



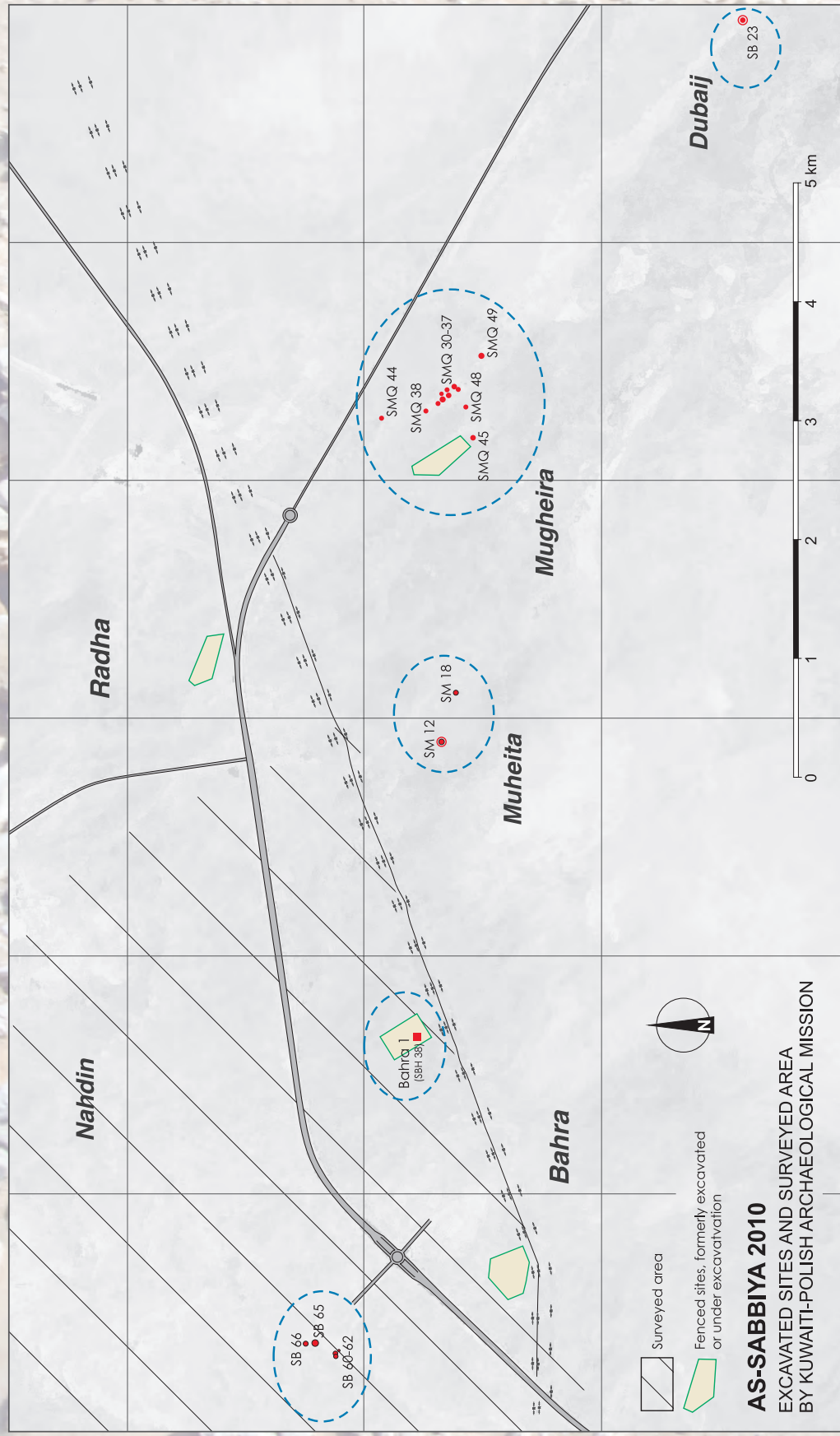
KUWAITI-POLISH

Archaeological Investigations

in Northern Kuwait

CENTRUM
Im. Kazimierza Michałowskiego
ARCHEOLOGII
Śródziemnomorskiej





National Council for Culture, Arts and Letters, Kuwait
Polish Centre of Mediterranean Archaeology, University of Warsaw

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As-Sabbiya 2007–2010

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Warsaw – Al-Jahra 2011

For a long time, Kuwait and the whole Gulf region remained outside the scope of interest of Polish archaeologists from the University of Warsaw, even though they have been working in countless places throughout the Near East for over six decades. Of course, we were familiar with the discoveries at Failaka Island but archaeology of the rest of Kuwait was largely unknown to us, as none of our Polish colleagues specialized in this field. It could have remained so, but for an initiative of Mr. Shehab A.H. Shehab, the Director of the Department of Antiquities and Museums of the State of Kuwait, who initiated a contact with the Polish Centre of Mediterranean Archaeology of the University of Warsaw (PCMA). Consequently, in November 2006 professor Michał Gawlikowski, the President of PCMA's Scientific Council, visited Kuwait and in the spring of 2007 Mr. Shehab A.H. Shehab traveled to Warsaw. The two visits not only established a direct cooperation between our organizations but also introduced us to the subject of archaeology of northern Kuwait, in particular of As-Sabbiya – the field of our future research. At that time, we became acquainted with the results of research conducted there by Mr. Sultan Ad-Duweish, Superintendent at the Department of Antiquities and Museums.

The picture that emerged was very exciting, and research in northern Kuwait, with hundreds of previously uninvestigated grave sites was a great challenge that would involve a study of the archaeology of nomadic populations' relationships with their settled neighbours. New research goals and cooperation with new colleagues were a welcome perspective and during Mr. Shehab's visit in Warsaw a decision was taken to organize a joint Kuwaiti-Polish Archaeological Mission (KPAM). An agreement was signed between the Kuwaiti Department of Antiquities and Museums and the PCMA, concerning the participation of Polish archaeologists in exploration of the As-Sabbiya region. According to this agreement, the first reconnaissance campaign was scheduled for November 2007. The

group was headed by the present author, who has been a co-director of the KPAM ever since.

During the first days in As-Sabbiya, under the guidance of Mr. Shehab and Mr. Ad-Duweish, we were learning the ropes of exploration of desert grave sites. Our hosts showed us numerous concentrations of graves and pointed out their various typological distinctions, advising us on the choice of our first excavation sites in the Kuwaiti desert. That was the beginning of our first – short, but important – excavation season.



Mr. Shehab A.H. Shehab, Mr. Sultan Ad-Duweish and Prof. Piotr Bieliński visiting archaeological sites As-Sabbiya (2007)

Adornments obtained from graves excavated by our mission in 2007–2008, exhibited at the Kuwait National Museum



Our research concentrated around the so-called Mugheira Well Field. As if in a gesture of welcome, one of the graves excavated in the first season – SMQ 30 – yielded an exceptionally rich set of grave goods, with “our” first Kuwaiti pearl, which further strengthened our enthusiasm for future research.

From the beginning, we have felt that our research is interesting not only for Kuwaiti archaeologists, but also for the heads of the National Council for Culture, Arts and Letters (NCCAL) of the State of Kuwait. We could feel it during the meetings and discussions we held in their offices in the capital, but also in the numerous visits at the investigated sites by Mr. Eng. Ali Hussein Al-Youha, Assistant Secretary General for Antiquities and Museums of the NCCAL. This kindly interest and support from the National Council and its President, Mr. Bader Al-Refai, Secretary General of NCCAL, bore witness to the concern and care with which national cultural heritage is treated in Kuwait.

The team at a meeting with the heads of NCCAL (2009)





Mr. Eng. Ali Hussein Al-Youha with the KPAM team at Bahra 1 (2009)

In the second season of our research in Kuwait, in October 2008, we continued explorations of archaeological stone features in Mugheira, including tumuli graves but also features that may have been some kind of supplementary constructions to the graves. We also started investigations of a large desert well, or cistern, labelled SM 12 in Muheita, another sub-region of As-Sabbiya.

In the third season in the autumn of 2009, apart from excavating graves in Mugheira and the well-cistern and a single burial mound in Muheita, we began work at an Ubaid-period settlement site, code-named SBH 38, in Bahra (yet another As-Sabbiya sub-region); we also managed to resume an extensive survey of As-Sabbiya in order to map all grave sites, including those that had been found by Mr. Sultan Ad-Duweish, whose extensive knowledge of the region and constant help were essential for the project. The results of the survey, with approx. 130 archaeological sites described and localized, were especially satisfying, as was the exploration of the prehistoric settlement, which proved to be surprisingly large and well preserved. Throughout this busy but rewarding season, discussions were held with Mr. Shehab and Mr. Ad-Duweish, which resulted in the formulation of four research projects of the KPAM: 1. surveying and cataloguing grave sites and other stone structures, 2. exploration of chosen grave sites, especially those endangered by construction work, 3. investigating old desert well network 4. exploration of two prehistoric settlements from the period of the Chalcolithic Ubaid culture (6–5th millennium BC), located in As-Sabbiya – Bahra.

The experiences and discoveries of the third excavation campaign, along with the newly-approved research projects of the KPAM, resulted in a decision to divide our team into two, almost autonomous, teams. The sheer number of research goals and the spatial distribution of sites to be excavated prompted us, upon advice from our Kuwaiti hosts, to form a separate unit for the excavation of burial sites, with a branch investigating desert wells, and another unit that would concentrate solely on the excavations of the settlement sites. The first unit was to work in springtime under the supervision of Dr Łukasz Rutkowski, while the other was to continue working in autumn under the direction of the present author.

These arrangements were brought into action the following year. In 2010 the spring group began excavations of a concentration of graves in Bahra and of a desert well site in the region of the Dubai Bay (labelled SB 23). The autumn season was devoted mainly to a continuation of the exploration of two neighbouring prehistoric sites code-named SBH 38 and SBH 35. Based on preliminary results of these investigations it seems possible that we are dealing with one vast settlement, rather than with two separate sites. Upon careful consideration, our Kuwaiti colleagues decided to replace the survey code with a more ear-catching and “user-friendly” name of Bahra 1. We hope that this name will soon become well known not only among scholars studying the prehistory of the Gulf region but also to ordinary Kuwaitis.

