

# Toward a Chronology of the Late Iron Age in the Sultanate of Oman<sup>1</sup>

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## STATE OF RESEARCH

During the late 1970's members of the German Expedition came across an unknown kind of handmade pottery stratified together with implements fashioned of iron in extensive Pre-Islamic burial grounds near the newly founded village of al-Ma<sup>c</sup>mūrah in the immediate vicinity of the Samad and Maysar oases. Preliminary reports of these finds documented in detail for the first time the Late Iron Age (=LIA) in present day Oman<sup>2</sup>. Unremitting massive destruction, such as witnessed in several places on Bahrain and near Dhahran, has as yet not occurred in Oman's eastern central province, the Sharqīyah, perhaps because the population pressure is not as strong here. In light of the destruction of monuments, in any case, an awareness arose that here one could document effectively a poorly understood but important period in the history of Oman while it is still possible. Having witnessed the destruction of monuments by the locals - sometimes intentional, sometimes unwitting - rescue excavation and later a research project resulted in cooperation with the Department of Antiquities, and in particular with Dr Ali Shanfari. The project focuses in Samad on the burial customs of the somewhat neglected Late Iron Age.

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<sup>1</sup> I should like to thank my colleagues Ernie Haerincq, Rémy Boucharlat and Monique Kervran for discussing the chronology of their excavations with me. Brigitte Kazenwadel contributed the discussion of the *sigillata*. The sherds depicted from Khor Rori and Şuḥār were draughted at the American Foundation for the Study of Man in Falls Church, Virginia. My thanks go to Merylyn and Gordon Hodgson for allowing me to record this material, and for much information as well. The other reproduced artefacts derive from our excavations in Samad and/or are on deposit in the Ministry of National Heritage and Culture in Muscat. Prior to its publication this paper was distributed to interested participants of the meeting; they are thanked for their candid criticisms. For the orthography in the rendering of place names I have used the Gazetteer of Oman (Washington, D.C. 1983). Margarete Friesen und Mustafa Skalli also helped with the rendering of place names. Except for no. 17 Joachim Kunkel, Andrea Fischer, and Inka Potthast restored all of the metallic artefacts in the laboratories of the German Mining Museum in Bochum. Irene Steuer-Siegmund is responsible for the final drawings. The finds are presently on deposit in the Department of Antiquities in al-Khuwair, Muscat.

<sup>2</sup> Especially G. Weisgerber et al. 1981, 225-226, 239-245; P. Yule & M. Kervran, in press (esp. description of the different pottery wares); G. Weisgerber 1982, 81-93; B. Vogt 1984, 271-284; B. Vogt 1985; P. Yule & G. Weisgerber 1988; P. Yule, G. Weisgerber, A. Hauptmann, J. Kunkel & A. Fischer, in preparation; P. Yule, in preparation.

Unlike the choosing of Samad for rescue work and pure research, the situation with regard to the selection of sites in Oman brings to mind a social worker who ignores the normal client who could be helped, and favours the more interesting but hopeless case, as a result of which neither profit from the well-intentioned helper. Similarly in Oman, most workers pursue sites of the early Metals Periods which offer the most fragmentary remains, and the poorest prognoses for effective retrieval of information. Pre-Islamic Oman remains a clothes hanger for would-be antiquaries in search of South Asian stray finds, or even worse it is arbitrarily marginalized by some even out of Lizq and Wādī Sūq Period Eastern Arabia, the latter with which it shares both cultures. Such tendencies reveal an uncertainty and lack of a single historical focus in its study. A closer study of the finds and their distribution is a challenging topic for students of the Oman peninsula which leads the way to more penetrating historical insights. We would submit here as also evidenced below, that Oman first is itself intrinsically interesting, and second that it complements our knowledge of classic West Asian civilization.

The Samad Assemblage/Period/Culture derives its name eponymously from the type-site, located in the Sharqīyah, for LIA graves, the best known finds for the period as a whole at present. This period lies on the one hand sandwiched by the preceding Lizq/Rumaylah Period (Early Iron Age = EIA) of Eastern Arabia, previously known from both of the name-giving sites. It is bracketed on the other by the advent of Islam. The culture referred to as Rumaylah 2, defined by pottery and stone vessels, is known to exist at Bawshar. Given the size of this sample available for study, it is unlikely that a new cultural assemblage will appear as a result of future excavation in central Oman (with the possible exception of stray imports of the second Rumaylah Period) or another assemblage anticipating the Islamic Period, even though the repertoire of objects available for study as well as the chronology are liable to change. Excavation and evaluation since 1987 verifies as prominent material features of the Samad Culture most notably the mastery of iron technology, as well as the presence of glass; characteristically decorated, handmade, soft-fired pottery; and rectangular subterranean cist-grave burials. To judge from the finds of several cemeteries which contain some 193 graves belonging to the Samad Period (hence "Samad graves"), over the entire lifespan of this period, the pottery develops extremely

conservatively. For whatever reason graves of the Samad Period contain far more finds than contemporary neighbouring ones, e.g. on neighbouring Bahrain, owing either to originally greater concentrations of wealth in the graves and/or to more favourable preservation conditions. Given the evidence only for incipient writing<sup>3</sup> among the LIA population in what has become Oman, the Samad Culture is treated here for all practical purposes as aliterate. Consequently, the resulting prehistoric chronological nomenclature conforms with our synchronic frame of reference for Oman - outside of the classical West Asian direct sphere of influence - more comfortably than the otherwise cited "Hellenistic-Parthian-Sasanian Period", a mediterranean-centric term out of step with yet unresolved chronological and ethnic questions. Moreover, this nomenclature ignores a considerable tangible archaeological corpus in favour of a nebulous political one, the nature of which is unknown. Such a distinction is important in a new and still little known field in which nomenclature constantly interacts with and conditions factual content. Late Pre-Islamic cemeteries at Samad/Maysar reveal a population of prosperous local, predominantly (not entirely) sedentary date farmers, but not of Hellenistic, Parthian and/or Sasanian colonists. No archaeological evidence exists in Oman for foreign rule in the LIA.

Within the framework of a project supported by the DFG and sponsored by G. Weisgerber of the Deutsches Bergbaumuseum, the burial practices and material culture of the IA command our attention. In an above-cited article and in his dissertation, B. Vogt correctly distinguished between BA and LIA grave structures on the basis of the finds contained in them combined with their respective architectural features. This distinction becomes clearer by means of the introduction of a normed nomenclature such as that used here (Fig. 10). An enhanced typology of the finds and architectural features is intended to lead to greater accuracy in the dating of individual graves. An absolute and relative chronological infrastructure for the BA and IA is essential, yet is still in an early stage of development. The evidence for the chronology of the Samad Period is presented here, prior to the closing of our evaluation. It is difficult to be as exact in the datings, not to mention individual graves, as one would like. Finds from Samad have outside parallels, but the latter also may be only poorly anchored chronologically speaking. Some artefact types, at first sight promising as chronological points of reference, reveal themselves here to have such long lifespans as to reflect more a specific function (most notoriously specific projectile points) than a date. Random parallels may offer only a brief glimpse - at the beginning, middle or end of the often long lifespan of a given artefactual type. Moreover, given the somewhat spotty nature of the evidence it is impossible to expect a consensus as to the absolute dates bracketing the Samad Culture. For this reason they are not emphasized here by means of datings expressed in absolute years. By summarizing the known comparative material for the final Pre-Islamic Period especially in Central Oman at this early stage of research, it is hoped that the discussion on the chronology will be

stimulated preparatory to the final excavation publication. Greater precision in individual relative and absolute datings is expected in light of further research.

Without recapitulating at length the initial descriptions of the material culture of the Samad Period available in the other publications cited above, its pottery assemblage in Central Oman contrasts that of the next known roughly contemporary station, that is Şuḥār on the Baṭīnah, based on the limited published material available from there. In earlier work I mapped the known sites attributable to this culture<sup>4</sup>. A further contrast is offered by the still unpublished materials available from the LIA port settlement of Khor Rori (ancient SMHRM) in Dhofar. Şuḥār and Khor Rori, in fact, have produced few clear parallels with finds from central Oman (cf. nos. 25-26 in the table), but still are important for a desired wholistic view of the regional IA chronology. The first site seems to border the territory of the Samad Culture, and contains very little pottery similar to that at Samad. Nearby al-Bustan and Bandar Jiṣṣa both contain typical Samad pottery, giving some idea of the distribution. The reason for the scarcity of Samad wares on the coast lies partly in the smallness of the sample available, but also in a relative lack of water there. Khor Rori, on the one hand, is located in a geographic region distant from the Sharqīyah, and on the other, is a largely undocumented South Arabian colony: That it proved in 1989, on the basis of our recording of materials from here, to lie outside the Samad Culture in light of subsequent research is not surprising<sup>5</sup>. As seen in the table below Şuḥār and Khor Rori are in part contemporary owing to the presence of the same kind of imported pottery at both.

As a basis for comparison it is useful to name the main funerary pottery forms of the Samad (Fig. 4) Culture<sup>6</sup>.

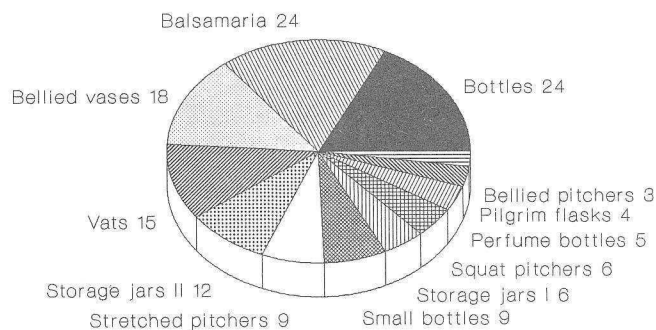


Figure 1 Funerary pottery types, Samad Culture, 1980-88.

What little has been published on the chronology of LIA Oman can be summarized briefly. Largely unpublished archaeological pioneer soundings organized in 1952-53, 1960 and 1962 by Wendell Phillips, Frank Albright and Ray Cleveland precede our efforts, not in the Sharqīyah, but

<sup>4</sup> P. Yule & G. Weisgerber 1988, 32-35; P. Yule & M. Kervran, in press.

<sup>5</sup> P. Yule & M. Kervran, in press.

<sup>6</sup> EIA synthesized by G. Weisgerber & P. Yule, in preparation; P. Lombard 1985; LIA see below.

<sup>3</sup> Despite P. Yule & G. Weisgerber 1988, 20 Fig. 6; 21.

rather at Khor Rori<sup>7</sup>. As opposed to the occasional Semitic script or potters' signs of the Samad Culture<sup>8</sup>, here a flourishing seaport distinguishes itself largely by Old South Arabian dedicatory inscriptions and monumental architecture. The character and material culture of Khor Rori is but little known despite the exposure of large surfaces in two seasons of excavation, as known from the brief preliminary excavation report. Parallel to the field work in Dhofar, an American team also conducted a season of excavation in Şuḥār<sup>9</sup>. In 1975 on behalf of the Department of Antiquities at the latter site, Peter Farries undertook soundings which remain unpublished. More substantial excavation and documentation followed in 1980 by the French Mission under the leadership of M. Kervran, for which preliminary reports have been published<sup>10</sup>. Also important for the formation of the chronology is the survey work conducted by a second American team in the early 1970's in several parts of Oman, including Samad/Maysar. Pottery collected on the surface e.g. from Tawi Mulaya and SH-11 near Şuḥār was dated by them with the help of parallels from Mesopotamia and Southwest Iran<sup>11</sup>. The LIA monuments of the Sharqīyah, Wahībah, Dhofar, and Musandam were further illuminated by systematic surveys conducted by B. de Cardi and D. B. Doe<sup>12</sup>. At Samad the excavations were carried out in the following years:

1980	4 graves in Samad 10 by B. Vogt
1981	29 graves in Samad 10 by B. Vogt; 2 in Maysar 27 by A. Tillmann; 1 in Samad 10 by S. Kroll
1982	27 graves in Samad 10 by B. Vogt
1987	95 graves in Samad 20, 21, 22 and 30 by P. Yule
1988	83 graves in Maysar 8, Samad 10, 21, 23, 26 and 30 by P. Yule
1989	52 graves in Samad 10, 21 and 30 by P. Yule; 2 in Muqatta-Rawdah by G. Weisgerber

The hoard of pottery, stone vessels, metal vessels, weapons and bangles from ʿIbrī/Selme in northern Oman, which date in terms of type and techniques of manufacture largely to the EIA, provide a point of reference for the repertoire of a variety of artefactual forms for this period<sup>13</sup>. Occasional Samad cist graves occur containing finds attributable to two or more periods (BA/EIA/LIA, BA/EIA, BA/LIA, EIA/LIA), but graves containing no finds are a more negative factor. Single burials in central Oman, however, clearly are easier to date than the mass graves of the late third and second millennia more prevalent in the UAE (Fig. 2).

