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First campaign of excavation at Khor Bani Bu Ali SWY-3, Sultanate of Oman

Sophie Méry and Philippe Marquis

Introduction

At 70 km south of Ra's al-Hadd, the settlement site of Khor Bani Bu Ali SWY-3 is a low artificial mound (height 2 m) extending over about 1 ha near the village of Suwayh, on the coastal plain of the Arabian Sea.[1] SWY-3 is located about 0.8 km from the present-day coast. It is bounded on its eastern and southern limits by the large sebkha of Khor Bani Bu Ali (Fig. 1). It was discovered in 1988 by Dr J.-C. Plaziat during a survey of the Joint Hadd Project[2] along the Ja'alan coast. Several surveys were carried out until February 1996, providing different types of local Bronze Age artefacts, mostly pottery sherds and fragments of bronze tools. Except for a fragmentary bronze spearhead (Fig. 7), no artefacts typical of the Indus civilisation were found on the surface of the site whereas there are a great number of them in the Ra's al-Jins and Ra's al-Hadd areas (RJ-2, RJ-3, HD-1 and HD-5 sites).

Like other coastal protohistoric settlements, SWY-3 as an archaeological site seems to be more endangered by present and future developments in the area than do the graves or burial-grounds of the Bronze Age or even settlements of later periods. Partly cut by the road from Asilah to Ra's al-Hadd, the site has been badly damaged by bulldozer activity and this kind of site is difficult to protect.

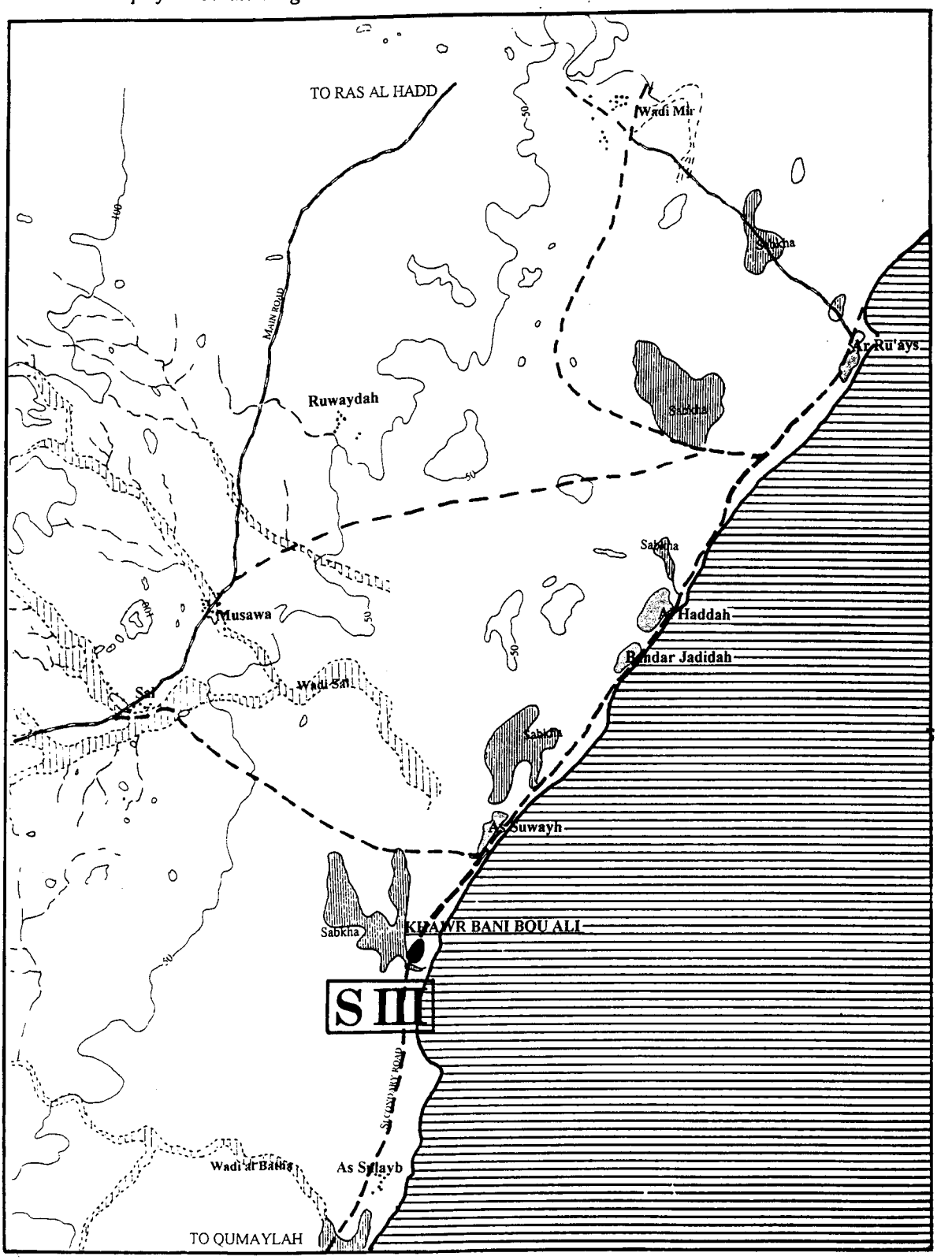
A first campaign of excavation took place at Khor Bani Bu Ali in December 1996 and January 1997[3] aimed at uncovering a stone building identified during a previous survey and at testing the depth of occupation and its stratigraphy. At a depth of 1.30 m, two sondages revealed stratified levels. The fossil beach was reached. All the deposits were sieved (3 mm sieve) except the surface deposit of Building 1 (25% of the sediment sieved). In each SU, a sample of 30 cm^3 was water-sieved with a 5 mm sieve. All levels yielded fish-bones and marine shells but no mammal bones were identified. All the shells collected after sieving were weighed and numbered except the ones coming from the soundings S.2: for these, we only made a species identification.

