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Walk the line: the 2020 field season of the Al-Mudhaybi Regional Survey

Stephanie Döpper

Summary
The Al-Mudhaybi Regional Survey seeks to produce a detailed and comprehensive knowledge of the landscape of the Al-Mudhaybi region in Central Oman. This paper presents the results of the 2020 field season, in which transects throughout the survey area were field-walked. The transects were equally spaced, at 4 km distance from each other, and ran north to south. Each transect was walked by a team of four, recording all surface finds with a hand-held GPS device. This method helped to identify more ephemeral structures, such as find scatters, thus providing statistically relevant data on site and artefact density in the region and, ultimately, on the settlement pattern and its diachronic development. At the southern end of the first transect completed in 2020, an Iron Age settlement was recorded near Sinaw. Additionally, this paper discusses small excavations carried out at three sites — Al-Batha, Mukhtru, and Al-Fath — which were conducted to provide a more precise chronology for them by radiocarbon dating. While radiocarbon dates on charcoal from the Mukhtru settlement site fall well into the Umm an-Nar period (2450–2050 BC), radiocarbon dates and pottery sherds from the presumably third-millennium BC tower at Al-Fath clearly indicate a reuse in the middle and late Islamic periods.

Keywords: survey, transects, Central Oman, find scatters, landscape archaeology

Introduction

The Al-Mudhaybi Regional Survey seeks to provide insights into the settlement pattern and diachronic development of a *c.*930 km² region near the modern city of Al-Mudhaybi in the Al-Sharqiyah North Governorate (Fig. 1) and thus into the causes of significant social changes that occurred in Central Oman, especially during the Bronze Age. In the first of three planned field seasons in 2019, ground-truthing of archaeological structures identified by remote sensing based on satellite images from Google and Bing Maps was carried out, resulting in 3955 identified archaeological sites in the survey area (Döpper & Schmidt 2020). Most of these structures were tombs, many of them dating to the Hafit period. Non-funerary constructions were very rare and settlement sites, aside from Al-Batha discussed below, could only be identified for the (late) Islamic period during the remote sensing and associated ground-truthing. The very low number of Umm an-Nar period remains — just a handful of tombs of this period were identified in the survey area — is also remarkable, given the high concentration of Umm an-Nar structures at Al-Khashbah, situated in the north-west of the survey area, but excluded from this survey due to the intensive works that have been previously carried out at the site (Schmidt et al. 2021), and the prevalence of this period in other surveys conducted in Central Oman (Al-Jahwari 2008). To overcome this bias towards more visible funerary structures caused by the research method, the second and third field seasons are devoted to systematic, intensive field-walking transects.

Methodology

The central part of the Al-Mudhaybi Regional Survey is an intensive, systematic field-walking survey, which started in the second field season in 2020. This type of survey differs significantly from more traditional ones in that it does not focus on previously identified and anticipated sites but on the supposedly empty areas in between (Banning 1986: 25–31; Haupt 2012: 34). It is the only method to identify small, ephemeral sites and artefact scatters (Foley 1980; Cherry 1983; Ebert 1992; Alcock & Cherry 2004; Bintliff, Howard & Snodgrass 2007). The aim of the systematic survey is to collect statistically relevant data on site and artefact density in the region and, ultimately, on the settlement pattern