Despite clear chronological correspondences between pottery, metalwork, glass, and grave architecture, which lead to the crystallization of a definable Samad Period assemblage, still open to discussion are the largely unresearched

beads and more rarely represented find categories which differ typologically from those of the EIA Lizq and Wādī Sūq assemblages. Distinguishing individual find categories typologically different from those of the EIA Lizq and BA Wādī Sūq assemblages is not always possible with certainty. The still little documented EIA and the periods preceding it seem far more homogeneous in terms of the variety of artefact types in the entire region than their direct heir. With regard to method, each of the three assemblages is defined, and dated by means of foreign parallels, radiocarbon, is based on numerous sealed contexts, correlations with finds from local settlements especially in Maysar, and occasionally by other means. For example, proceeding from north to south, the "horizontal stratigraphy" of the settlements flanking the *falaj* at Maysar, as it developed from the north toward the south<sup>14</sup>, demonstrates possibly the transition from late Lizq to early Samad Period. Striking is the closed nature of each of the three relevant assemblages and the rarity of transitional categories of finds, especially pottery. It may be added that only rarely do the graves overlap in such a way as to provide a stratigraphy<sup>15</sup>.

## ARCHITECTURE

Pre-Islamic cist graves for adults at Samad at first glance all look deceptively similar to each other, and in individual cases, depending on the state of preservation, may be difficult to date by period. It is still too early to be able to determine the sequence of all grave types with final certainty owing to the enormous area of Oman still unsurveyed, and some new types are bound to turn up in the coming years. For the dating of the grave structures the three main criteria are the architecture, the finds, and the dating of the neighbouring graves. At Samad up to 1989 the following proportion of graves has been excavated<sup>16</sup>, here arranged by period to shed some light on our sources:

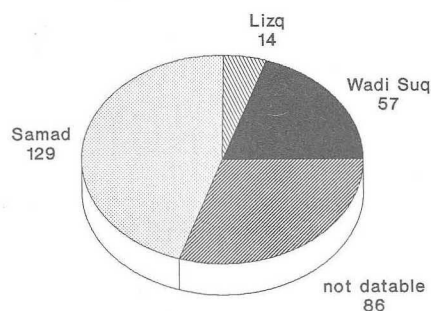


Figure 2 Samad 1980-89. Number of graves excavated by culture. (Provisional dating: finds, architecture)

<sup>7</sup> R. L. Cleveland 1960, 14-26; F.P. Albright 1980, 1982.

<sup>8</sup> P. Yule & G. Weisgerber 1988, 20 Fig. 6.

<sup>9</sup> R. L. Cleveland 1959, 11-19.

<sup>10</sup> M. Kervran, talk held at the present meeting discussing especially the LIA and Islam. M. Kervran & F. Hiebert 1991.

<sup>11</sup> J. H. Humphries 1974.

<sup>12</sup> Especially D.B. Doe 1977.

<sup>13</sup> G. Weisgerber & P. Yule, in preparation.

<sup>14</sup> G. Weisgerber et al. 1981 245-247, fig. 93 on p. 247 on the mechanics of *falaj* movement.

<sup>15</sup> For example, Samad, S2153 (Wādī Sūq) and S2154 (Samad), S2163 (Samad) and S2165 (Wādī Sūq), S2135A and S2135B (Samad), S3017A (Lizq) and S3017B (Samad).

<sup>16</sup> At the time of writing the typology of graves was not yet finished.

The graves of Samad 21 South<sup>17</sup>, which lie in concentration on the east slope of this hill cemetery, revealed themselves to be principally of the Wādī Sūq Period, and this is the best known cemetery of this period known to date in Oman. Only exceptionally (child graves S2144 and S21115) are they intact. Typical of the adult burials here are single chambers with the wall consisting of wadi stones and/or broken stones, the exact proportions thereof depending on the sources of the raw material available. Graves securely dated by pottery and other diagnostic finds are shown to be oriented with a north-south long axis. Also characteristic are the blocked end wall (= *Endvermauerung*) usually at the northwest-northeast end<sup>18</sup>, and not bonded with the long walls (idealized, Fig. 10 above). The orientation of the chamber also is influenced by its position on the hill. A long axis lateral to the incline is preferred. The consistency of the N-S axis can be explained most readily for cultic reasons. The floor plan is in the shape of a stretched D, the left side of the D being the flat one of the two end walls. One or two stone rings on the surface often surround the chamber, and offering places occasionally occur<sup>19</sup>. Roofstones are often but by no means always missing, and with little risk we can presume their existence in antiquity. Several of these graves also contain objects belonging to the Lizq/Rumaylah complex. Occasional finds of the succeeding Samad Period provide clear indications of reuse. No circular/oval, low standing graves occur in Samad 21, as at Masīrah<sup>20</sup>, and at a newly discovered cemetery site, al-Nu'aimi near Samā'il as well. The large majority of the 118 excavated graves of the Wādī Sūq Period were built for adults, and conform to a fixed pattern.

Free-standing hut graves (replacing the unfortunate term "pill box"), characteristic of the Lizq/Rumaylah Period, are undocumented in Samad 21 and occur only rarely in Samad 10. Quadratic, circular, or hoof-shaped plans are all documented<sup>21</sup>. Their dating rests to a large extent on surface finds made by the German team in such ruined cemeteries. The best known ones are located in Maysar 8, 27 and 36, Bilād al-Ma'ḍīn, Muqatta-Rawdah, and in the Jebel Salayli<sup>22</sup>. Nor are honeycomb graves known here, such as the complex of burials at Bawshar<sup>23</sup>. The very irregular low cairns, as at unpublished Bawshar, also are lacking here. Unique for the

<sup>17</sup> Plan as of 1988: see P. Yule & G. Weisgerber 1988, 12 and map opposite. Cf. B. Vogt 1984.

<sup>18</sup> N: S101188, S2195, S2178, S21101, S2157, S2107, S2156, S21117, S2198, S2174, NNE: S10932, S101101, S2130, S10930, S2162, NNW: S2148, S2125, S2181, S21114, S2182, S2133, S2175, S2155, NE: S1080, S101110, S101117, S101103, NW: S2170, S2131, S2109, S2177, S2165, S2173, S2183, S2180, S2136, S2186, E: S21113, S2203?, ENE: S101112, ESE: S2106, S21120, S: S2167, S21112, S2189, S2128, S21103, S21102?, SE: S2171, S2132, SSE: S2192, S2158, S2153, S21105, S2145, SSW: S2184, S2141?, SW: S101115, S101122, W: S2160, WNW: S2124, S21100, WSW: S2146, Total: 63. List exhaustive to date, includes six also poorly preserved, questionable examples.

<sup>19</sup> Gr. S1080, S101115, S101101, S101110, S2148, S2168, S2174, S2192.

<sup>20</sup> A. Shanfari 1987, fig. 2, 4, 6, 8 (Sachrut al-Ḥadri).

<sup>21</sup> P. Yule, G. Weisgerber & M. Bemann in press.

<sup>22</sup> Maysar 8: P. Yule & G. Weisgerber 1988, catalogue and drawings of grave M803; Maysar 27: G. Weisgerber et al. 1981 225 fig. 61; Bilād al-Ma'ḍīn: *ibid.* 190 fig. 12; Jebel Salayli: G. Weisgerber 1980, 102 fig. 71 and 72 (= "Musfa"). Muqatta: personal communication G. Weisgerber.

<sup>23</sup> P. Costa 1989, pl. 18.

Lizq Period is the stone heap with a biconical floorplan of the chamber, as at Samad S101040 (= old M30)<sup>24</sup>.

The graves of the Samad Period in Samad vary considerably in their form and size according with the wealth of the individual. Similar to those of the Wādī Sūq Culture all are cist graves with a roughly rectangularly shaped floor. They differ from them, however, in their most characteristic form by the presence of a bar wall (Fig. 10 below), an architectural feature which allows the body of the deceased to be placed into the chamber rather from the ground level than laterally from one end. Equally typical for this period are cantilever stones around the uppermost chamber walls, in order to prevent the upper courses from collapsing into the grave under the weight of the ponderous roof stones. The southeast-northwest orientation of the long axis predominates, except for anomalies influenced by the local topography. Many graves have larger stones (known as orthostats) in the lowermost course than in the upper chamber wall. Many graves of this period are simpler, the bar wall lacking. This is particularly true of child graves. The large bench-like, so-called royal graves at 'Izkī (= Zikī) and ones at 'Abāyah may date to this period<sup>25</sup>. Similar ones, investigated at Rafaq, Naslah 3 in the Wādī al-Qawr in Ras al-Khaimah produced at least one object made of iron, giving some indication of the date<sup>26</sup>. Still other kinds of graves are known from this period, but cannot be discussed until they can be properly investigated.

The list of diagnostic attributes (Table 1) for Pre-Islamic graves in Oman, for reasons of time, neither can include all aspects of the relevant cultures nor attempt to justify those cited<sup>27</sup>. The qualitatively richer and more varied spectrum of finds in the Samad Period owes its existence to better survival chances. Most of the finds cited (e.g. silk) derive from graves in Samad.

## RADIOCARBON

Evidence for the absolute chronology of the EIA period of Oman exceeding that presented here has been presented in connexion with the dating of the Selme hoard.<sup>28</sup> Chronological bracketing of the EIA helps to define the subsequent one in relative and in absolute terms. The concentration of determinations from EIA Rumaylah is a main

<sup>24</sup> G. Weisgerber et al. 1981, 206 fig. 36.

<sup>25</sup> P. Yule & G. Weisgerber 1988, fig. 11 opposite p. 35; D.B. Doe 1977, 39 fig. 1 above, 40.

<sup>26</sup> Oral information C. Phillips, 23.06.90.

<sup>27</sup> Cf. P. Yule, in preparation.

<sup>28</sup> A fuller treatment of the EIA chronology appears in our study on the metal hoard from 'Ibrī/Selme. G. Weisgerber & P. Yule, in preparation. That the EIA chronology of Rumaylah here is not subdivided into an early and a late phase is not to be construed in a negative way. On the contrary, a subdivision is clear and desirable, and helps explain the extreme length of the period. It is confirmed at several sites in the Emirates.

	Wādī	Sūq	Lizq	Samad
Contracted burials	■		■	■
Significant use of cornelian	■		■	■
Grave enclosure rings	■			■
N-S grave orientation	■			
D-shaped grave floors	■		?	
Burial offering places	■		?	
Stone bowls, handmade, dotted circles	■			
Wheel-turned pottery (except Balsamaria)	■			
Bridge-spouted jars	■			
Beakers (small, large)	■			
Black paint on red or buff ware	■			
Ostrich eggs	■			
Seal stones	■		■	
Cu/Br spearheads	■			
Cu/Br arrowheads	■		■	
Cu/Br rim-flanged daggers, long daggers	■		■	
Hut-shaped (pillbox) graves	■		■	
T and horseshoe-shaped grave floor (subter.)			■	
Beaked metal vessels			■	
Stone bowls, ray & zig-zag decoration			■	
Cu/Br axes			■	
Cu/Br bangles, Selme type I-V			■	
Steep-sided triangular beads, hard stone			■	
Bowls with constricted rim			■	
Slant-sided pottery beakers			■	
Red/brown paint on buff ware			■	
Diagonal hanging hatching of rim (pottery)			■	
Painted hanging rectangles (pottery)			■	
Hard firing, pottery			■	
Hand-made pottery			■	■
Script signs on pottery			■	■
Cu & Fe cramps		■		■
Small bottles/Bottles				■
Bellied vases				■
Pitchers				■
Pilgrim bottles				■
Balsamaria				■
Incized decoration, herringbone ornament (pottery)				■
Glazed pottery				■
Drinking service & Horse tack				■
Fe Axes/Arrowheads/Daggers/Long daggers				■
Fe Swords/Short swords				■
Glass beads				■
Au/Ag granulation				■
Lathe-turned stone objects				■
Sheep/goat bones				■
Alabastra				■
Seal finger rings				■
Bone inlays				■
Shoes/sandals, silk garments				■
SE/NW grave orientation				■
Cantilever grave stones				■
Grave retaining walls (bar wall)				■

Table 1 Diagnostic attributes of Pre-islamic graves in Oman



The earliest possible, but by no means firmly dated relevant find from a Samad grave (S10683/1), is a bead/pendant type (Fig. 5, no. 1) which is paralleled by several examples datable to the Achaemenid and Parthian Periods, if not earlier<sup>33</sup>. A second general synchronism is a two-handled jar (Fig. 5, no. 2) in a Samad Period fabric (settlement ware?) perhaps from al-Qaryātayn which parallels in its shape (except for the rim) a vessel form from City V in Bahrain (300 BCE-150 CE)<sup>34</sup>. Evidently early is a balsamarium from a Samad grave (Fig. 5, no. 2B), similar in shape to a stray from Persepolis of possible late Achaemenid date, on the grounds of its general findspot<sup>35</sup>. Significant in the comparison are the general proportions of both strikingly unusual vessels. While Vogt cited parallels between the leaf-shaped iron arrowheads from Samad graves and those from the garrison quarters at Persepolis<sup>36</sup>, I do not emphasize this parallel because it is disharmonious with the other datings of arrowheads available. A stone vessel with constricted rim (Fig. 5, no. 3) from a ruined hut grave (Samad S10669) is difficult to date. It differs entirely in shape from the otherwise stereotype shaped stone bowls of the Lizq/Rumaylah Period, but finds possible parallels with ceramic vessels of this same period, although bowls with constricted rims have an astonishing chronological dispersion, also into the LIA<sup>37</sup>. Hut graves such as S10669 are assignable to the Lizq/Rumāylah Period, if here a secondary burial does not come into question.

