

Around Suwayḥ, Ja'alān: a Summary of some recent Discoveries from Coastal Shell-middens of Eastern Arabia

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ABSTRACT

Recent surveys and excavations carried out in the southern part of Ja'alān (Sultanate of Oman) yielded new informations on 3,500 years of archaeological sequence, from Neolithic until Early Bronze Age periods (6th millennium BC until the end of the 3rd). In this article, the authors present a synthesis of the evolution of the local prehistoric societies that once intensively exploited marine resources.

RESEARCH

A research programme has been carried out in the southern Ja'alān since 1995 within the framework of the Joint Hadd Project headed by Dr. S. Cleuziou and Prof. M. Tosi. Our fieldwork focuses on middle Holocene sites of the Arabian coastline between Ruways and Suwayḥ (fig. 1). Several surveys, soundings (Suwayḥ SWY-10, 11) and excavations (Al Ḥaddah BJD-1, Suwayḥ SWY-1, 2, 3), together with environmental and palaeoclimatic studies have improved our understanding and document the evolution of the local prehistoric societies that once intensively exploited marine resources. The excavation of several shell-middens at Suwayḥ brings forth information on 3,500 years of archaeological sequence, from the second part of the 6th to the end of the 3rd mil-

lenium BC (Neolithic until Early Bronze Age periods).

AMONG THE MOST ANCIENT DWELLINGS OF THE OMAN PENINSULA'

To date, the earliest dated sites we recovered in the Ja'alān, are Suwayḥ-11 and Suwayḥ-1. Suwayḥ-11 lies only a few metres away from today's coastline and is dated from the middle of the 6th millennium BC (Charpentier *et al.* in press). Suwayḥ-1 may be slightly more recent. Both are among the most ancient Holocene sites identified in Oman and the United Arab Emirates. In the course of excavation both sites have yielded dwelling structures which rest directly on the sandy shoreline. There is, therefore, little hope of discovering any earlier sites along the coastline, because although we believe that such sites probably did exist, they must have been flooded during the Holocene marine transgression. Nevertheless, we can expect to discover more sites in the Interior. Remains of light architectural structures made with posts were recovered from the earliest level at Suwayḥ-11, and Suwayḥ-1 has yielded more evidence of this type. In both cases we have the earliest structures known so far in the Oman peninsula (6th and 5th millennia).

How were these Neolithic dwellings organised? The clearest view comes from the excavation at

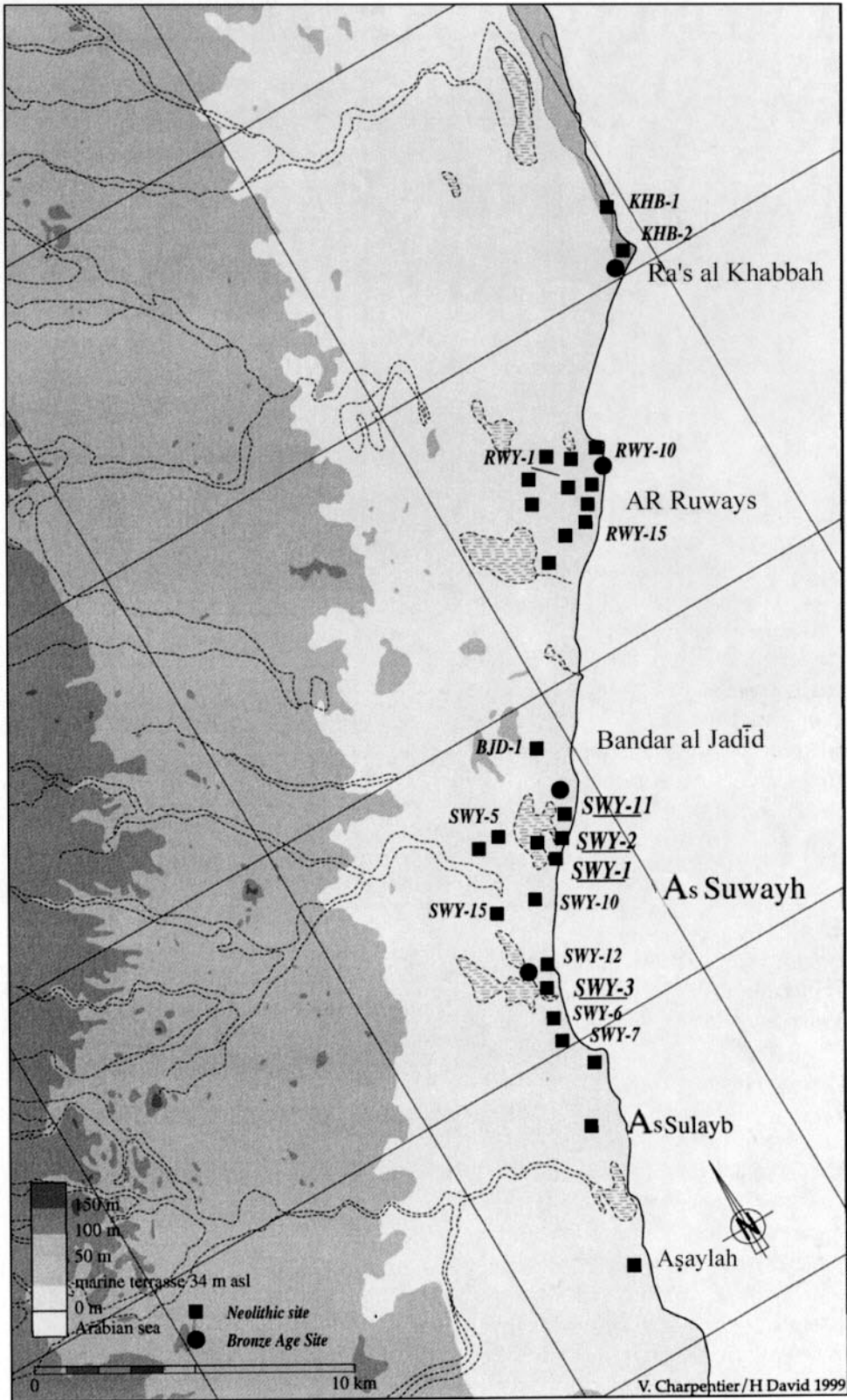


FIGURE 1. The Neolithic and Bronze Age sites around Suwayh (Ja'alān).