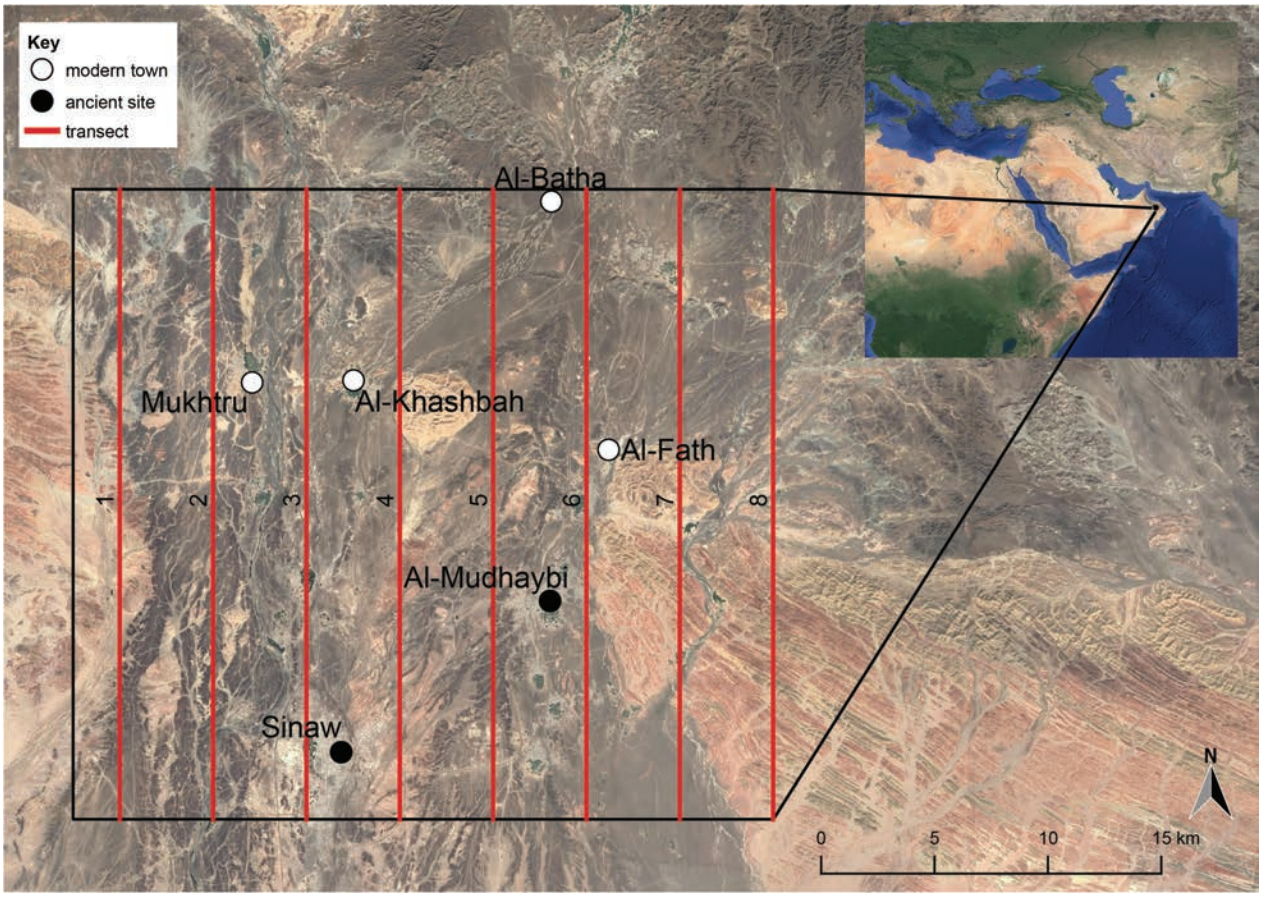

Figure 1. *The survey area of the Al-Mudhaybi Regional Survey and the position of the transects.*

and its diachronic development. For this purpose, eight evenly spaced (4 km) north–south transects were placed in the 930 km² survey area to be field-walked for their full length from north to south (see Fig. 1). Field-walking was completed in teams of four, with individuals spaced 2 m apart to ensure complete visual coverage of the area. This resulted in an 8 m width of the transect. All surface finds were collected and their position recorded with a hand-held GPS (Garmin eTrex10). Additionally, small-scale excavations were carried out in the 2020 field season to gain material for more secure dating based on radiocarbon dates of the sites of Al-Batha, Al-Fath, and Mukhtru (see Fig. 1).

Results of the 2020 field season

Field-walking transects

In the 2020 field season, which had to be shortened due to the Covid pandemic, only transect 3 was completely field-walked. For most of its length, the majority of finds were late Islamic pottery sherds, and to a much lesser extent, lithic artefacts. At its southern end, near the modern city of Sinaw, however, a total of 8700 Iron Age pottery sherds were documented, together with some furnace or crucible fragments, metal scraps, seashells, lithic tools, and pieces of personal adornment on the 8 m-wide transect (Fig. 2). These finds indicate the presence of an Iron Age settlement, the existence of which was previously known to the Ministry of Heritage and Tourism but which was not further investigated.