Both Indian and Roman imported pottery provides further evidence for the dating of Şuḥār and Khor Rori which deserves our attention here. Fragments of pottery published from Khor Rori, neglected by Arabian specialists, receive more detailed treatment than the other parallels cited here owing equally for their importance as potentially telling imports, as to their chronological importance to the dating of this same site.

Far away at Arikamedu near Pondicherry Wheeler excavated a large quantity of local fine pottery, including that now known as Indian Red Polished Ware (RPW), originally inspired by Roman exported wares, especially undecorated *terra sigillata* (TS). Particularly Arikamedu becomes interesting owing to the large number of published shapes available for comparison. Most of the diagnostic shapes are luxury cooking pots. Rarer but particularly characteristic are sprinklers. Although the exterior surfaces of both *terra sigil-*

*lata* and RPW seem at first glance similar, in fact the former has a thin sealing wax red glaze, and the latter a burnished, dull, often reddish or chromatically uneven surface treatment. A weathered piece of *sigillata* may pass for RPW especially if the shape is too small to be diagnostic. Most of the RPW from Khor Rori contains a large or slight amount of mica, which is rare in the RPW of Arikamedu. Rarely do RPW shapes parallel those of TS. Early in the 1950's as the excavated amounts grew predominantly in Gujarat, most notably at the sites of Amreli, Nevasa, Rang mahal, Somnath (= Prabhas Patan), to name only the most obvious of these numerous sites in and outside of India an awareness grew of RPW<sup>38</sup>. Given the *prima facie* occurrence of the RPW in this part of India, owing to more intensive excavation there, early researchers were disinclined to associate RPW with the South Indian Arikamedu or Śiśupālghar in Orissa. RPW appears stratified in India perhaps just prior to the time of Christ, enjoys a sudden early flourie, and gradually ebbs possibly even into the 6th century, as at Prabhasa (late Period IV)<sup>39</sup>. Arikamedu, however, offers a firmer dating (owing to its TS) than most of the other sites yielding RPW, and earns a place in the discussion as to the dating of RPW in Oman. Recently Begley revised the dating for the Arretina at Arikamedu to the first quarter of the first century CE, thus raising the date previously suggested by Wheeler (second quarter of the first century CE)<sup>40</sup>.

Such pottery, found in LIA Şuḥār and Khor Rori, links the two sites to each other, and to the Indian chronology as well. Even closer parallels for an RPW shape in Şuḥār or Khor Rori occur at Maheshwar: Most significant is the cooking pot with a so-called heart-shaped rim (Fig. 5, no. 8)<sup>41</sup>.

RPW	Date	comment
type 24	pre-A, A, post-A	cf. No. 7 from Şuḥār
type 30	pottery Group A	cf. No. 6 from Şuḥār
type 35	pre-A, A, post-A	micaceous
type 93	pre-A, A, post-A	cf. No. 8 from Khor Rori

A = Arretina

Table 4 Selected RPW vessels from Arikamedu

Excavated from Khor Rori, our No. 9 (Fig. 6) is a buff, burnished pot (terrine) with tubular drill ornament and a chattered decoration reminiscent of that appearing on vessels locally produced at Arikamedu and on TS as well. The latter pattern was produced by means of pressing a small spring-loaded mechanical plate (probably of metal) on

<sup>33</sup> Cf. E. F. Schmidt 1957, pl. 44,11-13 (PT6 696, PT6 4, PT3 80) the first two from the Treasury and the third from the garrison headquarters; B. Musche 1988, 156, pl. 51.3 "parthisch". Toshihiko Sono & Shinji Fukai 1968, pl. 85,18 & ,19 from Ghalekuti I tomb 5. H.C. Beck 1941, 47, pl. 3.3-4: Taxila Bhir Mound, "3rd c. B.C." and 48, pl. 3.37 Taxila Dharmar jik St pa, "1st c. B.C.". Far earlier (Ur III) is a generally similar parallel from the necklace of Abbabašti found in Eanna = K. Limper 1988, 63-66, no. 141, pl. 23-25, and another (both much flatter than ours) from Hissar, hoard I = E.F. Schmidt 1937, 230-231, pl. 67, 68. So-called pentagon bead: L. Dubin 1987, bead chart, p. 331, 338 catalogue no. 301c "Pre-Achaemenid to Parthian Period" cf. DA 11298 Gr. S10718.

<sup>34</sup> G. Bibby 1970, 128 Fig. 30 left. Cf. W. Andrae & H. Lenzen 1933, Taf 46i (18007d) no exact provenance.

<sup>35</sup> Samad grave S2154, DA 9681; grave S2138, DA 9639 (= P. Yule & G. Weisgerber 1988, grave S2138/2 no. 11); E. Schmidt 1970, 73 fig. 29, "Field no. NR1 13, Center Test, Plot BB14, SE, refuse".

<sup>36</sup> B. Vogt 1984, 276, 284 fig. 5, 17 and fig. 5, 8-10.

<sup>37</sup> M. Pfrommer 1987, 42-74. I thank D. Salzmann for this citation.

<sup>38</sup> S. R. Rao 1966, 1, 11, 12, 20-28, 51-64, fig. 10-13; H. Rydh 1959, 148, 150; J.M. Nanavati, R.N. Mehta & S.N. Chowdhary 1971, 17, 18, 61-67. For RPW in Iran see D. Whitehouse & A. Williamson 1973, 29-49, esp. 38.

<sup>39</sup> J. M. Nanavati, R.N. Mehta & S.N. Chowdhary 1971, 17-18.

<sup>40</sup> V. Begley 1983, 461, 464-477, esp. 466.

<sup>41</sup> H. D. Sankalia, B. Subbarao & S. B. Deo 1958, 22, 37 fig. 79, T.120; 159, fig. 188, T. 153.

the still moist vessel, still affixed to the potter's wheel<sup>42</sup>. Given the tubular drill ornament, and since no close parallels exist for the shape or surface colour of the vessel, No. 9 seems a local imitation of Indian RPW or *sigillata*. The datings just cited together with those of the two finely decorated Nabatean sherds from Khor Rori (Fig. 6, nos. 10, 11), which Negev would place in the first century BCE/CE, largely on the basis of finds from Oboda (Avdat)<sup>43</sup>, provide a fix point for the occupation of Khor Rori in the century at the turn of the ages.

In the case first of No. 12 (Fig. 6), two sherds exist which do not exactly join one another, but owing to the similarity in the fabric seem to be from the same vessel. The vessel's interior surface is decorated with two concentric grooves which enframe a spring rouletting. The surface of the sherd is described as shiny red with a *sigillata Glanztonüberzug*<sup>44</sup>. With regard to the paste Comfort, "The biscuit is a lighter orange red than the surface, but it is not buff or yellowish like that of some Hellenistic *sigillata*"<sup>45</sup>. His mention, "...some Hellenistic *sigillata*..." in fact only can mean Eastern *sigillata*, more specifically today designated as Eastern *sigillata* A (=ESA). This ware is characterized by its pale, light colour<sup>46</sup>. No. 12 from Khor Rori shows a marked concentration of mica for which reason they also could be designated as Samian B, corresponding to the more modern nomenclature Eastern *sigillata* B (=ESB)<sup>47</sup>. Thus, this plate most likely derives from Western Asia Minor. Carinated plates, such as ours are one of the most common forms in Roman fine pottery - in the Arretina, as well as in Pergamian *sigillata*, or in Eastern *sigillata* A and B.

The tapered slanting stand ring of the plate finds in its form a parallel at Sabratha, with nearly identical spring rouletting and with the same rim diameter<sup>48</sup>. The excavator, Kenrick, considers the latter an Arretine import. Since the Eastern *sigillata* B is strongly influenced by Arretina, his attribution does not contradict that for No. 12 from Khor Rori. With a high probability this carinated plate belongs to the Eastern *sigillata* B, since no other Roman fine ware contains this high amount of mica.

With a rim diameter of only 8 cm the fragment of a small bowl (Fig. 6, no. 13) belongs to the category "miniature vessels". Comfort mentions that the form is difficult to identify, drawing a comparison with a vessel from Olbia, however, which is far larger in its size<sup>49</sup>. Significantly, No. 12 has no traces of mica, thus distinguishing it from the ESB, with its characteristic *Glimmer*. On the grounds of fabric Comfort suggested an Italian origin for this sherd. It cannot be excluded that it actually belongs to ESA similar to that which has come to light in quantity during recent excavations in parts of Anatolia soon to be submerged by water

reservoirs. At Lidar Höyük on the Middle Euphrates, recently two similar miniature ESA bowls have been excavated, one of which also shows a rim diameter of 6 cm<sup>50</sup>. Therefore this little bowl especially because of the fabric (no added mica) is best classifiable as ESA.

The ware of the bowl with carinated shoulder (Fig. 6, no. 14) from the excavations at Khor Rori is described completely differently<sup>51</sup>. The question is open whether here one can speak at all of a *sigillata Glanztonüberzug*, ("...the *Glanztonfilm* is notably lacking in glance")<sup>52</sup>. Comfort states that the surface is damaged by spalling. The clay is described as coarse and no temper is macroscopically visible. Comfort's comparisons from Antiochia for this piece are for this reason problematic<sup>53</sup>. The bowl under discussion shows an outwardly turned rim with a straight lip and a convex body; those from Antiochia, on the other hand, have outwardly turned rims and straight or concave walls<sup>54</sup>. The surface treatment seems to correspond best with the sherds cited from Arikamedu<sup>55</sup>. But for the comparisons which Comfort cites we are not dealing with the characteristic *Glanztonüberzug*, but rather with a polish, such as mechanical burnishing. Possibly a completely different conception lies behind the vessel form as well as a different origin.

Further TS sherds recently came to light during a survey carried out by Gerd Weisgerber and Ali Shanfari<sup>56</sup>. An "Arretina-ähnlicher Teller" (Fig. 6, no. 15) in a non-identifiable *sigillata* ware is datable by means of parallels from Pergamon to the third quarter of the first century CE<sup>57</sup>. A further *sigillata* belly sherd (not reproduced here) shows curiously the *Glanztonüberzug* only on the exterior, and on the interior reveals marks from the fast turning potter's wheel. The *Glanztonüberzug* only on the exterior hitherto is known only in Lidar Höyük<sup>58</sup>. Unfortunately, neither the form nor the fabric of this small sherd can be identified more closely. In addition to these two sherds Weisgerber and Shanfari also found others of Indian RPW at Khor Rori.

A comparison between sherds of ESA, Arretina and sherds from Charsada<sup>59</sup> illuminates the technological distinctions between the different categories. All of the sherds from Charsada are wheel-thrown; the clay is reddish (colour: CEC E9-E11)<sup>60</sup>, and shows flakes of mica, but no

<sup>50</sup> B. Kazenwadel, printing in preparation, pl. 66,13 and 15.

<sup>51</sup> H. Comfort 1960, 19.

<sup>52</sup> H. Comfort 1960, 19.

<sup>53</sup> H. Comfort 1960, 20 and note 14.

<sup>54</sup> In addition the bowls from Antiochia differ from ours in the general proportions. They recall better cups of the Arretina form Ha 8 (e.g. E. Ettlinger 1983, pl. 43) especially the form of the lower body of the vessel.

<sup>55</sup> H. Comfort 1960, 20 = R.E.M. Wheeler 1946, fig. 49,532.

<sup>56</sup> I thank them for making these sherds available to me for study and publication.

<sup>57</sup> C. Meyer-Schlichtmann 1988, 238, pl. 46, T31d.

<sup>58</sup> Colour of sherd 36: *Glanztonüberzug*: red (Munsell) 2.5YR 4/8, paste light red (2.5YR 6/6). Colour of the second TS sherd: *Glanztonüberzug* red (Munsell 2.5YR 4/8), interior reddish yellow (7.5YR 7/6), paste reddish yellow (7.5YR 7/8). Neither have any mica.

<sup>59</sup> A small sample collection of Arretina, ESA and surface finds from Charsada are on deposit in the Institute for Pre- and Early History of the University Heidelberg. The sherds from Charsada date to the 2nd century BCE and are thus contemporary with ESA. Cf. Sir M. Wheeler 1962, 534 pl. 49,532.

<sup>60</sup> CEC = Fédération Européenne des Fabricats de Carreaux Céramiques (Basel 1961).

<sup>42</sup> W. Czynski 1982, 322-323; E. Ettlinger 1983, 17; V. Begley 1988, 427-440.

<sup>43</sup> A. Negev 1970, 48-51.

<sup>44</sup> H. Comfort 1960, 16-18.

<sup>45</sup> H. Comfort 1960, 18.

<sup>46</sup> For the classification of Eastern *sigillata*: J. Gunneweg, I. Perlmann & J. Yellin 1983 for bibliography.

