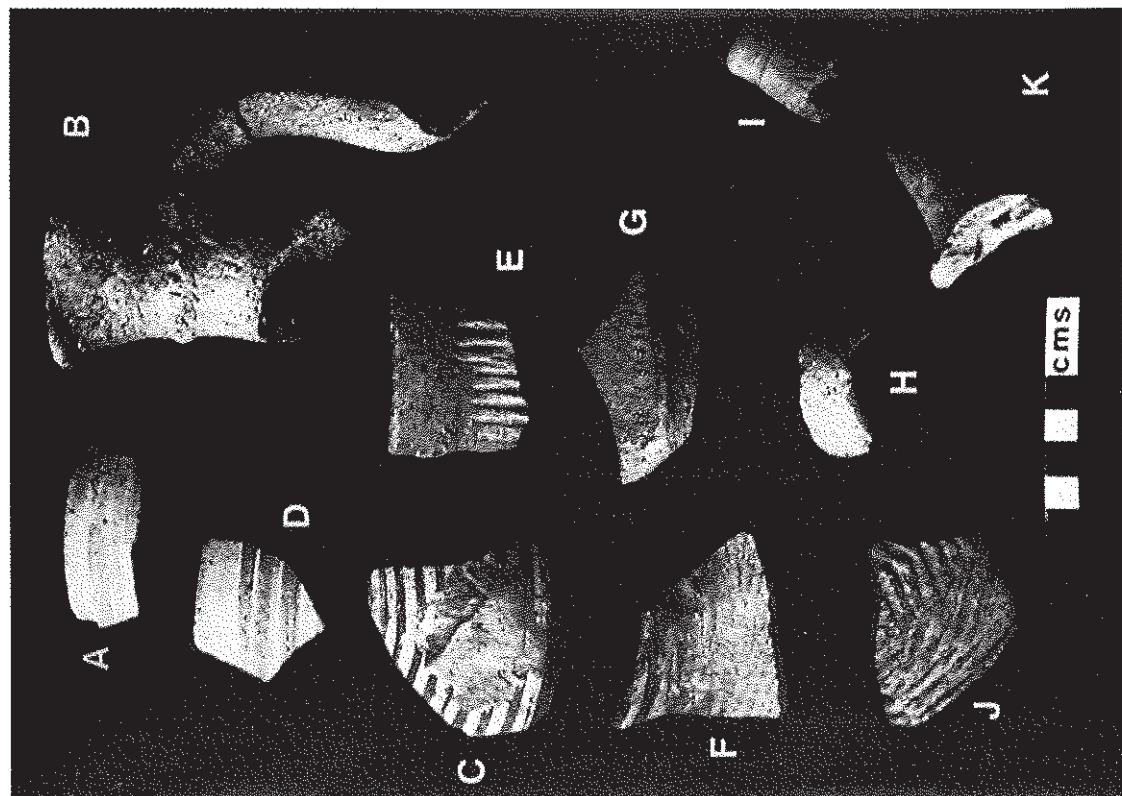


PLATE 6A. *Bahla Wares.* 6B. *Unglazed Wares of the late Islamic period.*

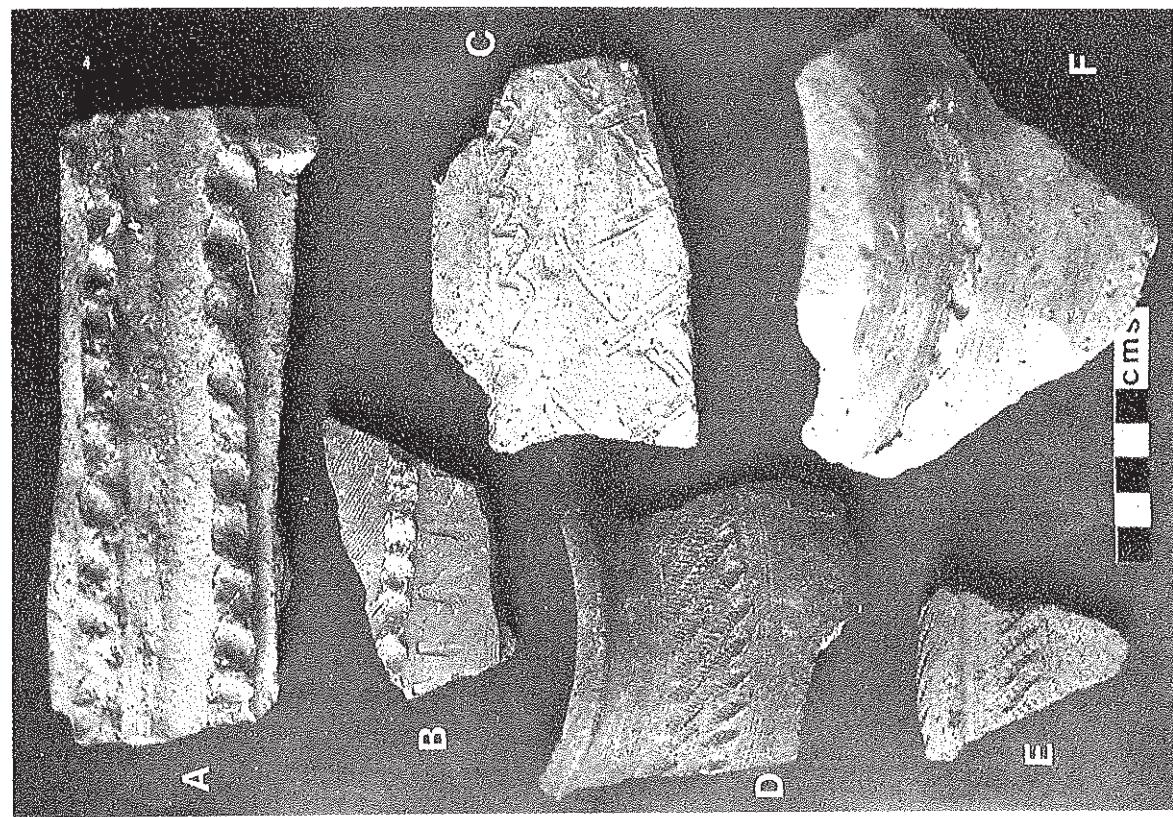
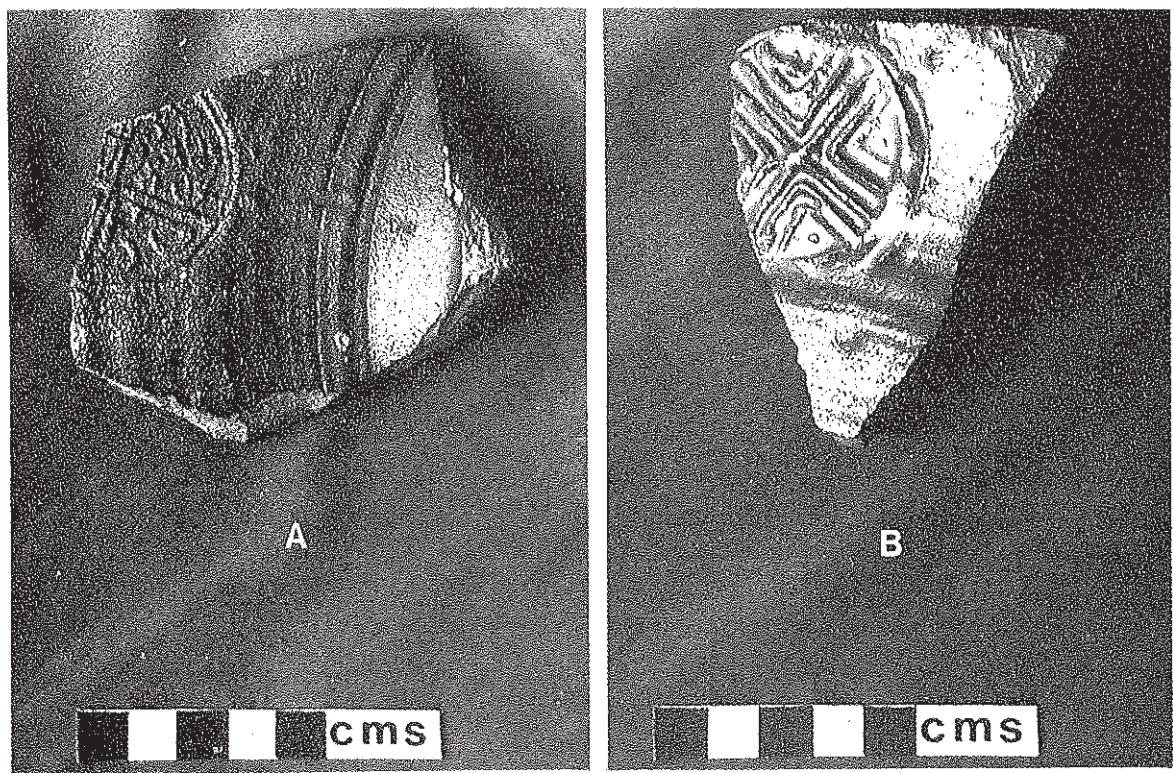


PLATE 7A. Heavy Wares. 7B. Stamped Impressed Bahla Wares.