A specific side effect of archaeological work is the unique opportunity it creates for getting to know the country where it takes place, admiring its nature and befriending its people. We have made friends with the Kuwaiti desert with its captivating landscapes and inhabitants, including camels grazing around – and sometimes on – the sites we excavated. But it goes without saying, that most important are the friendships with the Kuwaitis, both those involved in archaeology and those met in the desert, who showed us their traditional hospitality and genuine interest in our work. We are grateful to them and we hope that we can, at least partly, repay them by our involvement in discovering the treasures of Kuwait’s past.



Mr. Shehab visiting Kuwaiti-Polish and GCC archaeological expeditions at Bahra 1 (2009)

As-Sabbiya (also known as As-Sabiyah or Al-Subiyah) is a coastal region of Northern Kuwait. It stretches out for around 60 km to the east of Al-Jahra city. It is bordered on the east by the the Khor As-Sabiyah, a tidal channel separating the mainland from the Bubiyan Island, on the north by the Jal Az-Zor escarpment, and on the south by the Kuwait Bay. Such a localization made As-Sabbiya a part of the natural overland route along the shores of the Arabian Gulf, both in the ancient past (connecting Mesopotamia and Dilmun) and nowadays (Iraq – southern Gulf countries). The land consists of a desert plateau covered by open sandy areas and rocky outcrops, and a flat coastal plain separated from the interior by cliffs and terraces.



Map of Northern Kuwait. Red outline marks the zone where the Kuwaiti-Polish Archaeological Mission operated in 2007–2010.

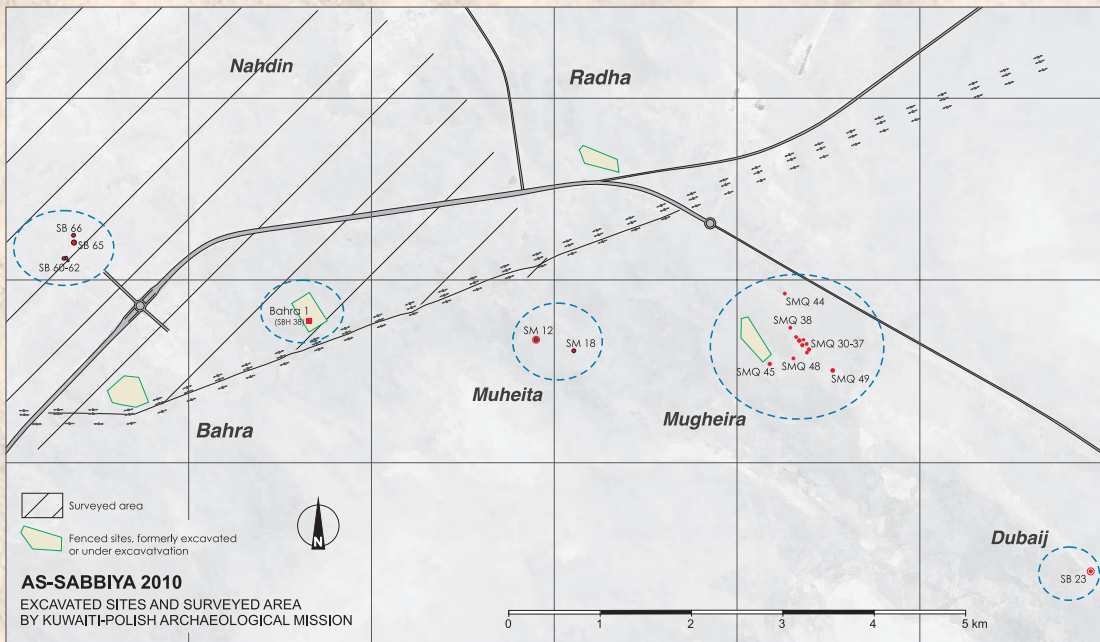


Landscape of Mugheira close to the edge of the main cliff separating the plateau from the coastal lowland. Contrary to common belief, the desert is not a void. Many people go there to enjoy tent camping in As-Sabbiya.



View over the plain of Muheita; the tent of our team close to the SM 12 well site is visible in the background. Some regular piles of stones (so-called 'cairns') are erected on the desert as landmarks. One of them is visible here in the foreground. They seem to be quite modern constructions, however, it seems certain that the custom of erecting such piles in the desert (most likely for route marking) is a long-standing tradition.

The fieldwork activities of the KPAM have so far been carried out in the eastern sector of the As-Sabbiya plateau. This area is traditionally divided into several regions: Bahra (the largest of them, where our team started to excavate an Ubaid settlement site, Bahra 1, in 2009, and a concentration of tumuli in 2010), Muheita (the area, where a remarkable desert well site, SM 12, was excavated in 2008–2010), Mugheira (the scene of the first investigations of the mission in 2007; among others, tumuli graves SMQ 30 and SMQ 49 were excavated there), and Dubaij (where excavations of another well site, SB-23, began in 2010). Thus, the investigated zone is extended slightly over 10 km, as measured in a straight line. Two more regions, Nahdin and Radha, have been prospected during the KPAM archaeological survey.



Investigated archeological sites from the Ubaid period (c. 7000 years B.P.) are located in the Bahra area, north of Kuwait Bay, which has the natural geomorphologic configuration preferred for ancient settlement. The origin of recent geomorphology was studied during geological and geomorphological field works, carried out by the Kuwait-Polish Archeological Mission (KPAM) and earlier by a Kuwaiti-British archeological mission. The base geological study and mapping were carried out in the past by Kuwait geologist. The location of the geological and geomorphological study comprises an area of the alluvial and coastal plain surrounded from the north-west and north-east by distinct, natural escarpment (Jal Az-Zor) and by the Kuwait Bay coastline from the south.

The Jal Az-Zor escarpment and rocks of the coastal plain area are composed of bedded fossiliferous sandstones, conglomerates, limestones and mudstones representing the time interval from the Neogene to Pleistocene. The escarpments in the study area, delimit northern Kuwait plateau, reach approximately 80–90 m above sea level. The origin of those escarpments is still disputed, but a tectonic model of margin of extensive plateau tilted northward with subsequent backward erosion is the most preferred hypothesis. The southern face of the escarpment is subdivided, in some places, by three or four terraces of fluvial/marine origin (Al-Asfour 1982), which descend in stepwise mode to the coastal plain below. The origin of these terraces can also be considered as the result of selective erosion, without influence of former marine coastal zones.

The coastal plain consists of (landward from the sea): sandy bars and channels of tidal zone, sandy – muddy beaches, coastal *sabkha* deposits, gradually passing northward into sandy desert plain composed of dunes, sand sheets, flood and temporary ponds' deposits, towards distal alluvial fan slopes spaced along escarpments. On the coastal and alluvial plain, in many cases, firm bedrocks are exposed as distinct erosive forms, composed of well-bedded red and yellowish quartzite sandstones of marine origin. These sandstones are capped by a gravel-sand beach-rock deposit. The archeological site H3 is located on a promontory close to the sea coast, directly on older bedrock deposits or fossilized beach-rocks.



Towards the north, on the desert surface, there are several well exposed, large erosional forms created from cemented aeolian sandstones, probably Early? Neogene in age. The Bahra 1 archeological site is located directly on former active dune field and the building material used for construction of the settlement's houses came directly from

Gorge (wadi) originated due to recent strong erosion in the Jal Az-Zor escarpment zone. Exposed rocks represent Neogene (Kuwait Group) and Pleistocene deposits. The gorge is open on the Kuwait Bay in the south. Such topography probably existed in the more humid climate of the Ubaid period.

In contrast to the Jal Az-Zor escarpments, flat coastal sabkha is spread along the Kuwait Bay margin. This sabkha type is specific for northern Kuwait due to the influence of rich abundance of siliclastic deposits from the Khor As-Sabiyah estuary. The pattern of regular polygons and small adhesion warts exposed on the sabkha surface originated due to drying processes on the muddy surface and growth of gypsum crystals. Sabkha is also covered by aeolian sand, forming visible sand strips in accordance with prevailing wind direction.



For archeologists and many others, at first glance, this appears to be a fossilized shoe imprint from ancient times. In fact, it is part of a shallow-marine trace fossil (left by a marine creature) preserved in sandstone of probable Early Neogene (Oligocene–Lower Miocene) date, now exposed on the surface due to weathering processes.



adjacent outcrops within aeolian sandstones. Other archeological sites (such as tumuli graves) are located at the tops of escarpments capped in many places by a gravel blanket. Recently, accretion and erosion of Holocene deposits occurring in the study area facilitate, in some instances, the natural exposure of archeological sites or, inversely, cover them, as is for example the case with the wells excavated by the KPAM.



Aeolian sandstones exposed in many places on the investigated area on faces and slopes of eroded hills and scarps. Note the significant dune sets, showing parts of dune slopes. These aeolian rocks are probably Early? Neogene in age.

The plateau of As-Sabbiya has yielded numerous stone structures, mainly circular tumuli graves made of rough stones. They are scattered throughout the plateau, stretching out between the ridge of Jal Az-Zor and the coastal plain. Some of them have already been investigated by Kuwaiti and GCC archeological expeditions, conducted by Sultan Ad-Duweish. Since 2007, they have also been explored by the KPAM. Up till now, 19 stone structures, including 17 burial mounds, have been excavated in three areas of As-Sabbiya: Mugheira, Muheita, and Bahra. Fieldworks of the mission started in the Mugheira region. 12 burial mounds have been excavated in this area. Most were situated near the edge of a cliff overlooking what is now the coastal plain, but what in antiquity was probably the sea. The agreeable view offered by the cliff may have played a role in the choice of the burials' localization by their builders.

A tumulus is an artificial mound of earth and stones raised over the remains of the dead. Tumuli are also known as barrows, burial mounds or kurgans, and can be found throughout



View from the edge of the Mugheira cliff with tumulus SMQ 33 in the foreground



Side view of tumulus SB 65 after removing sand cover, plants and loose stones. This is the largest tomb excavated so far by KPAM (8.20 m in diameter and approx. 0.90 m in height). It is situated on a rocky prominence vis-à-vis a newly constructed interchange road in the Bahra region.

much of the world as a popular type of ancient burial place. Tumuli known from Northern Kuwait are largely made of locally available stones, boulders and slabs arranged in conical mounds. Such a form of the graves is in itself a marker of the burial place, thus tumuli tombs are easily recognisable in the terrain.