<sup>47</sup> Ibid. for this correlation.

<sup>48</sup> P. M. Kenrick 1986, 174 fig. 84,25; 177. The foot profile is paralleled at Bolsena from level B-2C which is dated 30-15/12 BCE.

<sup>49</sup> T. Knipowitsch 1929, pl. 1,1b.



macroscopically recognizable material. The surface is somewhat darker than the paste (CEC F11-12; G11-12), is carefully polished, sometimes to a dull gloss. This comes close to the surface treatment of the fragment from Khor Rori<sup>61</sup>. Comparable in shape are Achaemenid red polished wares<sup>62</sup>, which aside from the characteristic carination of the belly also show preference for a straight lip/rim. Perhaps an older tradition comes into question for the origin.

The small, glazed bottle from Samad, grave S3032 (Fig. 6, no. 16), is very close in its shape to another from grave 1 at War Kabād near Mihr in Luristan, the latter datable by virtue of two silver drachmes minted during the reign of Ardashir I (224-241 CE)<sup>63</sup>. A short sword (Fig. 6, no. 17) also from grave S3032 is most closely related in its shape to another excavated from ed-Dūr, and dated to the 1st century CE, but the similarity of the other types represented in this grave with those of al-Barūni (below) suggest that the ed-Dūr sword is an *Altstück*. Finally, one of the arrowheads (not reproduced here) is identical in its shape to ones from the grave at al-Barūni, discussed below (No. 33) which seem to date at least partly in the fourth century CE. The difficulties in dating small glazed vessels such as No. 16 is greater than those of swords, so that the latter gives a better indication of the date. In the graphic representation of the datings below, the chronological position of the glazed vessel No. 16 is brought into line with that of the short sword.

Bone inlays with compass ornament (Fig. 6, no. 18) from grave S10672 are best paralleled by others from ed-Dūr, which date to the 1st c. CE, although such simple decoration has a broad chronological spread, occurring in other periods as well (see below).

With regard to its shape the vat (Fig. 7, no. 19) from Samad, grave S3011 is best linked to one in ed-Dūr, dated to the 1st and 2nd centuries CE.

Small bells, such as No. 20 (Fig. 7) from Samad, grave no. S1074, range widely chronologically as indicated by a similarly shaped example from Taxila which may belong in the first c. CE<sup>64</sup>. A second nearly identical bell came to light in the Sasanian fortress at Qasr-i Abu Nasr<sup>65</sup>. Van Beek cites other examples from the mound Hajar bin Humeid in the debris of stratum B<sup>66</sup>. Further parallels exist from Tell en Nasbah where they are assigned to the Byzantine Period. Other similar examples derive from Gaza, which Petrie dated as "Islamic". Two more examples come from the rock cut grave at Tarshiba and are dated about the last decade of the fourth century CE. Grave S1074 is circular in plan (Wādī Sūq or perhaps Lizq Periods), and the other finds from it (beads) are chronologically mixed.

A glazed perfume bottle from Samad, grave S101124 (Fig. 7, no. 21) may be compared in its shape and surface treatment with another from the cemetery at Karranah on Bahrain, grave A14, and also with ones from Ikaros<sup>67</sup>.

Glazed bottles are very difficult to date with precision. An origin in the second century CE for the one from grave S101124 rests on the date of the vessel from Karranah<sup>68</sup>.

A further glazed vessel, a small pilgrim flask (Fig. 7, no. 22) from a Samad grave at nearby Khadrā<sup>3</sup> Bani Daffā<sup>c</sup>, finds a parallel in shape and surface treatment in the Irigal (Uruk-Warka) of the late Parthian Period (oral information U. Finkbeiner).

More striking are two small unglazed bottles from graves in Samad cemetery S30 (Fig. 7, nos. 23, 24) very close in terms of shape and size respectively with ones from the Ghalla island, near ed-Dūr as well as from Building F, Period 1 at ed-Dūr proper of the 3rd century CE. The neck of a glazed perfume bottle (Fig. 7, no. 27) occurs in the same grave as No. 24<sup>69</sup>. The necks of the similar glazed bottles Nos. 25 & 26 (Fig. 7) from Khor Rori are relevant in this dating despite the above-mentioned caveat especially with regard to small sherds of this kind of vessel. At this point the little bronze statuette of a dancing girl, found at Khor Rori deserves brief mention. During Caspers has offered a date for it at around 150 CE, revising L. Bachhofer's older suggestion "second century AD"<sup>70</sup>. This figure seems the latest dated object known from the site prior to the Celadon ware (if in fact from this site), which dates at the earliest in the 12th century. Once cleaned and properly photographed a new dating could be attempted for the dancer. Whether the occupation of Khor Rori was continuous or interrupted cannot be judged on the present evidence.

Figure 8 nos. 28-34 as well as several other finds missing or not depicted here were delivered to the Department of Antiquities in Muscat in 1987 and reportedly derive from the same grave, accidentally disturbed during landscaping in a place known today as al-Barūni, in a secondary wadi of the Samā'il oasis<sup>71</sup>. There is certainly no good reason to doubt that they all derive from the same grave and period. The occurrence of iron weapons and the site location are what bind the unusual grave contents to the Samad Culture. Difficult to date is the wheel-turned storage jar from the grave (Fig. 8, no. 28) which in shape parallels ones from the eastern Apadana mostly levels 5f and 6 (500-350 BCE), but also later<sup>72</sup>. This is, however, of little help. The paste is very similar to the "greenish fabric", well represented at ed-Dūr and rarer at Mleiha in the third and fourth centuries CE<sup>73</sup>. The unusual lathe-turned thymiaterion (Fig. 8, no. 29) unfortunately is neither by means of its form, nor decoration

<sup>68</sup> Orally expressed information, J.-F. Salles.

<sup>69</sup> O. Lecomte, R. Boucharlat & J. Culas 1989, 35, 36 fig. AC,3.

<sup>70</sup> E. C. During Caspers 1979, 15-16.

<sup>71</sup> P. Yule, G. Weisgerber, A. Hauptmann, J. Kunkel & A. Fischer, in preparation. An on-the-site inspection and interview with the finder verifies in part the provenience. The other objects of this burial find include an iron sword blade, storage vessel sherds, bone splinters and a bronze finger ring with device engraved into the bezel, and decorated metallic bowls. The finds are still in preparation for study and thus cannot be exhaustively discussed here.

<sup>72</sup> R. Boucharlat 1987, 209 tab. 25.

<sup>73</sup> It is most common in the Late and Recent periods. Letter R. Boucharlat 16.07.89.

<sup>61</sup> H. Comfort 1960, fig. 6 photo.

<sup>62</sup> For example, W.M. Sumner 1986, 5 fig. 1k (from Tal-i Malyan).

<sup>63</sup> L. Vanden Berghe 1972, 6 fig. 2, pl. 1.

<sup>64</sup> B. Musche 1988, 175, pl. 60, 23.11.

<sup>65</sup> D. Whitcomb 1985, 174, 175 fig. 65ee.

<sup>66</sup> G. Van Beek 1969, 320 (for the following citations), 322 fig. 128,h, pl. 53,i.

<sup>67</sup> L. Hannestad 1983, nos. 301-302.

datable<sup>74</sup>. Arrowheads similar to No. 33 (Fig. 8) appear to date from the third to fourth c. CE on the basis of finds from ed-Dūr F. In shape they parallel others from grave 3837 in ed-Dūr, the latter dating to the 1st century CE. The bronze mouthpiece of a drinking horn in the form of the foreparts of a horse (Fig. 8, no. 30) is of little help in the dating. Ignoring the evidence for No. 28 from Susa, a dating perhaps in the fourth century for the grave seems best to fit the somewhat erratic evidence. It would be interesting to examine the individual examples of Mouton's type D arrowheads, which play a role in the dating, in an attempt to redefine the type in such a way as to clarify the chronology. Still the only (if only general) acceptable parallel for ladles (Fig. 9, nos. 35 & 36) from ar-Rustāq and from Samad, context S3017A is the handle from the al-Barūni grave<sup>75</sup>.

A second, double-edged sword, when buried still in its scabbard and suspension clasps, came to light in Samad, grave S101125<sup>76</sup>. Spatha-like swords suspended from the shoulder came into use in Mesopotamia in the second century CE. Ours was maybe rather worn at the waist than over the shoulder, to judge from the position of the clasps, their distance from each other, the length of the sword. Thus the dating of the baldric or Latin *cingulum* helps little in the dating<sup>77</sup>. Both cutting edges of the blade have spalled off and have not survived. This heavy sword shows a rim-flanged grip and hooked butt (Fig. 9, no. 37) which is most closely paralleled by a representation in the rock reliefs at Bishapur I depicting the investiture of Shapur I (241-272 CE)<sup>78</sup>. This comparison is chronologically more viable for our sword than a comparison with the similar fragmentary one from the brick-built "tomb of the sailor" in Mleiha over a century earlier<sup>79</sup>. Moreover, the grave in which the sword occurred contained bones which yielded a conventionally calibrated radiocarbon date of 437-637 CE (see above for the corrected date). A fourth or fifth century dating is suggested, correlating with that suggested by B. Vogt (pers. communication) on other grounds.

Dated in terms of shape, decoration and material, is a stone bowl from Maysar, grave M801 (Fig. 9, no. 38) by means of another made of clay from the silo 543, square A53

at Qal'at al-Bahrain (find No. 2795,2)<sup>80</sup>. Similarities in objects of different materials are surprisingly common in this area. Parallel vessel shapes e.g. in stone, ceramic and metal have been documented most strikingly in the Selme hoard, but also in the following Samad Period. The findspot of the bowl from Qal'at is datable to the Parthian Period on the strength of the associated Arabian ware. The same grouped thin bands alternating with a broad one is also visible in our stone bowl No. 39 (Fig. 9), a surface find from the Sasanian Jazīrat al-Ghanam. A third example of a low stone bowl with this kind of decoration (inv. No. 2203) was excavated from square RS25 at Şuḥār, in an early Islamic level (6th-8th c. CE)<sup>81</sup>. Yet another recently was excavated in 1987 by the Belgian team in ed-Dūr chantier G<sup>82</sup>. Thus, this kind of decoration for clay and stone vessels is taken to date in the latter part of the latest Pre-Islamic Period.

A banded glass bead from a necklace (Fig. 9, no. 40) which adorned the neck of a camel buried in Samad, grave S21104 is datable to the Partho-Sasanian Period by virtue of a parallel of this period excavated from a grave at Ghalekuti north-northwest of Teheran<sup>83</sup>.

A storage jar (Fig. 9, no. 41) from an early Samad grave S101116, unusual in its shape, and a miniature bottle (Fig. 9, no. 42) from grave S2152, each find a close parallel (lying together with iron knives) from the same grave in the Soghun valley, just north of the strait of Hormuz. It also is paralleled by another out of context in Ghaffīlah tomb 1<sup>84</sup>. No. 41 belongs at the beginning of the Samad Period because a second unique vessel occurred in grave S101116 which is practically indistinguishable (the fabric and horizontally positioned and vertically pierced lugs) from Lizq pottery.

A silver granulated earring, No. 43 (Fig. 9), also from a grave of the Samad Period (S2172) is paralleled in its decorative system of biconically arranged balls and granulation in the interstices by means of an Awaren parallel listed in our table below. This piece is dated to 568-650 CE. Another excavated (fourth century BCE), and geographically nearer parallel came to light at Kamid el Loz, but this example differs in its shape from No. 43 (Fig. 9). Further comparable earrings do not support the dating, although especially among Byzantine jewellery the existence of several unpublished ones is suspected in light of many years of excavation and research<sup>85</sup>. But the tradition of granulated

<sup>74</sup> Compass ornament is common from the Wādī Sūq Period into the Islamic Period. Cf. G. Ploug et al. 1969, 117 fig. 45,1-16, 119 fig. 46,1-16, spindle whirls among other objects with compass ornament, datable in all four levels of the excavation from the seventh to fourteenth century CE.

<sup>75</sup> Cf. F. Petrie 1930, 39, pl. 44,117-125; P.R.S. Moorey 1970.

<sup>76</sup> P. Yule & G. Weisgerber 1988, fig. 8.1 (DA 5978).

<sup>77</sup> On the dating of the use of spatha-like weapons by Roman soldiers on the Parthian front see W. Trousdale 1975, 85-102. Although no horse tack occurred in the little-disturbed grave S101125 I consider the weapon to be a cavalry sword owing to its length, and not an infantry weapon. The fifth century BCE representation of throne bearers at Naqsh i Rustam casts further doubt on the datability of the baldric. In addition in medieval Arabian and Persian literature the baldric (Arabic: *wisāh*, Farsi: *bandāšamsīr*) continues in use.

<sup>78</sup> G. Herrmann 1983, 15, fig. 1; cf. R.D. Barnett 1983, for related 'bird-head' sword grips. This dating contradicts slightly that of a 12 cm iron knife from late Achaemenid Persepolis: E. Schmidt 1957, pl. 81,15 "garrison headquarters, rm. 17, Plot HG 96" which is very similar in its shape to another found together with our sword in Samad S101125.