Suwayh-2. Here the more recent structures date to the second half of the 4th millennium BC. They are round, with a diameter of about 2 m, outlined by postholes (figs. 2 and 3, see also Charpentier, Blin and Tosi 1998). This tradition of round architecture has endured in the region, well beyond the occurrence of the first mudbrick architecture, in the Bronze Age and endures even today. The main bulk of domestic and craft activities probably took place outside the structures, especially cooking, as shown by the hearths, tools, shells and bone remains which were recovered. This is not the first occurrence of this kind of architecture in Oman. In the eighties, M. Tosi and the Italian team excavated a 4th millennium settlement at Rā's al Ḥamrā, RH-5 (IsMEO 1981: 189, 1982: 226, Biagi 1987: fig. 2, Biagi *et al.* 1984: 50-53 fig. 3, Biagi and Salvatori 1986: fig. 2, Biagi and Nisbet 1989: 37, Tosi 1996). We also know of a dwelling of the same type, albeit dated to the 5th millennium BC, at Dalma in the Emirate of Abu Dhabi (Beech and Elders: 1999). Nevertheless, the most complete and easily understandable structures so far are the ones excavated at Suwayh-2. It is also here that we can begin to understand how these settlements were organised.

Another kind, and so far unique, type of structure was discovered at Suwayh-2. It is a drying frame, linked to the processing of fish (Charpentier, Blin and Tosi 1998). Unlike the remaining structures, this one is square (fig. 3). Large quantities of fish scales and fish bones were recovered in the course of the excavation from underneath the frame. This is an especially interesting discovery because it shows that coastal populations of Oman had to manage and store supplies of processed food, even before oases were developed.

A NEOLITHIC ECONOMY

Although arable farming had not yet been established in Ja'alān, we can nevertheless speak of a true Neolithic economy, as, together with this drastic intensification of marine exploitation,

domestic terrestrial mammals (most probably sheep and goats) also occurred. So far we have not been able to ascertain whether pottery was used in these neolithic settlements of Oman, whereas it is well attested on the coast of the Emirates, in particular the Obeid pottery which was manufactured in lower Mesopotamia (Méry and Schneider 1996).

Nevertheless, other kinds of vessels are attested in 5th millennium BC sites of southern Ja'alān: stone vessels at Ruways-1 and Rā's al Khabbah-1, shell vessels at Suwayh-1 and 2 made of *Fasciolaria trapezium* and *Lambis truncata sebae*. A few coastal sites like Al Ḥaddah (BJD-1) have yielded fragments of ostrich shells which may have been used as vessels.

Fishing is well documented for the 4th and 5th millennia, although hunting probably played an important part as well, as suggested by the arrowheads about which we shall speak later on. The use, in this period, of the marine turtle, *Chelonia Mydas*, is confirmed at Suwayh, and demonstrates that green turtles already nested on the Ja'alān coast in the 5th millennium. Food gathering, also playing an important part in the feeding process, is mostly represented in the neolithic assemblage by shells. Several biotopes were used. Firstly, several types of marine molluscs were gathered from the foreshore and from the rocks. Two types of bivalve, *Amiantis umbonnella* and the oyster *Saccostrea cucullata*, were the most commonly consumed shells in the 5th and 4th millennia. The *Marcia marmorata* species, which is characteristic of lagoons, is also well represented. Mangrove stands were also used: they provided *Terebralia palustris*, a characteristic type of mollusc occurring among mangroves, of which we recovered several examples at Suwayh-1 and Suwayh-11.

By contrast, the floral environment and the ways in which it was used are still unknown and await the results of the archaeobotanical studies. We logically expect that fruits from the *Ziziphus spinachristi* (the jujube tree) and wood from *Avicennia marina* and *Rhizophoraceae* (the remaining species of two formerly indigenous to Oman) will be identified.

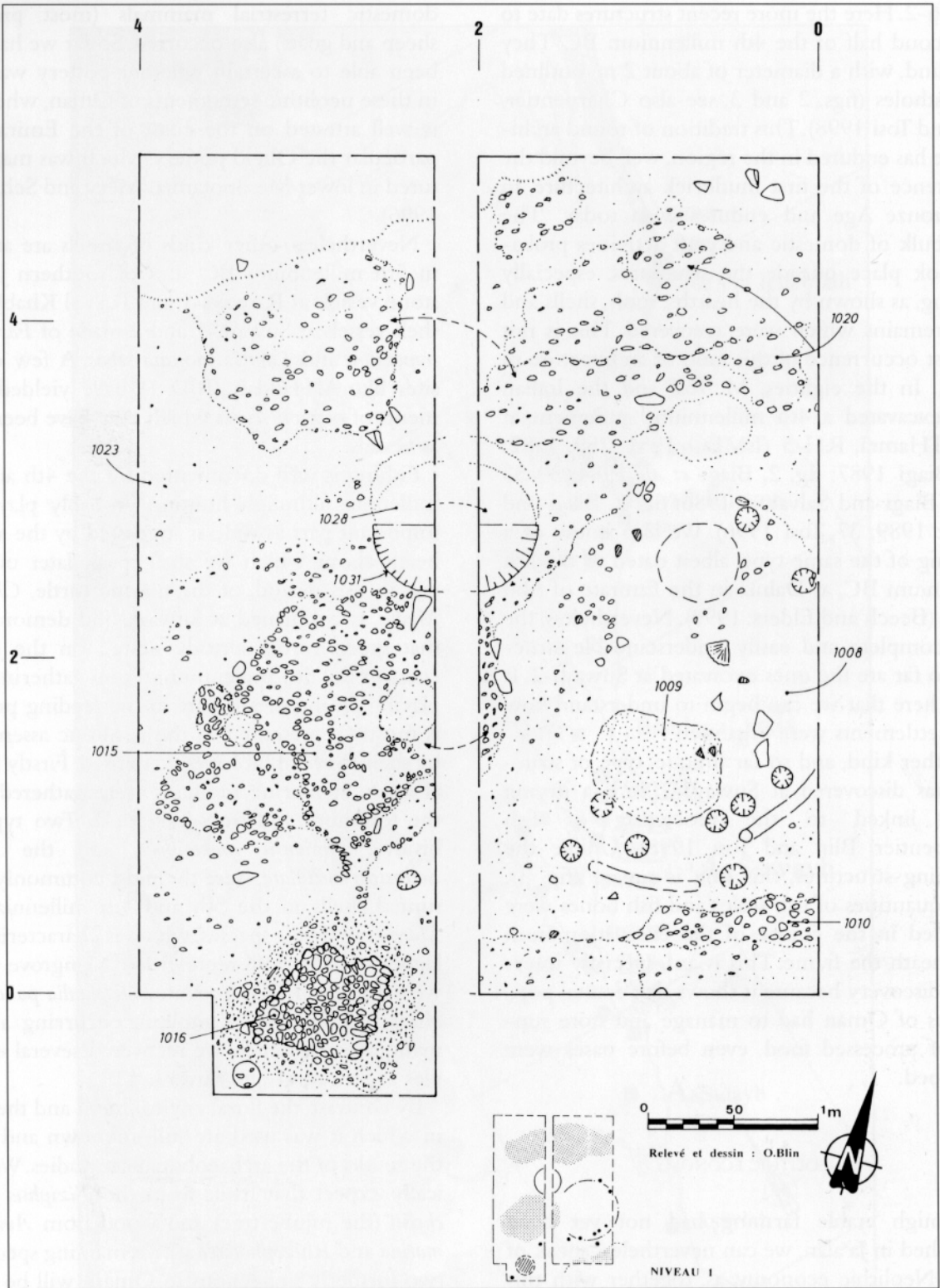


FIGURE 2. Dwellings of the 4th millennium BC, Suwayh SWY-2 (drawing O. Blin).