The site comprises a row of at least six small mounds, where only a few remains of stone walls were visible on the surface. The hills nevertheless indicate some depth of accumulation. Stone walls with potential mud-brick upper structures fit with what has been found at other Iron Age settlements in the region, such as Maysar M-42 (Weisgerber 1981: 223–224; Schreiber 1998: 67–100), and the Iron Age hill fort on Jebel Radhania at Lizq in the north-east of the survey area. Excavations were conducted at Lizq in 1981 by Stephan Kroll from the German Mining Museum Bochum, but no associated domestic architecture could be identified (Kroll & Yule 2013). The pottery from Lizq is similar to the surface finds from Sinaw, mainly comprising large storage jars, many of them with incised or comb-incised decoration on the shoulder, some painted. On the hills west of the Iron Age settlement, which separates the site from nearby Wādī Andam, at least thirty-seven tombs with Iron Age finds were recorded in the 2019 field season (Fig. 2, yellow dots; Fig. 3). The tombs are circular, above-ground constructions and are likely to be reused Hafit-period tombs. The association of the settlement with a nearby cemetery on the adjacent hills is very similar to what has been found at Maysar M-42 with the cemetery M-36 (Weisgerber 1981: 178, 223–225).

Excavations at Al-Batha

Al-Batha, situated *c.*6 km north-west of Lizq, was discovered during remote sensing and subsequent ground proofing in 2019 (Döpper & Schmidt 2020: 160). It consists of twelve separate structures, loosely scattered on a small, elongated elevation within a wadi. There are at least ten stone structures, semi-circular to circular/