The aim of archaeological research in the As-Sabbiya region is to explore and record these important remains before they are destroyed forever. Some of them have already suffered damages in recent times. For instance, traces of destruction and caterpillar tracks were detected on the surface of tumulus SM 18. The damage was probably caused by a tank that ran over the grave, which shows how modern history can leave its stamp (literally!) on ancient vestiges.



MANNER OF CONSTRUCTION

The tumuli are erected on a circular or sub-circular plan. They consist of a grave chamber situated in the middle of the mound and a stone mantle around it. Though all mounds are similar at first sight, their manner of construction often differs in details, such as the shape and depth of the chamber and the alignment of stones in their mantle. Most often, one can distinguish an inner ring of stones, which forms the chamber's wall and the tumulus' core at the same time. Sometimes, an outer ring of stones can be encountered on the perimeter of the mantle. It is usually composed of large slabs arranged vertically or obliquely.



Tumulus SB 61 after half the stone coating had been dismantled; two rings of stones are easily perceptible

One can distinguish at least two size rates of the tumuli – smaller structures, up to 6 m in diameter, and larger ones, measuring over 6 m, but only occasionally exceeding 10 m in diameter. Their present height varies from 0.50 m to slightly over 1 m above the ground (the biggest – registered in survey – PSRD 10 – is 14 m in diameter and over 2 m high).



Tumulus SMQ 33, view after unearthing the bottom of the grave chamber. All the graves either have a paved floor made of thin slabs inside the chamber or natural, solid bedrock constitutes their bottom. An irregular ring of upright slabs is visible on the, partly dismantled, western half of the mantle. Its function is apparently to prevent stones from slipping down from the mantle.



Tumulus SMQ 49 during exploration of the grave chamber. This tomb turned out to be an exceptional multiple burial containing a dozen skeletons.

Grave chambers most often are rounded in shape. There are two main types– deep chambers, partly hewn in solid bedrock, and shallow ones with bottoms on or slightly over the ground level. Usually the chamber's sides gradually taper upward to form a covering from the top. Unfortunately, none of such coverings was preserved intact, yet the scanty remains suggest that they were originally constructed of large slabs arranged horizontally, partly overhanging the chamber and partly resting on the chamber wall.

During exploration of tumuli, their halves or quarters are dismantled in order to investigate their internal structure. The stone alignments visible in the sections show that the mantles are constructed of well-fitted slabs. Most of them overlap, like roof tiles, descending towards the mantle's fringe.



Section through tumulus SB 65 after dismantling the grave's northern half

EXPLORATION AND DOCUMENTATION

Special "visitors"



Flashbacks on a four year field experience with tumuli graves' exploration.

First stage in grave exploration – sand cover removal



Drawing documentation of SMQ 30 using a grid



Sultan Ad-Duweish taking photos of skeletons in SMQ 49



After unloading the archaeological equipment



Cleaning the grave surface



Taking measurements with total station



Grave chamber's exploration



During a sandstorm



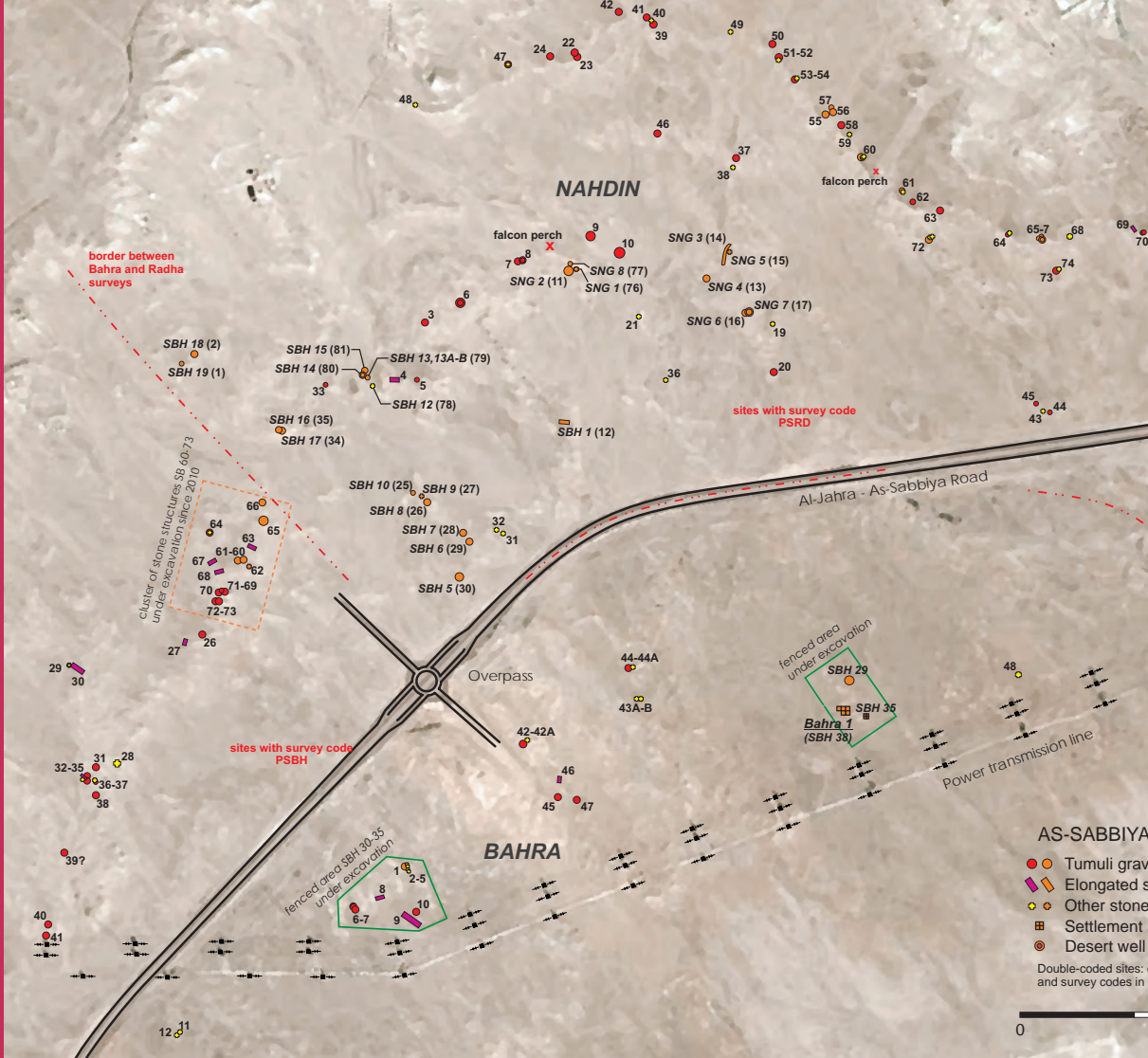
Grave chamber after heavy rainfall



"Crane" photography



Last stage of fieldwork – sieving the spoil tips to look for finds



ARCHAEOLOGICAL SURVEY

Apart from excavations, a detailed territorial survey is another project conducted in the plateau of As-Sabbiya. It aims at recording all archaeological features and creating an archaeological map of the region. Up till now, the total inspected area covers approx. 18 square kilometres and the total number of recorded sites was brought up to 142, including 86 tumuli graves, 12 elongated structures, and 44 other features.



Elongated-structure SB 67



Elongated structures are usually 2-3 m wide and 7-12 m long (the longest, PSBH 30, being 21.50 m long). Their shorter sides are rounded. The structures' edges are delimited by thin slabs set vertically, whilst the core is packed with horizontal stones. Above, structure PSRD 4.



Tumulus SM 20 and its additional structure in the foreground

Most of the recorded structures turned out to be pretty evenly spread along two main, crescent-shaped terraces running parallel to the Jal Az-Zor hills and outlining the descent of the land towards the south. It is obvious that an edge of a cliff, where stone building material was easily accessible, was regarded as the best spot for the erection of stone structures.

Elongated stone structures are the second most conspicuous feature in As-Sabbiya. They are pretty low and of an oblong outline, which gives an impression of long and flat platforms. They are quite often situated in the vicinity of tumuli graves, which suggests there may be an association of some kind between the graves and these mysterious structures. A noteworthy peculiarity is their orientation: although it varies from E-W to N-S (NW-SE being the most popular), none of a NE-SW orientation has been identified so far.

The category of "others" encompasses a wide spectrum of stone features that are difficult to classify. The most intriguing among them are small stone features accompanying tumuli graves. Some contain a kind of a rectangular bin made of stone slabs set vertically.



Most of the excavated graves have been robbed in the past. All of them must have been at least penetrated. This is the reason why the number of finds they yielded is restricted and the skeletal remains they contain are generally poorly preserved. Only mortuary gifts that have been omitted by the plunderers can be found today. An exception is tumulus grave SMQ 30, investigated by our team in 2007-08, where an extraordinarily rich collection of beads, comprising as many as 600 items, was found. What is unusual, apart from numerous personal adornments found in the grave chamber (247), there was a still greater number of such finds (353) scattered between the stones of the tumulus mantle. It is reasonable to suppose that at least this second bunch of beads must have been put into the grave by relatives of the deceased during a funeral ceremony. Up till now, it is the only grave in which such a practice was detected.



Collection of personal adornments discovered in tumulus grave SMQ 30; enlarged view of beads (micro-beads, pearls, and beads of lapis-lazuli in the middle)

Adornments from SMQ 30 are mainly made of seashell. Most numerous among them are tube-like beads worked from tusk shells (*Scaphopoda*), small shells and ring-shaped beads made of *Conus* shells, disc- or lobately-shaped, perforated sequins mostly made of colourful shells (red to orange and white), and perforated shells with brown stripes (*Engina mendicaria*). The assemblage is supplemented by stone micro-beads, limestone spacers, and a few more precious specimens, including two perforated pearls, five beads of lapis lazuli, a small coil of copper wire, and finally a large round pendant (diam. 7.50 cm) made of mother-of-pearl and bearing incised dot-in-circle decoration, with two drilled holes for stringing.