<sup>79</sup> T. Madhloom 1974, 151, 157 plan 4, pl. 16a, below. R. Boucharlat, E. Haerlein, O. Lecomte, D. T. Potts & K. G. Stevens 1989, 10 note 3.

<sup>80</sup> R. Boucharlat & J.-F. Salles 1987, 292-293 fig. F13 = R. Boucharlat 1986a, 440 fig. 150.12. Findspot cited corrected here.

<sup>81</sup> I thank Monique Kervran for allowing me to mention this information.

<sup>82</sup> O. Lecomte, R. Boucharlat & J. Culas 1989, 50-53, fig. 36.

<sup>83</sup> Toshihiko Sono & Shinji Fukai 1968, pl. 50, 85, Ghalekuti I, Tomb 5; For the form and decoration cf. H. C. Beck 1941, 59, pl. 9.13, Taxila, Sirkap, "1st c. B.C."

<sup>84</sup> P. Donaldson 1984, 286 fig. 6.52.

<sup>85</sup> Cf. K. R. Maxwell-Hyslop 1971, 228, pls. 210-212: parallels from Beth Pelet, Susa and the art market (seventh-sixth century BCE). Beth Pelet: F. Petrie 1930, 15, pl. 48, T. 725 (572) and T. 754 (573). N. Vinogradova (Moscow) informs us that several have been excavated from the final centuries BCE from central Asia. Cf. P.S. Uwarov 1902, 22 and the plate opposite, extreme left, 2nd row from the top: earring in gold, fashioned from hollow tiny gold balls with granulation in the interstices, hoop square in section; Cf. Z. Cilinska 1975, 65 type 1; 91 fig. 11,3. I thank Dr J. Giesler of the Rheinisches Landesmuseum Bonn for discussing this topic with me.

jewellery develops in an extremely conservative fashion. Probably the same principle of small soldered hollow balls of silver fashioned together with granulation remained as unchanged in the centuries preceding our Awaraz comparison as it did in those thereafter, continuing in some fashion to the present. No. 43 and other isolated luxury products seem inspired by centres, the existence of which can only be presumed on the basis of finds from the provinces.

Certain other objects of the Samad Period find formal affinities with dated early medieval artefacts from the West, which while sometimes quite striking, still remain tantalizingly distant, and for methodological reasons are not discussed here.

An arrowhead of iron, square in cross section (Fig. 9, no. 44)<sup>86</sup>, associated with a quivered bundle of arrowheads in Maysar M2720 chamber 2, came to light in what seems a very late context for the Samad Period. Distantly at Samaria in Karm esh-Sheikh similar points of iron occurred which bear a date in the fourth century BCE<sup>87</sup>. Our point parallels two others from the Sasanian Qasr-i Abu Nasr (old Shiraz)<sup>88</sup>. A third possible parallel (L. 7.9 cm) from Hasanlu BB II Rooms 5, 14, or 15, Period IV is difficult to judge in terms of its shape owing to the corrosion<sup>89</sup>. A fourth (L. 5.7 cm) derives from a context dated to the third-second century BCE at Taxila<sup>90</sup>. Yet another (L. 5.8 cm) also came to light as a surface find at Persepolis<sup>91</sup>. Five arrowheads, for the time being known as of P10 type (Fig. 9, no. 44A), have come to light in Samad and Maysar together with pottery of the Samad Period.

Also from M2720/2 lathe-turned spindle whirls in soft stone occurred (Fig. 9, cf. no. 45), which in their shape and perhaps technique of manufacture are identical with two examples from the same fortress.<sup>92</sup> Such spindle whirls are also well represented in Hama from the Early to Middle Islamic Periods.<sup>93</sup> In our part of Arabia they seem diagnostic of the Samad Culture, if not also later. Perhaps datable also the Sasanian Period is the horizontal ribbing on ceramic storage vessels such as in the upper left of our Plate 1.<sup>94</sup>

Several useful parallels derive from contexts especially outside in ed-Dūr, Mleiha, Arikamedu, and the more tenta-

tively dated Khor Rori and Şuḥār which aid in dating the Samad Culture. Samad grave S3032 and the noble's grave from al-Barūni are the two best dated tombs, and belong in the 1st-2nd century CE for the first and the fourth century CE for the second. Finds postdating the second century CE are far more numerous than those preceding this time, leaving the first half of our postulated timespan weakly supported. While some of the archaeological comparisons pointed out here can be caviled at for one reason or another, severally they provide a good indication of the timespan involved for the Samad Culture. They can only be considered as suggestions, and lack the concreteness known from intensively investigated subfields of archaeology. The number of radiocarbon assays (10) is sufficient to be considered significant, especially because there are few strays. The individual  $\pm$  factors in the datings in fact are far narrower than the span of the dates for the archaeological parallels. The assays strengthen the lowering of the date for the Samad Culture from previous estimates. On the strength of the information provided by the find parallels corroborated by that of radiocarbon, a time range for the Samad Culture cautiously stated from the late first millennium BCE to 700 CE is suggested, replacing the older "Parthian-Hellenistic" dating. The interaction between chronology and social developmental factors as they manifest themselves in the undeniably long LIA now most acutely require further research.

ADDENDUM  
(21.11.1992)

Aside from minor revisions, the present text was finished in 1988. Our field investigation of the graves terminated in 1991, but the evaluation continues. Major changes as a result of 13C corrections, and several additional 14C assays became necessary after the proofs were issued. A recasting of the text to accommodate the new evidence is not possible. Most significantly Figure 3 summarizes the conventionally calibrated radiocarbon assays known to 1989. Further new assays became available and all were corrected by means of 13C measurements for isotope fractionation. The result is a concentration of 15 datings for the Samad Period graves between 500 and 1000 CE.

The latter portion of this 500 year span is far better documented by 14C determinations than by archaeological parallels. A few absurdly early datings are difficult to explain. Datings which are far too late to be plausible are perhaps intrusive burials or samples near enough to the surface to become contaminated.

That what was originally held to be "Hellenistic-Parthian" Samad Period graves continue far later in time than expected should not shock us. They are not solely Pre-Islamic. With regard to Islam the Koran allows for the retention of old traditions, which is obviously what happened at Samad and Maysar. In 280 AH/893 the battle of Samad between the Wali of Iraq Muhammad b. Nūr who bested the

<sup>86</sup> First published: A. Tillmann & S. Kroll 1981, 226 fig. 62,2 in the part of the report dedicated to the Lizq Period.

<sup>87</sup> J. W. Crowfoot, G. M. Crowfoot & K. Kenyon 1957, xiv, 454 fig. 111,20; 457 no. 20. Kenyon identifies this type of iron arrowhead with Type E of the Olynthus classification, associated with the Macedonian siege of this site in 348 BCE. This citation became available to me just as the article was going to press. Cf. D. R. Robinson 1941, 392, esp. pl. 123, 1988-2002.

<sup>88</sup> D. Whitcomb 1985, 171 fig. 630,p. Fig. 63p is from rm. 20 of the fortress.

<sup>89</sup> O. W. Muscarella 1988 61, 63 cat. no. 83.

<sup>90</sup> Sir J. Marshall 1951, 547 no. 80, pl. 165,80. Cf. also Marshall's no. 81 from stratum II, pl. 165,81.

<sup>91</sup> E. Schmidt 1970, 74, "NR1 31, Tower, Plot BA 46, center E, refuse from top strata, Early Islamic?"; 75 fig. 30,3.

<sup>92</sup> D. Whitcomb 1985, 189 fig. 71e,f, both from the fortress.

<sup>93</sup> Cf. G. Plough et al. 1969, 115 fig. 10-16; 117 fig. 45,1-16; 119 fig. 46, 1-16, spindle whirls, datable in all four levels of the excavation from the seventh to fourteenth century CE.

<sup>94</sup> L. Trümpelmann 1984, 325-327 figs. 8-11, from southwest Iran. Cf. however, E. Schmidt 1957, pl. 73,7 "dissimilar to the late Achaemenid pottery" (p. 96) from the northern room, secondary structure, Harem street.

local Ibādi Imam Azzan b. Temeem is possibly the explanation for the end of the Samad Culture in Samad and Maysar.

I have changed my opinion on the way which swords were worn in Pre- and Early Islamic times. They usually were worn on the shoulder.

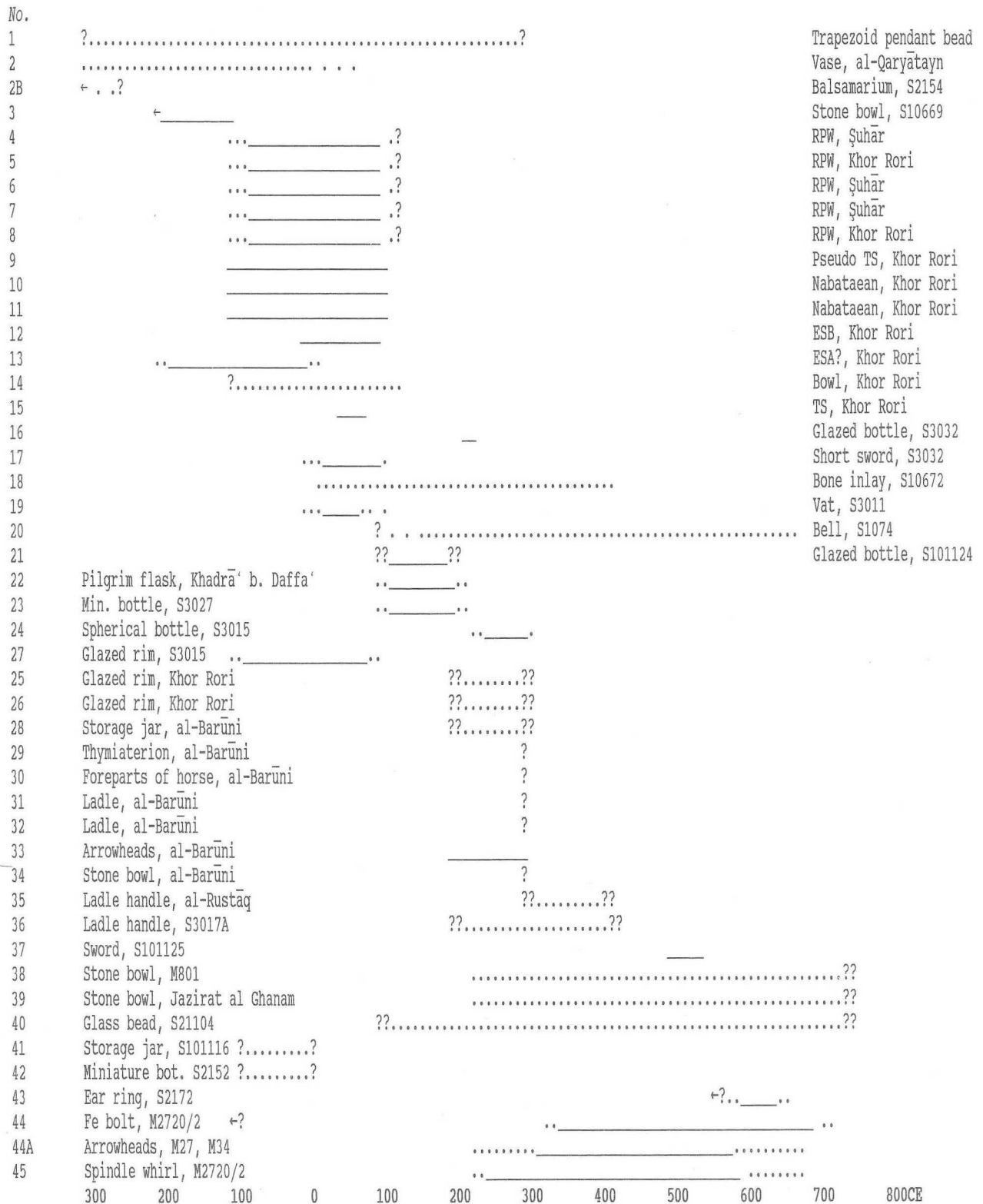
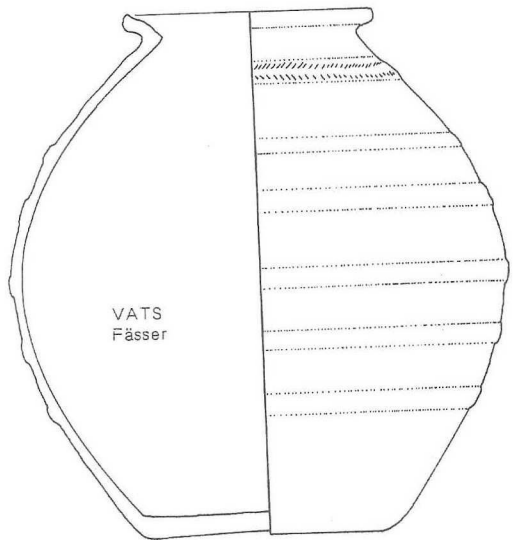
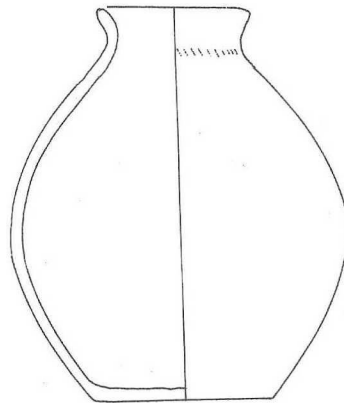


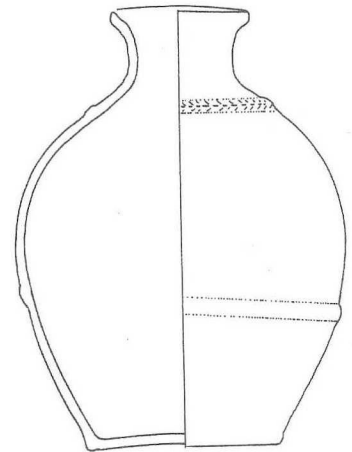
Table 5 Schematic of the datings of the artefacts cited. Dotted lines indicate a more speculative date than solid ones. Most uncertain are nos. 25, 26 and 44; most certain are nos. 15, 23, 27, and 28-34.