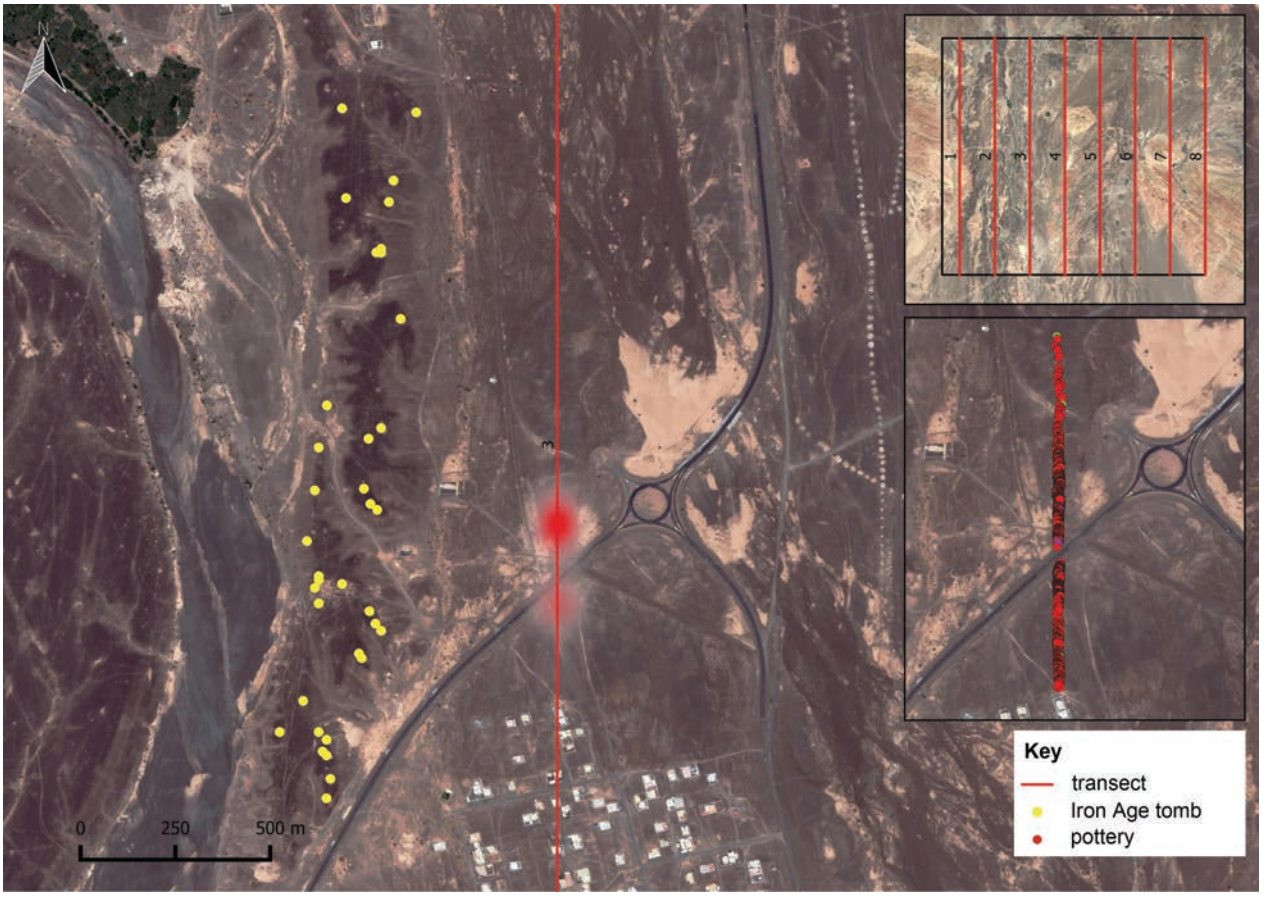

Figure 2. *An Iron Age settlement near Sinaw at the southern end of transect 3.*

Figure 3. *Tomb MDH-1215 with Iron Age finds near Sinaw.*

oval and built of pebbles, in addition to arrangements of small single stones (Fig. 4). As the layout and distribution of the structures are reminiscent of the Neolithic sites of Jebel al-'Aluya near Adam (Lemée et al. 2013) and Lizq 2, situated about 2.5 km south-east of Lizq (Weisgerber 1981: 252–258), dating to the fifth and fourth millennia BC respectively, a date in the Neolithic has been suggested for Al-Batha. To test this idea, small-scale excavations were conducted at three of these structures in 2020 — MDH-1333, MDH-1336, and MDH-4951 — in order to obtain datable material. MDH-1333 consists of two adjacent oval stone structures with external diameters of *c.*2.3 to 3.2 m, built of one to two layers of grey to brownish pebbles. Several groups of smaller stone arrangements are present to the north and north-east of it. After a few centimetres of excavating wind-blown, loamy soil, the natural bedrock was reached without any archaeological material being found. Similar shallow accumulations were observed in the other two excavated structures, also resulting in no finds. Thus, the date of the structures is still indeterminable. MDH-1336 is an oval stone structure 50 m to the north-east of MDH-1333 (Fig. 5). It measures 3.8 by 1.8 m and is built of one layer of gabbro pebbles. The structure is associated with five smaller stone arrangements, possibly fireplaces. MDH-4951, a semi-circular stone structure measuring 2.9 by 2.0 m, is located 50 m north of MDH-1333 and 40 m north-west of MDH-1336. To its south-east, there are five smaller stone arrangements placed in an almost square shape with one of the stone arrangements in its centre. OSL dating is planned here for the upcoming field season.

Excavations at Al-Fath

The tower at Al-Fath was first reported by Gerd Weisgerber in 1981 (1981: 180) and is situated in the eastern foothills at the edge of Wādī Samad, 500 m north of the modern oasis of Al-Fath (see Fig. 1). On that hill, thirty-seven Hafit-period tombs were identified during the 2019 remote sensing. A group of seven further tombs is located 750 m to the north of the tomb in the plain. The Al-Fath tower has a diameter of 22 m and is built of large, light-coloured limestone blocks. An intensive field-walking survey with a total collection of surface finds was conducted in 2019 in an area of 45 by 50 m, encompassing the tower and encountering no pottery sherds from the Umm an-Nar period, only late Islamic material. A date within the Hafit period was therefore suggested. A total of 147 sherds were collected from the survey, among them sixty-seven diagnostic pieces. Fine mineral tempered pottery (ware 11) accounts for 11.6% of the sherds, semi-coarse mineral tempered ware (ware 13) for 32.0%, and coarse mineral tempered