Simple shell ornaments can be encountered in Ubaid-period settlement sites in the Gulf region, dated to the 6th – 5th millennia BC. Similar beads were found in As-Sabbiya, at H3, excavated by a Kuwaiti-British mission and at Bahra 1, excavated by KPAM (see below). However, decoration of the pendant, which is believed to be characteristic of the late 3rd and first half of the 2nd millennium BC (Dilmun culture), as well as the presence of lapis-lazuli beads and the metal item might suggest a later date. The lack of pottery considerably limits the possibility of dating the structure.



Imaginary arrangement of adornments from SMQ 30



SMQ 30, view of the grave chamber with remnants of a skeleton and scattered beads on the paved floor. An anthropological analysis showed that the burial contained bones of at least two adult individuals, one of them a female. Considering the paucity of findings in other graves, it was our pleasantry to call SMQ 30 "the jeweller's wife grave".



A few graves explored in the Mugheira area yielded a small number of adornments. Their types, and materials they were made of, clearly mirror the bulk of SMQ 30's collection, which indicates that all these graves were roughly contemporaneous. On the left, assemblage of beads found in tumulus grave SMQ 33.

Although not numerous, especially in relation to the number of skeletons, the objects discovered in tumulus SMQ 49 were very interesting. Apart from several simple shell adornments (yet different in type from SMQ 30's set), a bead of aquamarine (precious stone, a variety of beryl) and an exceptional artefact – a barbed-and-tanged flint arrowhead – were found in the grave chamber. On the basis of known analogies with other Gulf sites, arrowheads of this type are dated to the Ubaid period. Moreover, a very similar arrowhead was discovered in Bahra 1 settlement (see below), which provides an important piece of evidence indicating a prehistoric date of the graves, at least for the earliest burials.



Finds from SMQ 49 (flint arrowhead, bead of aquamarine, and perforated shells)

Collection of all 600 adornments discovered in tumulus grave SMQ 30





At least 12 individuals were buried in the grave chamber of SMQ 49, which was partly hewn in the bedrock (its maximum depth from top of the mantle to the chamber's bottom reached 1.30 m). Skeletons, deposited in the tomb consecutively, were found lying on their sides in a contracted position. Earlier skeletal remains were not moved aside while a new deceased was buried. In consequence, bodies were deposited one on top of the other, occasionally with a separating layer of stones, which makes it evident that the tomb was used for a very long time. Apart from individual burials, there was at least one double burial of an adult and a child. What is more intriguing, a skeleton of an equid was buried inside the grave chamber too. On the contrary to implications on early date of the grave, such a discovery is unknown from prehistoric sites, whereas a practice of burying equids (donkeys/horses) in grave chambers is known from later epochs.



A set of four small stone implements (two mortars and two grinding slabs) was found in the mantle of the tumulus, which should also be regarded as a peculiar discovery

Apart from testimonies associating of As-Sabbiyan tumuli with the Ubaid period, there are some graves that produced mortuary gifts apparently of a later date. A small collection of copper-alloy items (fragmentarily preserved) and several personal adornments made of semiprecious materials, were found in tumulus SB 65. Three beads made of varieties of carnelian and one of agate were of very high quality, exceeding that of most of the items from SMQ 30. Tumulus SB 60 yielded only three small finds but all of them of special interest: a bronze leaf-shaped, tanged arrowhead, a trilobed object probably made of lead, and a small stone mortar similar to those found in tumulus SMQ 49. The arrowhead should be dated back to the Bronze Age. The mortar provides an important clue for linking separate graves in terms of funerary customs.



Semiprecious beads from SB 65

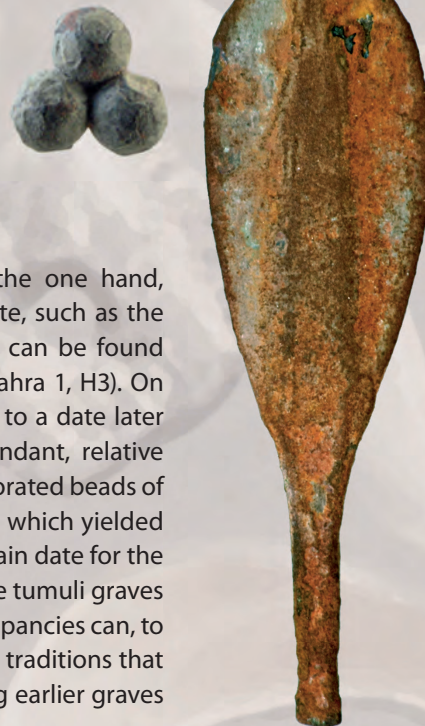


Stone beads (carnelian and limestone) from SMQ 35A



Lapis lazuli beads and perforated pearls from SMQ 30

Metal objects from SB 60



Dating the tumuli graves is a real puzzle. On the one hand, there are some hints indicating their pretty early date, such as the archaic, simple forms of common adornments, that can be found also on prehistoric settlement sites in the vicinity (Bahra 1, H3). On the other hand, there are some indications pointing to a date later than Neolithic times. Circle-in-dot motif on the pendant, relative abundance of metal objects and the presence of elaborated beads of semiprecious stones. The number of explored graves which yielded some grave goods is not sufficient to pin down a certain date for the erection of the tumuli. Moreover, it is possible that the tumuli graves were in use over a very long span of time. These discrepancies can, to some extent, be explained by long-lasting sepulchral traditions that may have been retained in the region, and by reusing earlier graves by people living there in later times.

In the desert regions of Northern Kuwait throughout antiquity, water was the most important factor conditioning the growth of civilization. Access to groundwater, mastering well-drilling and methods of gathering and storing rainwater in desert cisterns were crucial skills for survival both of semi-settled inhabitants of the region and of nomads crossing the desert plateau. The latter's routes, just as ancient trade routes, usually followed the coast of the Persian Gulf, where a relatively dense net of wells was built beside natural reservoirs. Both kinds of water sources were located in depressions of the terrain, often at the mouths of desert *wadis* flowing down towards the coastal plain. The ancient climate in the region is assumed to have been more humid, with a larger amount of precipitation. Also today, the average yearly rainfall in Northern Kuwait is larger than in other parts of the Arabian Peninsula, reaching 100-130 mm. No wonder, therefore, that throughout Northern Kuwait, from Medinet Al-Kuweit, through Jahra, Muheita, and Mugheira, to Dubaij, over 40 wells or water reservoirs have been recorded.



Model of a modern Arabic well. The stone curb and oval plan of the shaft resemble traditional desert wells from Northern Kuwait. (Reconstruction in an ethnographical exhibition of the Qasr Al-Ahmar (Red Fort) Museum in Jahra.

It is possible that some of the wells in As-Sabbiya may have been located at water sources used through the ages by local populations, beginning with inhabitants of Neolithic settlements, through nomads of the 3rd and 2nd millennium BC, to temporary residents of the coastal strip from the Sassanian and Early Islamic periods. The presence of stone curbs and walls surrounding the excavated well complex SM 12 proves that they were designed for a long usage by a people with a highly organized social structure. Such wells were most



certainly used by itinerary merchants and, in the Islamic period, by pilgrims traveling to Mecca. Some of them remained in periodical use until mid-20th century, as evidenced by recent renovations and modern finds. The wells' reason for existence ended with the onset of modern water supply techniques. Deserted wells disappeared under modern infrastructure; others have been filled in with stones. Finally, desert sands covered them so completely that an archaeological survey was required to record the surviving relics. So far, three such features, located in the Muheita and Dubajj regions, have been excavated and studied by the KPAM.



General view of the SM 12 site in the Muheita region before the start of excavations in 2008

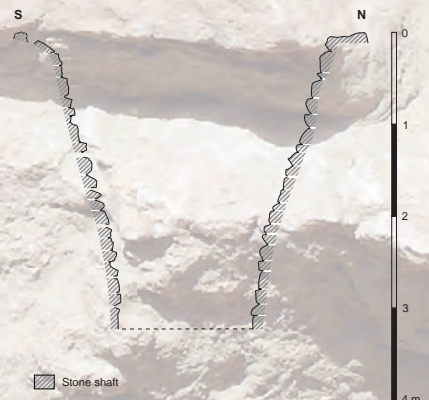


Well-cistern SM 12

The excellently crafted, strikingly large and finely preserved well SM 12 was discovered in the Muheita region, in a hollow of a desert plain sloping towards the sea coast. The site, first noted by Mr. Sultan Ad-Duwaish, was studied by the Polish-Kuwaiti Archaeological Mission in 2008-2010. After some conservation work and other necessary arrangements, the excavated well is to be one of the attractions of an Archaeological Park planned in As-Sabbiya.

The craftsmanship of the well shaft clearly shows that it was built by a team of highly skilled masons. The wall of the shaft consists of 22 layers of sandstone blocks set without mortar. All the stones come from a single local source. By choosing blocks of similar measurements, a largely regular arrangement of the horizontal layers was maintained. Rather flattish stones were selected as building material; they were arranged in a "stretcher bond", in which stones are overlapping midway with the courses of stones below and above. This technique consolidated the whole stone structure. Throughout its entire height, an oval horizontal section was kept without disturbing the inclination of the wall, which is additional proof of the builders' expertise.

*Section through the SM 12 cistern's shaft.
The 3.25 m deep shaft's diameter reaches 3 m at the top but only 1.35 m at the bottom. This gives the well's section almost the shape of a truncated cone, with walls roughly vertical at the bottom, then gradually flaring out towards the top.*





Well-cistern SM 12 during archaeological work in 2008

The crown of the shaft's wall, built of a double row of stones, was flush with the surrounding ground, which facilitated collection of rainwater from a nearby wadi. When fully filled, the well could have held c. 10 cubic meters of water; however, judging by the state of preservation of the blocks in the wall, which are smoothed by water just in the lowest parts of the shaft, such a high level of water must have occurred only occasionally.

The well could be accessed from the south by three, now ruined, steps made of large sandstone blocks. The outer wall surrounding the well formed a circle with diameters of c. 9 m (N-S axis) and c. 8 m (E-W axis). The foot of the, more than half a meter high, wall was founded over the crown of the well curb. The wall was rather carelessly built of small sandstone fragments laid without mortar in two or three layers. It served the double purpose of fencing off the deep, and potentially dangerous, shaft and protected the well against sand brought by desert storms.