Surface material

When undisturbed, the surface of the site is covered by a shell pavement of fragmented *Amiantis* sp. (Bosch, Dance & Oliver 1995: fig. 1205). Lines of boulders, possibly walls, are visible in different areas and several hearths of 'Polynesian type' filled with burned pebbles are located on the eastern part of the site. The same type of specialised areas were excavated at Ra's al-Jins RJ-2 and Ra's al-Hadd HD-1 (Méry in Cleuziou & Tosi 1988: 27, fig. 25 and 26; Reade in Cleuziou, Tosi & Reade 1990: fig. 33). At SWY-3, the hearths are grouped close to a double row of small stones corresponding to a possible sheltering wall. This wall was curved and orientated in such a way that it was protecting the fires from the wind coming from the sea. Similar arrangements can be seen nowadays on the coast of Dhofar.

Due to bulldozer activities, many objects are found on the surface of SWY-3. They are sometimes intact and often slightly eroded. Most of them are dated to the second part of the third millennium BC.

FIGURE 1. *Map of the Ja'alan region.*



It is worth noting the scarcity of diagnostic elements earlier than the third millennium BC, especially the total absence of fish-hooks and net-sinkers from that period. Only one artefact dated to the fourth millennium BC was recovered: an engraved chlorite ear-ring (Fig. 10 no. 16). The design is unclear.

The most important surface find was a bronze spearhead, at least 27 cm x 0.6 cm, with a tang and no rivet-holes (Fig. 7). Such a weapon and prestige item is unique in the assemblage of the Arabian Peninsula during the Bronze Age but it is frequent in the Harappan cities, such as Mohenjo-Daro (for example Mackay 1938: pl. LXXI no. 33, pl. CXIII no. 7, CXVII no. 8, CXXIX no. 11; Marshall 1931: pl. CXXXVI nos 1 and 8; Vats 1940: pl. CXXI nos 20 and 27) and Chanhu-Daro (Mackay 1943: pl. LXIII nos 2, 4 and 5, pl. LXV nos 1 and 9, pl. LXXI no. 12, pl. LXXVI no. 17). Most of the Indus spearheads known from the publications are smaller than the one found at SWY-3, but one specimen from Mohenjo-Daro is about 39 cm long by 0.4 cm thick at the blade (Mackay 1938: pl. LXXI no. 33). Another specimen found at Chanhu Daro is 31 cm long by 0.4 cm thick (Mackay 1943: pl. LXXI, no.12) with two rivet-holes at the base of the tang.

Other types of copper artefacts are numerous: copper bars (Fig. 9 no. 8), a rivet (no. 12), a bifid tool (no. 18), several fragments of fish-hooks and one complete (nos 13, 14), and a fragmented pin (not illustrated). These artefacts have a long tradition in Ja'alan since they are found at the very beginning of the third millennium BC at Ra's al-Hadd HD-6 and continue after 2500 BC at Ra's al-Jins RJ-2 (Cleuziou & Tosi 1986: fig. 19 nos 2-4, 1988: fig. 18 no. 6, fig. 19, fig. 20 no. 2) and Ra's al-Hadd HD-1 (Cleuziou, Tosi & Reade 1990: fig. 35). The same types of copper fish-hooks (Frifelt 1995: fig. 269-270) and rivets (*op. cit.*: fig. 273 VA) are also found in the settlement of Umm an-Nar.

Pottery is well represented and most of the sherds belong to a type of ware predominating during Period IV (*c.* 2150-2000 BC) at Ra's al-Jins RJ-2: a sandy orange ware (Fig. 8).[4] The rims of jars and bowls found at SWY-3 belong to the tradition of the

FIGURE 2. *The stone building of Khor Bani Bu Ali SWY-3. Credit: S. Méry.*

domestic pottery of the Umm an-Nar period. The grooved rim sherd of a small bowl (Fig. 8 no. 8) recalls pottery at Hili 8 phase IIf (Cleuziou 1989: pl. 30 nos 5-8). This type is also found at Maysar-1 (Weisgerber 1981: Abb. 17 no. 2). A potter's mark is visible on the rim of a pot (Fig. 8 no.5), and this is a frequent characteristic of the Ra's al-Jins RJ-2 pottery in the levels of Period II-III around. 2500-2200 BC.

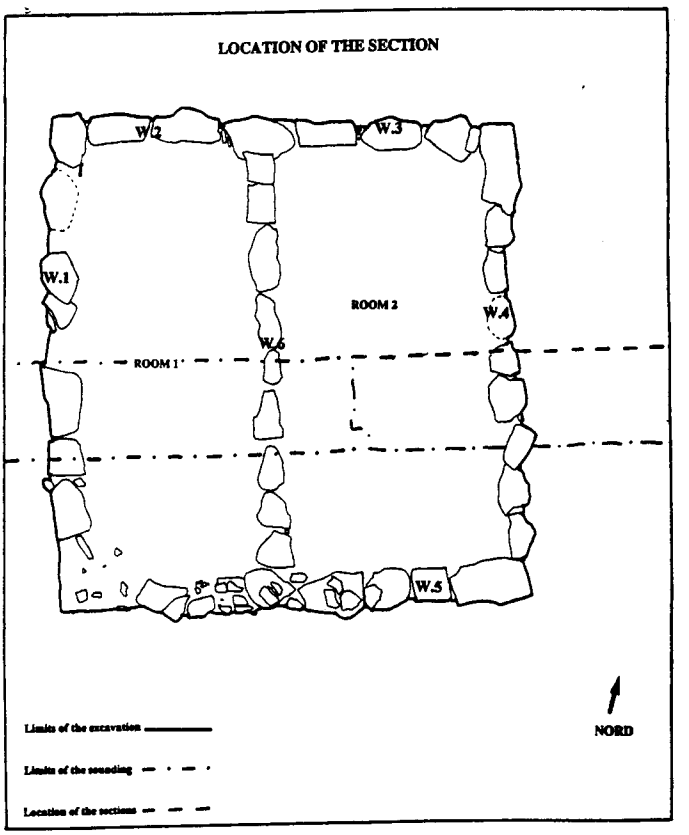
Several fragments of soft stone vessels belonging to the Série Umm-Nar (or Série Récente) were found on the surface of the site. This type was produced inland (for example at Maysar) from different types of soft-stones available in the Hajjar mountains during the second part of the Umm an-Nar Period (David, Tegyey, Le Métour & Wyns 1990; David 1996). Fragments of vessels of the Série Umm an-Nar were found in coastal settlements, at Ra's al-Jins RJ-2 (Cleuziou, Reade & Tosi 1990: fig. 22 nos 1 and 2) and at Umm an-Nar (Frifelt 1995: fig. 281 KP). Two rims found at SWY-3 correspond to open globular bowls: the first one is decorated just below the rim with a simple row of double-dotted circles between two horizontal lines (Fig. 9 no. 6); the second is less fragmented and its decoration is similar, except the repetition of the motif (no. 7). Another characteristic shape was identified, *i.e.* a compartmented rectangular box (no. 5). On this particular shape, double-dotted circles are usually also engraved on the base of the vessel. Both shapes and decoration are attested in Ja'alan, at Ra's al-Jins RJ-2 (Cleuziou & Tosi 1988: fig. 23 no. 2) but also in an Umm an-Nar grave at Bilad Bani Bu Hassan (Edens in Cleuziou, Reade & Tosi 1990: fig. 42 no. 1).