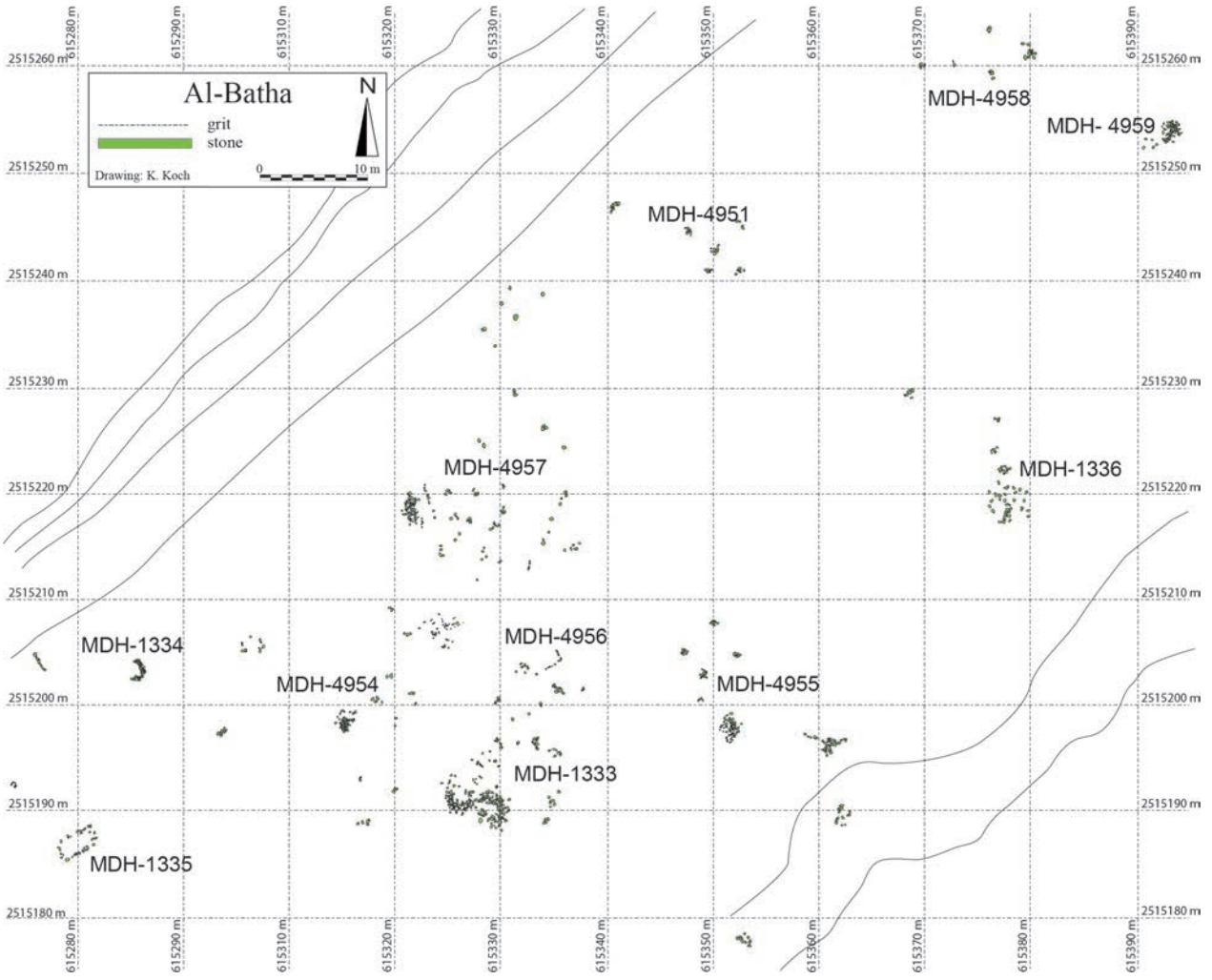

Figure 4. *An overview of stone structures at Al-Batha.*

ware (ware 30) for 44.9%; 6.1% is Bahla ware (wares 62 and 63). Bahla Ware is commonly encountered at all late Islamic sites in Oman and dates between the sixteenth and twentieth centuries AD (Živković et al. 2019). Chaff-tempered wares (wares 40 and 41) play only a minor role. Interestingly, comb-incised pottery from globular water jars (Power 2015: 5; Lancaster & Lancaster 2010: 202), very common at other late Islamic sites in the region, is missing from the assemblage. The small-scale excavations carried out in 2020 focused on a 9 m-long and 2 m-wide trench at the tower's southern side, encompassing its interior as well as its exterior (Fig. 6). Outside the tower, nearly 3 m of accumulation was encountered before reaching natural sediments. The external ring wall of the tower was preserved to a height of 2.7 m, corresponding to seven layers of limestone blocks, and set into a foundation trench (Fig. 7). The accumulations outside the tower consist — for the upper 60–80 cm — of fine, soft, beige-coloured clay soil with some gravel and stone inclusions. Below, for the next 50 cm, the material was somewhat coarser and inclusion of black gravel increased. The deposits above the archaeologically sterile sediment, which also filled the foundation trench of the external ring wall, were made of a crumbly, light-brown clay soil, again with inclusion of black gravel. In the upper parts, late Islamic pottery sherds were found alongside four coins dating to the eighteenth century AD. Two radiocarbon dates