General view of the well-cistern SM 12 at the end of excavations, spring 2010



Bird's eye view of the SM 12 well-cistern's shaft after completion of exploration, spring 2010

The near excellence of the well's execution attests to the existence of a long tradition of masonry skills, which may even go back to the Sassanian or Early Islamic times. However, due to an almost complete lack of diagnostic archaeological material, the date of this structure's erection must remain hypothetical. The dearth of finds may be explained by the well's irregular usage, which caused it to be repeatedly filled in with sand and debris and then cleaned again. Certainly, the final filling of the shaft with stones took place sometime in the last century. Proof for this assumption was supplied by finds made in the lowest layers of the fill: a badly corroded metal container with an illegible trademark and a thick, rubber seal, definitely a mass-produced object.



Taking measurements inside the SM 12 well

DESERT WELL COMPLEX IN THE DUBAIJ AREA

A massive well-cistern, with a 4 m wide mouth, was dug in the middle of a small desert dale, surrounded on three sides by cliffs of the As-Sabbiya plateau. It collected water periodically flowing from the north in two *wadis* cutting the cliff. The well's curb was built so as to facilitate water collection: in the north, near the outlet of the *wadi*, the curb is flush with the surrounding ground, gradually rising towards the south, to a height of approx. 0.70 m. During excavations, at the depth of c. 2.90 m water appeared in the well, which proves that the well-cistern was fed not only by rain but also by groundwater.



*Well-cistern SB 23-1
in Dubaij, before
exploration*

The shaft of the well was filled flush to the crown of its wall with rubbish, detritus of camp equipment and loose stones on top of which lay a 1.50 m worth of desert sand. Before it was fully filled, campfires had often burnt inside the well, as proven by a thick soot layer on the stones in the curb's upper part. The crown of its wall, consisting of a double row of stones, and the collar of the shaft wall were cemented over in the 1930s. The shaft is tapering downwards, so the diameter of the well's bottom is over a meter smaller than that of its mouth. As far as the quality of masonry is concerned, this structure cannot rival the SM 12 well. Although horizontal section of the shaft retains its oval shape, the builders did not succeed in keeping a neat, uniform surface of the wall. Many of the stones protrude from the face, other are set too deep, forming irregular recesses.

The wall of the SB 23-1 well-cistern consists of 23 layers of undressed stone, mostly pinkish and cream sandstone, set in tight rows without mortar. Sandstone was used in the lower parts of the shaft. Alternating layers of wide and narrow stones, visible in the picture, strengthened the structure.

Just beside the well-cistern SB 23-1, there is a stone post and a small building reinforced with a buttress and filled up to its ceiling with stones. Both structures walls are covered with cement. They are modern auxiliary installations for pumping water from the well, probably serving some electrically powered equipment.

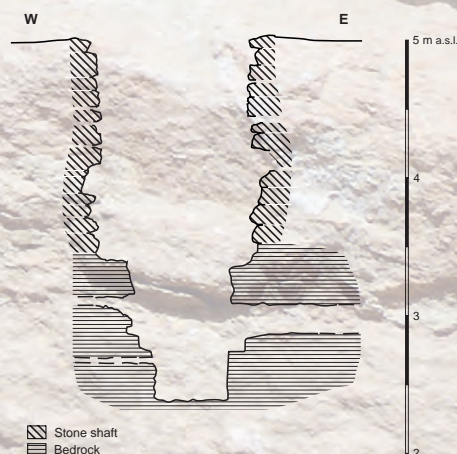
Well-cistern SB 23-1 at the end of exploration, spring 2010





A small well SB 23-2 was dug in the vicinity of cistern SB 23-1. Its diameter at the mouth measures c. 1.25 m and its stone wall consists of 12 regular layers of limestone and sandstone blocks set without mortar, covering the shaft to the depth of c. 1.55 m. The deepest part of the shaft was hollowed out in rock. The smoothed surfaces of the stones in the shaft's wall prove that the well was permanently filled with water. Even nowadays, after sand had been removed during excavations, water appeared at the shaft's bottom. The well could hold c. 3.50 cubic meters of water. Enamelled metal plates found near the bottom of the shaft attest to a recent date of the well's filling up. The proximity of this small well and the large well-cistern SB 23-1 suggests that the two structures may have functioned together as part of one complex.

The relatively narrow shaft is shaped like an inverted bottle, with the neck cut in solid bedrock. Bedrock was pierced by an oval, c. 0.70 wide hole, and the "bottleneck" continued over one meter down. This form helped to create underpressure in groundwater surfacing through the narrow opening. Horizontal corridors or fissures were found by the bottom of the shaft, leading sideways, presumably to underground water pockets.



SBH 38 and SBH 35: two Ubaid culture related settlements in As-Sabbiya

In 2009, our mission began regular excavations at a settlement site registered in the inventories of the Kuwaiti Department of Antiquities and Museums as SBH 38. The site is located in the middle of As-Sabbiya, in the sub-region of Bahra, approx. 8 km from the present coastline. It had been discovered by Mr. Sultan Ad-Duwaish during excavations of a nearby grave site conducted by a GCC expedition. At the foot of a low sandstone promontory stretching NW-SE, at a very slight, southerly slope, regular stone alignments could be seen in the sand. Numerous shells and potsherds were found in their vicinity. Some of the pottery fragments had a painted decoration easily recognizable as belonging to the Ubaid culture (6th–5th millennium BC). The stone features, stretching at a distance of c. 120 m, formed straight lines and subrectangular alignments, apparently remnants of orthogonal buildings.

A similar concentration of painted Ubaid potsherds had been also spotted nearby at the southern end of the same promontory, where we later discovered stone alignments similar to those at SBH 38. This other concentration of archaeological material – undoubtedly also a settlement site – was codenamed SBH 35. However, the distance between SBH 38 and 35 being so small (just about 120 m), it seems very probable that in we are dealing here fact with two parts of one site.

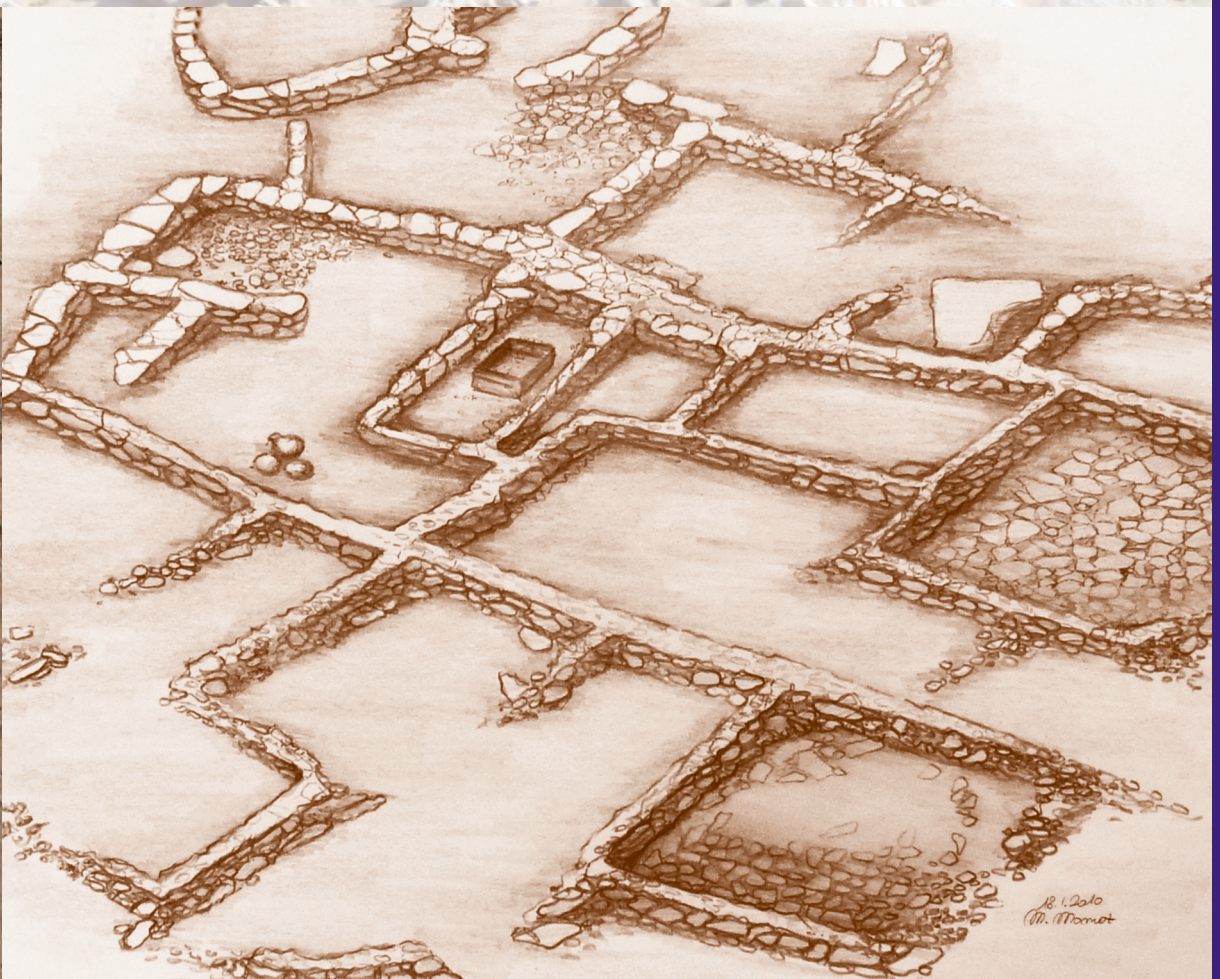
Kite view of House 1 remains



We began our research (still at SBH 38) with the seemingly somewhat unscientific activity of intensive sweeping the stone structures and their vicinity with hand brushes. This effort allowed us to get a better picture of the situation at a considerable area and to choose a spot for regular excavations. Our choice fell on the southern part of the site, where complete outlines of rooms were revealed under the sand cover. By carefully discerning between *in situ* stones belonging to walls and floors and those of stone tumble, we soon roughly established the boundaries of the building, which was designated as House 1.

