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Archaeological Survey at Tiwi and its hinterland (Central Oman)

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In 1999 an interdisciplinary cooperative German-Omani project (1) was founded with the aim of understanding “Transformation processes in oasis settlements in Oman” from their beginnings into modern times. In the first stage of this project three survey campaigns were conducted in the Wadi Bani Awf and the al-Hamra area in the interior of Central Oman (Fig. 1) in the years 1999 and 2000 (Häser 2000, Häser 2003). The second stage of the project began in the spring of 2002, this time with grants from the German Research Foundation, the Sultan Qaboos University and the German Institute of Archaeology. This stage, which is planned for two years, will cover an area from Tiwi on the coast and extend through the Hajar mountains to Ibra at the edge of the Wahiba Sands in the interior.

The following will concentrate on the results of the survey at Tiwi and in Wadi Tiwi.

The modern village of Tiwi is located on the coast some 120 km southeast of Musqat and 40 km northwest of Sur (Fig. 1). Archaeological exploration of this coastal strip started in the late 1970s and several surveys were done since then (Phillips & Wilkinson 1979, Tosi 1983, Uerpmann 1990). Most sites recorded during these surveys in the area of Tiwi were shell middens or flint scatters dating to the 5th/4th millennium BC (2) or sites of the Islamic period (Ibrahim & ElMahi 2000: 127). As all these surveys concentrated on sites located immediately at the coast or just beside the modern road, in 2002 a survey was conducted, incorporating also the hinterland of Tiwi (i. e. Wadi Tiwi and the area between the coast and the mountains). In the course of this survey many sites of the Islamic periods as well as a Late Iron Age hill fort / settlement and the vast adjacent cemetery were discovered. (3)

The starting point of our work was in Wadi Tiwi. Beginning at the coast, this wadi stretches into the Hajar mountains, but the gravel road ends after 12 km at the oasis of Mibam, from where it is barely possible to cross the mountains by foot. Since Wadi Tiwi has a perennial

water flow, we expected to find relics of prehistoric occupation there. When we examined the collected pottery, it turned out that the existing villages and oases were not established before the Early Islamic period, probably in the 9th or 10th century AD, and were continuously inhabited until today.

Only three prehistoric potsherds of the Late Iron Age were found in Wadi Tiwi at site 7, halfway between the coast and Mibam. Thus, we must assume that the wadi was used for agricultural purposes in this period, but was not really permanently inhabited in prehistoric times.

In the course of our work at the coast between Tiwi and Shab, the picture changed dramatically. Besides the aforementioned remains of the 5th or 4th millennium BC, we were able to identify more than 1200 archaeological remains from the late 4th/early 3rd millennium BC until the Late Islamic period.

Most of these remains are located on a naturally terrace, which stretches between the entrances of Wadi Tiwi and Wadi Shab for some 2.5 km along the foot of the mountains. On this terrace we discovered a vast late prehistoric cemetery. The most dense concentration of tombs can be found in the area of Tiwi, while the density of occupation decreases in westerly direction towards Shab, so that the graves at this area may mark the end of the occupation of this cemetery. From this terrace, the graves expand to the south, up the slope of the first mountain chain and to the north, down into the modern village of Tiwi towards the coast. The tombs there were all in very bad condition and disturbed by modern building activities. All tombs were documented: numbered, (4) described and additionally around 100 of them were photographed and one of the better preserved was drawn. Each single grave was mapped by GPS. After that, they were plotted in a map, which was created by aerial photographs scaled 1:20,000 and rectified on the existing topographical map 'Tiwi' scaled 1:100,000 (Fig. 2).

The original number of tombs may have been a little higher, but especially at the slope up the mountains they were extremely dilapidated and so not every one was recorded there.

At the area halfway between Tiwi and Shab, as well as above Shab itself, we found some structures, we were not able to date nor to recognize their purpose. Some of them may be remains of some more or less recent Shawawi campsites. A group of low stone heaps with a diameter of maximal 1.0 m may be prehistoric, but could just be of Islamic date as well.