Among the other types of artefacts, a single ring of *Conus* sp. was recovered on the surface of SWY-3 (not illustrated). This type of shell working is frequent at Ra's al-Jins and numerous workshops dating to the second part of the third millennium BC were recovered inside the buildings of RJ-2 (Cleuziou & Tosi 1988: fig. 22; Charpentier 1994: 163). Since the shell ring found at SWY-3 was already shaped but unfinished (stage P3s2, 158) and broken, it indicates that local workshops possibly existed at Khor Bani Bu Ali. The base of a calcite vessel was also found (Fig. 9 no. 3), a type of vessel also recovered at Ra's al-Jins RJ-2 (Cleuziou, Reade & Tosi 1990: fig. 22 no. 3). The types of carnelian beads found at SWY-3 (Fig. 10 nos 4-6) are typical of the Umm an-Nar graves (for example Frifelt 1991: figs 236b, 249) but they are also attested in settlement contexts, such at Ra's al-Jins RJ-2. A chlorite disc of about 3 cm in diameter was also found at SWY-3 (Fig. 9 no. 4). We do not know anything comparable with this type of artefact

Excavation of Building 1

The excavation of an area of 50 sq. m in the northern part of the site uncovered the remains of a nearly square building (5.10 m x 5 m) located just below the surface. It consists of two rectangular rooms side by side: Room 1 is 4.1 m by 2.1 m, Room 2 is 4.5 m by 1.8 m (Figs 2 and 3). The thickness of the walls is about 40 cm and due to the state of preservation, no entrance was found. There were no foundations but

FIGURE 3. *Plan of the stone building. Drawing: P. Marquis.*



courses of boulders composed the lower part of the wall. Many fragments of mortar were recovered among the stones.

There were three or four courses of unworked stones but only the lowest was preserved. These are boulders (about 30 x 40 cm) coming from a calcareous sandstone outcrop located about 200 m away.[5] Half of the building was erected on top of a shell layer used as a pebble bed and comprised well preserved *A. umbonella*. Many fragments of clay were found among the collapsed walls inside the rooms and outside. Mortar of ochre clay composition was found against the face of one of these mudbricks.

The technique of construction of Building 1 matches that of Building IV at Ra's al-Jins RJ-2 (Period IV, *c.* 2200-2000 BC). In Building IV, RJ-2, only a single row of stones was preserved and due to its state of preservation its plan is fragmentary (Chofflet, Cleuziou & Tosi: pers. comm.). The architectural remains of SWY-3 recall in part the basic plan of most of the houses excavated at Ra's al-Jins RJ-2 (Cleuziou & Tosi in Cleuziou, Reade & Tosi 1990: fig. 8), except for the rectangular courtyard usually located on the front of the rectangular rooms. On the other hand, the size of the rooms was larger at RJ-2 than at SWY-3. Other stone buildings are known during the Umm an-Nar Period in the Oman peninsula. At Umm an-Nar for example, the footing of the warehouse was constructed in limestone boulders (thickness of the walls: 90 cm). Up to eight courses of stones were preserved, plus 2-3 courses collapsed. There were no foundations but a layer of clay levelled the slope. The superstructure was not preserved, although 'two fragments from Rooms 3 and 4, [...] maybe from mudbricks.' (Frifelt 1995: 12, Figs 100 and 259). Other comparisons can be made with Building As.99 at Asimah (Vogt 1994: 153, fig. 65). This building was rectangular with two rooms which are larger than those of the SWY-3 building. Other differences are obvious: AS.99 had foundations, its walls consist of two faces of stones with a filling of gravel, and the dividing wall is separated by a central doorway. Other stone buildings were also found at Maysar-1 (Weisgerber 1981: Abb. 14).

FIGURE 4. *Fragments of mortar found in the level of destruction of the stone building. Credit: S. Méry.*

At SWY-3, the occupation level inside the building was 10 cm thick. No floor was preserved but a progressive accumulation of sediments mixed with artefacts is documented, corresponding to the period of abandonment of the building before the collapse of the walls. In both rooms, several body sherds of orange sandy ware were recovered, as well as valves of scallops (*Pecten*) used as cooking plates. At RJ-2, most of the sherds of the same sandy ware were only recovered inside Building IV, so we propose to date Building 1 of SWY-3 to the end of the sequence at Ra's al-Jins RJ-2. The scallops are less diagnostic since they were found in Period II and III contexts at RJ-2 (in Building 2 Room 18).
The occupational deposits were covered by a 10 cm thick clayey filling, produced by the collapse of the stone footing.

Test trench T.1

This 1 x 6 m test trench was located through and outside Building 1. Several stratified levels were recorded over a fossil beach. Four main archaeological levels are documented. In each case, the limits of the layers were very clear (Fig. 5 no. 1, Fig. 6).