This rectangular building, which still remains the object of our research, was inhabited for a long period of time; in the last stage of its usage it was approx. 11.50 m long and 8.50 m wide. Interestingly, its corners were quite accurately oriented according to the cardinal points. The south-eastern corner of the building has not been uncovered as yet, but the wall alignment clearly points to the place where it should be, if it had not been destroyed at some point in the past. House 1 consists of at least 13 rooms distributed in three, more or less regular, rows. South of House 1, visible fragments of walls suggest that at least two rooms had been build against the house's outer wall, most probably to enlarge it. The situation on the northern side of House 1 is more complicated: remains of four rooms and fragments of three others, arranged in two rows parallel to the main axis of House 1, point to the existence of another architectural unit similar in plan to House 1.

Isometric drawing of Bahra 1 remains



The two seasons of research that have taken place so far allow for a preliminary reconstruction of the history of House 1. We are sure now that the house was rebuilt several times and we can distinguish four stages in its history. The house reached its largest dimensions in the last stage, when rooms were added to it on the south-west. Although it is clear now that the interior of the house was subdivided into more and more small rooms with each rebuilding, the oldest stage is, for the time being, barely known.

The walls of House 1, or at least their lowest courses, were built of local sandstone, which naturally breaks into thin slabs that do not bear traces of intentional dressing. In many parts of the building the walls consisted of stones set vertically in two parallel rows, with smaller stones packed between the two stone faces. They may have been bonded with a mortar made of local, sandy clay. What the upper parts of the walls were made of, remains unknown. For the time being we assume they were made of smaller stones and clay. Some of the rooms had pavements made of irregular, flat stones. In one room the floor was made of cobbles, most probably originally covered by a layer of earth. The remaining rooms must have had earthen floors or their floors have not been preserved.

The rooms with the stone pavements are among the largest in House 1. Two of them measured approx. 3.50 x 3.25 m and were located symmetrically, in the eastern part of a younger stage of the building. A much larger room (6 x 3.25 m) was discovered in an older building stage of House 1, under one of the paved rooms. It was the largest room discovered so far in House 1. A small, rectangular podium of stone stood in the middle of the room. Its function has not been ascertained. Among other facilities of the house discovered in some of its rooms, there are round, stone hearths, shallow depressions in floors edged with stones and low platforms, also bordered with stones. On the floor of a room in the middle

House 1: the rooms with the stone pavements





Prof. Piotr Bieliński and Ms. Dorora Bielińska working on the Bahra 1 site (2009)

of the house, four large Ubaid vessels were found. They can be associated with the highest preserved floor level and are the best archaeological material for dating the last stage of House 1 history. Lack of preserved doorways between rooms in House 1 presents some difficulty for the reconstruction of internal communication inside the building. As for the entrance to the whole building, it seems to have been located in its south-western wall.

Apart from House 1 at SBH 38, we have also investigated the nearby SBH 35 site. Intensive cleaning of the surface of a rocky outcrop slightly above SBH 38, revealed outlines of roughly rectangular and circular stone structures. Their builders made an obvious effort to fit them to the undulating rock surface, in places actually using natural rock formations as part of their constructions. The rectangular rooms seem to have belonged to a residential compound (comprising at least four chambers) but the curved stone alignments may have been walls protecting the other structures from rainwater flowing downhill.

For the time being, the vital question of the chronology of the sites remains unresolved. They may have been either contemporary with each other, or belonged to successive settlement phases. In my opinion, the latter possibility is much less probable and we are therefore treating SBH 38 and 35 as parts of one settlement complex, which has been called Bahra 1.

In the subsurface layers and fill of House 1 and in the northern part of SBH 35, numerous artifacts were discovered, among which there were many pottery sherds, very few chipped stone tools and some flint or chert waste products, as well as a few examples of ground stone industry and a considerable number of shell objects. As for palaeoecological remains, shells of different mollusk species are by far the most numerous group, while animal bones are rather few and in a poor state of preservation. Pottery material remains the most important category of finds from an archaeological perspective. Although pottery from



Our team at work on the Bahra 1 site (2010)

Bahra 1 is discussed below in a separate chapter I must mention it also here to explain the importance of discoveries at this site.

The potsherds represent wares of two separate pottery traditions from the 6th millennium BC. One is a local Coarse Red Ware, known also from other Chalcolithic sites in the Gulf region. The other – a creamy and often painted ware – is typical of the Ubaid culture which formed in southern Mesopotamia in the 6th millennium BC. Afterwards it spread into the north of Mesopotamia, northern Syria and eastern Anatolia and to the south, including the coast of Kuwait.

Ubaid vessels from House 1 are not local copies, but genuine Mesopotamian products, brought to the As-Sabbiya desert as a luxury ware. They can be dated to Ubaid 2 and/or Ubaid 2/3 (phases of the Ubaid period). Examples of the same pottery types have been found at H3, another Kuwaiti site, located approx. 10 km to the south-east of Bahra 1. This coastal settlement was studied by a Kuwaiti-British expedition a few years ago; it to have been roughly contemporary with Bahra 1. However, the two sites differ in several vital aspects. Firstly, there is the size difference. SBH 38 alone is considerably larger than H3; upon extending the settlement's size to encompass also SBH 35, the difference becomes striking. Secondly, there are the subsistence strategies of the sites' populations. At H3, it was firmly sea-oriented, yet in the case of Bahra 1 the issue is less clear. Although the distance from Bahra 1 to the coast was much shorter than today, the natural conditions in As-Sabbiya cannot have changed much and must have been semiarid at best. Such a climate does not generate a particularly inviting environment for a permanently settled lifestyle even

if the problem of access to fresh water is not a problem. So what could have tempted the inhabitants of As-Sabbiya into settling in such a, less than welcoming, place? Thirdly, there is yet another difference between H3 and Bahra 1: the type of architecture. Most of the buildings at H3 were huts of irregular, subcircular shapes. At Bahra 1, the structures have roughly orthogonal plans. In the case of House 1, the layout is clearly reminiscent of typical tripartite plans of Ubaid-culture houses known from Mesopotamia and Syria. The presence of Ubaid pottery strengthens this connection. It seems we are dealing here with an attempt to adapt an architectonic concept created by a settled, agricultural population, using mud bricks as its main building material, to completely new conditions and technologies.

Bahra 1 is an extremely interesting object of research for an archaeologist, as it poses many difficult questions: who were the inhabitants of this settlement, what were their subsistence strategies, what was their relationship with the residents of H3 and other inhabitants of As-Sabbiya? Before further work allows us to answer any of them, we can already say that Bahra 1 is the largest prehistoric settlement discovered so far in Kuwait and the largest Ubaid-related settlement in the whole Gulf region. It is also the first site in the region where Ubaid-style architecture has been encountered. This discovery sheds new light on the character of intercultural relations between Mesopotamia and the Gulf region in the Chalcolithic period. With the site's importance in mind, KPAM's objectives at Bahra 1 include not only excavations but also conservation, partial restoration and preservation of the prehistoric relics as a vital monument of Kuwaiti cultural heritage.



Characteristic pottery with a distinctive, painted decoration is the most reliable factor for identifying the Ubaid culture which gave its name to one of the periods of Mesopotamian prehistory. Ubaid pottery spread from southern Mesopotamia, where its earliest examples have been found, to the larger part of the ancient Near East in the 6th and 5th millennia BC. Apart from Mesopotamia, vessels of the Ubaid tradition have been discovered at sites in northern Syria, eastern Anatolia and western Iran, but also in the Gulf area: present-day Kuwait, Saudi Arabia, Qatar, Bahrain and the United Arab Emirates.

Ubaid pottery, manufactured throughout two millennia, underwent in this time some changes, as far as both the form and the decoration of the vessels is concerned. Archaeologists have distinguished a few phases in the development of the pottery, from Ubaid 1 to Ubaid 4, later supplementing this division with two more phases – Ubaid 0 as the earliest and Ubaid 5 as the terminal one.

In the Ubaid period, pottery was manufactured by hand, without a fast potter's wheel (which was an invention of a later Uruk culture). In forming the vessels coiling, and slab building techniques were employed. In the later phases of the Ubaid culture, the potters used also a "slow potter's wheel" (tournette) which significantly sped up the production of vessels.

Among the most characteristic forms of the Ubaid pottery there are carinated bowls, spouted jars, delicate hemispherical bowls the walls of which are so thin that they are termed "egg-shell bowls", as well as deep bowls with flaring walls, tall beakers, various jars and curious forms, such as "tortoise vases" (lenticular vessels with high, cylindrical spouts) or "sauce-boats" (bowls with wing-like projection). Ubaid pottery is distinguished by its characteristic painted decoration of various geometrical patterns: triangles, rhomboids, zigzags, chequers and grids applied in darker paint onto lighter surfaces of vessels. In later phases of the Ubaid period (Ubaid 3–5), changes occurred that have been called an "evolution of simplicity", from a lavishly decorated style towards a simplicity of design. Also the surface covered with ornaments on individual vessels begins to shrink, while the decorated forms gradually give way to an undecorated variety. This increasing homogeneity and plainness are thought to have been brought about by the introduction of the tournette and by some social transformations.



Pottery from the Bahra 1 settlement falls into two categories; apart from Ubaid pottery, Coarse Red Ware (known also as Arabian Coarse Ware) is also represented at the site. The Ubaid pottery was imported from Mesopotamia, while the Coarse Red Ware was most probably locally manufactured in the Gulf region. Based on characteristic forms and decorative motifs, the pottery from the settlement can be dated to the Ubaid 2 and Ubaid 2/3 periods (that is to the last centuries of the 6th millennium BC).



The Ubaid pottery found at the Bahra 1 site represents different categories of vessels, varying in form, function and technological details

Pottery vessels served a wide range of functions; they were indispensable for cooking, eating and serving food, as well as in processing, storing and transporting all sorts of products. Apart from their practical uses, vessels may have played a symbolic role, becoming emblems of social status, manifestations of their owners' sex or profession. The vessels belong to the repertoire of a "material culture language", as means of communicating between individuals and groups. The characteristic ornaments or forms of the pots may have been "ID's" conveying their users' social, religious or tribal affiliations.