## CONCORDANCE OF SHERDS ILLUSTRATED BOTH IN PLATES AND FIGURES

PLATE 3A: *Blue-green Wares.*

A Wadi Beni Kharus 1 (Fig. 5: aa)  
 B Wadi Beni Kharus 1 (Fig. 5: bb)  
 C Wadi Beni Kharus 1 (Fig. 5: gg)  
 D Ras al-Hadd 3 (Fig. 8: cc)  
 E Wadi Beni Kharus 1 (Fig. 5: cc)  
 F Ras al-Hadd 3 (Fig. 8: dd)  
 G BB-15 (Fig. 10: jj)

PLATE 3B: *Splashed, Under-glaze Painted, and Associated Wares.*

A Wadi Beni Kharus 1 (Fig. 5: s)  
 B Wadi Beni Kharus 1 (Fig. 5: p)  
 C Wadi Beni Kharus 1 (Fig. 5: x)  
 D Lasail (Fig. 7: o)  
 E Lasail (Not drawn)  
 F Wadi Beni Kharus 1 (Fig. 5: k)  
 G Lasail (Fig. 7: p)  
 H Lasail (Fig. 7: n)  
 I Ras al-Hadd 3 (Not drawn)  
 J Lasail (Fig. 7: j)

PLATE 4A: *Lustre and Other Imported Wares.*

A Wadi Beni Kharus 1 (Fig. 5: n)  
 B Wadi Andam 32 (Fig. 7: f)  
 C Lasail (Fig. 7: l)  
 D Wadi Beni Kharus 1 (Fig. 5: l)  
 E Wadi Beni Kharus 1 (Fig. 5: m)  
 F Wadi Andam 37 (Fig. 13: dd)  
 G Ras al-Hadd 3 (Fig. 9: cc)  
 H Wadi Andam 37 (Fig. 13: ee)  
 I Ras al-Hadd 3 (Fig. 9: aa)  
 J BB-15 (Fig. 10: z)

PLATE 4B: *Late Sgraffiato Wares from Ras al-Hadd 3.*

A Ras al-Hadd 3 (Fig. 8: c)  
 B Ras al-Hadd 3 (Fig. 8: h)  
 C Ras al-Hadd 3 (Fig. 8: d)  
 D Ras al-Hadd 3 (Fig. 8: k)  
 E Ras al-Hadd 3 (Fig. 8: a)  
 F Ras al-Hadd 3 (Fig. 8: o)  
 G Ras al-Hadd 3 (Fig. 8: l)  
 H Ras al-Hadd 3 (Fig. 8: s)  
 I Ras al-Hadd 3 (Not drawn)  
 J Wadi Beni Kharus 1 (Not drawn)  
 K Ras al-Hadd 3 (Fig. 8: q)  
 L Ras al-Hadd 3 (Fig. 8: e)  
 M Ras al-Hadd 3 (Not drawn)  
 N Ras al-Hadd 3 (Fig. 8: t)  
 O Ras al-Hadd 3 (Not drawn)  
 P Ras al-Hadd 3 (Not drawn)

PLATE 5A: *Late Sgraffiato and Associated Wares.*

A Wadi Beni Kharus 1 (Fig. 5: u)  
 B Wadi Andam 6 (Not drawn)  
 C Wadi Beni Kharus 1 (Fig. 5: d)  
 D BB-15 (Fig. 10: g)  
 E BB-15 (Fig. 10: j)  
 F BB-15 (Fig. 10: i)  
 G BB-15 (Not drawn)

H BB-15 (Fig. 10: w)  
 I BB-15 (Fig. 10: h)  
 J BB-15 (Not drawn)  
 K BB-15 (Fig. 10: n)  
 L BB-15 (Fig. 10: l)  
 M BB-15 (Fig. 10: e)  
 N BB-15 (Fig. 10: r)  
 O BB-15 (Fig. 10: k)  
 P Wadi Qant 3 (Fig. 11: dd)  
 Q Wadi Qant 3 (Fig. 11: w)

PLATE 5B: *Un glazed Wares of the Middle Islamic Period.*

A Ras al-Hadd 3 (Fig. 9: n)  
 B BB-15 (Fig. 10: a)  
 C Wadi Qant 3 (Fig. 11: m)  
 D Wadi Qant 3 (Fig. 11: x)  
 E Wadi Andam 37 (Fig. 13: u)  
 F Ras al-Hadd 3 (Fig. 9: i)  
 G Wadi Qant 3 (Fig. 11: c)  
 H Wadi Qant 3 (Fig. 11: l)  
 I BB-15 (Fig. 10: d)  
 J BB-15 (Fig. 10: u)  
 K Ras al-Hadd 3 (Fig. 9: f)

PLATE 6A: *Bahla Wares.*

A Wadi Andam 37 (Fig. 12: m)  
 B Wadi Andam 37 (Fig. 12: r)  
 C Wadi Andam 37 (Fig. 12: n)  
 D Wadi Andam 37 (Fig. 12: s)  
 E Wadi Andam 37 (Fig. 12: h)  
 F Wadi Andam 39 (Not drawn)  
 G Wadi Beni Kharus 1 (Fig. 5: b)  
 H Wadi Andam 37 (Fig. 12: f)  
 I Wadi Andam 37 (Fig. 12: t)  
 J Wadi Andam 37 (Fig. 12: v)

PLATE 6B: *Un glazed Wares of the Late Islamic Period.*

A Wadi Andam 37 (Fig. 13: q)  
 B Wadi Andam 37 (Fig. 13: bb)  
 C Wadi Andam 37 (Fig. 13: h)  
 D Wadi Andam 37 (Fig. 13: m)  
 E Wadi Qant 3 (Fig. 11: d)  
 F Wadi Andam 37 (Fig. 13: k)  
 G Wadi Qant 3 (Fig. 11: t)  
 H Wadi Andam 37 (Not drawn)  
 I Wadi Qant 3 (Fig. 11: s)  
 J Wadi Qant 3 (Not drawn)  
 K Wadi Andam 37 (Fig. 13: cc)

PLATE 7A: *Heavy Wares.*

A Wadi Andam 39 (Fig. 13: w)  
 B BB-15 (Not drawn)  
 C BB-15 (Not drawn)  
 D Wadi Andam 37 (Fig. 13: c)  
 E Wadi Andam 37 (Fig. 13: v)  
 F Wadi Andam 37 (Fig. 13: a)

PLATE 7B: *Stanin Impressed Bahla Ware.*

A Wadi Andam 37 (Fig. 12: j)  
 B Wadi Andam 37 (Fig. 12: k)

FIG. 5. *Glazed wares from Wadi Beni Kharus 1.*

- a Grey ware, chocolate glaze on interior, chocolate-dark olive glaze on exterior.
- b Dark grey ware (Plate 6A: g), black- dark brown glaze on interior and exterior, glassy surfaces, lumps of glaze on rim.
- c Orange-light grey ware, light olive glaze on interior and exterior, yellow-brown spots (iron particles).
- d Dark grey ware (Plate 5A: c), chocolate-dark olive glaze with horizontal streaks, incised lines.
- e Orange-brown ware, black glaze on interior and exterior, sand temper.
- f Buff ware, chocolate glaze on interior.
- g Grey-orange ware, chocolate-olive glaze on interior and exterior, horizontal loop handle.
- h Grey ware, chocolate glaze on exterior, chocolate-olive glaze on interior, broad vertical incised lines, sand temper.
- i Grey-orange ware, chocolate glaze on interior and exterior, broad incised line.
- j Yellow-cream ware, white glaze on interior and exterior.
- k Orange-buff ware (Plate 3B: f), white slip with grey-green and black paint, glaze removed.
- l Yellow-cream ware (Plate 4A: n), light olive green and white lustre on exterior, traces of yellow and white lustre on interior.
- m Cream ware (Plate 4A: e), white, light green and yellow-brown lustre on interior, white on exterior.
- n Cream ware (Plate 4A: A), white, light yellow and brown lustre on interior, white on exterior.
- o Dark brown-orange ware, incised lines on interior, glaze removed.
- p Cream-yellow ware (Plate 3B: b), white and turquoise glaze on interior, white glaze on exterior.
- q Orange-buff ware, white and black paint on interior, glaze removed.
- r Orange-buff ware, traces of white and brown paint on interior, white on exterior, glaze removed.
- s Cream ware (Plate 3B: A), white, dark brown and yellow green glaze on interior.
- t Dark orange ware, white slip, incised lines, glaze removed.
- u Orange ware (Plate 5A: A), dark and light green glaze on white slip on interior, incised lines.
- v Yellow-cream ware, white, blue-green and black glaze on interior; traces of white glaze on exterior.
- w Cream-yellow ware, white and turquoise glaze on interior, white glaze on exterior.
- x Yellow-cream ware (Plate 3B: c) thick white and turquoise-black glaze on interior.
- y Cream ware, white, green and olive-brown glaze on interior.
- z Yellow-cream ware, thick white and turquoise-black glaze on interior.
- aa Yellow-cream ware (Plate 3A: A), blue-green glaze on interior and exterior horizontal ribbing, grit temper.
- bb Yellow-cream ware (Plate 3A: B), blue-green glaze on interior and exterior broad incised lines, grit temper.
- cc Yellow-cream ware (Plate 3A: E), blue-green glaze on interior and exterior appliquéd and large horizontal loop handle.
- dd Yellow-cream ware, white glaze on interior and exterior.
- ee Yellow-cream ware, thick blue-green glaze on interior and exterior.
- ff Yellow-cream ware, white and turquoise-black glaze on interior.
- gg Yellow-cream ware (Plate 3A: C), blue-green glaze on exterior; black glaze on interior, chain ridge.
- hh Grey stoneware, dark olive green on interior and exterior traces of black paint on exterior.
- ii Dark green glass.
- jj Porcelain, slightly off-white, incised potter's mark.
- kk Light grey celadon, very pale greenish hue.