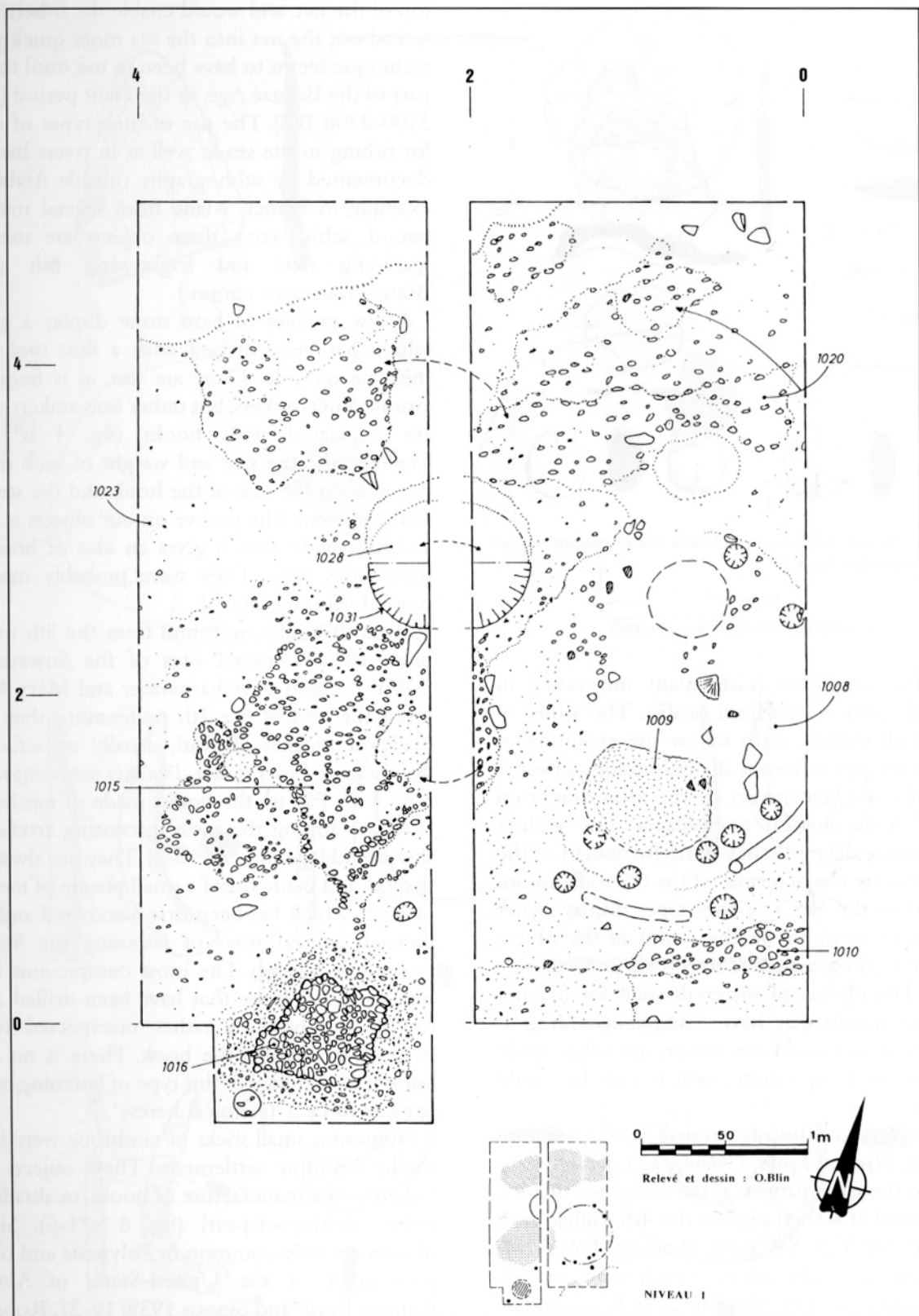


FIGURE 3. Dwellings and drying frame of the 4th millennium BC, Suwayh SWY-2 (drawing O. Blin).

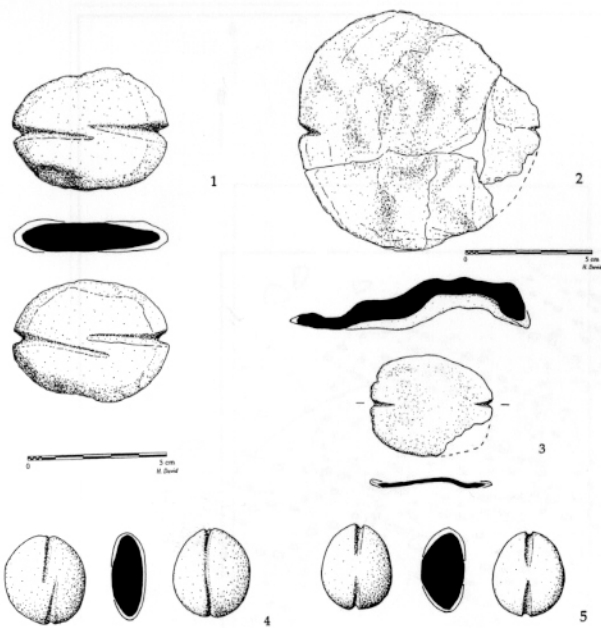


FIGURE 4. Stone net sinker (no. 1), shell objects used for spreading nets (nos 2-3), stone line sinkers (nos 4-5).

NEOLITHIC FISHING EQUIPMENT

Fishing equipment is abundant and varied in neolithic sites of southern Ja'alān. The study of these tools enables us to follow the evolution of techniques, and to renew the chronology of some types of tools. Net sinkers are the most numerous in the archaeological assemblages. The earliest types display deep notches along the length of the tool; these are characteristic of the 6th millennium and part of the 5th. The later types display either notches or incisions on the width of the object (fig. 4 n° 1); these are dated to the 5th and 4th millennia. The choice of materials used for making these net-sinkers may have changed according to the period, as incised net-sinkers are often made of stone such as calcite, which can be easily worked.