The oldest remains on this plateau above Tiwi were so called “Hafit”-tombs, of which thousands can be found all over South-eastern Arabia. All in all we recorded 130 of these tombs of the late 4th and early 3rd millennium BC. They are situated at both sides of the entrance of Wadi Tiwi, and distributed along smaller wadis, cutting the natural terrace above Tiwi. We found also scanty remains of these graves between the modern houses in a very exposed position directly at the edge of the cliffs, where they seemed to have been lined up, what must have been an impressive view from the sea. These tombs are round stone structures with one up to four or five double ring walls. They have a basis diameter of 2.0 m to 8.0 m, while the chamber itself may reach seldom more than 1.0 to 1.5 m in diameter. The remaining height of these Hafit-tombs varies between the just preserved foundations of one or two stone rows, up to a maximum of 1.5 m. Compared to good preserved examples of these tombs at other sites in Oman, they should have been 2.5 m to 3.0 m high. Except the tombs themselves, no finds could be attributed to the Hafit-period.

The following Umm an-Nar period is represented by pottery sherds and soft-stone fragments we collected at the cemetery of Tiwi. It derives from Hafit-tombs or their immediate vicinity and dates to the Umm an-Nar period. As these potsherds are later than the tombs themselves, the tombs must have been re-used in the Umm an-Nar period. All in all almost 100 potsherds of this period were registered, but they may in fact all belong to just four or five different vessels. Most of them are un-diagnostic red ware body sherds, just one single potsherd of painted black-on-grey ware was found also at tomb TW756 (Fig. 3). A soft-stone fragment came from Hafit-tomb TW1072. It is a the fragment of a small greyish soft-stone bowl with a flat, slightly incurving rim (diameter 9.0 cm). This bowl is decorated with a slightly incised horizontal line and a row of double dot-in-circle (Fig. 4.1). This type is found for example on sites in interior Oman like Maysar-1 (Weisgerber1980: 83, fig. 39, Weisgerber 1981: 213, fig. 46 / 4-6.9) or Bilad al-Maidin (Kroll 1981, 211, fig. 43 / 3) and may be dated to the transition of 3rd/2nd millennium BC or in other terms from the late Umm an-Nar to the early Wadi Suq period.

All other finds of soft-stone came also from Hafit-tombs and, as they are all of a later date, prove the custom of secondary burial inside of these Hafit-tombs through the times.

Inside of Hafit-tomb TW494 many soft stone fragments were collected and, as it turned out later, belonged all to one vessel, which could almost be restored completely. It is a spouted vessel (Fig. 4.2) made of greyish soft-stone with a rounded rim (diameter of 13.5 cm) and a slightly rounded bottom. The spout is decorated with stab marks, while beneath the rim a irregular, horizontal double line is carved on the outside, followed by an also irregular incised

row of double dot-in-circle. The top of the rim is decorated with diagonal incised lines, too. This type is best paralleled in the Wadi Suq burials of Shimal, tombs SH 99 (Häser 1988: fig. 22, 186 – 190), SH 102 (Vogt & Kästner 1987: fig. 14 / 2) and SH 103 (Vogt & Velde 1987: fig. 25 / 3-4). A fragment of a second vessel (Fig. 4.3) was found in the same tomb. It is a small globular bowl with a rim diameter of 10.0 cm. Beneath the rim run two deep incised horizontal lines and a row of double dot-in-circles connected with diagonal v-hatching. This stone bowl dates also to the Wadi Suq period, as it can be compared to the same grave inventories as the example above (Häser 1988: fig. 21 / 185).