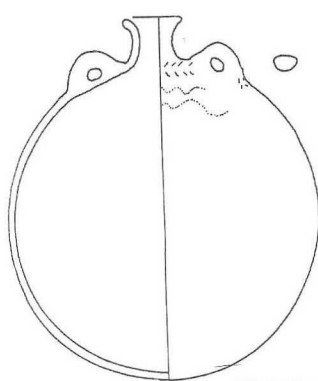
VATS  
Fässer



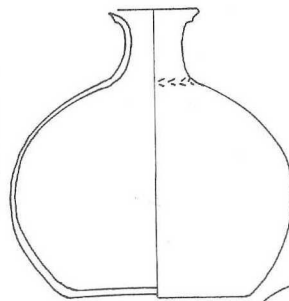
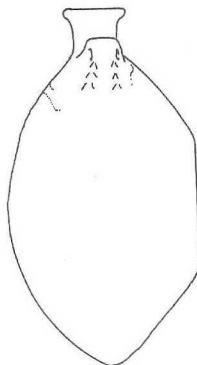
STORAGE JARS  
Vorratsgefäße



STORAGE JARS WITH ARTICULATED NECK  
Vorratsflaschen mit Halsbetonung

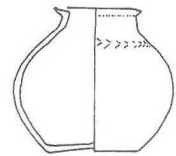
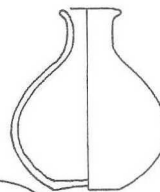


PILGRIM FLASKS  
Pilgerflaschen

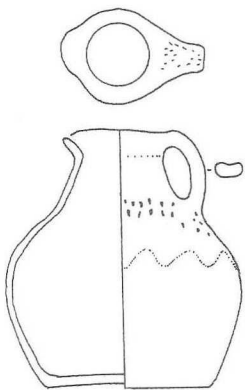
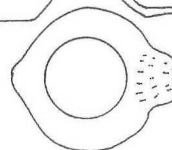


BOTTLES  
Flaschen

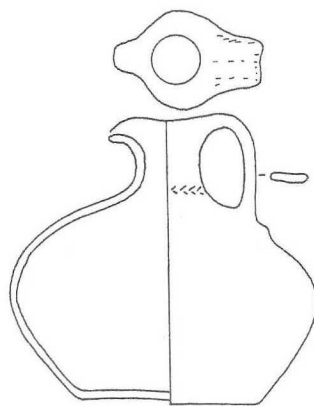
SMALL BOTTLES  
Kleine Flaschen



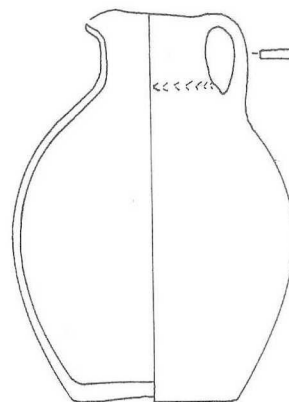
BELLIED VASES  
Bauchige Töpfe



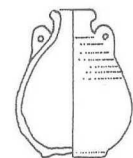
SQUAT PITCHERS  
Gedrungene Krüge



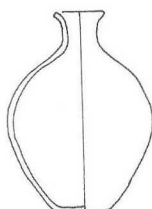
BELLIED PITCHERS  
Bauchige Krüge



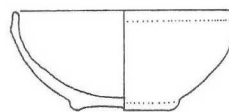
STRETCHED PITCHERS, BELLIED  
Hohe Krüge, bauchig



PERFUME BOTTLES  
Parfümflaschen



BALSAMARIA  
Balsamaria



VARIA  
Varia

Maßstab nicht einheitlich

Figure 4 Samad Period, funerary pottery, form categories, 06.1990.  
Scale only approximately uniform.

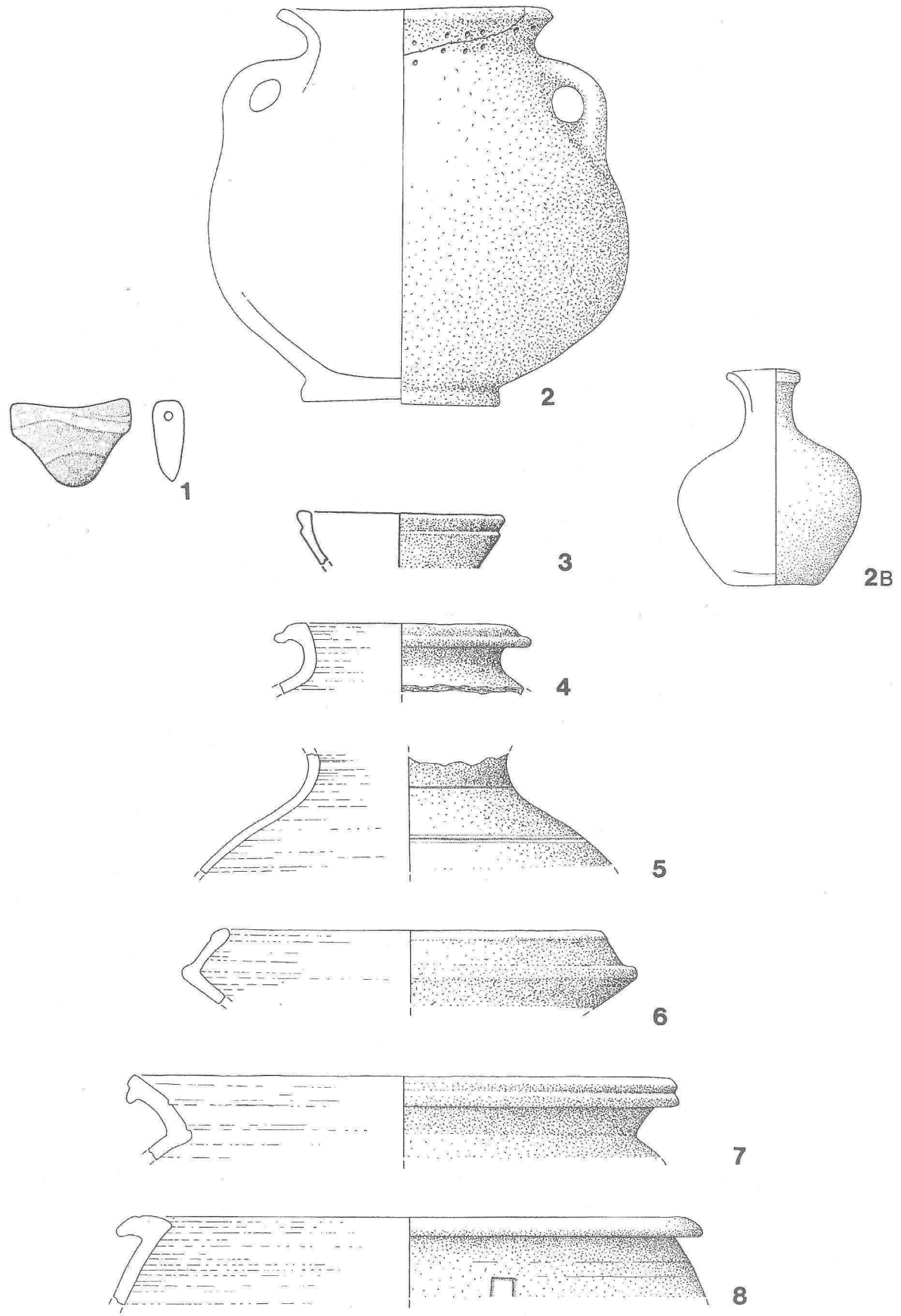


Figure 5 Samad Period, selected finds from al-Qaryātayn, Samad, Şuhār and Khor Rori.  
Scale, No. 1 1:1; otherwise 1:3.

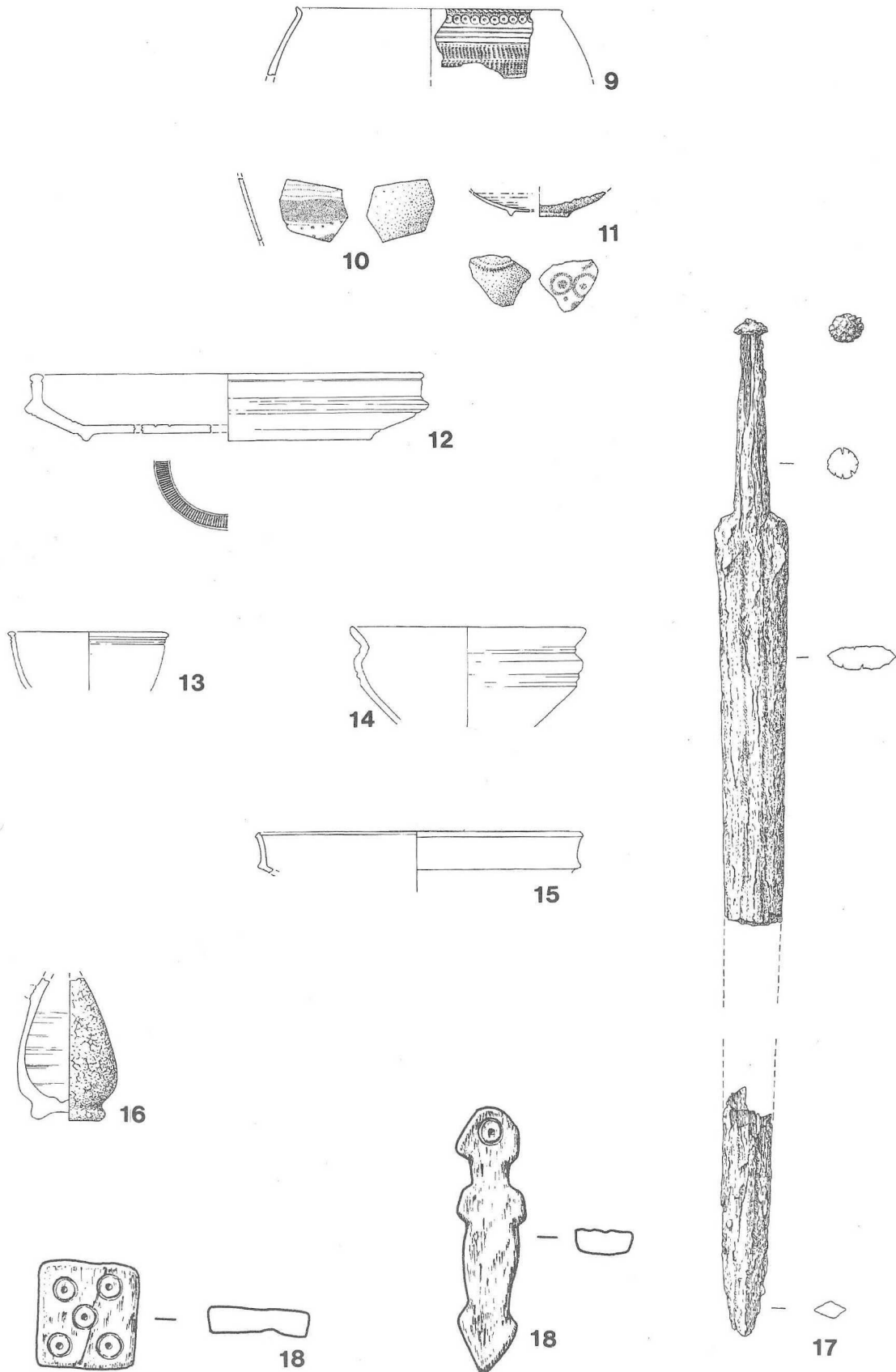


Figure 6 Samad Period, from Khor Rori and Samad.