In the area of Suwayḥ, incised shells (*Saccostrea cucullata*, *Hyatissa hyotis*, *Chlamys* sp.), which were made to the same pattern as the stone net-sinkers, were found at several sites of the 4th millennium (Suwayḥ SWY-2, SWY-10, Ruways RWY-13). These are very light objects, which were certainly not used as weights (fig. 4 n° 2-3). According to Abel Prieur, they could have been fastened at the

top of the net, and would enable the fishermen to spread out the net into the sea more quickly. This technique seems to have been in use until the first part of the Bronze Age, in the Hafit period (about 3100-2700 BC). The use of such types of object for fishing in the sea as well as in rivers has been documented by ethnography outside Arabia, for example in France. Made from several materials (wood, schist, etc.), these objects are used for spreading nets and frightening fish (Louis Bonnamour pers. comm.)

A few pebbles of hard stone display a groove which has been incised with a flint tool along their longer side. These are not, as is frequently assumed, net-sinkers, but rather line-sinkers which are associated with hooks (fig. 4 n° 4-5). Traditionally, the size and weight of such objects depends on the size of the hook and the strength of the current. The groove on our objects is about 1-2 mm wide, which gives an idea of how thin these lines were. They were probably made of twisted vegetal material.

Shellfish hooks are found from the 5th millennium BC, in several sites of the Suwayḥ area (SWY-1, 2 and 4) (Charpentier and Méry 1997). Until the end of the 4th millennium they were made of mother-of-pearl; usually manufactured from a large pearl oyster, *Pinctada margaritifera* (fig. 5 n° 1-2). For us, the hooks made of mother-of-pearl are among the most interesting artefacts of this assemblage (fig. 5 n° 3-8). They are always U-shaped, and made out of a small plaque of mother-of-pearl which has been first hammered and then pierced. Several ways of fastening the line are attested at Suwayḥ. The most conspicuous is the one with two holes that have been drilled at the top of the hook, a rather unexpected system because it weakens the hook. There is no other known occurrence of this type of fastening, which appears to be a 'technical heresy'.

Numerous small sticks of sandstone were found in the neolithic settlements. These objects were linked to the manufacture of hooks, to abrade and polish mother-of-pearl (fig. 6 n° 1-6). Similar objects are very common in Polynesia and on the west coast of the United-States of America (Emory, Bonk and Sinoto 1959: 19-21, Robinson 1942: 61-62 fig. 2 g).

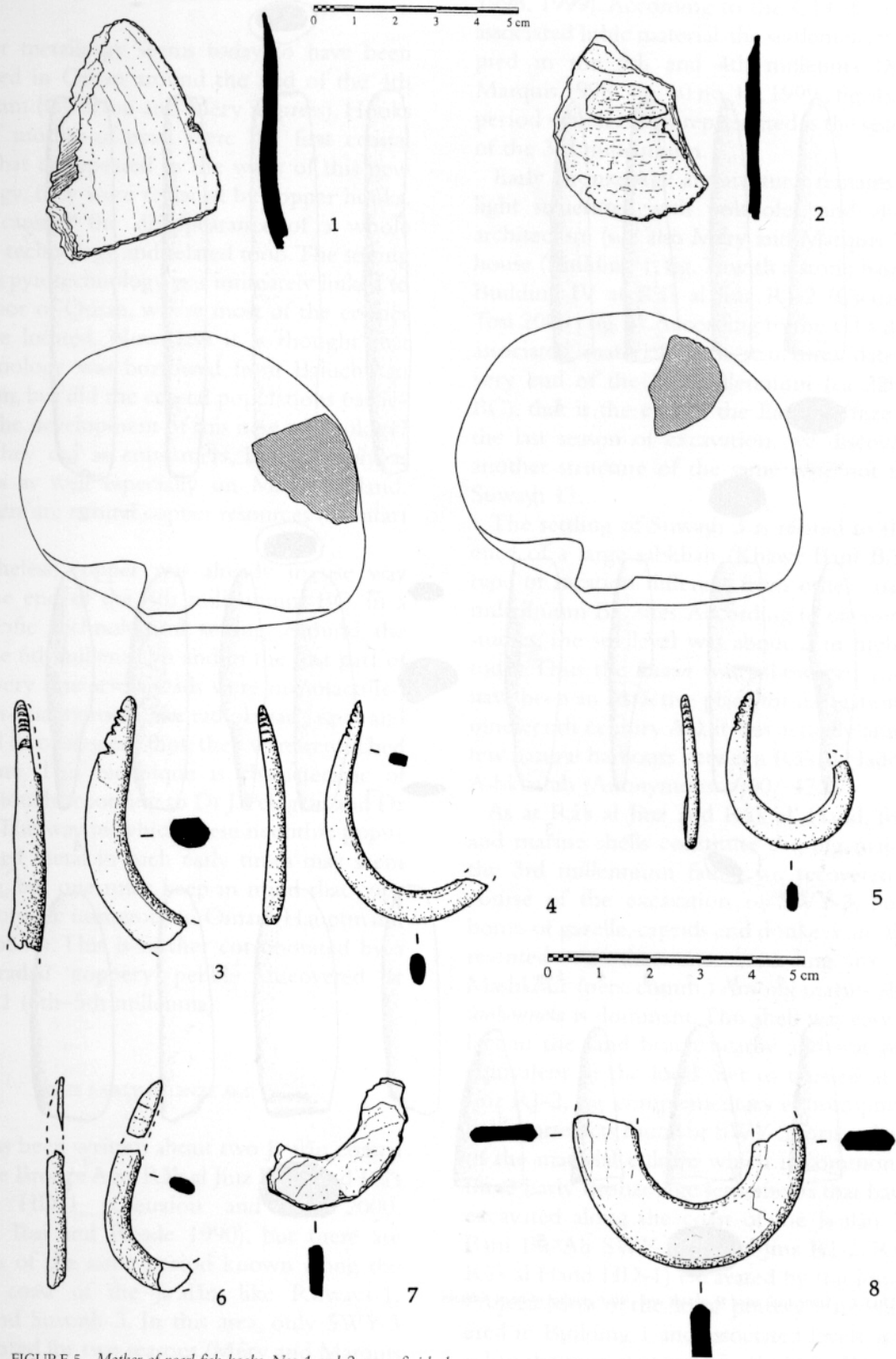


FIGURE 5. Mother-of-pearl fish-hooks. Nos 1 and 2 are unfinished.