Just like Building 1, the following deposits are dated to the late third millennium BC. They contain diagnostic artefacts from the end of the Umm an-Nar Period:

SU.1007 (east of Building 1)/ SU.1016 (under Room 2)

A sandy level comprising many fragmented marine shells (mainly *A. umbonella* but also *Saccostrea cucullata*, Mytiloidea and some *Barbatia obliquata*) mixed with hearth stones (10 cm in diameter). This layer was not found in Room 1 due to the slope of the archaeological deposits. Post-holes driven into the top of this stratigraphic unit were recorded, suggesting a level of occupation in that area. In addition to several body sherds of orange sandy ware a grooved rim comparable to fig. 8 no. 8 was found. This layer also yielded a fragmentary hammer stone, two fragments of copper fish-hooks (Fig. 9 no. 17) of a type recorded at Ra's al-Jins RJ-2, a fragmentary copper bar and a few flakes of flint and radiolarite. Similar artefacts are recorded at RJ-2 in the levels dated to the second half of the third millennium BC. A pendant made of a perforated *Anadara* shell was also found in the layer under room 2 (Fig. 10 no. 14), and a small discoid chlorite bead (no. 1).

SU.1015 (east of Building 1)/ SU.1018 (under Room 2) / SU.1003 (under Room 1, only exposed) / SU. 1005 (west of Building 1, only exposed)

An anthropic layer resulting from the accumulation of unburned edible shells located under SU.1007 and 1016. *A. umbonella* is the dominant species, observed as a 5 cm thick layer of mostly complete valves. Ostreoidea is the second species recorded, with a less wide-spread distribution in the area. Other species of marine shells are scarce. Several sherds of orange sandy ware were found in this layer, a fragmented copper fish-hook, a copper bar, and flakes of flint and radiolarite. The hammer stone of Fig. 9 no. 1 is comparable with pieces found at RJ-2.

SU.1020 (east of Building 1)/ SU.1028 (under Room 2)

A sandy and ashy filling. Hearth stones and fragmentary shells were scattered in this unit. The assemblage of shells is similar to previous layers. Apart from a hammer stone (Fig. 9 no. 2) and a flake of flint, this level only yielded a fragment of chlorite bowl of the Série Récente decorated with a row of double-dotted circles in between two incised horizontal lines, as well as a body sherd of a suspension vessel (not illustrated). Suspension vessels are usually scarce in the domestic assemblages of the end of the Umm an-Nar period: at Hili 8, they belong to Period IIf, around 2300-2100 BC (Cleuziou 1989a: 67) and at Umm an-Nar, a dozen of these items were found in Period II levels (Frifelt 1995: fig. 95) as well as in the House Complex (*op.cit.*: fig. 237).

SU 1022 (east of Building 1) / SU.1029 (under Room 2, only exposed)

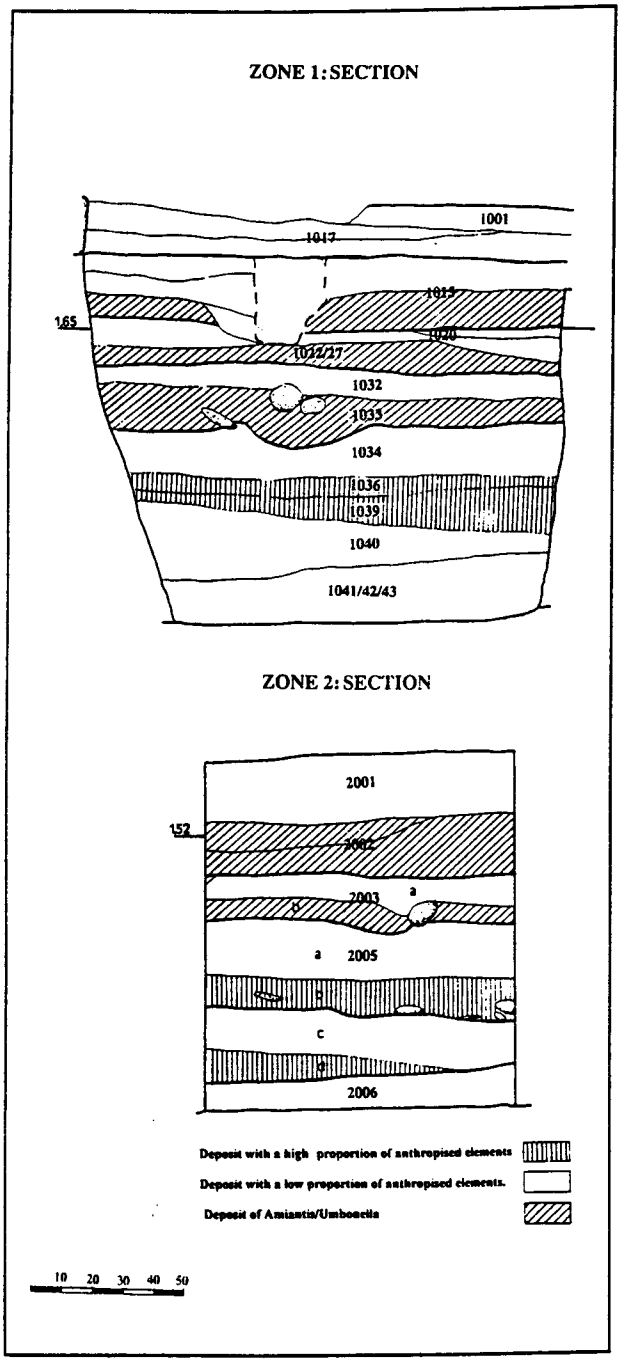
An anthropic layer resulting from the accumulation of unburned edible shells (mainly *A. umbonella* and concentrations of Ostreoidea). Other fragments belonging to the same suspension vessel were recovered in this layer as well as a fragmented pin or fish hook (Fig. 9 no. 15). A sherd of Omani Fine Red Ware and a wallsherd of pink fabric with vegetal temper (possibly an Indus type of production?) were also recovered.

SU.1027 (east of Building 1)

A sandy and ashy layer. Only one sherd with a sandy buff fabric was recovered, a type also documented at Ra's al-Jins RJ-2 in Periods II and III.

No potsherds were found in the following levels, but copper objects and shell beads of *Engina Mendicaria* and *Dentalium* sp were recovered. These two types of beads are characteristic of the Hafit period, when they are often associated with copper artefacts as attested, for example, at HD-6. At SWY-3, several stratigraphic units were characterized:

FIGURE 5. *Test trenches 1 and 2: section drawing P. Marquis.*



SU.1033 (east of Building 1)
A sandy and ashy layer with an assemblage of shells in which *A. umbonella*, is dominant. Ostreoidea, Mytiloidea and *B. Obliquata.* are attested. Many burnt as well as unburned fish bones. The type of abrasion of the perforation of one *E. Mendicaria* bead (Fig. 10, no. 10) is close to the type recorded at Al Haddah in the beads workshop (pers. comm. V. Charpentier).