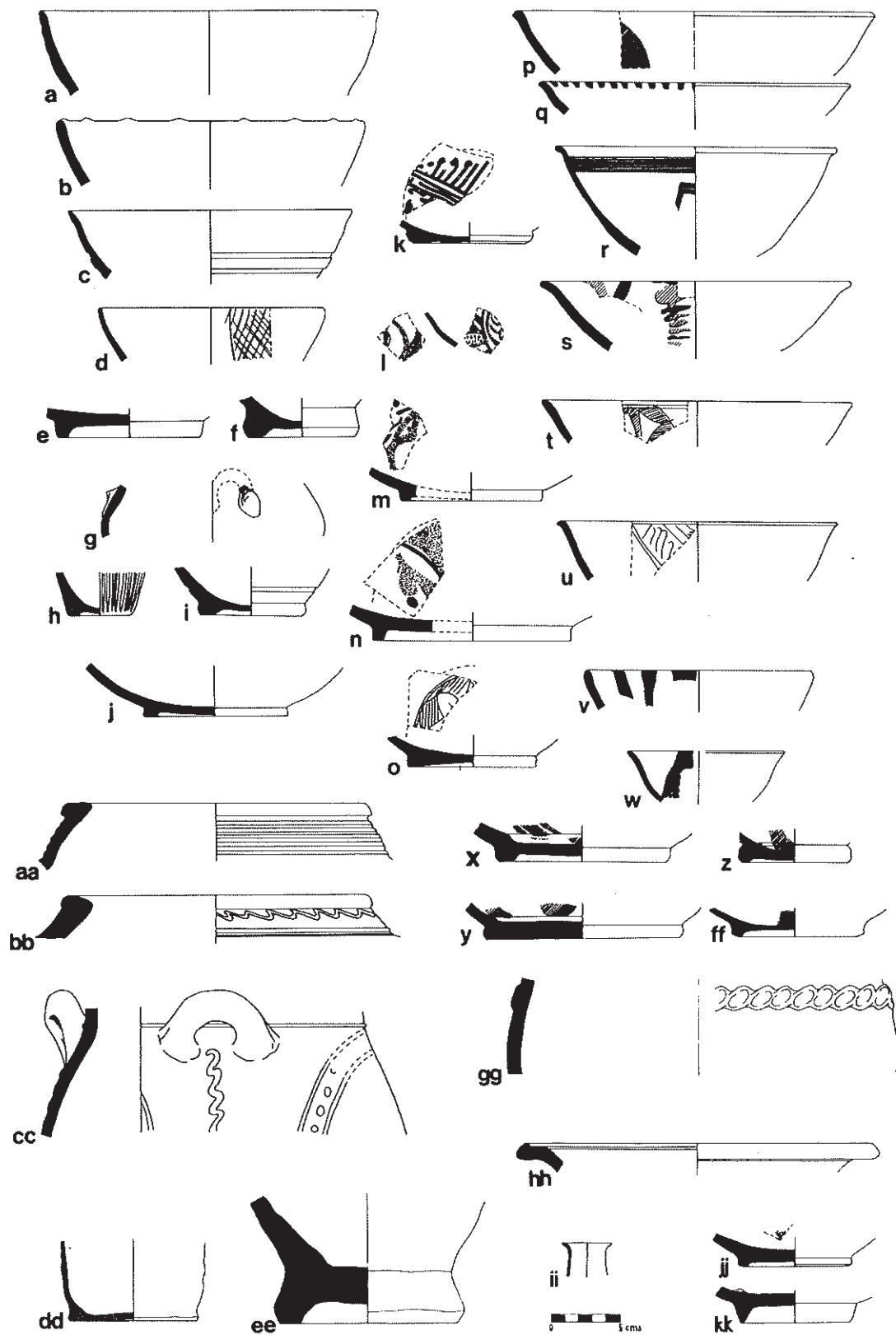


FIG. 5. *Glazed wares from Wadi Beni Kharus 1.*

FIG. 6. *Unglazed wares from Wadi Beni Kharus 1.*

- a Brown-grey ware, dark grey surface on exterior, ledge handle, sand and grit temper.
- b Black ware, orange-brown slip on exterior, large punctuations on rim, fine grit temper.
- c Light brown-orange ware, sand temper.
- d Grey ware, traces of cream slip on exterior, broad incised lines, sand temper.
- e Dark orange ware, incised line, red grit temper.
- f Light grey ware, buff slip on exterior, ledge handle, very sandy temper.
- g Red-orange ware, self-slip, grit temper.
- h Brown ware, black slip on exterior, incised line and punctuations, red grit temper.
- i Green-cream ware, fine sand temper.
- j Orange ware, punctuations on rim, rough texture, very large grit temper.
- k Dark buff-brown ware, comb incising, red grit temper.
- l Brown-grey ware, dark grey surface on exterior, sand and grit temper.
- m Buff ware, black surface on exterior, rough texture, grit temper.
- n Light orange ware, black surface at rim, rough texture, red grit temper.
- o Light orange ware, red grit temper.
- p Light grey ware, black surface on exterior, friable, angular grit temper.
- q Light buff ware, large handle, chaff and fine sand temper.
- r Cream ware, comb incising, sand temper.
- s Buff ware, cream slip on exterior, sand temper.
- t Buff ware, cream slip on exterior, sand temper.
- u Green-cream ware, comb incising and punctuations, fine sand temper.
- v Orange ware, thick black slip on interior and exterior, rib for handle, grit temper.
- w Red ware, black slip on exterior, comb incising, sand temper.
- x Light orange ware, dark red surface on exterior, comb incising, red grit temper.
- y Buff ware, cream surfaces, fine sand temper.
- z Orange ware, black surface on exterior, comb incising, red grit temper.
- aa Buff ware, cream surfaces, fine light punctuations.
- bb Brown ware, polished surfaces, brown on interior, black on exterior, fine sand temper.
- cc Orange-buff ware, cream slip; grit and some chaff temper.

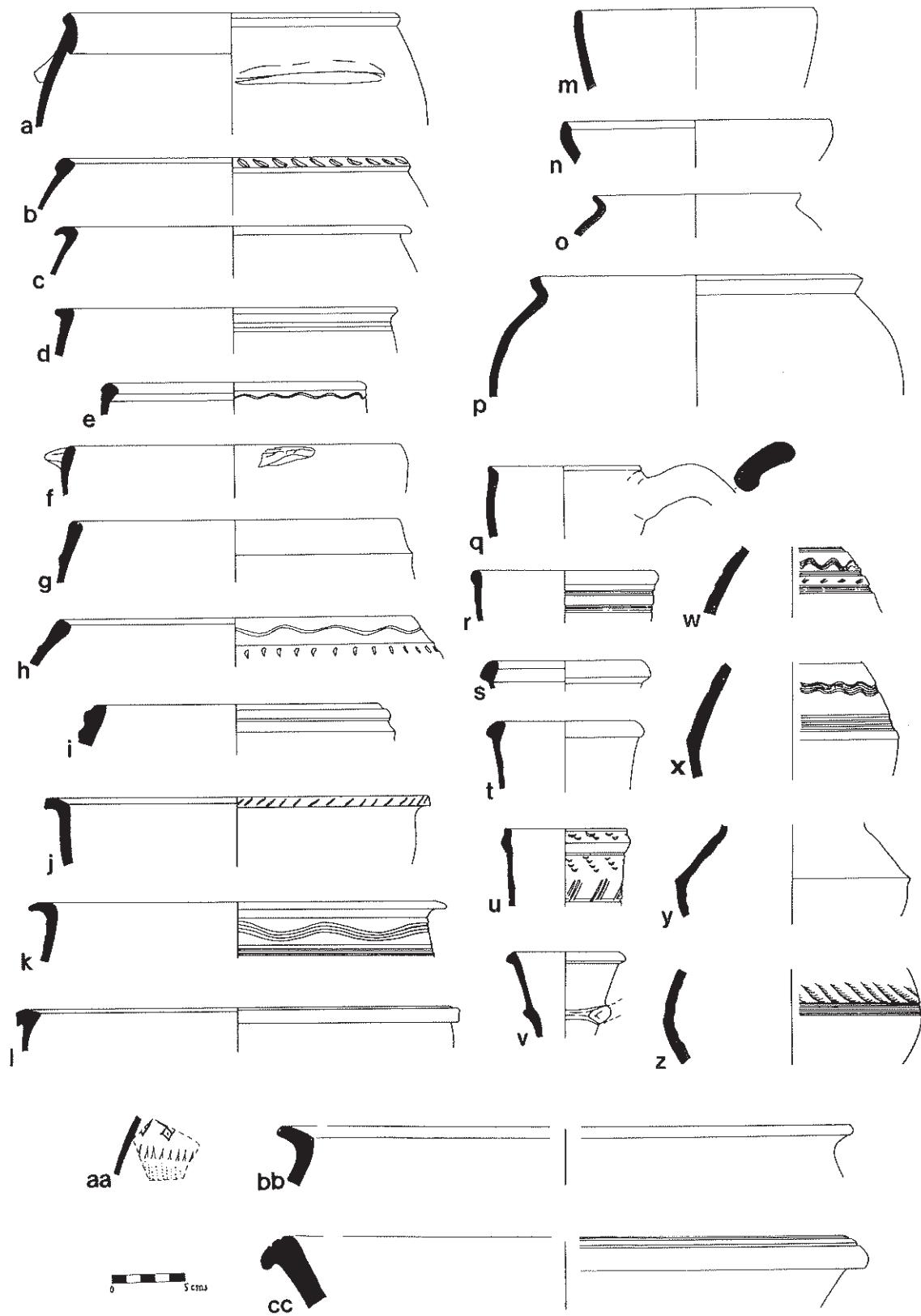


FIG. 6. Unglazed wares from Wadi Beni Kharus 1.