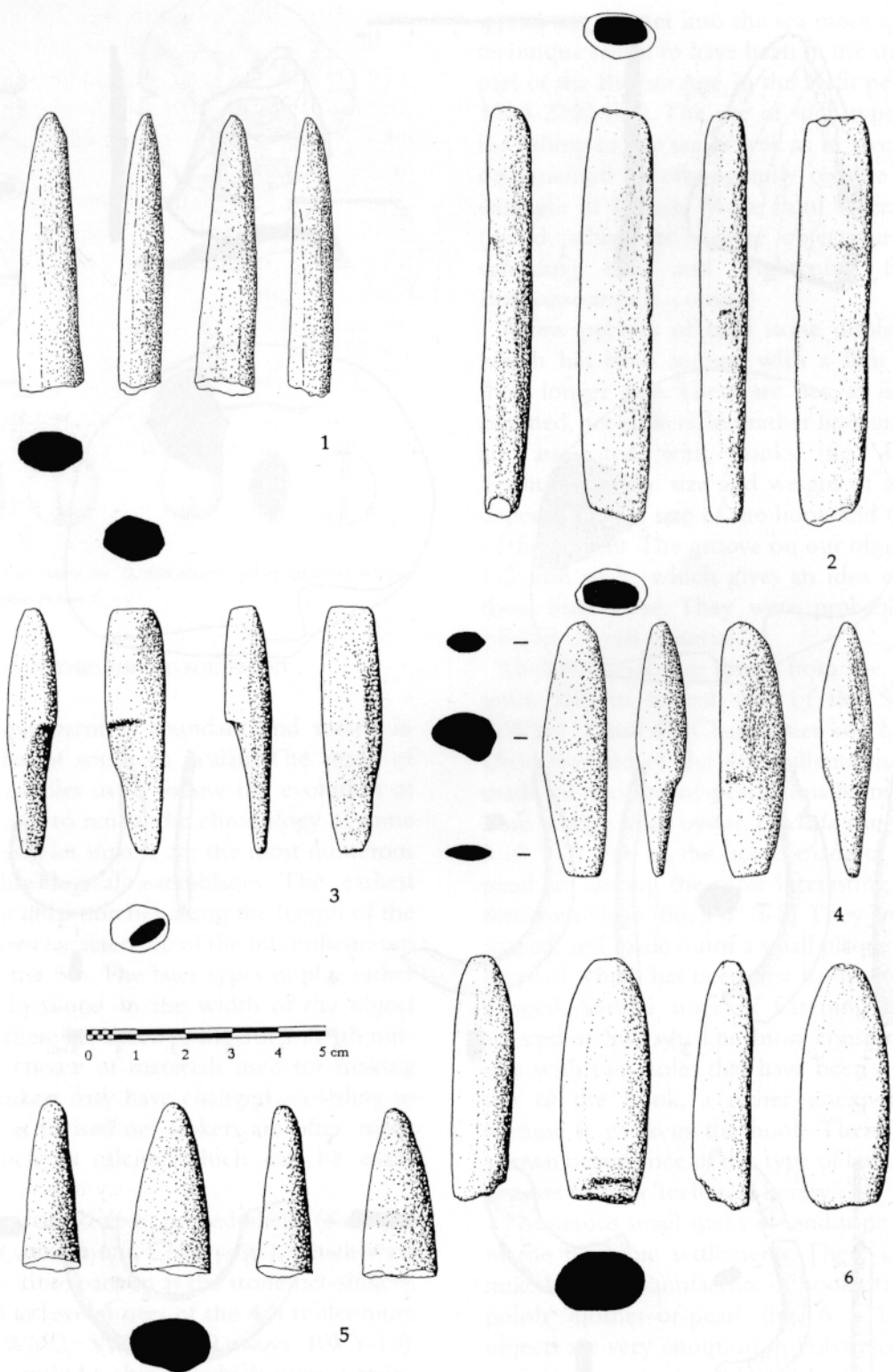


FIGURE 6. Stone tools used to abrade and polish mother-of-pearl fishhooks.

Copper metallurgy seems today to have been introduced in Oman around the end of the 4th millennium (Cleuziou and Méry in press). Hooks made of mother-of-pearl were the first coastal objects that disappeared in the wake of this new technology: they were replaced by copper hooks, thereby causing the disappearance of a whole neolithic technology and related tools. The setting up of this pyrotechnology was intimately linked to the interior of Oman, where most of the copper mines are located. Nowadays it is thought that pyrotechnology was borrowed from Baluchistan or Makran, but did the coastal populations participate in the development of this new technology? Clearly they did as consumers, but probably as producers as well especially on Maṣīrah island, where there are natural copper resources (Shanfari 1987).

Nevertheless, copper was already in use way before the end of the 4th millennium BC, in a very specific technological setting. Around the end of the 6th millennium and in the first part of the 5th, very fine arrowheads were manufactured from high-quality rocks like radiolarian jasper and translucent or opalescent flint; they were retouched by pressure. This technique is characteristic of copper retouch according to Dr J. Pelegrin and Dr J. Tixier². The way in which these neolithic populations used metal in such early times may seem surprising, but one must keep in mind that copper outcrops are numerous in Oman (Hauptmann 1985 : Abb. 3). This is further corroborated by a small abraded coppery pebble discovered at Suwayḥ-11 (6th–5th millennia).

THE EARLY BRONZE AGE

A lot has been written about two Ja'alān coastal sites of the Bronze Age: Rā's al Jinz RJ-2 and Rā's al Ḥadd HD-1 (Cleuziou and Tosi 2000; Cleuziou, Tosi and Reade 1990), but there are more sites of the same period known along the southern coast of the Ja'alān, like Ruways-1, 'Aṣīlah and Suwayḥ-3. In this area, only SWY-3 was excavated for two seasons (Méry and Marquis

1998, 1999). According to the C14 dates and the associated lithic material, the settlement was occupied in the 5th and 4th millennia (Méry and Marquis 1998 : fig. 10 no. 16, 1999 : fig. 4). But the period which is best represented is the second part of the 3rd millennium.

Early Bronze Age architectural remains include light structures with postholes, and also stone architecture (see also Méry and Marquis 1998). A house (Building 1, fig. 7) with a stone base evokes Building IV at Rā's al Jinz RJ-2 (Cleuziou and Tosi 2000 : fig. 4). According to the C14 dates and associated material, both structures date to the very end of the 3rd millennium (ca 2200–2000 BC), that is the end of the Early Bronze Age. In the last season of excavation, we discovered yet another structure of the same type not far from Suwayḥ 11.

The settling of Suwayḥ 3 is related to the presence of a large sabkhah (Khawr Bani Bū 'Alī), a type of location different from other coastal 3rd millennium BC sites. According to environmental studies, the sea level was about 2 m higher than today. Thus the *khawr* was submerged and could have been an attractive place for navigation. In the nineteenth century AD, it was actually among the few natural harbours between Rā's al Ḥadd and Al Ashkharah (Anonymous 1900/ 472).

As at Rā's al Jinz and Rā's al Ḥadd, fishbones and marine shells constitute the big majority of the 3rd millennium fauna we recovered in the course of the excavation of SWY-3, but some bones of gazelle, caprids and donkeys are also represented on that site according to Marjan Mashkour (pers. comm.) Among marine shells, *Ambonella* is dominant. This shell was easy to collect in the sand beach nearby and was probably equivalent in the local diet to mussels at Rā's al Jinz RJ-2, e.g. complementary consumption.