SU.1034 (east of Building 1)
A filling less ashy than SU.1033, with more stones but a few, always very fragmentary, shells. No artefacts.

SU.1036 (east of Building 1)
A filling less ashy than SU.1034, with more stones than SU.1036 and more fragmentary shells. This layer contained two beads of *Dentalium* cut at both edges (Fig. 10, nos 8 and 9) and a fragment of copper pin or fish hook.

SU.1039 (east of Building 1)
A filling more ashy than SU.1036, with more fragmentary shells. This layer contained several copper artefacts: a ring (Fig. 10 no. 11, with good parallels at Ra's al-Jins RJ-2 (see Cleuziou & Tosi 1988: fig. 18 no. 5), a fragmentary fish-hook comparable to Fig. 9 no. 17 and a fragmentary pin.

The oldest level in test trench 1 (SU.1040/ 1041/1042/1043), a sandy filling 40 cm deep, lies over a fossil beach deposit (SU.1046: very hard sand matrix). Few artefacts were recorded: a flint borer and a dozen of small flakes of flint and radiolarite. Fragments of shells are different from the ones recorded in the upper levels because they are very fragmented and eroded.

Test trench 2
A sounding of 1 m^2 was located 100 meters from Building 1, in the south-eastern part of the site. There, the thickness of the archaeological deposits also reach 1.1 m, lying on a fossil beach (SU.2006: hard sandy matrix with pebbles). Five occupational levels were distinguished: levels 1-4 are dated to the second part of the third millennium BC, but level 5 is undated in the absence of any diagnostic artefact. Most of the types of shell, chlorite and copper artefacts recovered in levels 1-4 are found at RJ-2 from Period II through Period IV.

FIGURE 6. *Test trench 1. Credit: S. Méry.*

SU.2001
The upper level is a mixture of fine sand and ashes, with some fragmented *A. umbonella* and very few stones. Some flakes of flint were found as well as a bronze bifid tool (Fig. 9 no. 19) and a pendant of *Anadara* sp. (Fig. 10 no. 15).

SU.2002
This layer is comprised of a dense sheet of *A. umbonella* valves. Most of them are intact. Some artefacts were recovered, such as tiny cylindrical beads of chlorite (Fig. 10 no. 3) and shell (no. 7), a copper bar (Fig. 9 no. 9) and a copper awl.

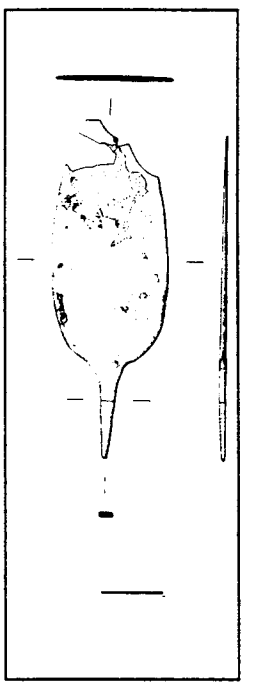
SU.2003
Separated from SU.2002 by a thick layer of pure sand corresponding to a period of abandonment, the occupation level is a mixture of sand and ashes, with a few fragmented *A. umbonella.* An undecorated body sherd (shoulder) of Mesopotamian pottery was found. It is not possible to ascertain the type of vessel, except that it belongs to a type different from the Mesopotamian sherds found at RJ-2 Periods II and III which are thick body sherds of jars used for the transportation of bitumen.

SU.2004
Showing the same characteristics as SU.2002 except that *A. umbonella* are less numerous. This layer is also covered by a thick layer of pure sand. No pottery was found but a copper bar, a fragmented copper fish hook, several flakes of flint and radiolarite and a radiolarite core were recovered.

SU.2005
Again showing the same characteristics as 2004. This layer only contained flakes of flint.

Diagnostic anthropic elements found in Test Trench 2 are not sufficient to make correlations with Test Trench 1. However, we can stress that SU.2005 yields the same lithic artefacts as SU.1040-1043. The Mesopotamian sherd from SU.2003 could be from any part of the third millennium BC given its

FIGURE 7. *An Indus bronze spear-head. Drawing: H. David.*



fabric (Méry 1995: 198). It is the same for the copper objects found in SU. 2001 and 2002.

It has been also noticed that as in Test Trench 1, *A.. umbonella* are numerous in the upper levels of Test Trench 2 (SU.2001-2002) and they decrease in the underlying deposits (SU.2003-2004).

Conclusion

The location of SWY-3 is obviously related to the presence of the large sebkha of Khor Bani Bu Ali, a type of location different from that of other coastal Ja'alan sites. According to the studies done by specialists like Cremasci, Coltorti and Plaziat, it appears that the sea level was about 2 metres higher in the third millennium BC at Ra's al-Jins. If Khor Bani Bu Ali was submerged during the Bronze Age, it could have been a more attractive place than Ra al-Jins regarding navigation, since Ra's al-Jins is not a natural harbour. In the nineteenth century, Khor Bani Bu Ali was among the few natural harbours between Ra's al-Hadd and al-Ashkarah: in the *Red Sea and Gulf of Aden Pilot* (1900: 472), Khor Bani Bu Ali was considered by the British Navy to be the equivalent of Khor al-Hajjar at Ra's al-Hadd. The place was discovered by H.M.S. Kingfisher in 1886 when, despite the absence of a village nearby, the Khor was being used for the transit of goods of diverse origins and types. The place was famous as a disembarkation harbour for slaves coming from East Africa. In the 1930's Khor Bani Bu Ali remained important, since Bertram Thomas coming from Muscat then reached Bilad Bani Bu Ali and Dhofar.

Marine shells and fishbones constitute the totality of the fauna discovered during the first campaign of excavation at SWY-3. This is not very surprising since at Ra's al-Jins RJ-2, S. Bökönі (1992: 45) showed that the terrestrial mammals only constituted 3% of the fauna. However, this situation is very different from that at sites which are nearby but more ancient than SWY-3, like the fourth millennium site of Suwayh SWY-2 where domestic mammals are well represented (Charpentier, Blin & Tosi, this volume).