FIG. 7. Ceramics from Lasail (above) and Wadi Andam 32 (below).  
(Lasail)

- a Cream ware, grit and sand temper.
- b Cream ware, fine sand temper.
- c Buff ware, chaff and sand temper.
- d Yellow-cream ware, thick white glaze on interior and exterior.
- e Cream ware, incised line, grit temper.
- f Yellow-cream ware, thick blue-green glaze on interior and exterior.
- g Buff ware, cream and cinnamon brown glaze, glassy surfaces.
- h Cream ware, olive brown and greyish white lustre on interior, grey-ruby and black lustre on exterior.
- i Buff-brown ware, red core, handle with traces of black slip, grit temper.
- j Cream ware (Plate 3B: j), handle with "turban".
- k Cream ware, yellow and brown lustre on interior, white glaze on exterior.
- l Cream ware (Plate 4A: c), greyish white, yellow and brown lustre on interior.
- m Buff ware, green and white glaze on interior, white glaze on exterior and base.
- n Buff ware (Plate 3B: h), yellow-white glaze with green dots on interior.
- o Buff-orange ware (Plate 3B: d), white, green and dark brown, glaze on interior.
- p Buff-orange ware (Plate 3B: e), white, green and dark brown glaze on interior, white glaze on exterior.
- q Buff ware, yellow-white, dark green and brown glaze on interior, white glaze on exterior.
- r Buff ware, traces of red slip on interior, rough texture, sand temper.
- s Yellow-cream ware, traces of red slip on interior and exterior, sand temper.

(Wadi Andam 32)

- a Cream ware, blue-green glaze on interior and exterior, incised line.
- b Buff ware, cream surfaces, chaff and sand temper.
- c Orange ware, white slip on exterior, comb incising chaff and sand temper.
- d Orange ware, olive green-brown lustre on interior.
- e Cream-buff ware, cream slip on exterior, chaff and sand temper.
- f Cream ware (Plate 4A: b), greyish white, brown and yellow lustre on interior, greyish white on exterior.
- g Cream ware, rough texture, chaff and sand temper.

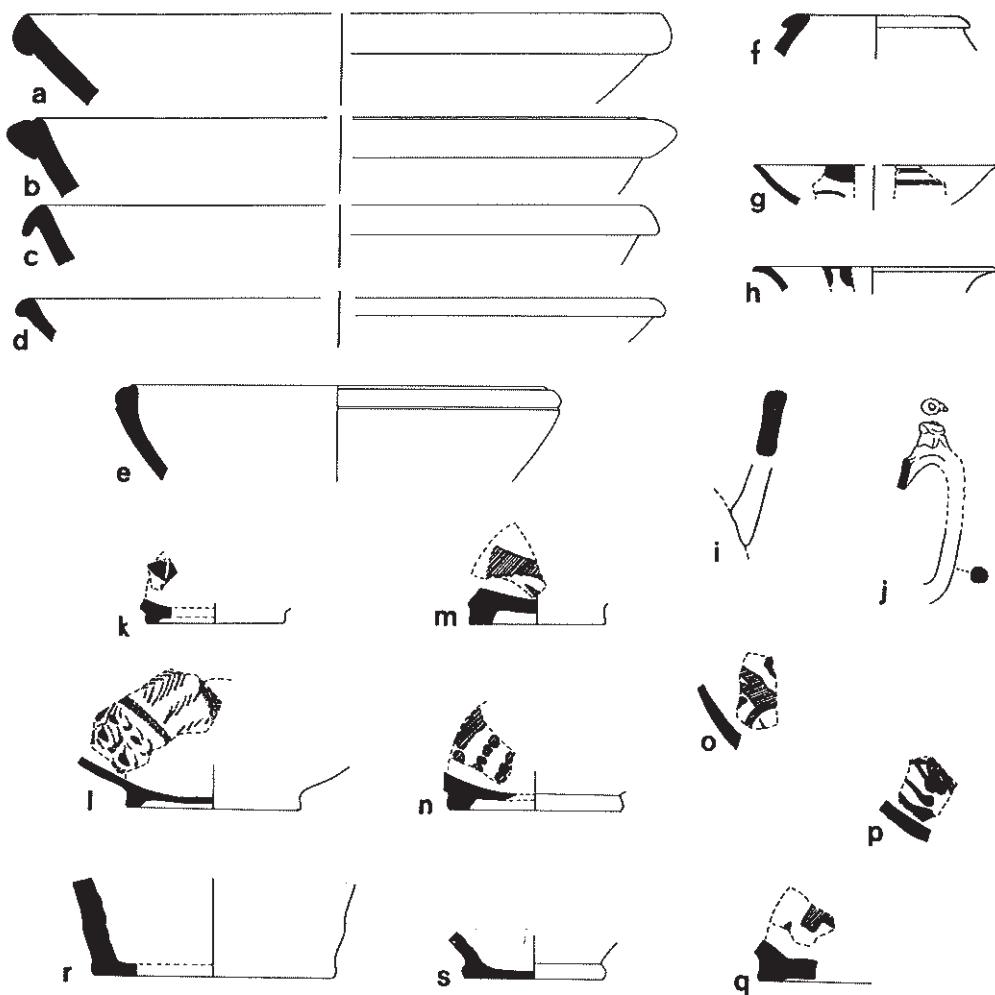


FIG. 7. Ceramics from Lasail (above), and Wadi Andam 32 (below).

FIG. 8. *Glazed wares from Ras al-Hadd 3.*

- a Buff-orange ware (Plate 4B: e), dark green and yellow-brown glaze on white slip, incised lines, traces of white slip on exterior.
- b Orange-buff ware, dark green and brown glaze on exterior, traces of dark brown glaze on interior, incised lines.
- c Buff-light orange ware (Plate 4B: A), cream glaze with greenish hue on white slip, light green incised lines, traces of brown on scalloped rim.
- d Orange-buff ware (Plate 4B: c), yellow and green glaze on interior and exterior dark green on rim, white slip, incised lines.
- e Buff ware (Plate 4B: l), cream glaze on white slip, light green on interior and neck, yellow-brown incised lines.
- f Buff-orange ware, traces of dark green-olive glaze on exterior, cream with a greenish hue on interior on white slip, incised lines, orientation of sherd uncertain.
- g Orange ware, cream glaze with bands of dark yellow on white slip and small dots of green glaze on interior, incised lines.
- h Orange ware (Plate 4B: b), traces of light green, brown, and yellow glaze, dark green incised lines on rim.
- i Buff-cream ware, yellow-brown glaze on white slip on interior and exterior, incised lines.
- j Orange ware, yellow-cream and light green glaze on white slip, incised lines, paddle stamp and dark yellow glaze on exterior, two sherd.
- k Orange-buff ware (Plate 4B: d), yellow glaze on white slip on interior brown incised lines.
- l Orange ware (Plate 4B: g), dark and light yellow glaze on white slip on interior, champ eleve.
- m Cream ware, traces of white slip and faint brown, script on interior.
- n Light orange ware, green glaze on white slip, dark green incised lines.
- o Light orange ware (Plate 4B: f), dark green, yellow-brown, and dark brown glaze on white slip, incised lines.
- p Orange ware, olive green, white and dark brown glaze, brown incised lines.
- q Buff-orange ware (Plate 4B: k), cream glaze with a spot of green on white slip, dark green and yellow-brown incised lines.
- r Orange ware, grey and brownish-green glaze (lustre?) on white slip, dark brown incised lines.
- s Light orange ware (Plate 4B: h), cream glaze on white slip, olive-black incised lines.
- t Orange ware (Plate 4B: n), thick brown glaze with yellow highlights on white slip, incised lines outlining excised sections, applique strip, notched base, traces of glaze on interior.
- u Orange-buff ware, dark green glaze, incised lines, stacking mark.
- v Orange ware, uneven light green on white slip.
- w Orange ware, trace of green glaze.
- x Orange ware, traces of green, yellow, and brown glaze on white slip on interior, green on rim and exterior.
- y Light orange-buff ware, glaze removed.
- z Dark buff-orange ware, uneven dark green and brown glaze on white slip on interior, glaze on exterior removed, dark green incised lines
- aa Yellow ware, thick white glaze, grit temper.
- bb Yellow-grey ware, thin green-blue glaze on exterior incised lines, grit temper.
- cc Yellow ware (Plate 3A: d), thick blue-green glaze on exterior chain ridge.
- dd Yellow ware (Plate 3A: f), thick blue-green glaze on exterior applique.
- ee Cream-yellow ware, thick white glaze on interior with blue (cobalt?) spot, traces of white glaze on exterior.