The artefacts found at SWY-3 form a large part of the material culture which is common to the three Early Bronze Age settlements that have been excavated along the coast of the Ja'alān (Khawr Bani Bū 'Alī SWY-3, Rā's al Jinz RJ-2/RJ-3 and Rā's al Ḥadd HD-1) excavated by the Joint Hadd Project. Most of the 'local' pottery ware we recovered in Building 1 and associated levels, is identical to the type recovered in Building IV at Rā's al

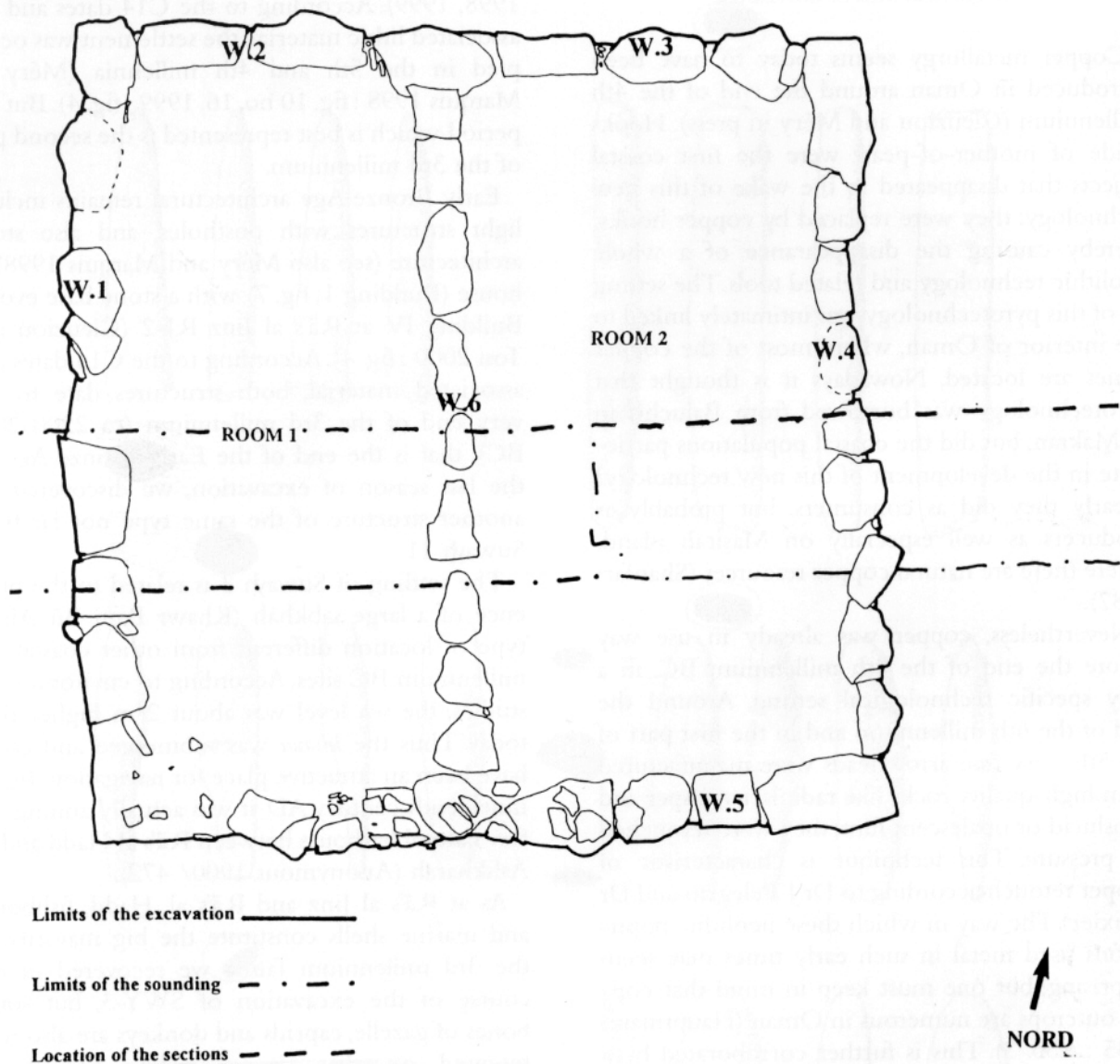


FIGURE 7. Plan of Building 1 at Suwayḥ-3, end of the 3rd millennium BC (drawing P. Marquis and A. Rousseau).

Jinz RJ-2. This ware is different from that associated with periods II and III levels at RJ-2 (Méry 2000). The discovery at SWY-3 of rings carved out of *Conidae* is quite interesting. One of them was already shaped but unfinished and broken, indicating that local workshops possibly existed on the spot. Their occurrence at all three sites of the 3rd millennium BC, confirms that this type of production was a speciality of the region, for medium and long distance trade. As already said, fish-hooks were by this time made of bronze and all of the same simple type, without barbs

(fig. 9 n°4-7).

Suwayḥ 3 is located at the mouth of the Wādī al Baḥḥa, a major route joining the two big oases of Bilad Banī Bū Ḥasan and Bilad Banī Bū ‘Alī, about 40 km inland from the latter. Today, smaller oases are located closer, in the Wadi Sal, and Bronze Age graves are documented in this area (Cleuziou and Tosi 2000: fig. 2). Thus far, Bronze Age oases and fishing-stations were possibly complementary at the mouth of the Wādī al Baḥḥa. Soft-stone, copper and some pottery vessels (Fine Red Omani ware) recovered at Suwayḥ 3 attest