In a cultural context characterised by optimisation of the natural resources, the complementary consumption of marine shells has to be taken in to account. *A. umbonella* were collected on the sandy shore nearby during the Bronze Age and, as today, they seem to replace in the local diet the mussels consumed by the population of Ra's al-Jins RJ-2. At the beginning of the century, Lorimer noticed the presence of palm trees at Ra's al-Hadd, but generally, the coast between Sur and al-Ashkara is not suitable for agriculture. The situation was not different during the Bronze Age, and date stones found at Ra's al-Jins RJ-2 actually testify to a local consumption of agricultural products coming from inland. In the future we can expect to find similar remains at Khor Bani Bu Ali, since the site is located at the mouth of the Wadi al-Batha. This is a major route joining the two big oases of Bila Bani Bu Hassan and Bilad Bani Bu Ali about forty kilometres inland from Khor Bani Bu Ali. Smaller oases are found in the Wadi Sal, about fifteen kilometres from Khor Bani Bu Ali, and Bronze Age graves are documented in this area. Thus, oases and fishing-stations were possibly complementary at the mouth of the Wadi al-Batha.

Some elements of the material culture are common to all of the Bronze Age coastal sites of the Ja'alan, such as copper bars and fish-hooks. Copper bars were probably manufactured in the metallurgical sites of the Omani mountains and then were dispersed to the coast to be used locally for the fabrication of different types of tool. Hammering is not the only type of metallurgy attested in the littoral sites since melted copper fragments were found at Khor Bani Bu Ali SWY-3 (Fig. 9 no. 10) and at Ra's al-Jins RJ-2. It was also the case at Umm an-Nar (Frifelt 1995: fig. 268 KL). Soft-stone and pottery vessels also attest to links between the interior of the Oman peninsula and the Ja'alan. But there is a type of pottery which is only known at Ra's al-Jins and Khor Bani Bu Ali. At both sites this pottery, a sandy orange ware, is associated with levels dated to the end of the third millennium BC. It could be a regional production linked to the tradition of domestic pottery of the Umm an-Nar Period.

Shellring manufacture is attested in all the third millennium BC coastal sites from Bimmah, one hundred kilometres north of Ra's al-Jins, to Ruways, about twenty kilometres north of Khor Bani Bu Ali. These rings were dispersed to eastern Arabia and as far as Mesopotamia. In such a context, the absence of shell-working and specialised flint tools is one of the major features of Khor Bani bu Ali. Obviously

FIGURE 8. *Selection of pottery sherds found at Khor Bani Bu Ali SWY-3: all from the surface except no. 10: 1017.4. Drawings: H. Davide.*