Scale, No. 18 1:1, otherwise 1:3

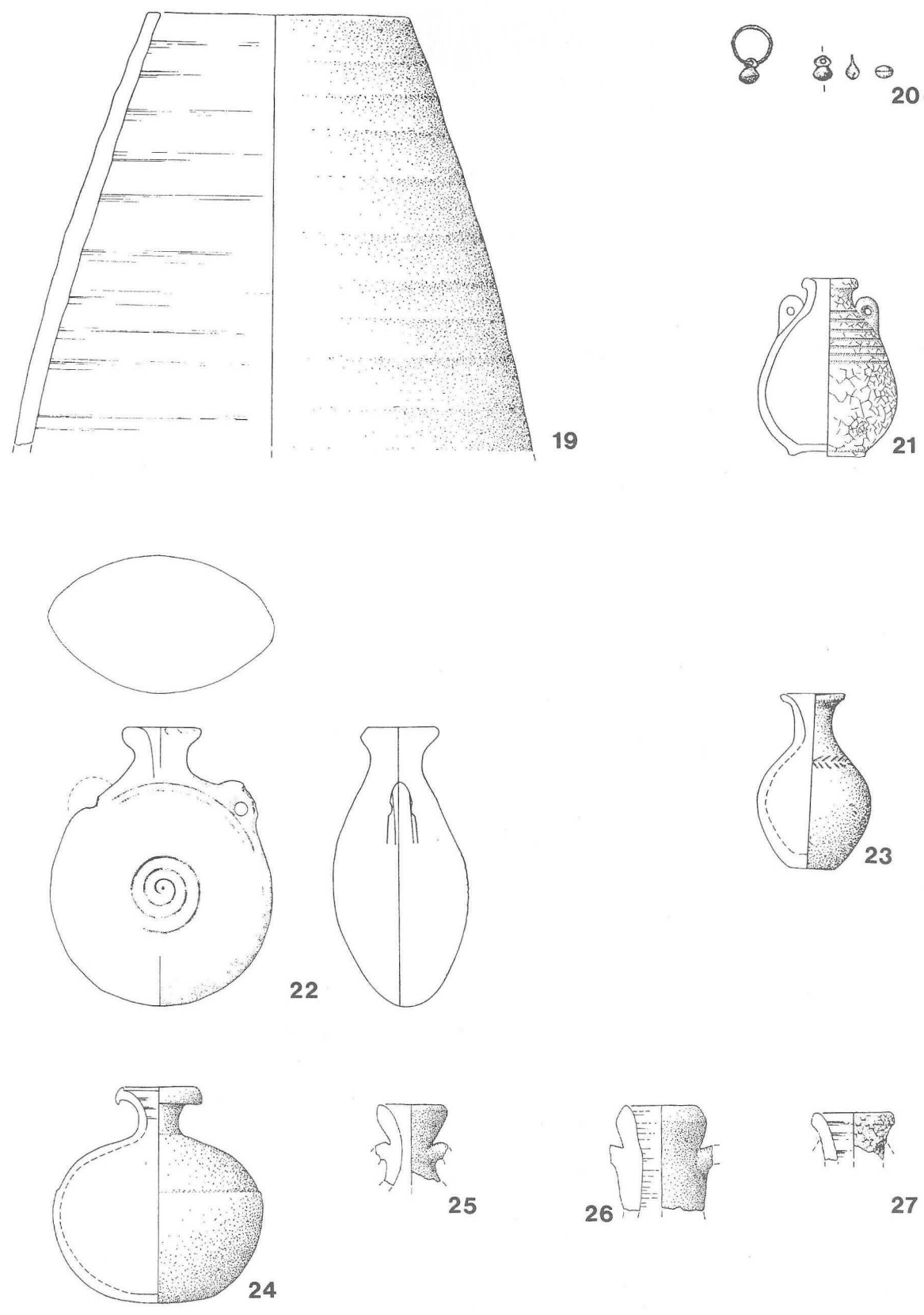


Figure 7 Samad Period, Samad cemeteries 10 and 30, and al-Akhdar.  
 Scale, No. 19 1:4; otherwise 1:3



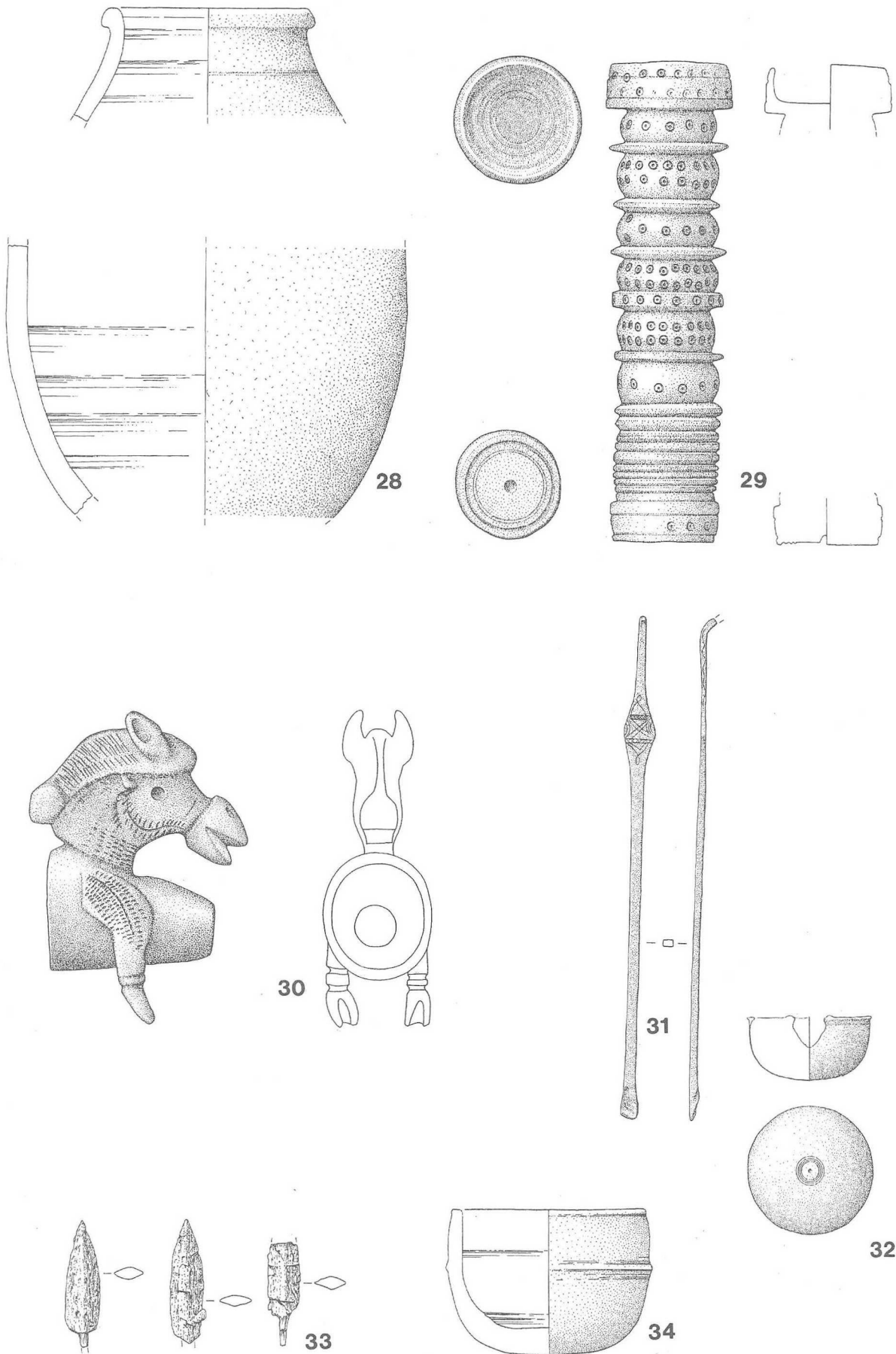


Figure 8 Al-Barūni, grave, selected finds. Scale No. 30 1:1; otherwise 1:3.

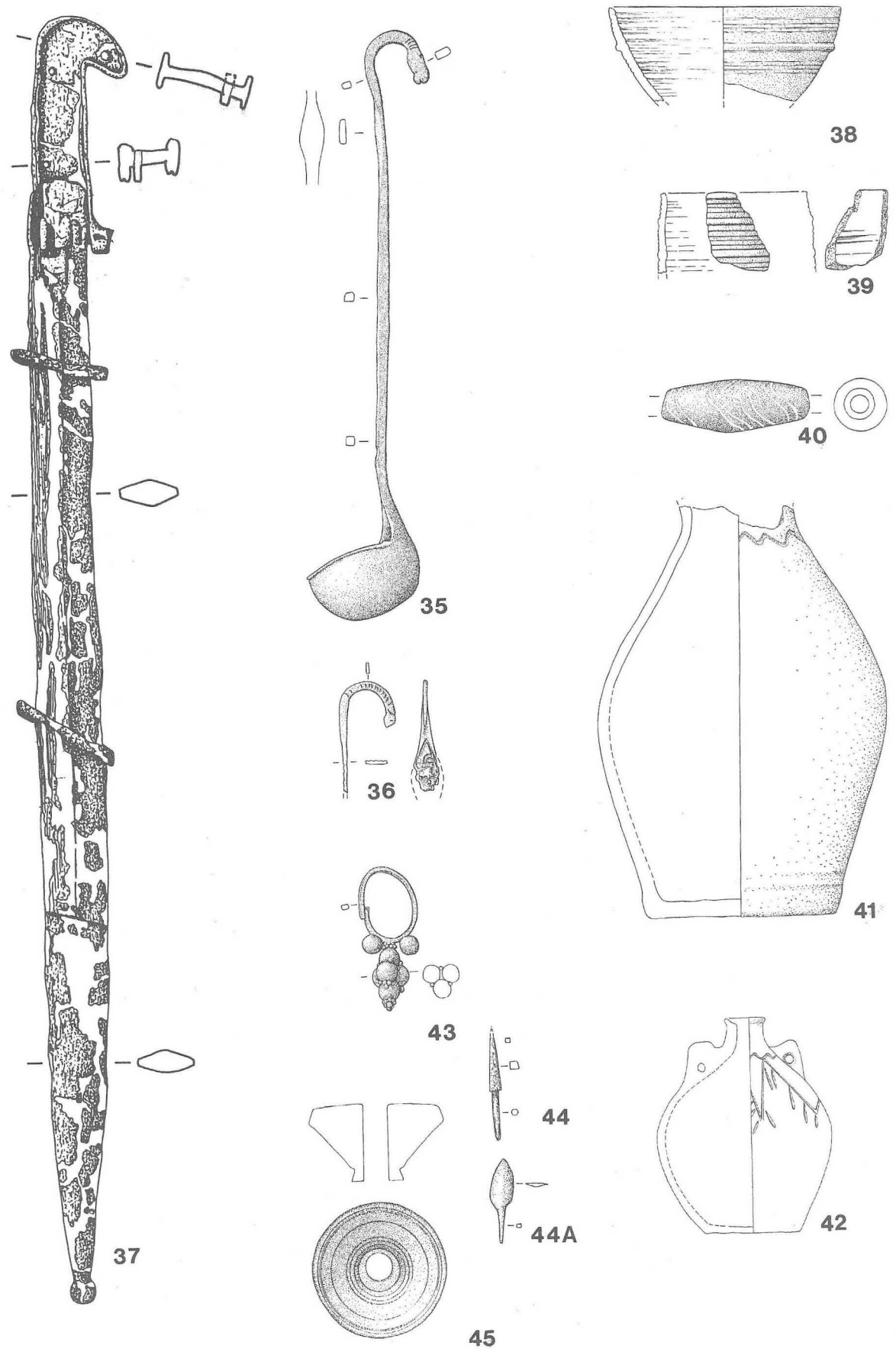


Figure 9 Miscellaneous comparisons. Scale nos. 40, 43, 44 1:1; no. 41 1:4; otherwise 1:3.