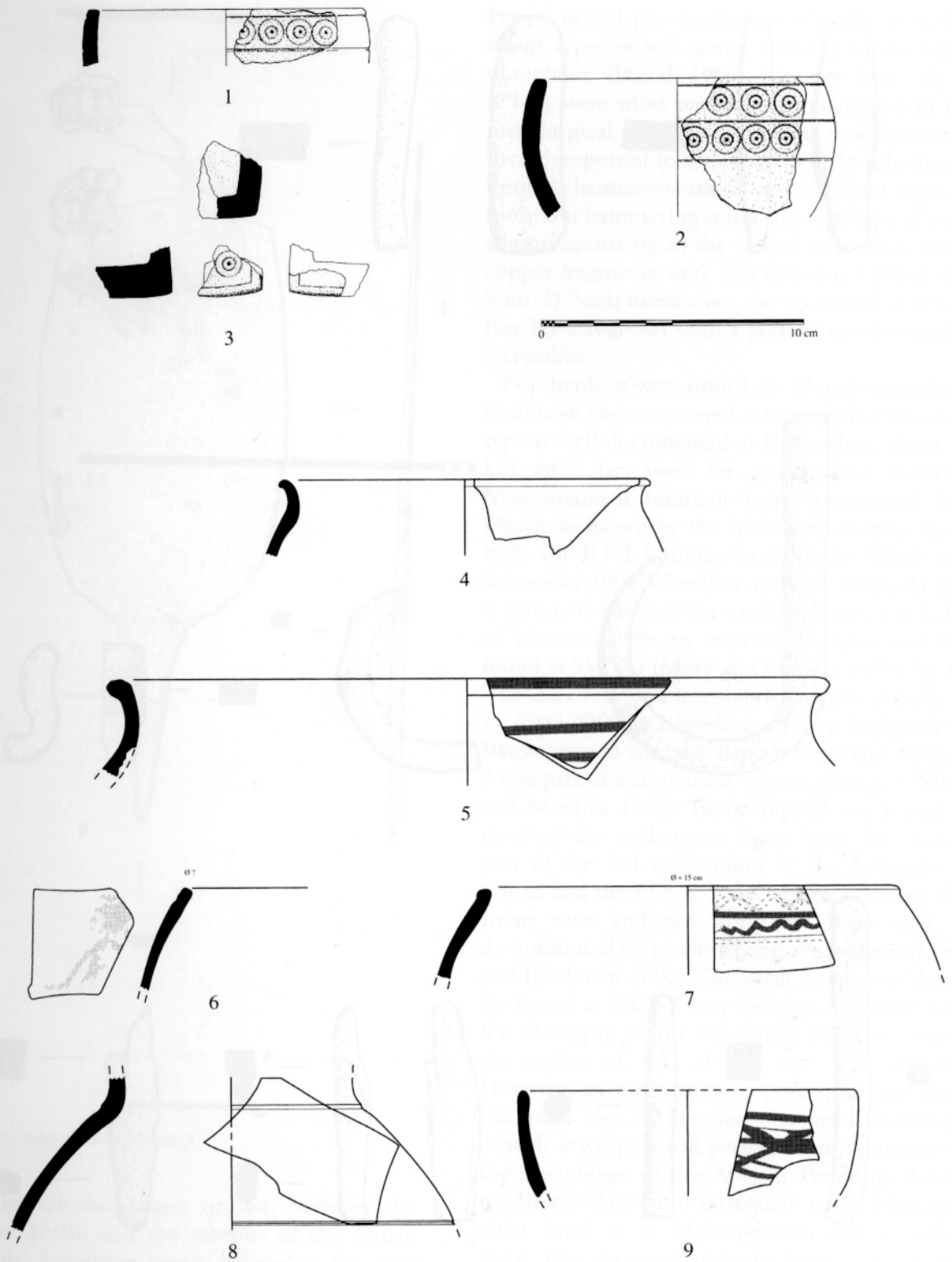


FIGURE 8. Stone vessels (nos 1-3), 'local' and regional pottery (nos 4-9) - Suwayh 3.

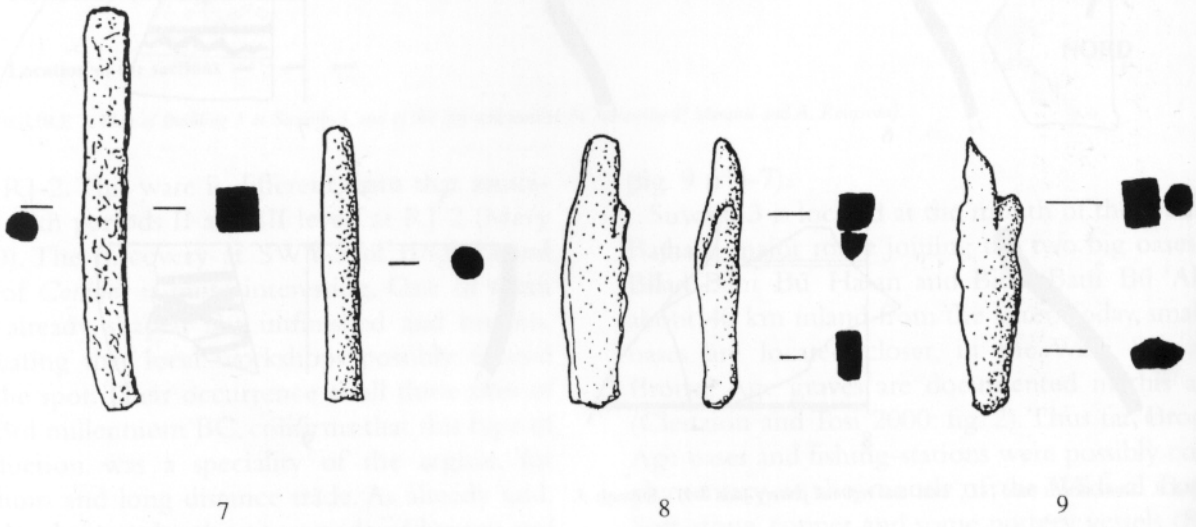
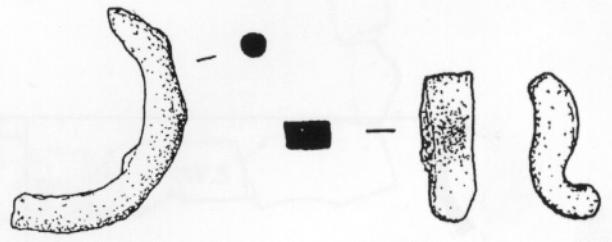
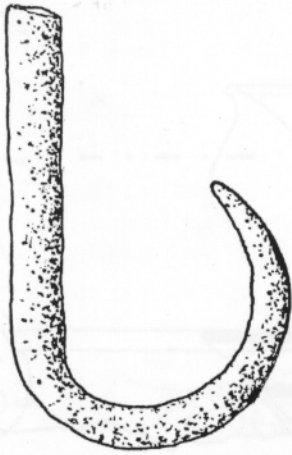
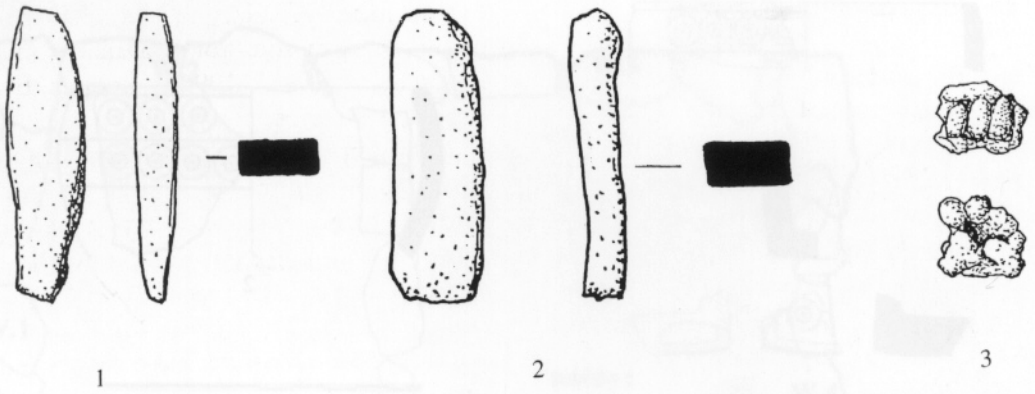


FIGURE 9. Bronze objects, Suwayh-3.