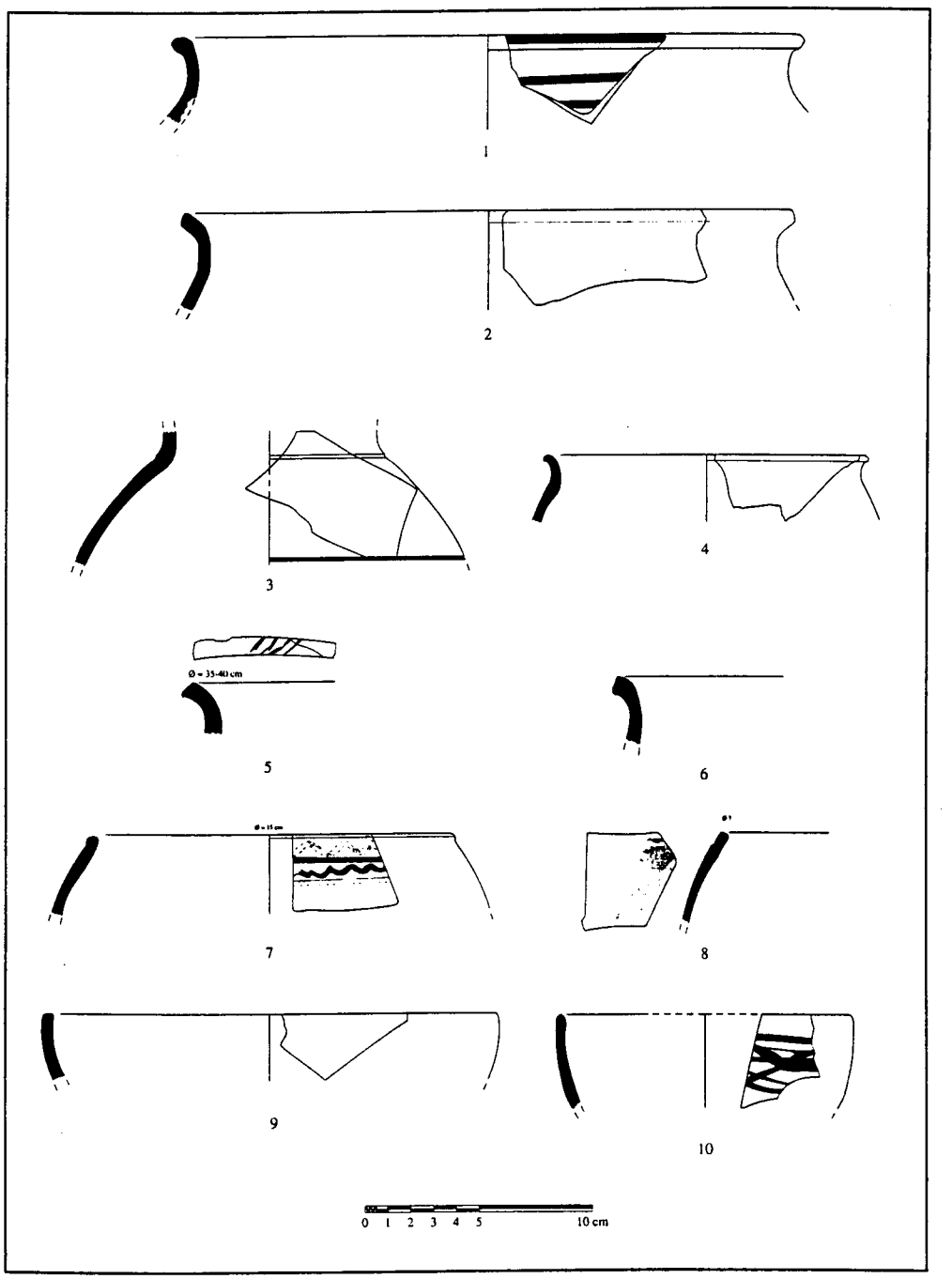
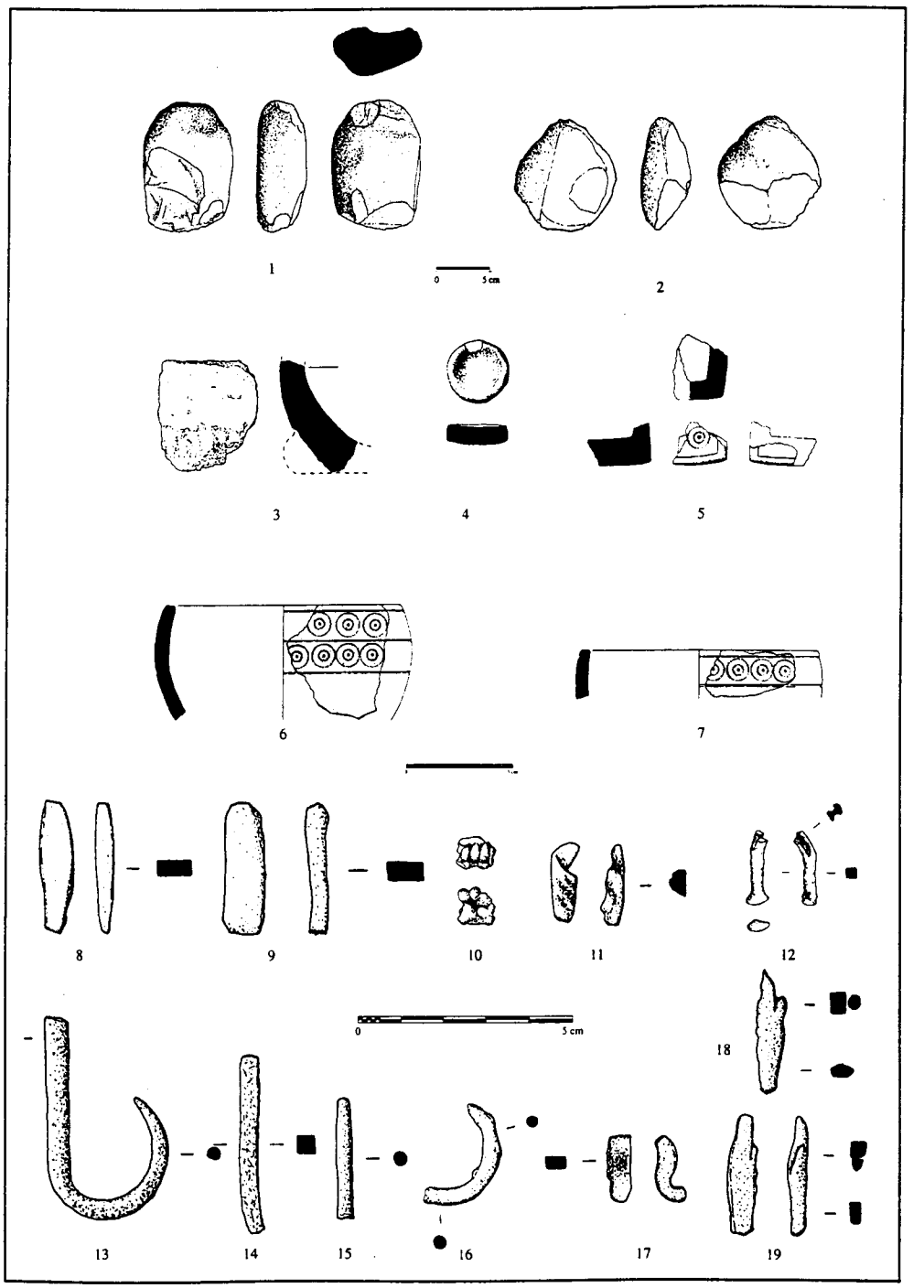


FIGURE 9. *Hammer stones (***1**: *1018.1;* **2**: *1020.1), sherd of a calcite vase (***3**: *surface, DA12379), chlorite disc (***4**: *DA12530 surface), sherd of a compartmented box of the Série Umm an-Nar (***5**: *from the surface), sherds of globular bowls of the Série Umm an-Nar (***6**: *DA12378 from the surface;***7**: *DA12558 from the surface), and copper artefacts (***8**: *1000.6;* **9**: *2000.2;* **10**: *1010.11;* **11**: *1039.2;* **12**: *surface;* **13**: *1000.35,* **14**: *surface;* **15**: *1022.1;* **16**: *1006.1;* **17**: *1007.5;* **18**: *surface;* **19**: *2002.1). Drawings: H. David.*



this absence is not related to any difficulties in collecting flint or shells. Is there a more fundamental difference concerning the type of occupation of the site? However, we know from Ra's al-Jins that ring workshops were located inside houses; at Khor Bani Bu Ali only one house was excavated during the last campaign. Moreover, we will probably learn if shell-rings were manufactured in this area of the Ja'alan from the study of other local sites like Asilah KM-1, south of Khor Bani Bu Ali.

From 2500 to 2200 BC artefacts characteristic of the Umm an-Nar Period were associated at Ra's al-Jins RJ-2 with Indus items, especially Black-Slipped Jars (Méry in Cleuziou & Tosi 1988: 43 and fig. 34 nos 11, 12; Cleuziou, Reade & Tosi 1990: 14 and fig. 20). It was also the case at Ra's al-Hadd HD-1 (Reade & Méry in Cleuziou & Tosi 1988: 75 and fig. 62; Reade in Cleuziou, Reade & Tosi 1990: 35). However, at Khor Bani Bu Ali SWY-3, no Indus artefact has been found except a bronze spear-head, a rather exceptional item in such a context. How should the absence of any fragment of Black-Slipped Jars be interpreted? Were the contents of the jars divided and included in other types of containers in order to be distributed to the periphery of Ra's al-Hadd/Ra's al-Jins? Or do we have to consider the absence of Black-Slipped Jars as indicative of a distinct distribution pattern? The question of the control of trade in the Indus jars and their content remains open.