The decorated rectangular lid (Fig. 4.4) of a compartment vessel from Hafit-tomb TW500 is the youngest soft-stone find from this cemetery, as it dates to the Early Iron Age. The lid measures 6.5 x 10.4 cm and is almost complete. Just at one side the edges are broken and the knob is not totally preserved. On one side the lid has an incised triangle, running towards the knob and is filled with inner lines, while at the other side the decoration can not be determined, because of the broken edges. Similar lids were found at Maysar-27 (Weisgerber 1981: 215, fig. 49 / 9), Rumeilah (Boucharlat & Lombard 1985: pl. 61 / 5) or Tell Abraç (Potts 1990, 115, fig. 140). A bottom fragment of a soft-stone compartment vessel derived from Hafit-tomb TW1160 (Fig. 4.5). As compartment vessels run through from the Umm an-Nar to the Early Iron Age period and this fragment is very small, no date is given here. This holds also for an un-diagnostic wall fragment from tomb TW1081, which is not illustrated here.

Apart from the soft-stone lid, a handful of potsherds of the Early Iron Age were collected, the most characteristic among them the fragments of a small globular vessel with perforated body (Fig. 5), probably a burner, also known from Cairn 4 at Tawi Silaim (de Cardi, Bell & Starling 1979: 73, fig. 7 / 11), the cemetery at Ra's al-Hadd-9 (Benoist & Reade 1998: fig. 3 / 5-8) in Oman. Similar examples were also found in the Emirates at Hili-2 (<http://www.aam.gov.ae/section/archaeology.htm>) and a decorated one at Rumeilah (Benoist 1998: fig. 6 / 8).

But the most interesting Early Iron Age finds came from a large Hafit tomb, located on the periphery of the modern settlement in the courtyard of an unfinished building. There we found two bronze arrowheads and a pyramidal stamp seal – as we know, the first of its kind from Central Oman so far. Tomb TW267 was severely disturbed, but we were able to recognize five ring walls with a diameter of 8 m. They surround a small chamber of 1 m in

diameter and were preserved up to a height of no more than 30 cm. The arrowheads and the seal were not found in situ, but still inside the chamber.

The stamp seal is made of greenish-grey softstone, it has a pyramidal shape with a height of 1.4 cm and is pierced at the top. Its face is square and measures 1.8 by 1.8 cm. On its face the representation of a stylised ostrich is incised (Fig. 6). Four examples of such pyramidal seals are known from Rumeilah (5) (Boucharlat & Lombard 1985: pl. 66 / 6-9), three more come from the surface of Qarn Bint Sa'ud settlement (6) (Stevens 1992, Stevens 1994: 226, fig. 25 / 171-173), an unpublished one was found on the surface of the cemetery at Qarn Bint Sa'ud (Boucharlat & Lombard 1985: 61 – 62), another unpublished one is reported from Hili-2 (Stevens 1992: 176, note 4) in the Emirates and five more were found at the al-Maqsha necropolis (Lombard 2000: 123 / 183-187) on Bahrain and can be dated to the early first millennium BC or, according to the South-eastern Arabian chronology, the Iron II period (1100/1000 – 600 BC).

A confirmation for this date may be seen in the representation of an ostrich, a motive very common in Mesopotamia since the 13th cent. BC which reached its peak between the 8th and 6th cent. BC (Collon 1998: 39). In Mesopotamian glyptic the ostrich stands never alone, but is always incorporated in a composition. If we consider this and also additionally that the ostrich was known to the prehistoric people of South-eastern Arabia, as is shown by rock carvings (ElMahi 2001) as well as by finds of ostrich egg shells, which were discovered on sites in Oman (7) as well as on several sites in the Emirates (Potts 2001), we suggest a production on the Oman Peninsula for this seal without to exclude an influence from the outside (Häser & Schreiber in press). [Fig. 7 near here]

The two bronze arrowheads (Fig. 7) are of a type, which is well represented at numerous sites in South-eastern Arabia, so at Rumeilah, Qattarah, al-Qusais, Tell Abraç, Asimah, Maysar-36 and Samad-21. (8) But the closest parallels for these arrowheads with their biconvex pointed blades, relatively broad midrib and rectangular tang are known from the so called warrior-burial at Nizwa, where these arrowheads were dated by the excavators between 1200 and 1000 BC, with a tendency towards 1200 BC, what is the transition between the Late Bronze Age to the Early Iron Age (al-Shanfari & Weisgerber 1989: 17 – 29). This fits relatively well with the date for the stamp seal from the same tomb.