## Documentation

Figure 5

No.	Artefact	Findspot Oman	outside comparison	suggested dating	published for parallel
1	Agate bead	Samad Gr.10683/1	Masjid-i Suleiman, Germi, Assur	3rd c. BCE-3rd c. CE	Musche 1988
2	Samad ware	al-Qaryātayn	Qal'at, City V	3rd c. BCE-0	Bibby 1970
2B	Balsamarium	Samad Gr.2154	Persepolis, test	late Achaemenid ?	Schmidt 1970
3	Stone bowl	Samad Gr.10669	Mleiha Site B	> 1st c. BCE	Boucharlat 1986
4	Ind. RPW	Ṣuḥār		1st c. BCE/CE	Yule/Kervran n.d.
5	Ind. RPW	Khor Rori	Ṣuḥār	1st c. BCE/CE	Wheeler 1946
6	Ind. RPW	Ṣuḥār	Arikamedu	1st c. BCE/CE	Wheeler 1946
7	Ind. RPW	Ṣuḥār	Arikamedu	1st c. BCE/CE	Wheeler 1946
8	Ind. RPW	Khor Rori	Arikamedu	1st c. BCE/CE	Wheeler 1946

Figure 6

No.	Artefact	Findspot Oman	outside comparison	suggested dating	published for parallel
9	Pseudo TS	Khor Rori	Arikamedu	1st c. BCE/CE	Wheeler 1946
10	Nabat. ware	Khor Rori		1st c. BCE/CE	Negev 1970
11	Nabat. ware	Khor Rori		1st c. BCE/CE	Negev 1970
12	TS plate	Khor Rori	Sabratha	1st c. CE	Kenrick 1986
13	TS bowl	Khor Rori	Lidar Höyük	2nd-1st c. BCE	Kazenwadel n.d.
14	Bowl	Khor Rori	Tal-i Malyan	LIA	Sumner 1986
15	TS plate	Khor Rori	Pergamon	third 1/4 1 c. CE	Mayer-Schlichtmann 1988
16	Perfume bottle	Samad Gr.3032	War Kabūd Gr.1	224-241 CE	Vanden Berghe 1972
17	Short sword	Samad Gr.3032	ed-Dūr Gr.3837	1st c. CE	Haerinck unpubl.
18	Intarsia	Samad Gr.10672	ed-Dūr Gr.3831	1st c. CE	Phillips 1987

Figure 7

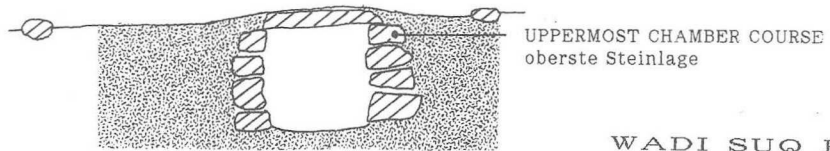
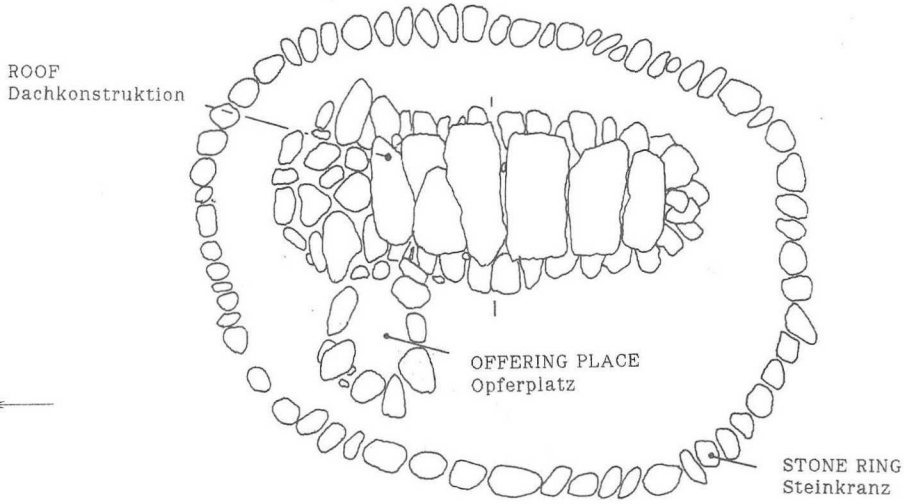
No.	Artefact	Findspot Oman	outside comparison	suggested dating	published for parallel
19	Vat	Samad Gr.3011	ed-Dūr L276	1st c. CE	Haerinck unpubl.
20	Bells	Samad Gr.1074	ed-Dūr Gr.3840	1st c. CE	Haerinck <i>et al.</i> 1990
			Qasr-i Abu Nasr	Sasanian	Whitcomb 1985
21	Perfume bottle	Samad Gr.101124	Karranah Gr.A14	2nd c. CE	Haerinck 1983
22	Glazed flask	Khadrā <sup>3</sup> b.Daffā <sup>c</sup>	Irigal	Late Parthian	Finkbeiner 1989
23	Balsamarium	Samad Gr.3027	Ghalla island	3rd c. CE	Lecomte/Boucharlat/Culas 1989
24	Spher. bottle	Samad Gr.3015	ed-Dūr Bldg. F	225-late 3rd c. CE	Lecomte/Boucharlat/Culas 1989
			Karranah Gr.D2	<225CE	Salles unpubl.
25	Glazed bottle	Samad	Samad Gr.3015	3rd c. CE	Yule/Kervran n.d.
26	Glazed bottle	Khor Rori	Samad Gr.3015	3rd c. CE	Lecomte 1989
27	Perfume bottle	Samad Gr.3015	Khor Rori	1st c. BCE/CE	Yule unpubl.

Figure 8

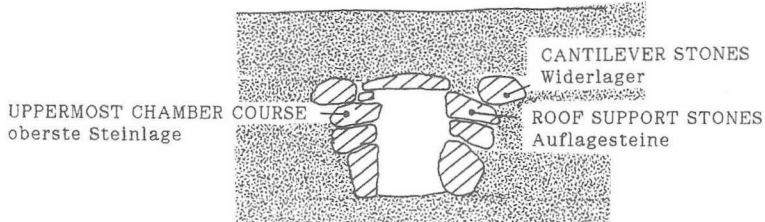
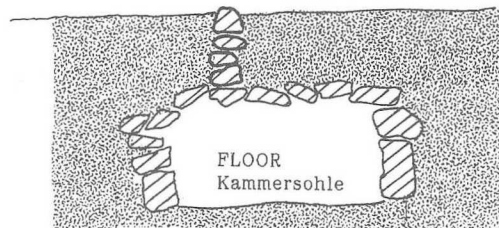
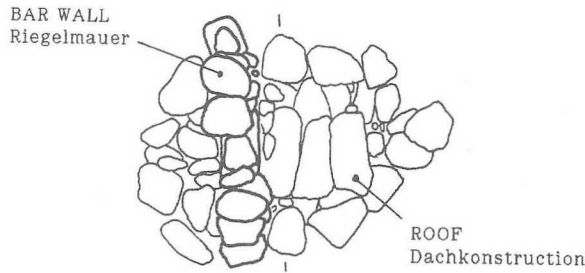
Artefact	Findspot Oman	outside comparison	suggested dating	published for parallel
Storage jar	al-Barūni	ed-Dūr Susa Apadana est	3rd-4th c. CE 5th-1st c. BCE	Boucharlat 1989 Boucharlat 1987
Thymiaterion	al-Barūni	ed-Dūr Temple	1st c. BCE	Haerinck/Stevens 1989
Foreparts of horse	al-Barūni	Mleiha Nécr.C ed-Dūr Grave	> 1st c. BCE > 1st c. BCE	Boucharlat letter Phillips unpubl.
Ladle handle	al-Barūni	ed-Dūr	> 1st c. BCE	Phillips unpubl.
Ladle spoon	al-Barūni	-	-	-
Arrowheads	al-Barūni	ed-Dūr Grave 3837	1st c. CE	Haerinck unpubl. Mouton type D
Stone bowl	al-Barūni	ed-Dūr, surface	1st-2nd c. CE	Salles 1984a

Figure 9

Artefact	Findspot Oman	outside comparison	suggested dating	published for parallel
Ladle	ar-Rustāq	al-Barūni	4th c. CE	
Ladle grip	Samad Gr.3017A	al-Barūni	3rd-4th c. CE	Phillips 1987
Sword, Fe	Samad Gr.101125	Bishapur I Mleiha "Sailor"	3rd c. CE late 2nd BCE-1st CE	Herrmann 1983 Madhloom 1974
Stone bowl	Maysar Gr.M801	Qal'at al-Bahrain	Sasanian	Boucharlat 1986
Stone bowl	Samad 30	Jazirat al-Ghanam	Sasanian	de Cardi 1975
Glass bead	Samad Gr.21104	Ghalekuti I, Gr. 5	Partho-Sasanian	Toshihiko Sono/ Shinji Fukai 1968
Storage jar	Samad Gr.101116	Soghun, Su 70-39	Parthian-Sasan.	Lamberg-Karlovsky/Fitz 1987
Min. bottle	Samad Gr.2152	Soghun, Su 70-39	Parthian-Sasan.	Lamberg-Karlovsky/Fitz 1987
Ear ring	Samad Gr.2172	Alattyan Gr. 233 Kamid el Loz	568-650 CE 450-370 BCE	Kovrig 1963 Poppa 1978
Projectile	Maysar Gr.2720/2	Qasr-i Abu Nasr	Sasanian	Whitcomb 1985
Arrowheads	Maysar 27, 34	Shahr-i Qumis	Parthian	Muscarella 1988
Spindle whirl	Maysar Gr.2720/2	Shahr-i Qumis	Sasanian	Whitcomb 1985



WADI SUQ PERIOD



SAMAD PERIOD

Figure 10 Main attributes of Pre-Islamic cist graves, Samad al-Shan.

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Brief Summary of the State of Research of Eastern Sigillata<sup>1</sup>

B. KAZENWADEL

Eastern *sigillata* nowadays is divided into four groups by virtue of the constitution of the clay, its colour, and particularities of the *Glanzton* surface treatment. The groups are named Eastern *sigillata* A, B, C, and D, of which in our preceding study ESA and ESB deserve further attention, since the differences between them are often confusing owing to the rapid development of this specialist field of study.<sup>1</sup>

As early as 1904 Zahn distinguished two categories of *sigillata* in Priene: Priene A (=Samian) and Priene B (Pergamenian)<sup>2</sup>, and suggested two centres of production, but did not ground his assertion.

In 1938 Iliffe fundamentally altered the terminology, dismissing Samos and Pergamon as the dual producers<sup>3</sup>. He offered Asia Minor and/or Syria/Palestine as an alternative for the origin. The two groups he redesignated in a neutral way "ETS I" and "ETS II" (=Eastern *Terra Sigillata*). This terminology, however, did not establish itself and in 1948 Waagé favoured the older terminology<sup>4</sup>. He distinguished two groups - "Hellenistic-Pergamene" (older) and "Roman-Pergamene" (later), but evidence was lacking for Pergamon as the centre of production.

Kenyon introduced a further neutral terminology for the different categories of *sigillata* for Samaria Sebaste<sup>5</sup>. The terms ESA and ESB, which gradually took hold in the subsequent literature originated in her work. Moreover, ESA and ESB are appropriate because they avoid the question of origins, for the localization still remains a problem.

In 1980 Cornell refocussed the division of ESA and ESB<sup>6</sup>, introducing the terms LHRT (=Late Hellenistic Red Slipped Table Ware [=ESA]) and ERRT (=Early Roman Red Slipped Table Ware [=ESB]). Nor have these terms established themselves.

Most recently Gunneweg<sup>7</sup> renewed the terminology, going back to Iliffe's "Eastern Terra Sigillata", thereby reintroducing ETS I (earlier) and ETS II (later). Despite the advantage of avoiding the problem of origins, this terminology has not dislodged ESA and ESB.

Considering this complicated development, Kenyon's neutral ESA and ESB seems the most serviceable nomen-

clature until arguments can be found to localize the two<sup>8</sup>. Although the question remains open, at least for ESA a centre in Syria seems most likely, on the strength of numerous such finds recently excavated in the dam area of the Turkish-Syrian middle Euphrates. ESA reaches not only a surprisingly high percentage of the total pottery, but also many new forms are observable.

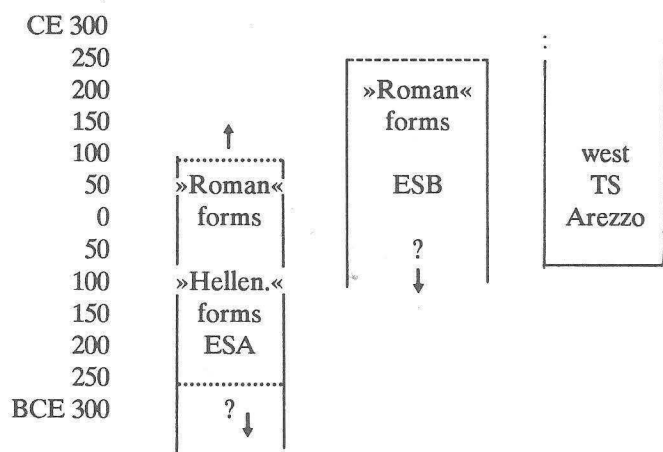


Figure 1 - Comparison of the chronologies mentioned.

Independent of the two names, the older ESA distinguishes itself by rounded profiles, and ESB, on the other hand, by sharper ones, going back to Arretine sources.

Zahn 1904	Iliffe 1936	Waagé 1948	Kenyon 1957	Cornell 1980	Gunneweg 1983
Priene A ("Samian")	ETS I	Hellen. Pergam.	ESA	LHRT	ETS I
Priene B ("Pergam.")	ETS II	Roman Pergam.	ESB	ERRT	ETS II

Figure 2 - Development of the nomenclature, correlation of the termini.

<sup>1</sup> For bibliographical notes see our preceding study pp. 272-276.

<sup>2</sup> T. Wiegand & H. Schrader 1904, 430ff.

<sup>3</sup> H. Iliffe 1938, 4-13; H. Iliffe 1942, 31-33.

<sup>4</sup> F. O. Waagé 1948, 18-22.

<sup>5</sup> J. W. Crowfoot, G. M. Crowfoot & K. Kenyon 1957, 281-284.

<sup>6</sup> L. A. Cornell 1980, 35-233, summarized 237-243.

<sup>7</sup> J. Gunneweg et al. 1983.

<sup>8</sup> A tabular clarification of the confusing state of research was published by K. Roth-Rubi 1984, table on pp. 189-191.