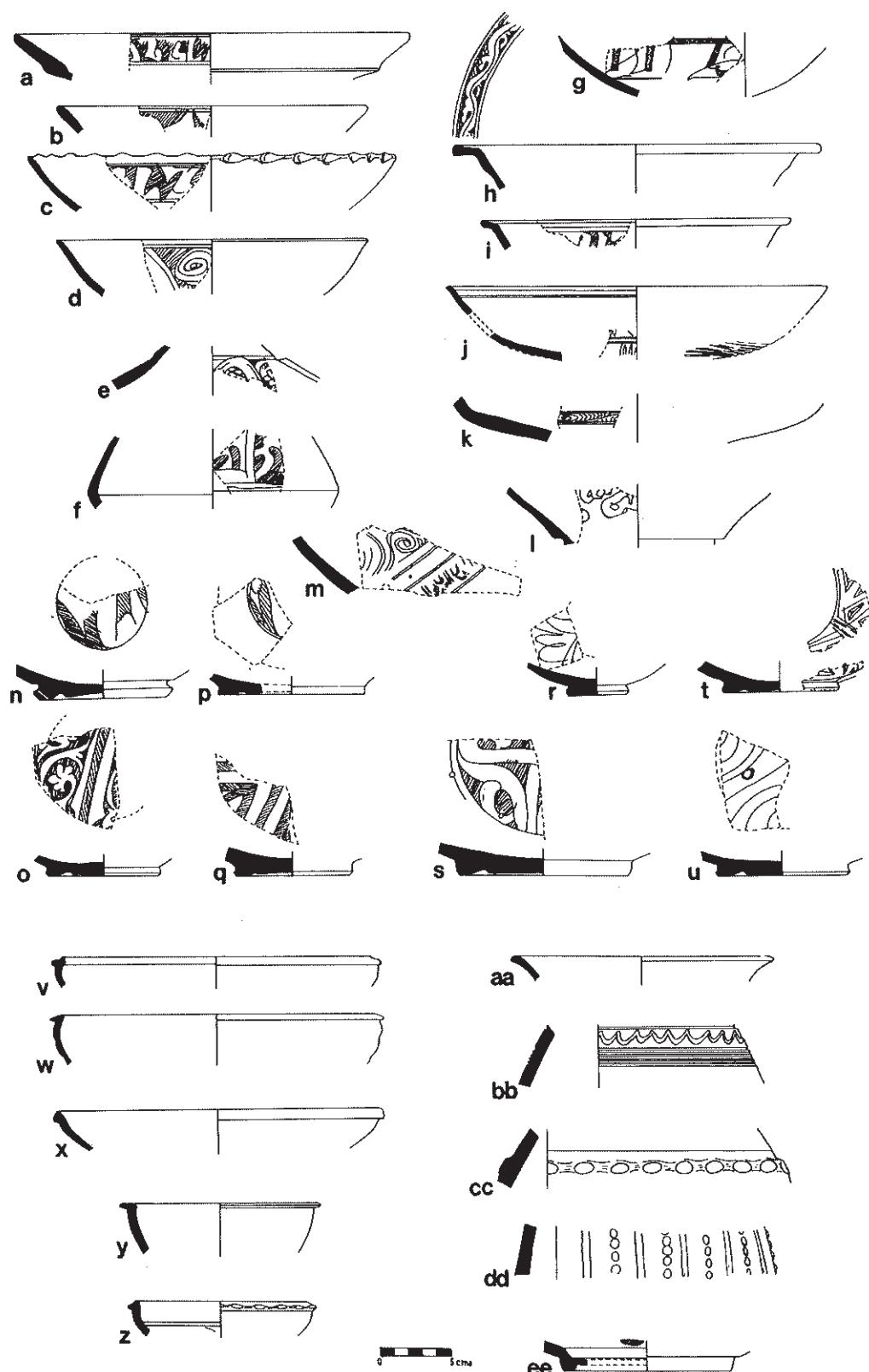


FIG. 8. Glazed wares from Ras al-Hadd 3.

FIG. 9. *Unglazed and imported wares from Ras al-Hadd 3.*

- a Red-orange ware, soapy texture, grit temper.
- b Orange-buff ware, brown slip on exterior, sandy temper.
- c Orange ware, brown slip on exterior, handle, fine temper.
- d Red ware, black surface on exterior, heavy sand temper.
- e Brown ware, grey core, sharp incised lines, sandy temper.
- f Tan-brown ware (Plate 5B: k), grey core, sharp incised lines, sandy grit temper.
- g Buff ware, orange core, handle, chaff temper.
- h Orange ware, trace of slip and brown (?) glaze, handle.
- i Yellow ware (Plate 5B: f), red slip on interior and exterior, sand and heavy chaff temper.
- j Grey ware, grit and heavy chaff temper.
- k Cream ware, chaff and sand temper.
- l Orange ware, sandy temper.
- n Red-brown ware (Plate 5B: A), self-slip, sandy temper.
- o Orange-brown ware, grey core, large black grit and some chaff temper.
- p Cream ware, red grit temper.
- q Cream ware, heavy sand temper.
- r Orange-brown ware, brown surface on exterior, black grit temper.
- s Orange ware, cream applique dab, comb incising and incised lines, red grit temper.
- t Light orange ware, soapy texture, grit temper, incised lines and punctate.
- u Dark brown ware, grey core, sandy with pebbles temper.
- v Light orange-cream ware, traces of brown slip on exterior, handle, black grit temper.
- w Cream ware, incised lines, black grit temper.
- x Green glass.
- y Dark blue (cobalt) glass.
- z Clear glass.
- aa Clear glass, slight green tint (Plate 4A: i).
- bb Cream-white ware, soapy texture, red grit temper.
- cc Porcelain (Plate 4A: c), white, slight grey hue.
- dd Porcelain, bluish white on interior and exterior, trace of blue on exterior, unglazed band in base.
- ee Orange ware, grey core, sandy temper.
- ff Celadon, thin dark green glaze.
- gg Grey stoneware, grey glaze, slightly crackled, wide unglazed band on interior and lower exterior with red edges.
- hh Porcelain, white glaze, slightly bluish.

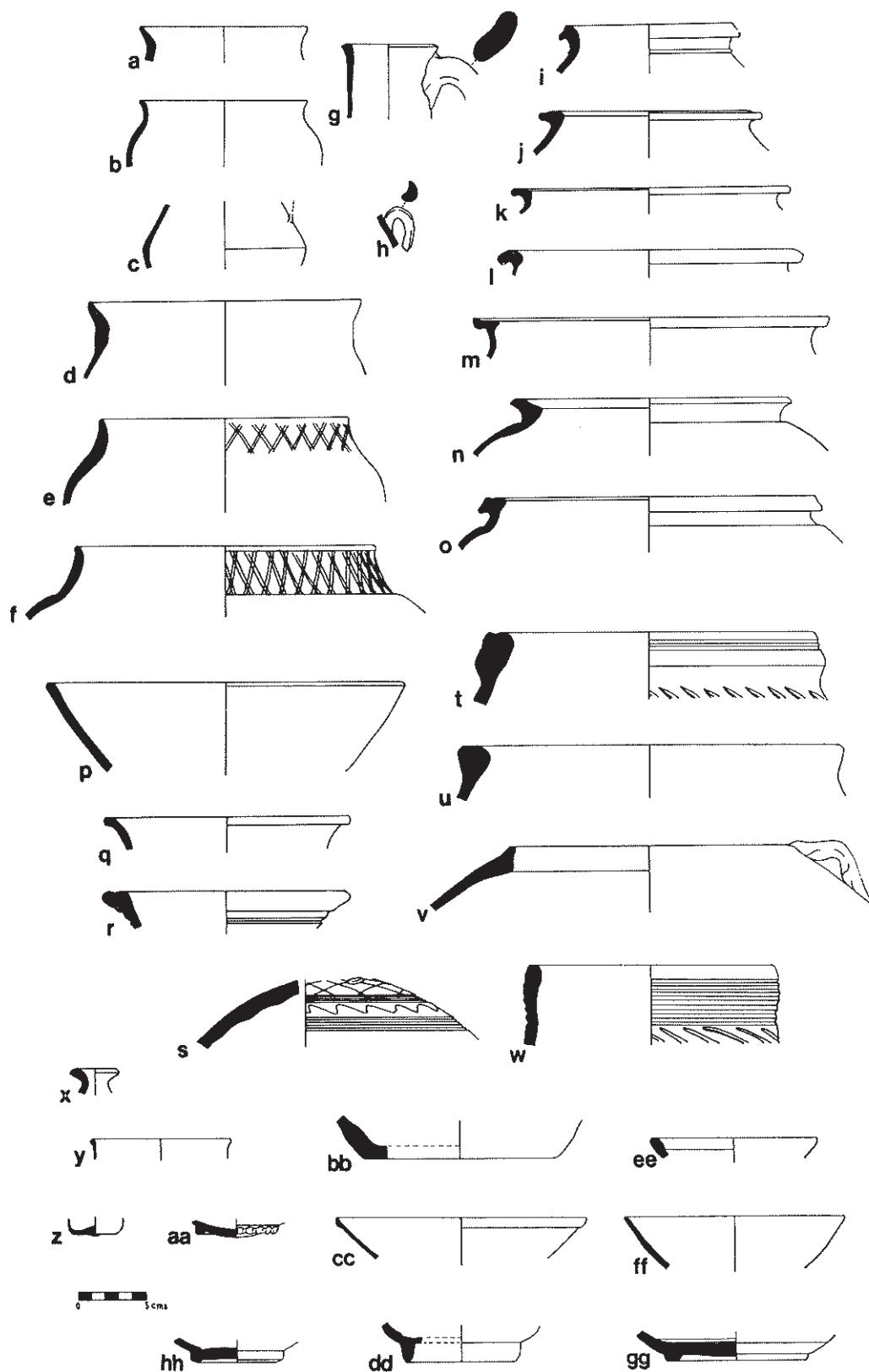


FIG. 9. Unglazed and imported wares from Ras al-Hadd 3.