C. 950 tombs at the Tiwi cemetery belong to the Late Iron Age or Samad period (300 BC – 900/1000 AD). The tombs are all build on the surface, as it was not possible to dig into the rocky ground. They have a simple layout with some minor variations. The basic layout is a

round or oval double wall of large, irregular, corbelled stones. The roof consists of large flat stones and small stones are piled on top of them. The dimensions range from 1.8 m to 4.6 m in length, 0.8 m to 2.5 m in width and 1.0 m to 1.7 m in height. The chambers are also round or oval and the dimensions vary between 1.1 m to 2.8 m in length, 0.5 m to 1.5 m in width and 0.4 m and 1.0 m in height. (Fig. 8) In many cases the tombs are built taking advantage of the natural features, using the slope or single large boulders as a back (Fig. 9). Very often these boulders were used for more than one tomb. Some of the graves were also built against some of the older Hafit-tombs, and probably the stones of these Hafit-tombs were used in the construction of these graves.

The tombs are not oriented homogenous, but their directions depend on the topographical situation. Since the tomb chambers are not very large, we assume that they were occupied by one or maybe two persons at least. However, the state of preservation of the bones we found inside in some of the graves is very bad and only excavations could clarify this situation. [Fig. 10 near here] In addition to some shells and fish bones found in and around the tombs, a relatively large amount of Late Iron Age pottery (9) was collected (Fig.10) and can best be assigned to the pottery assemblage that is known from the sites of Samad ash-Shan.

As far as it is possible to say without excavation, no exact examples can be cited for the above mentioned types of graves. (10) Generally, most Late Iron Age graves, for example in the Samad cemeteries in the interior are built underground (Yule 2001: 27 – 38). Where the consistency of the ground does not allow to dig in, the graves were adapted to the local topography, as it is the case in Tiwi, where they sit directly on the natural rock. This holds also for the cemetery in Bandar Jissa near Musqat. The graves there come closest to the Tiwi graves, but seem to have a little smaller dimensions and the height of the ridge of the chamber is generally not more than 0.3 m (Yule 1994: 556 – 558) and the incorporation of large rocks or boulders in the construction of the graves is also not found there. According to a personal communication by M. Ibrahim, the tombs from Dibab, located some 30 km northwest of Tiwi, are of the same type, even if this is not clear from the published example (Ibrahim & ElMahi 2000: 125, fig. 4).

The contemporary settlement was also discovered. It is located on the eastern side of the entrance to Wadi Tiwi in a shallow depression behind a very visible tower, some 90 meters above the Middle Islamic settlement of Tiwi/ Jurayf; it was labeled TW2. After determining at least three major settlement phases in the spring of 2002, an architectural plan and a detailed description of the building remains was made in October.

The oldest phase, that means Late Iron Age, may be represented by the remains in the northwest of the site, where houses and terraces were built with very large, unworked stones; most of the Late Iron Age potsherds were collected there also. Since we also found some Early Iron Age potsherds among them, we would suggest that this site also may have been used in this period; yet since there were just a few potsherds, the occupation cannot have been very intensive.

While the Early Islamic period is represented by just a few potsherds, the next intensive occupation phase can, according to the pottery, be attributed to the Middle Islamic Period. The buildings and terraces of this phase were built with smaller stones. The Late Iron Age buildings were still used, but now a citadel was constructed just below the tower mentioned above. This tower itself is of Late Islamic date and is presumably the only major change in this period. During the last occupational phase the settlement was only used peripherally. Some poorly built walls were added to existing walls and terraces probably used as shelters or stables.