Most of the Ubaid pottery from the settlement can be considered luxury tableware, used for serving food. Of significance is the big number of bowls and plates. Cups and goblets, used for drinking, are also present, although less numerous. Less frequent are the so-called "closed" forms, such as jars and jugs.

The lavishly decorated plates and bowls may have been used by the settlement's inhabitants for serving food during festive gatherings or celebrations. During social acts of consumption (such as feasts, which played an important role in strengthening social ties) they may have been an essential element of display. As prestigious goods, the vessels may have also been important items in ceremonial gifts' exchange.



Painted decoration is a hallmark of the Ubaid pottery

Ubaid pottery has a decorated and a plain variety. Most of the vessels from Bahra 1 are painted and only a few examples carry incised or plastic decoration. In the painted ornaments geometrical motifs were used, such as triangles, ladders, wavy lines, hourglasses, zigzags and grids. These patterns were often set on the vessels in horizontal bands. Floral or zoomorphic patterns are a rarity. The paint – coloured from black, through different shades of brown to reddish, olive and purple-black – was set against a background of greenish, buff or pinkish surface of the vessels.

Triangles are a popular motif in the decoration of Ubaid pottery from the Bahra 1 site



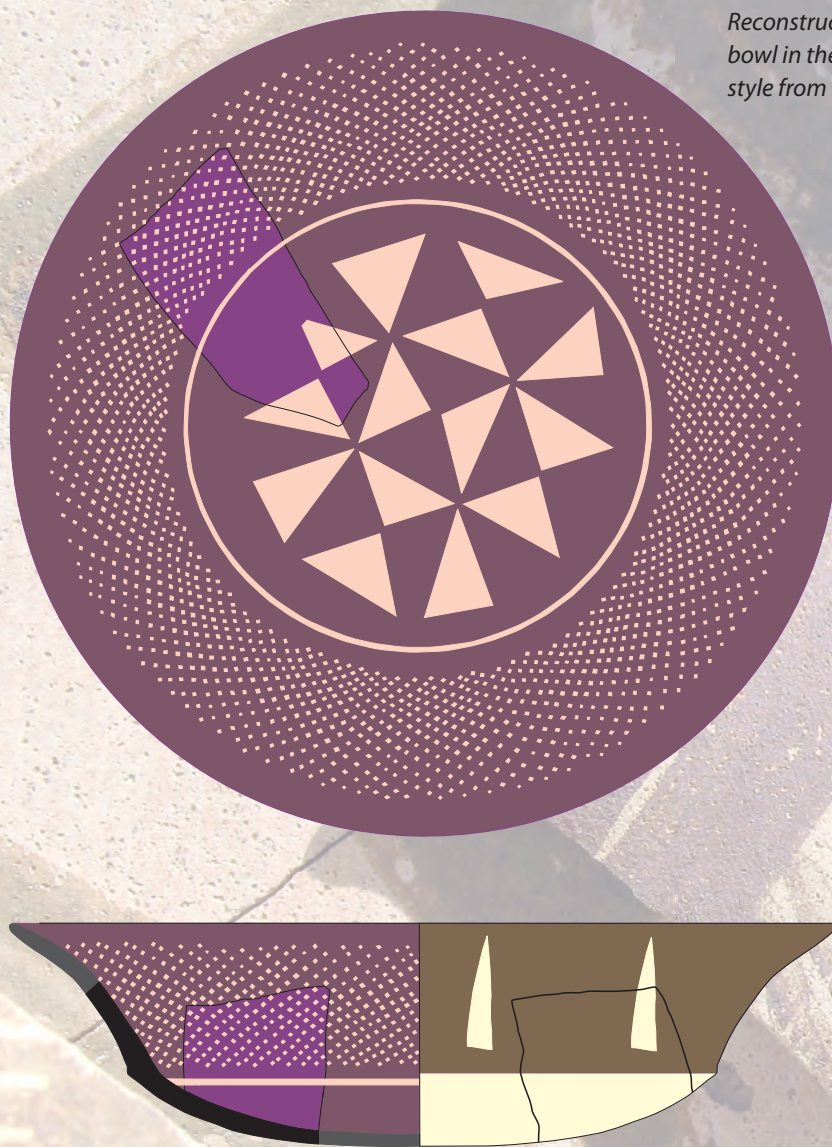
Apart from luxury tableware, the Bahra 1 settlement has also yielded big Ubaid vessels (common and coarse ware), which were usually undecorated and meant for everyday use. Among this kind of pottery there was a squarish vat and some big jars, approx. 50 cm high, with long necks and rounded bodies. They may have been used for storage and processing of various products.



The big jars were found in situ in one of the rooms of the excavated house



The jars were in a very bad state of preservation, crushed into lots of tiny pieces and their partial reconstruction was possible only thanks to the careful handling of a professional restorer



Reconstructed carinated bowl in the Hajji Muhammad style from Bahra 1

Carinated bowls with a characteristic, sharp bent of the vessels' walls are popular forms in the Ubaid pottery repertoire from Bahra 1. Many resemble vessels of the distinctive Hajji Muhammad style that can be found at such Mesopotamian sites as Hajji Muhammad, Eridu and Ras al-Amiya. This style is characterized by a reserve decoration; this means that almost the whole surface of the vessel is covered in paint, apart from the actual pattern which is left unpainted. Carinated bowls from the Bahra 1 settlement were richly decorated on the inside, usually with various compositions of triangles adorning the bowls' bottoms. The triangles are accompanied by the pattern of a dense, slanting grid, which leaves a delicate pattern of reserve squares on the inside of the bowls' walls. A more modest decoration was applied to the less visible, external surface of the bowls, although patterns, such as reserve triangles, appear on some of the vessels.



Among the Ubaid pottery from the settlement there are some outstanding forms, such as this oval vessel with a flat base, resembling the boat-type pottery. Its decoration in reserve consisted of bands with zigzags and “date-pit” patterns (the characteristic motif resembles date pits, which in fact have been found, for example, in Ubaid-period layers at Eridu). Apart from the paint, also an unusual technique of incises in reserve (sgraffito) was used to adorn the vessel with zigzags; this pattern was obtained by removing a layer of dark paint to reveal the light surface of the body. Zigzags in reserve are characteristic of the Hajji Muhammad style.

The imported Ubaid vessels were valuable, so if they broke, they were meticulously repaired. Holes were drilled in the potsherds and threaded with a piece of string or fiber to join the broken pieces.



Local pottery (the Coarse Red Ware) found at Bahra 1. These vessels are distinguished by their red, less often light-brownish or grayish, colour.

At the Bahra 1 site, "local" Coarse Red Ware makes for approx. 40% of the collected pottery. The "local" vessels are found along Ubaid pottery at many sites in the Gulf, mainly in its central region. At some of these sites, Coarse Red Ware amounts for up to 60-70% of the pottery. The clay used for the ceramic paste of the vessels was tempered with chaff, sand and other inclusions. The vessels were fired at low temperatures, probably in bonfires. This resulted in a grey core, visible in the sherds' breaks and made the ware soft and brittle. Forms characteristic for Bahra 1 settlement are shallow bowls, high, straight-walled goblets as well as pots with lug handles. The Coarse Red Ware served practical ends – the lugged pots were used for cooking and the goblets and cups – as drinking vessels. In the case of the Coarse Red Ware, we are not dealing with any kind of standardized or centralized production. Many of the "local" wares could have been domestic products manufactured at and for individual households.



Local Coarse Red Ware cooking vessels were often equipped with plug-in lugs, handy for placing the vessel in a hearth and in taking it off again

Coarse Red Ware vessels were handmade, in the coiling or slab building techniques. In many cases, at the outer surface of their bottom, an impression of the matt upon which the vessel stood while forming, is visible.

Ceramic vessels are an important source of information on the lives of ancient societies. They are used for dating, reconstructing trade relations and many other economical or social factors. Changes in the form of vessels or in their decoration are useful for establishing chronology, foremost of prehistorical periods. Vessels were often transported at long distances, as objects of trade or exchange, or as containers for other traded goods. This is why pottery is such a great tool for reconstructing ancient trade routes and tracing cultural and economical relations between various societies. A great example is the pottery from the Bahra 1 site, as it was an important element of exchange between the peoples inhabiting the Gulf region and their Mesopotamian neighbours in the 6th and 5th millennia BC.

The first two seasons of excavations at the Bahra 1 settlement site yielded quite a sizeable number of small objects made of locally available materials. However, the range of the types of these objects is rather narrow. Clay objects are most numerous, followed by shell beads and pendants, stone tools and chipped stone weapons. All these finds are characteristic of the material culture of the Ubaid period and have been encountered at sites from this period both in Mesopotamia and in the vicinity of Bahra 1, at H3. Despite the objects' popularity, the function of some is either completely unknown or very dubious.

Clay objects: personal ornaments or articles of daily use?

An interesting group of small finds consists of small clay objects, such as conical "pegs" and "flanged discs", either formed as flat cylinders or round shields with a short, cylindrical pivot, resembling small lids with handles. Some of them are made of the local Red Coarse Ware, but there are also pieces made of buff, finely levigated clay, neatly smoothed and well fired. This latter kind may have been imported from Mesopotamia. The question of these objects' function still remains unanswered. According to one interpretation, they are supposed to have been used as grinders, according to another – perhaps more plausible – they were body ornaments, used as so-called labrets, known from ethnographic observations, for the decoration of lips, ears, nostrils or cheeks.



Collection of conical "pegs" and "flanged discs"

The most numerous group, which includes 26 complete and 69 fragmentarily preserved objects, contains small rings shaped as truncated cones. They vary greatly in size, with diameters ranging from 0.80 to 4 cm and heights from 0.40 to 1.20 cm. A vast majority of the rings is made of local Red Coarse Ware, with its characteristic, poorly fired, reddish clay. The interpretation of these objects is also uncertain. Similar small, conical rings, abundant at other Ubaid sites, are identified as spindle whorls for weighing down a wooden spindle used in weaving. Spindle whorls act as fly-wheels adding momentum to a spinning spindle and at the same time they prevent the yarn from slipping off it. Yet, in the case of most of the truncated cone rings from Bahra 1 such an interpretation seems doubtful, for instance because of the perforations' conical, rather than cylindrical, sections and the wide differences in their diameters, as well as the small weight of most of the rings. Perhaps they should rather be considered ornaments of some kind, for example sewn onto garments or braided in the hair.