FIG. 10. *Ceramics from BB-15.*

- a Orange ware (Plate 5B: b), brown surfaces, grit temper, comb incising, applique on handle.
- b Red-orange ware, brown self-slip, grit temper, comb incising.
- c Orange ware, black slip, interior and exterior, chaff and fine sand temper.
- d Greenish-cream ware (Plate 5B: i), black sand temper, rough comb incising.
- e Buff ware (Plate 5A: m), dark yellow glaze, interior and exterior, champ eleve with light yellow on exterior.
- f Buff ware, dark and light green and white glaze on white slip, incised lines.
- g Cream ware (Plate 5A: d), light green and yellow glaze (olive green at overlap), incised lines.
- h Buff ware (Plate 5A: i), yellow glaze, brown incised lines.
- i Buff ware (Plate 5A: f), yellow-cream glaze on interior, cream glaze on exterior, brown incised lines.
- j Buff ware (Plate 5A: e), green, brown and white glaze on interior, white glaze on exterior, incised lines.
- k Cream ware (Plate 5A: o), light green glaze on white slip, dark green incised lines.
- l Cream ware (Plate 5A: l), black, green and white glaze on interior, dark green glaze on exterior, black incise lines.
- m Cream ware, dark green-olive glaze on interior and exterior, dark green incised lines.
- n Cream ware (Plate 5A: k), dark and light green and white glaze on white slip on interior, light green glaze on exterior, dark green incised lines.
- o Orange ware, light green glaze on white slip on interior, traces of green glaze on exterior, incised lines, fine sand temper.
- p Buff-orange ware, glaze removed, traces of white slip in incised lines.
- q Orange-buff ware, green-olive green glaze, dark green incised lines.
- r Cream ware (Plate 5A: n), green glaze on a thick white slip, dark green incised lines.
- s Grey ware, dark red surfaces with black smudges, burnishing on interior and exterior, heavy grit temper.
- t Orange ware, red-black slip on exterior, red slip on interior, sandy temper, incised line and ledge handle.
- u Buff ware (Plate 5B: j), light grey core, light orange-tan slip on interior and exterior, fine temper.
- v Cream ware, chocolate glaze on interior, glassy surface.
- w Cream ware (Plate 5A: h), cinnamon glaze, dark at rim with vertical streaks on interior and exterior.
- x Cream ware, thin chocolate-yellow glaze on interior.
- y Buff ware, traces of dark grey glaze on interior, blistered surface.
- z Celadon (Plate 4A: j), thick green glaze, underglaze impression.
- aa Grey ware, orange surfaces, red-orange slip, comb incising, black smudges on exterior, grit temper.
- bb Orange-red ware, orange-brown slip, incised lines, grit temper.
- cc Brown ware, red-brown slip on exterior, black slip on interior, comb incising, grit temper.
- dd Orange ware, yellow-cream slip on interior and exterior, comb incising, sand and grit temper.
- ee Grey ware, dark red surfaces, brown slip on interior, black slip on exterior, comb incising and punctate, sand and grit temper.
- ff Cream ware, slight finger impressions, some black grit and chaff temper.
- gg Buff ware, cream slip on exterior, chain ridge, large angular grit temper.
- hh Grey ware, red surfaces, dark red slip on interior, black slip on exterior, chain ridges, very gritty temper
- ii Orange-brown ware, light green glaze on white slip on interior, drips of glaze on exterior.
- jj Cream ware (Plate 3A: g), blue-green glaze on interior, exterior and base.
- kk Orange-buff ware, green glaze on white slip.
- ll Orange-buff ware, brown surface on exterior, sandy temper.
- mm Cream ware, chocolate glaze on interior.

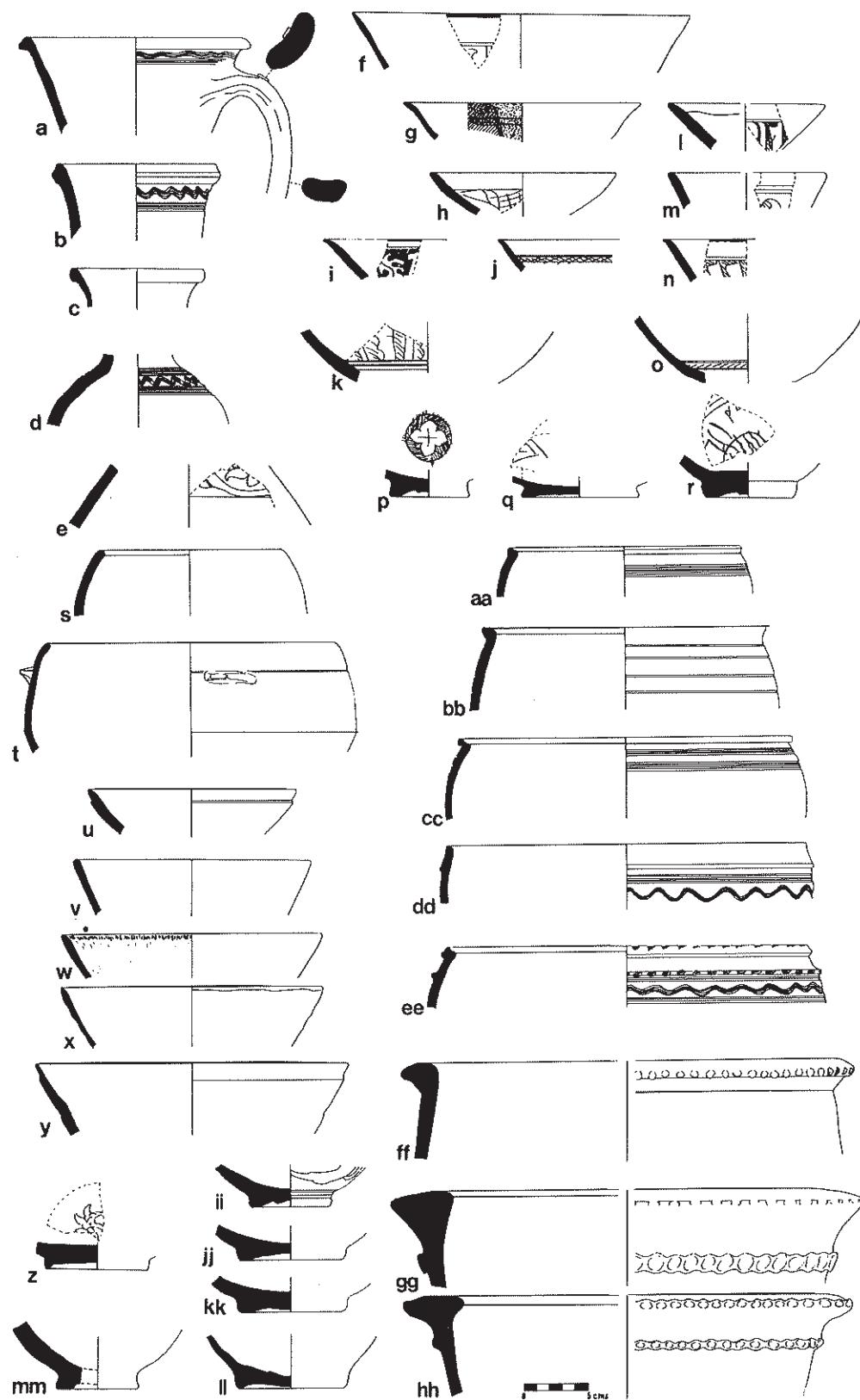


FIG. 10. Ceramics from BB-15.