Thus, we would assume an occupation of that settlement area from the Early Iron Age to the Late Islamic period with two main occupational phases in the late Iron Age and the middle Islamic period.

While in the area of the modern villages of Tiwi or Shab only scanty traces of early or middle Islamic remains were found, these periods are best represented by the destroyed settlement of Tiwi/ Jurayf , we numbered TW15. It is situated on the coast and stretches to the foot of the mountain on the southeastern side of Wadi Tiwi. It is this settlement that was mentioned by Ibn Battuta in 1331 AD and was presumably destroyed during the Portuguese invasion in 1507 AD. Only a few houses at the foot of the mountain, TW12, were re-built in later times. By contrast, the coastal part of this settlement was never re-occupied. Some walls are still visible on the surface and provide some insight into the plan of the site. The potsherds are evidence for a date of occupation from the 9th to the early 16th century AD. Only few potsherds are of late Islamic date. The early and middle Islamic pottery assemblage shows a broad variety locally produced wares on the one hand but also of different imports from Persia as well as China, thereby linking Tiwi with the Indian Ocean and the Gulf trade. Since the site is of great importance for the understanding of the trade connections of Oman with the Islamic world as well as for the relations between coastal and inland sites during that period, the protection of this area must be urged, since it is greatly endangered by modern building activities.

A large Islamic cemetery with approximately 3000 to 4000 graves is situated southeast of Tiwi/ Jurayf. Abundant middle Islamic pottery sherds were found on the tombs. It is probable, that this cemetery was used by the inhabitants of the middle Islamic town of Tiwi/ Jurayf. After the destruction of the settlement at Tiwi/ Jurayf in the early 16th century AD, the main building activities seem to shift to the northern side of Wadi Tiwi, where the old town and also the modern town of Tiwi are situated. Several large Islamic cemeteries are located also on this site of the wadi.

In conclusion we can say that the area of Tiwi and ash-Shab was continuously settled from the 5th/4th millennium BC to modern times. While the 5th/4th and early 3rd millennium is attested by shell middens and tombs, the following Umm an-Nar, Wadi Suq and Early Iron Age period is evidenced at least indirectly by secondary burials inside the older Hafit tombs. No settlements of these periods were found. The Late Iron Age is covered by a vast cemetery and the hill settlement of TW2. Early and Middle Islamic periods can be found in the later occupation phases of TW2, Tiwi/Jurayf as well as along Wadi Tiwi. Occupation from the Late Islamic period onwards is testified by the recent settlement and cemeteries at Tiwi and Shab.

Bibliography:

Benoist, A. 1998. La céramique de Rumeilah (Èmirat d'Abou Dhabi). In M. Mouton (ed.), *Assemblages céramiques des sites de l'Age du Fer de la péninsule d'Oman*. (Documents d'Archéologie de l'Arabie 1). Lyon: Gremmo (CD-ROM).

Benoist, A. & Reade, J. 1998. La céramique de deux sites de Ras al Hadd (Sultanat d'Oman) : HD-9 et HD-21. In M. Mouton (ed.), *Assemblages céramiques des sites de l'Age du Fer de la péninsule d'Oman*. (Documents d'Archéologie de l'Arabie 1). Lyon: Gremmo (CD-ROM).

Biagi P. 1988. Surveys along the Oman coast: Preliminary report on the 1985 – 1988 campaigns. *East and West* 38: 271 – 291.

Biagi P. 1994. A radiocarbon chronology for the aceramic shell-middens of coastal Oman. *Arabian Archaeology and Epigraphy* 5: 17 – 31.

Boucharlat, R. & Lombard, P. 1985. The Oasis of Al Ain in the Iron Age: excavations at Rumeilah 1981 – 1983. *Archaeology of the United Arab Emirates* 4: 44 - 73.

Collon, D. 1998. First catch your ostrich, *Iranica Antiqua* 33: 25 - 42.