Notes

We wish to thank Dr Ali bin Ahmed bin Bakhit al-Shanfari (Director of Antiquities, Ministry of National Heritage and Culture, Muscat), Dr S. Cleuziou (Paris) and Prof. M. Tosi (Bologna) for their generous support.

[1] GPS coordinates of the site: 22°04'148" N, 0.59°40'340" E. The site is 3.5 m above sea level.

[2] Directors of the Project: Dr S. Cleuziou (Paris) and Prof. M. Tosi (Bologna).

[3] Under the direction of Dr S. Méry, assisted by P. Marquis and A. Rousseau with the help of two local workers.

[4] The fabric of the sherds is slightly sandy (usually inclusions are less than 0.5 mm), orange and/or grey in colour with a sharp zonation of the colour in the thickness of the sherd. This type of zonation is due to abrupt changes in the atmosphere of the pottery kiln. The following are attested: orange sherds, grey sherds, sherds with an external orange part and internal grey part, sherds with an internal orange part and an external grey part, sherds with orange walls and a grey core.

[5] According to Drs M. Hauser and C.A. Meyer, who are mapping the Ja'alan area for the Directorate General of Minerals (Ministry of Petroleum, Muscat) two different units are represented both in the natural outcrop and the archaeological building of SWY-3: the Qumeilah formation (Late Permian to Triassic) and the Bath Formation (Triassic to Jurassic).

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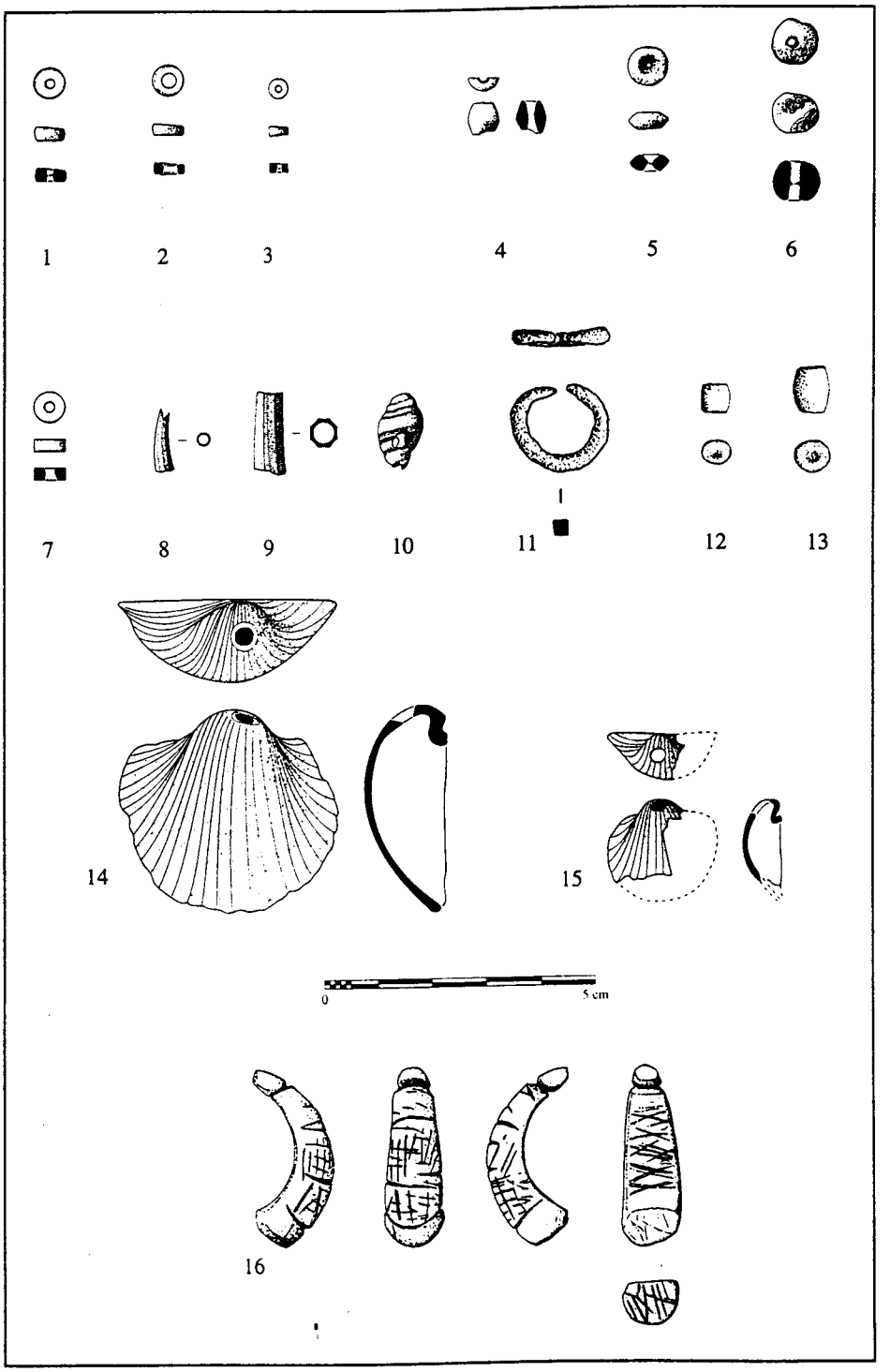
FIGURE 10. *Chlorite beads (***1**: *1016.9;* **2**: *1002.2;* **3**: *2002.2), cornaline beads (***4-6**: *surface), shell beads (***7**: *2002.1;* **8**; *1036.1;* **9**: *1036.2;***10**: *1033.1), copper ring (***11**: *1039.1), copper beads (***12-13**: *surface), shell pendants (***14**: *1016.10;* **15**: *2001.5), chlorite earring (***16**: *DA12531, surface). Drawings: H. David.*



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Contributors' addresses

Dr Sophie Méry, EP 1730, MAE CNRS, 21 allée de l'Université, 92023 Nanterre cedex, France

Philippe Marquis, Comission du Vieux Paris, Rotonde de la Vilette, place de la Bataille de Stalingrad, 75019 Paris, France