Collection of conical pottery rings

Pottery discs with a hole drilled in the middle are yet another type of small finds. They were made by chipping potsherds of well-fired ceramics of Mesopotamian origin. The uneven edges resulting from the chipping are clearly visible in some of them, yet in others they were carefully smoothed. What these discs were used for, is yet another mystery. They may have had a decorative function, like beads, but it is also possible that the larger discs with smoothed edges were used as spindle whorls. A single clay spindle whorl, shaped as a mushroom cap and decorated with narrow, rectangular impressions of a flat stick, was found over a stone pavement in one of the rooms of House 1. The green hue of its well-fired clay indicates that it may have been imported from Mesopotamia. Spindle whorls attest to weaving – a women’s craft, as demonstrated by the finds of spindle whorls in women’s graves across many cultures.



Collection of drilled ceramic discs



Ceramic "ice cream cone"

An interesting object – a small cup on a solid, conical stem, resembling an ice cream cone (also dubbed a “golf-tee”) – was found in one of the rooms of House 1. It was made of Red Coarse Ware, which indicates its local manufacture. This type of artefact (sometimes decorated with painted stripes) is typical for Ubaid-period sites and has been found in Mesopotamia, e.g. in Ur in the south and Abada in the Hamrin region, as well as in the Gulf region, e.g. at the H3 site. The function of such objects is still a riddle.



A decorated clay spindle whorl

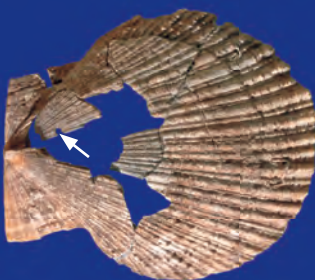
Shell and stone artefacts

Collection of shell beads and sequins



Shells of sea mollusks, that were, for the greater part, collected for food, provided also a raw material for the production of various ornaments. Shells of such species as *Conomurex persicus* and bi-colored *Spondylus marisrubri* (spiny oyster) was most often used for this purpose along with the mother-of-pearl from *Pinctada margaritifera* inner shell layer. The shells were chipped, cut, polished and drilled through to obtain small and large ring beads, disc beads pierced with one hole, elongated barrel-shaped plaques with two holes or tubular beads. Also whole shells could be adapted as beads: they were perforated by rubbing, so that they could be strung and worn as a pendant or a bracelet.

Unfinished, or rather failed, tubular beads made up quite a numerous group (82 examples of different stages of production) which shows how difficult they were to make. They were made of trimmed sections of apex slices of *Conomurex persicus* shells. By analysing these waste products, we can recreate the different stages of these attractive beads' production: straightening the sides of shell fragments by grinding their surface (1); making the shorter sides of the bead smooth (2); drilling a hole through the long axis of the bead (3); further grinding of the bead to achieve a cylindrical shape (4); smoothing and polishing the final surface (5).



This eye-catching shell of the Pectinidae family served as a pendant, as attested by a small hole drilled in its upper part

Collection of ground stone tools



Among the stone objects from the Bahra 1 site, there is a large collection of natural stones, usually flat pebbles, with traces of usage, such as abraded or polished edges. They were used for grinding and polishing surfaces of, for instance, shell beads. Also larger stones, mainly of white quartz, were used as tools. They have chipped edges, which shows they must have served as hammers. Two small stones, naturally shaped as spheres, with diameters of 3.40 and 5.50 cm respectively were also picked up. Their function remains uncertain, yet they may have been bolas balls used for hunting. Similar natural stone balls of much smaller size (1.45 to 1.70 cm in diameter) found at the H3 site were tentatively interpreted as tokens by their discoverers.

Although many flakes and other flint and chert debitage were found in the fill of rooms of House 1 and on their floors, there is a surprising lack of discarded cores and a real paucity of chipped stone tools (despite all spoil being sieved). Among the rare finds was a quartz blade with very fine retouche along one side and two flint or chert bifacial arrow points retouched on both surfaces, one only tanged the other one barbed and tanged. These artefacts may have been of local production and their manner of execution would explain the large number of minute flakes among the finds. A beautiful c. 10 cm long, retouched blade is a different matter. As neither large flakes nor chips have been found so far at the site, this tool seems to have been imported, perhaps – as the luxury painted vessels – from Mesopotamia. A non-local origin is certain in the case of a small, just c. 2 cm long, obsidian chip.



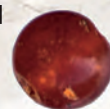
*Collection of
chipped stone
tools and
weapons*

The general program of scientific research of the Joint Kuwaiti-Polish Archaeological Mission consists of several independent, yet complementary, archaeological projects commenced during previous campaigns in the As-Sabbiya region. They include the exploration and studying of a remarkable Ubaid-period settlement site, Bahra 1, investigations of tumuli graves and other stone structures in the As-Sabbiya plateau, investigations of well sites and an archaeological prospection in the vicinity of the excavated zone. Our intension is to continue all these research projects during the upcoming campaigns. Apart from these ventures, several supplementary and relevant projects aiming at examining the material culture and archaeological remains of Northern Kuwait in their different respects will be undertaken in the nearest future.



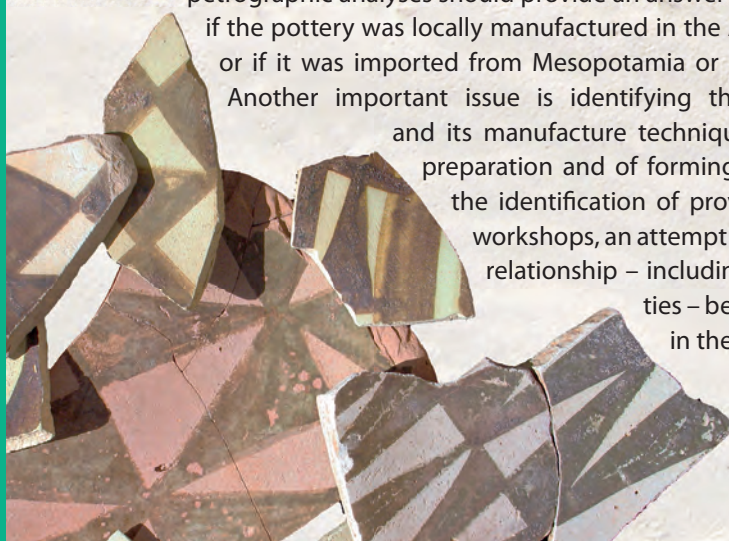
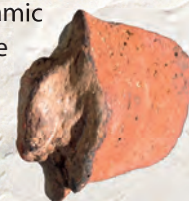
Geomorphological and geological investigations

What we would like to learn from the geomorphological and geological investigations, are factors substantial for the reconstruction of ancient life modes at the Ubaid-period sites discovered in the region. The key questions are centered around the paleoclimate's change during the Holocene period. The possibility for farming could be evidenced by the presence of Holocene humid-climate soils. Tracing changes of relative sea level and former shoreline during the time of existence of the Ubaid settlements and establishing freshwater sources (springs or wells) available for ancient communities might resolve questions regarding the subsistence mode and possibility of animal husbandry at the sites. Checking the availability of sources of clay needed for manufacturing pottery, may help to verify the provenance of the "local" and "imported" pottery wares.



Local and imported pottery from the site Bahra 1 as evidence for cultural interactions in the Gulf area in the Ubaid period (6th–5th millennium BC)

An archaeological analysis along with laboratory studies of the ceramic material are to enable the achievement of several goals. One of the most important is establishing the provenance of the pottery found at the settlement site Bahra 1, which yielded two main categories of pottery: Ubaid and co-called local (or Red Coarse Ware). Chemical and petrographic analyses should provide an answer to the question if the pottery was locally manufactured in the As-Sabbiya region or if it was imported from Mesopotamia or other centers in the Gulf region. Another important issue is identifying the pottery's production centers and its manufacture techniques, along with methods of clay preparation and of forming and firing the vessels. Through the identification of provenance and location of pottery workshops, an attempt will be made at characterizing the relationship – including trade, economical and cultural ties – between Mesopotamia and the Gulf in the Ubaid period.



Anthropological investigations

In order to get more specific evidence *regarding* the nature of the ancient population that inhabited the land of Kuwait, the anthropological examination of skeletal remains will be continued. Supporting it with biochemical methods may be helpful in determining the ancient diet and subsistence strategies of individuals buried in the graves. This might answer a key question regarding their mode of life: were they nomads, farmers or fishermen.



Archaeological prospection

The archaeological survey within the plateau of As-Sabbiya, around the zone where excavated sites are localized will be continued. We generally aim to make a territorial survey of the eastern As-Sabbiya region to join several areas, explored separately up till now, into one large zone under archaeological prospection. The main aim is to create an archaeological map of the region. As a supplement for current excavations, we intent to conduct a precise and methodical mapping of further structures, for quantitative analyses which will enable a study of their distribution and relations between different types of archaeological sites and stone features. In far-reaching plans, our intension is to extend the prospection to the interior of Northern Kuwait. The objective of the reconnaissance is to look for some archaeological remnants that could indicate a link between Kuwait and Mesopotamia, for instance further settlements, burial mounds or wells on an assumed caravan route, as well as sites that might be considered as southernmost Mesopotamian outposts.

Failaka – Qusur, a mediaeval settlement

Excavations at Qusur a medieval settlement at the Failaka Island is a new leg of the KPAM activities, which is planned to begin in the fall of 2011. The object of the project is the study of the north-eastern part of the Qusur site, comprising nine archaeological features registered on the surface.

Among the principal aims of the investigations are analyses of spatial organization within the early mediaeval settlement based on the results of the investigations and defining the spatial organization of the Qusur settlement as a possible reflection of social structure. This should enable an attempt on a reconstruction of mediaeval, pre-Islamic societies' daily life and at defining the Qusur settlement's society in comparison to other Near Eastern societies of this period.

Plateau of As-Sabbiya in the Bahra region. In the middle – archaeological team exploring tumulus SB 65.



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The Team (Plans for the future & Album of members)

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As-Sabbiya

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