FIG. 11. *Ceramics from Wadi Qant 3.*

- a Buff ware, traces of cream slip on exterior, broad vertical incised lines, grit temper.
- b Buff ware, self-slip on exterior, grit temper.
- c Orange ware (Plate 5B: G), brown slip on interior and exterior, fine grit temper.
- d Orange-pink ware (Plate 6B: B), broad vertical incised lines; grit temper.
- e Orange-tan ware, fine grit temper.
- f Brown-orange ware, brown-black surface on exterior incised lines, fine grit temper.
- g Yellow-cream ware, cinnamon brown glaze, very glassy with horizontal streaks, glaze turns black where thicker at rim, incised lines.
- h Buff ware, fine temper.
- i Cream ware, fine temper.
- j Grey ware, light olive green glaze spotted with brown, especially near rim on interior.
- k Orange-brown ware, traces of yellow slip on exterior, comb incising, grit and sand temper.
- l Grey-brown ware (Plate 5B: H), black slip on exterior, ledge handle, grit temper.
- m Red-pink ware (Plate 5B: C), self-slip, comb incising, rough texture with large grit temper
- n Light orange-buff ware, ridge, heavy chaff and some grit temper.
- o Buff-orange ware, self-slip, red grit temper.
- p Brown ware, grey-brown slip on interior, sand temper.
- q Orange-brown ware, light grey core, comb incising, fine grit temper.
- r Light orange ware, comb incising, red grit temper.
- s Orange-brown ware (Plate 6B: I), spout with incised lines, fine sand temper.
- t Orange-buff ware (Plate 6B: G), yellow-buff slip on exterior, ledge handle with punctions.
- u Orange-buff ware, green and white glaze on white slip on interior, faint incised lines.
- v Grey ware, red core, dark chocolate glaze, very glassy and lustrous surface, incised lines on interior.
- w Orange-buff ware (Plate 5A: Q), dark green and white glaze on white slip, lines incised through slip, fine grit temper.
- x Orange-brown ware (Plate 5B: D), brown slip on interior, comb incising grit temper.
- y Red-orange ware, comb incising, punctions on rim grit temper.
- z Cream-buff ware, uneven green glaze on white slip, fine grit temper.
- aa Buff-orange ware, self-slip, red grit temper.
- bb Grey ware, bright orange surfaces, grey slip on exterior, very rough texture, heavy grit temper.
- cc Green glass.
- dd Orange-buff ware (Plate 5A: P), dark green glaze on white slip on interior, lines incised through slip, fine grit temper.
- ee Orange-grey ware, yellow glaze spotted brown on interior, blistered surface, grit temper.
- ff Cream ware, yellow glaze with brown spots, grit temper.
- gg Brown ware, red core, brown slip on exterior, red grit temper

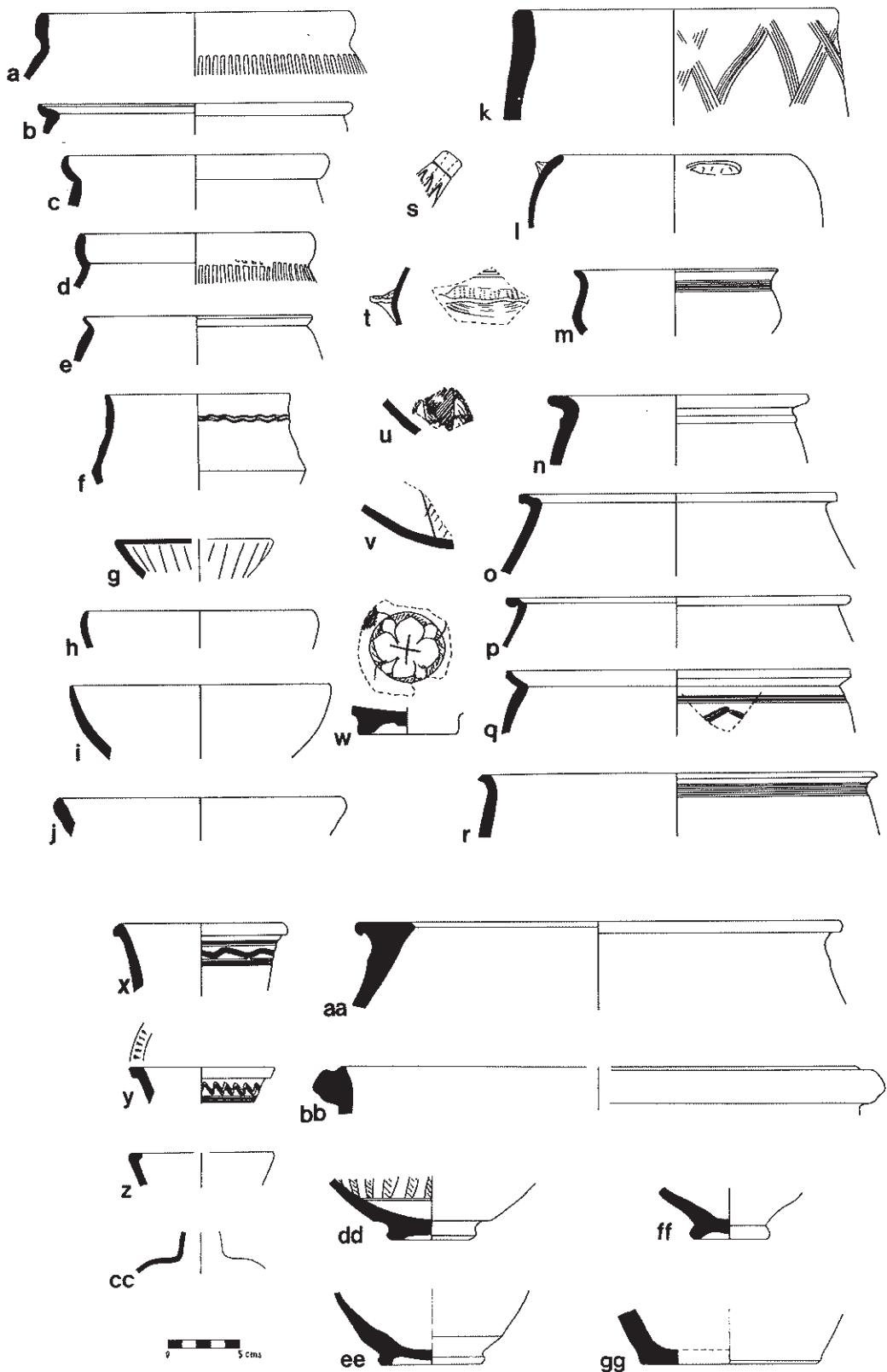


FIG. II. Ceramics from Wadi Qant 3.

FIG. 12. *Glazed wares from Wadi Andam 37 and 39.*

- a Buff ware, yellow-brown glaze on interior and exterior, slightly rough surface.
- b Grey-orange ware, light green glaze on interior and exterior, slightly rough surfaces, yellow spots (iron particles).
- c Grey-orange ware, light green glaze on interior and exterior, very rough and blistered.
- d Buff ware, olive green glaze with horizontal streaks, black on edge of interior rim, glassy surfaces, yellow spots (iron particles).
- e Buff ware, chocolate glaze on interior and exterior, yellowish where thin, glassy surface on interior, blistered on exterior.
- f Buff ware (Plate 6A: h), slightly spotted chocolate glaze on interior with glassy surface, yellowish glaze on exterior, blistered surface.
- g Buff ware, chocolate glaze on interior and exterior, thick and glassy, slightly blistered on exterior base.
- h Buff ware (Plate 6A: e), green glaze on interior and exterior with horizontal streaks, smooth to blistered on exterior, yellow spots (iron particles).
- i Orange-grey ware, brown-yellow glaze on exterior turning greenish on interior, slightly rough surfaces.
- j Buff-grey ware (Plate 7B: A), black glaze (lustrous surface) on exterior, stamp in quadrants with inscription possibly: 'amala Halfan (?) ben Yuse (f).
- k Buff-grey ware (Plate 7B: b), black glaze (lustrous surface) on exterior, stamp with design in quadrants..
- l Buff-grey ware, black glaze (lustrous surface) on exterior, stamp with floriate design.
- m Grey ware (Plate 6A: A), olive green glaze, thick and glassy, on exterior and interior rim, horizontal streaks, double horizontal loop handles.
- n Buff-grey ware (Plate 6A: c), chocolate glaze turning yellowish at highlights, very glassy, interior not glazed, horizontal loop handles.
- o Buff-grey ware, olive green glaze on exterior, very glassy, sharp incised lines.
- p Grey ware, chocolate glaze with greenish tones on exterior and on interior rim.
- q Grey-orange ware, dark green glaze, uneven and tending to yellow on interior, very glassy.
- r Buff-orange ware (Plate 6A: b), chocolate to light brown glaze on exterior and on interior rim, interior surface slightly blistered.
- s Buff-grey ware (Plate 6A: d), black glaze (lustrous surface), stacking mark on rim and marks of double horizontal loop handle; interior not glazed.
- t Buff-orange ware (Plate 6A: i), yellow-brown glaze, thick and glassy on interior, slightly blistered on exterior stacking mark.
- u Orange-grey ware, chocolate glaze on interior and exterior blistered on interior.
- v Buff-orange ware (Plate 6A: j), chocolate glaze on interior and exterior, blistered and very thin on red slip (?).