De Cardi, B, Bell, R.D. & Starling, N.J. 1979. Excavations at Tawi Silaim and Tawi Sa'id in the Sharqiya, 1978. *Journal of Oman Studies* 5: 61 – 94

Häser, J. 1988. *Steingefäße des 2. vorchristlichen Jahrtausends im Gebiet des Arabischen/Persischen Golfes. Typologie der Gefäße und Deckel aus Sepentinit, Chlorit, Steatit und verwandten Steinarten*, unpubl. MA-thesis, Berlin.

Häser, J. 2000. Formation and transformation processes of oasis settlement in the Sultanate of Oman: preliminary report on a new field project. *Proceedings of the Seminar for Arabian Studies* 30: 115 – 118.

Häser J. 2003. Archaeological results of the 1999 and 2000 survey campaigns in Wadi Bani Awf and the al-Hamra region (Central Oman). *Proceedings of the Seminar for Arabian Studies* 33:

Häser, J. & Schreiber, J. in press. Ein früheisenzeitliches Pyramidensiegel aus Oman. *Baghdader Mitteilungen* 34.

Ibrahim, M. & ElMahi, A.T. 2000. A survey between Quriyat and Sur in the Sultanate of Oman (1997). *Proceedings of the Seminar for Arabian Studies* 30: 119 - 136.

Korn, L., Häser, J., Schreiber, J., Gangler, A. Nagieb, M. Siebert, S. & Bürkert, A. forthcoming. Tiwi and Wadi Tiwi – Development of an Oasis on the Northeastern Coast of Oman. *Journal of Oman Studies* 13.

Kroll, S. 1981. Bilad al-Maaidin. Pages 209 – 210 in G. Weisgerber, Mehr als Kupfer in Oman. *Der Anschnitt* 33.

Lombard, P. 1979. *Aspects culturels de la péninsule d'Oman au début du 1er millénaire av. JC*, unpubl. MA-thesis, Paris.

Lombard, P. 1998. Quand la tradition tue l'innovation: réflexions sur la glyptique de l'Âge du Fer à Rumeilah (E.A.U.). Pages 151 – 164 in C.S. Phillips, D.T. Potts & S. Searight (eds.), *Arabia and its Neighbours*. (Abiel II). Leiden: Brepols.

Lombard, P. 2000. The last centuries of Dilmun. Pages 183 – 187 in H. Crawford & M. Rice, (eds.), *Traces of Paradises. The Archaeology of Bahrain 2500 BC – 300 AD*, London: Quadacolour Ltd.

ElMahi, A.T. 2001. The Ostrich in the Rock Art of Oman. *Adumatu* 3: 15–26.

Phillips, C.S. & Wilkinson, T.J. 1979. Recently discovered shell middens near Quriyat. *Journal of Oman Studies* 5: 107 – 110.

Potts, D.T. 1990. *A Prehistoric Mound in the Emirate of Umm al-Qaiwain, U.A.E. Excavations at Tell Abraç in 1989*, Copenhagen: Munksgaard

Potts, D.T. 2001. Ostrich distribution and exploitation in the Arabian peninsula. *Antiquity* 75: 182 – 190.

Schreiber, J. in prep. Late Iron Age pottery from a late prehistoric cemetery at the coastal site of Tiwi, Sultanate of Oman.

al-Shanfari, A.B. & Weisgerber, G. 1999. A late bronze age warrior burial from Nizwa (Oman). Pages 17 – 29 in P.M. Costa & M. Tosi (eds.), *Oman Studies*. (Serie Orientalia Roma 63). Roma.

Stevens, K.G. 1992. Four "Iron Age" stamp seals from Qarn bint Sa'ud (Abu Dhabi Emirate - U.A.E.). *Arabian Archaeology and Epigraphy* 2: 173 – 176.

Stevens, K.G. 1994. Surface finds from Qarn bint Sa'ud (Abu Dhabi Emirate - UAE), *Mesopotamia* 29: 199 – 262.

Tosi M. 1983. Reconnaissance Activity. *East and West* 33: 330 - 340.