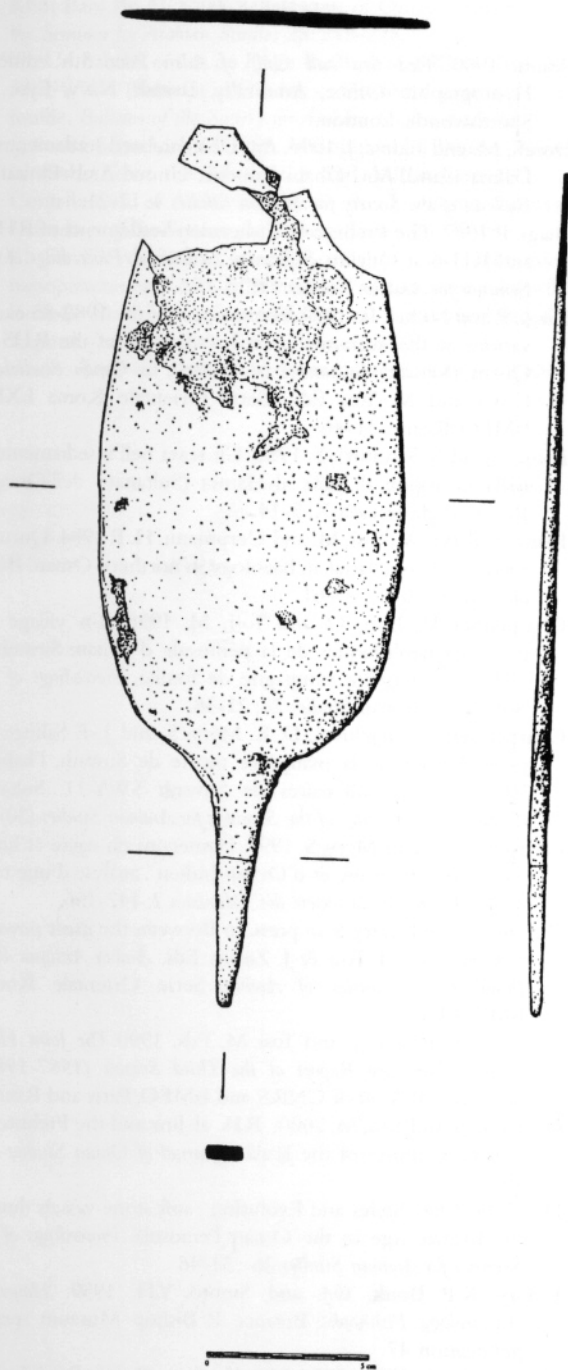


FIGURE 10. *Indus* spearhead, Suwayh-3.

the links, whether direct or not, between the southern Ja'alān and the interior of the Oman peninsula. Soft-stone vessels belong to the *Série Récente* group (fig. 8 n°1-3) and were produced during the second part of the Umm an Nār

Period inland (for example at Maysar), from different types of soft-stones available in the Hajar mountains (David 1996). Copper bars (fig. 9 n°1-2) were most probably manufactured in the metallurgical sites of the Omani mountains and then transported to the coast, to be locally shaped through hammer-working into different types of tools. But hammering is not the only type of metallurgy occurring in the coastal sites, since baked copper fragments were also found at SWY-3 (fig. 9 no. 3). Such items were also recovered at Rā's al Jinz RJ-2 together with a pottery vessel reused as a crucible.

No sherds of ware from Low Mesopotamia have until now been recovered at Suwayh, but this ware type is well documented at Rā's al Jinz, about 50 km away. Jars used for transporting northern Mesopotamian bitumen were transported into Oman, as shown by the laboratory analyses made both on RJ-2 bitumen and sherds (Méry and Schneider 1996, Cleuziou and Tosi 2000). At RJ-2, bitumen was used for caulking boats, and a slab of bitumen with an imprint of plank was also found at SWY-3 (Méry and Marquis 1999: fig. 6). The discovery of a few sherds of Indus pottery in ca 2500-2200 BC levels, especially fragments of Black-Slipped jars, also demonstrates that Suwayh 3 was part of a large trade system using jars (Méry and Marquis 1999). Black-Slipped jars found in most of the settlements dated from the second part of the 3rd millennium in the Sultanate of Oman and the U.A.E. were fabricated along the Indus river and not along the Ravi river, as demonstrated by recent laboratory analyses (Méry and Blackman 2000). The small number of sherds we found at SWY-3 may indicate that trade with the Harappan world was rather directed towards the region of Rā's al Jinz and Rā's al Ḥadd. However, an outstanding copper spearhead from the Indus (fig. 10) was also discovered at Suwayh 3: 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 at Mohenjo-daro and Chanhudaro). This discovery indicates how complex was the scope of redistribution of exotic goods regardless of whether they were considered as 'daily' products or 'prestige' items. After 2200 BC,

there is a lack of Indus items at Rā's al Jinz RJ-2 and not a single one was found in Building 1 and associated levels at SWY-3. Thus a reorientation of the exchange patterns is possible before the end of the 3rd millennium BC.

CONCLUSION

The Suwayh research program brings forth new information about Omani prehistory. The oldest Holocene settlements we know today (middle of the 6th millennium) were directly located on fossil beaches and intensively occupied by populations exploiting varied biotopes (fish, crabs and shells from the ocean, lagoons and mangroves nearby). The discovery of 4th millennium dwellings and annexe at Suwayh 2 is striking, because such structures have rarely been documented by archaeologists in Oman. The discovery of a drying frame is especially interesting, showing the ability of the neolithic coastal populations to store their production and manage their stock, for later consumption within the group or even for barter. On the other hand, excavations at Suwayh 3 documented the attractiveness of that site for ancient populations (5th-3rd millenia), and especially the end of Early Bronze Age, a period of change in the region as evidenced by the architecture and local or imported pottery as well.

ACKNOWLEDGEMENTS

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NOTES

¹ Although the term 'Oman peninsula' has been in currency among archaeologists for a number of years, it is not a term officially recognised by the Oman National Survey Agency.

² Several arrowheads were shown to J. Tixier and J. Pelegrin and we thank them for this information.

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