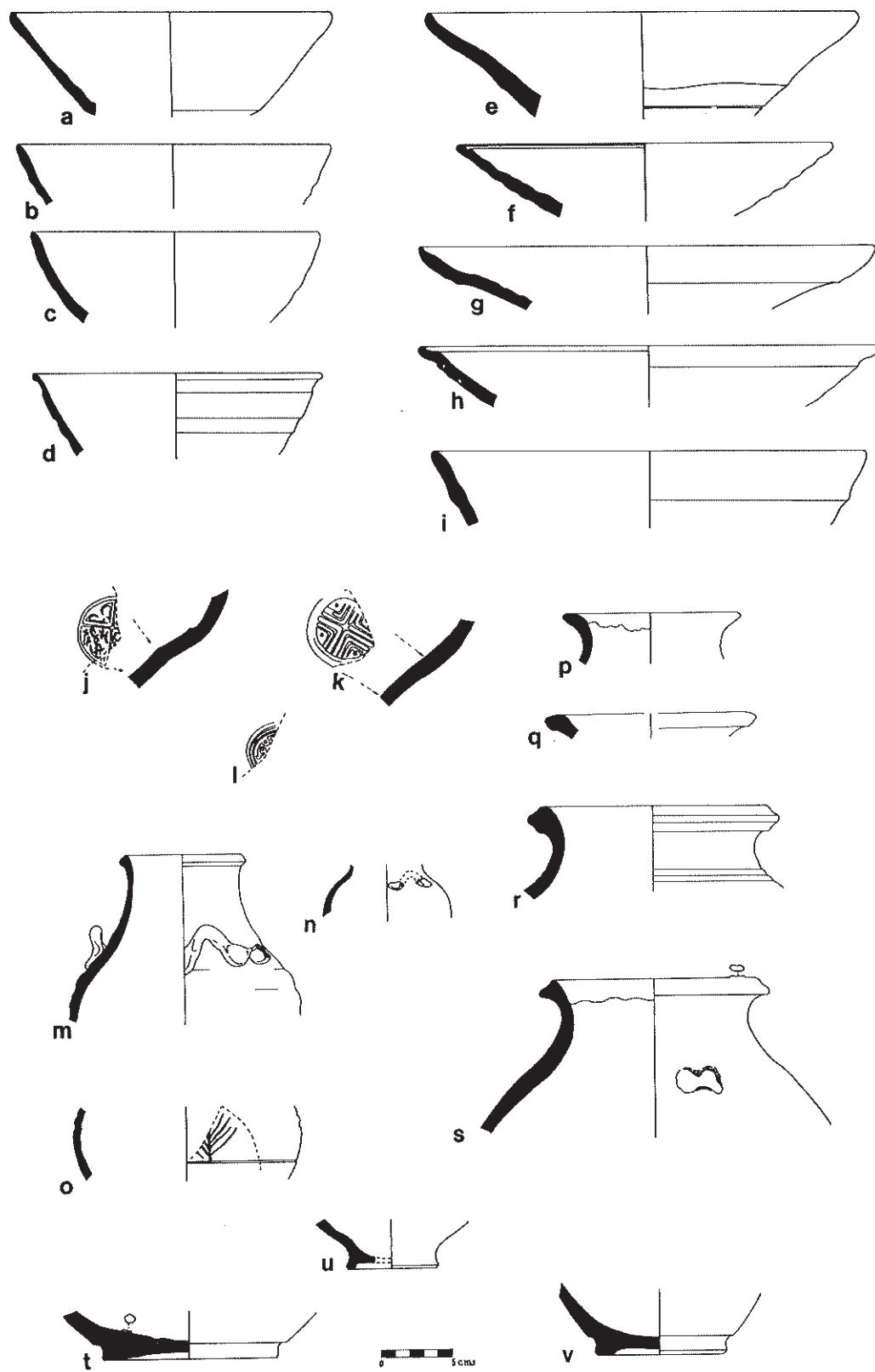


FIG. 12. Glazed wares from Wadi Andam 37 and 39.

FIG. 13. *Un glazed and imported wares from Wadi Andam 37 and 39.*

- a Orange-buff ware (Plate 7A: f), black slip on exterior, rope ridge and finger impressions, grit temper.
- b Orange ware, brown surface on exterior, comb incising, heavy sand temper.
- c Light orange ware (Plate 7A: d), black surface on exterior, comb incising and impressions, heavy grit temper.
- d Light orange ware, black surface on exterior, comb incising, heavy grit temper.
- e Light orange ware, incised lines, fine temper.
- f Cream ware, comb incising, sand temper.
- g Light orange ware, brown slip on interior, fine temper.
- h Brown ware (Plate 6B: c), black slip on exterior, cream slip except comb incising, horizontal loop handle.
- i Orange ware, cream slip on exterior on ridges, fine sand temper.
- j Light orange ware, black surface on exterior, comb incising, heavy grit temper.
- k Brown ware (Plate 6B: f), grey surface on exterior, cream slip except comb incising, paddle stamp.
- l Cream-yellow ware, incised lines, sand temper.
- m Orange ware (Plate 6B: d), cream slip on exterior except comb incising, fine sand temper.
- n Orange-brown ware, incised line, fine sand temper.
- o Orange ware, dark orange surface on exterior, fine sand temper.
- p Light orange ware, comb incising, very light, fine temper.
- q Orange ware (Plate 6B: a), cream slip on exterior except comb incising, fine sand temper.
- r Orange ware, cream slip on exterior except comb incising, fine sand temper.
- s Orange-buff ware, grey-brown slip on exterior, grit temper.
- t Orange ware, cream slip on exterior, comb incising, fine sand temper.
- u Brown ware (Plate 5B: e), traces of cream slip on exterior comb incising, grit temper.
- v Dark orange-brown ware (Plate 7A: e), comb incising and impressions, very sandy temper.
- w Grey ware (Plate 7A: a), red-orange surface on exterior, chain ridges, grit temper.
- x Orange ware, traces of cream slip, finger impressions, pebble temper.
- y Orange ware, cream slip on exterior except comb incising chain ridges, sand tempered.
- z Red-orange ware, grey surfaces, chain ridges, sand temper.
- aa Cream ware, comb incising and impressions, fine sandy temper.
- bb Orange ware (Plate 6B: b), cream-grey surfaces on exterior, applique and comb incising and impressions, sandy grit temper.
- cc Orange ware (Plate 6B: k), dark orange slip on exterior, fine temper, spout.
- dd Porcelain (Plate 4A: f), blue, dark blue and greyish blue lines on slightly bluish white.
- ee Buff ware (Plate 4A: h), grey to dark black lines with light blue accents, white is streaked vertically with grey on interior and exterior.

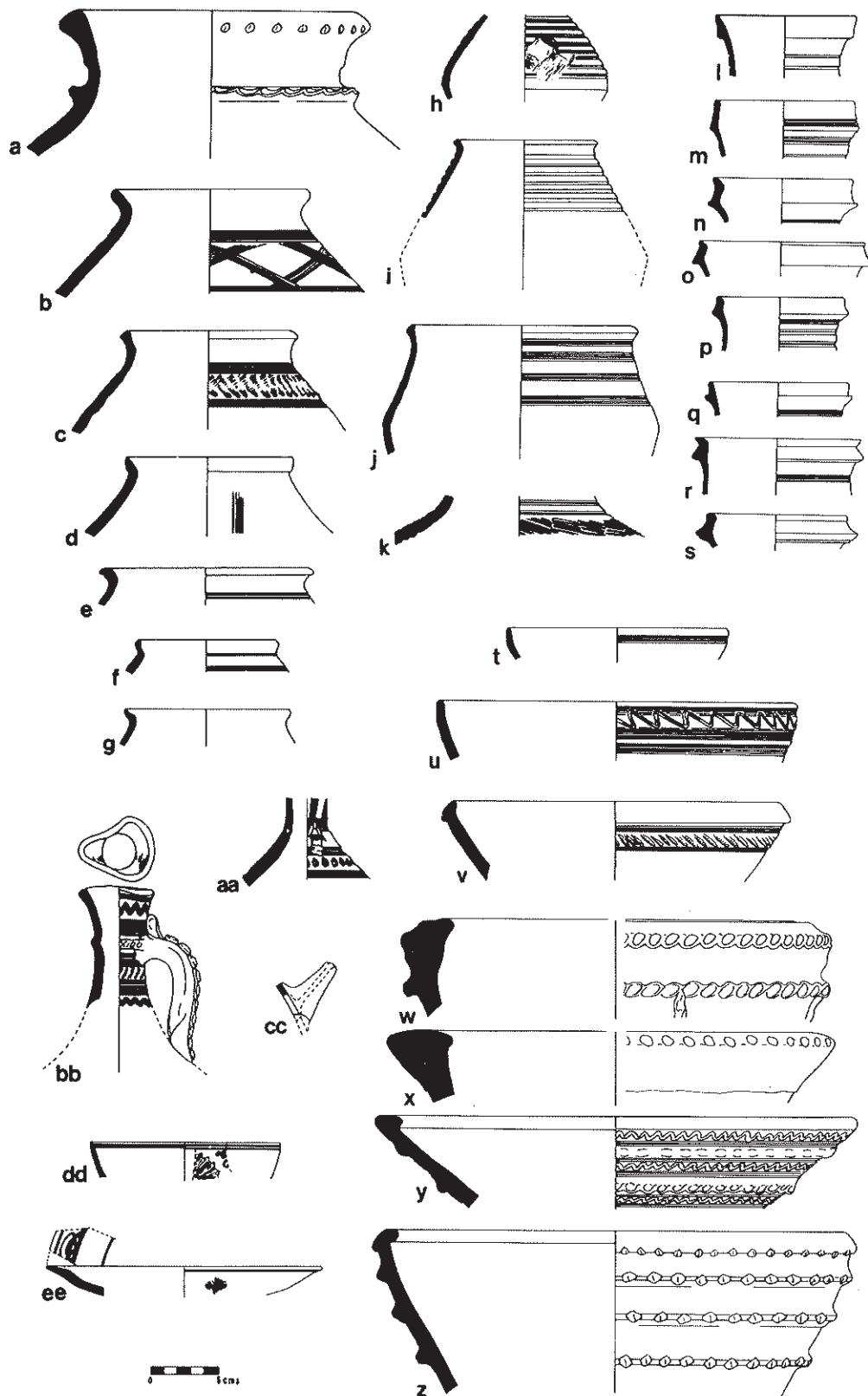


FIG. 13. Unglazed and imported wares from Wadi Andam 37 and 39.