Tosi, M. & Usai, D. 2003. Preliminary Report on the Excavations at Wadi Shab, Area 1, Sultanate of Oman. *Arabian Archaeology and Epigraphy* 14: 8 – 23.

Uerpmann H.-P. 1990. Radiocarbon dating of shell middens in the Sultanate of Oman. *Pact* 29: 335 – 347.

Vogt, B. & Kästner, J.-M. 1987. Tomb SH 102. Pages 23 – 36 in B. Vogt & U. Franke-Vogt (eds.), *Shimal 1985/1986. Excavations of the German Archaeological Mission in Ras Al-Khaimah, U.A.E. A Preliminary Report*. (Berliner Beiträge zum Vorderen Orient 8). Berlin:Reimer

Vogt, B. & Velde, C. 1987. Ghalila tomb SH 103. Pages 37 – 43 in B. Vogt & U. Franke-Vogt (eds.), *Shimal 1985/1986. Excavations of the German Archaeological Mission in Ras Al-Khaimah, U.A.E. A Preliminary Report*. (Berliner Beiträge zum Vorderen Orient 8). Berlin:Reimer

Weisgerber, G. 1980. "...und Kupfer in Oman". *Der Anschnitt* 32: 62 – 110.

Weisgerber, G. 1981. Mehr als Kupfer in Oman. *Der Anschnitt* 33: 174 - 263.

Yule, P. 1994. Grabarchitektur der Eisenzeit im Sultanat Oman. *Baghdader Mitteilungen* 25: 519 - 577.

Yule, P. 2001. *Die Gräberfelder in Samad al Shan (Sultanat Oman)*, (Orient-Archäologie 4), Rahden/Westf.: Leidorf.

Yule, P. & Weisgerber, G. 2001. *The Metal Hoard from 'Ibrī/ Selme, Sultanate of Oman*. (Prähistorische Bronzefunde XX.7). Stuttgart: Steiner.

¹ Partners of this project are the Oriental Institute of the University in Tübingen, the Institute of Urban Planning of the University in Stuttgart, the Institute of Crop Sciences of the University in Kassel, the Orient-Department of the German Institute of Archaeology in Berlin, together with the Department of Archaeology of the Sultan Qaboos University in Musqat.

² Paolo Biagi recorded numerous sites along the coast. Among these sites one was a large shell-midden he labelled GAS 1, located at a steep cliff at the sea, directly at the entrance of Wadi Shab, 0.5 km west of the modern village of Tiwi (Biagi 1988: 273 - 274, Biagi 1994: 23, tab. 4). This site was under excavation in spring 2002 by an Italian team (Tosi & Usai, D. 2003).

³ The surveys were conducted four weeks in February and three weeks in October 2002. For comprehensive results cf. Korn et al. forthcoming.

⁴ Each tomb was labelled with the capital letters TW and then a number, for example TW0406 means grave 406 at Tiwi.

⁵ These seals were recently discussed again by Lombard 1998.

⁶ Another pyramidal stamp seal from the surface of the cemetery at Qarn Bint Sa'ud is not published yet (Boucharlat & Lombard 1985: 61 – 62).

⁷ Shells of ostrich eggs were also included in the so called Ibri/Selme hoard, Yule & Weisgerber 2001: pl. 51, 591.

⁸ This type corresponds with Lombard's type 3b of early first millennium BC from al-Qusais, grave 2 and Qarn Bint Sa'ud, grave 3. Lombard 1979: 64, pl. 48 / 12 – 17. According to Yule's typology, the Tiwi arrowheads are similar with his type P07, which he dates to the late Wadi Suq/early Iron Age. Yule 2001: 108.

⁹ Just a few examples are illustrated here, as a more detailed study is in preparation (Schreiber in prep.).

¹⁰ The Tiwi graves do not match exactly with the known Iron Age grave types from the United Arab Emirates or Oman so far (Yule, 1994, Yule 2001: 38 – 44).