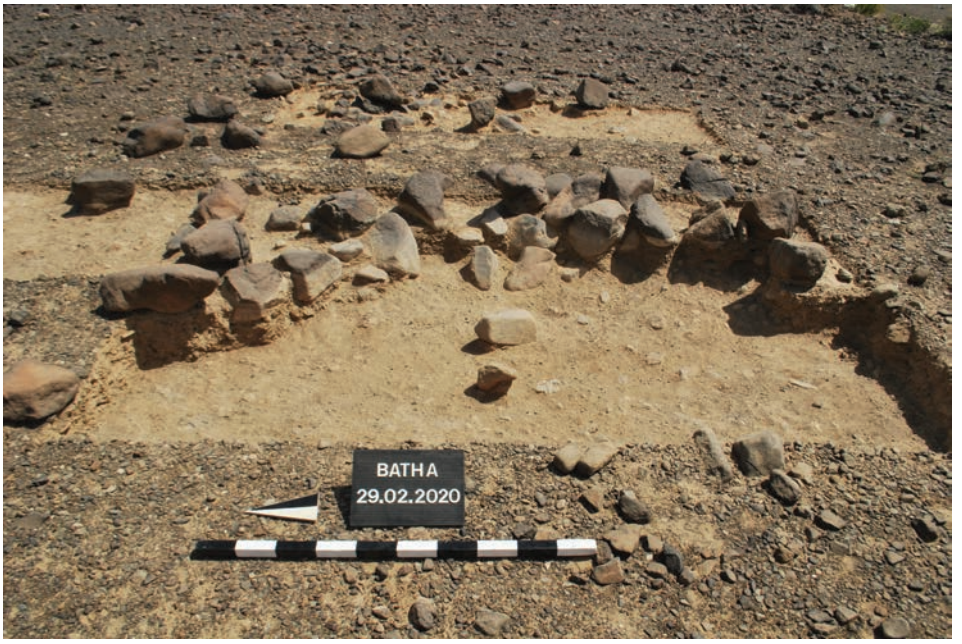

Figure 5. *Structure MDH-1336 at Al-Batha.*

Figure 6. *Excavations at Al-Fath.*

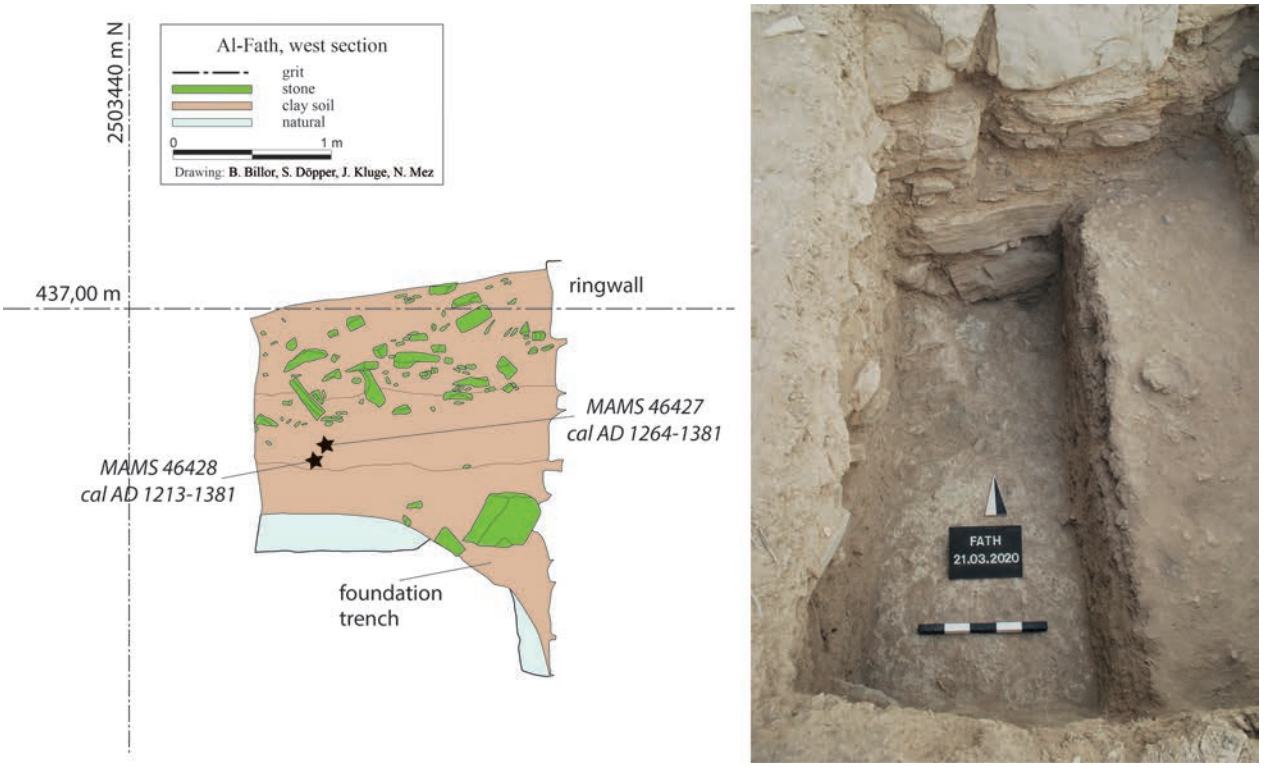

Figure 7. *The western section of excavated trenches at Al-Fath. The ring wall of the tower with its foundation trench is visible at the northern end of the section.*

on charcoal from the second lowest level of the outside of the tower and one from the inside of it fall into the middle Islamic period, between 1200 and 1400 AD (see Fig. 10). No organic material was present in the lowest level, but as no Umm an-Nar-period pottery sherds were encountered throughout the excavations, a Hafit-period date for the construction of the tower with reuse both in the middle and late Islamic periods is the most likely. In this respect, it is interesting that the abandoned late Islamic mud-brick village of Al-Malah is situated less than 800 m south of the tower. To this settlement belongs an extensive field system, which is still partly in use today.

Excavations at Mukhtru

During the 2019 field season, two Wadi Suq period cemeteries were discovered at Mukhtru, probably originally belonging to one now separated by the modern oasis (Döpper & Schmidt 2020: 164). The northern part consists of at least eighty-five tombs, the southern one of 195. These are all individual tombs with oval or rectangular subterranean burial chambers and one or more above-ground stone ring walls surrounding the top course of the cist wall. These walls are packed with soil, small stones, and other materials, corresponding to Righetti's type IS1b (Righetti 2015: 131–132) and Carter's type 2 (Carter 1997: 33–35), the typical Wadi Suq-period burial type for Central Oman. However, a closer look at the surface finds documented during ground-truthing revealed large quantities of Umm an-Nar pottery sherds. A closer investigation of the site was therefore carried out in 2020. First, intensive field-walking was conducted in a selected area of the site measuring 75 by 80 m, resulting in the discovery of more than 9500 Umm an-Nar pottery sherds (Fig. 8, red dots), 354 flint artefacts (Fig. 8, green dots), and 40 furnace or crucible fragments (Fig. 8, brown dots), as well as seashells (Fig. 8, pink dots) and pieces of personal adornment (Fig. 8, yellow dots). The amount of Umm an-Nar pottery sherds outnumbers by far what was found during Al-Jahwari's survey in the Wādī Andam region (Al-Jahwari

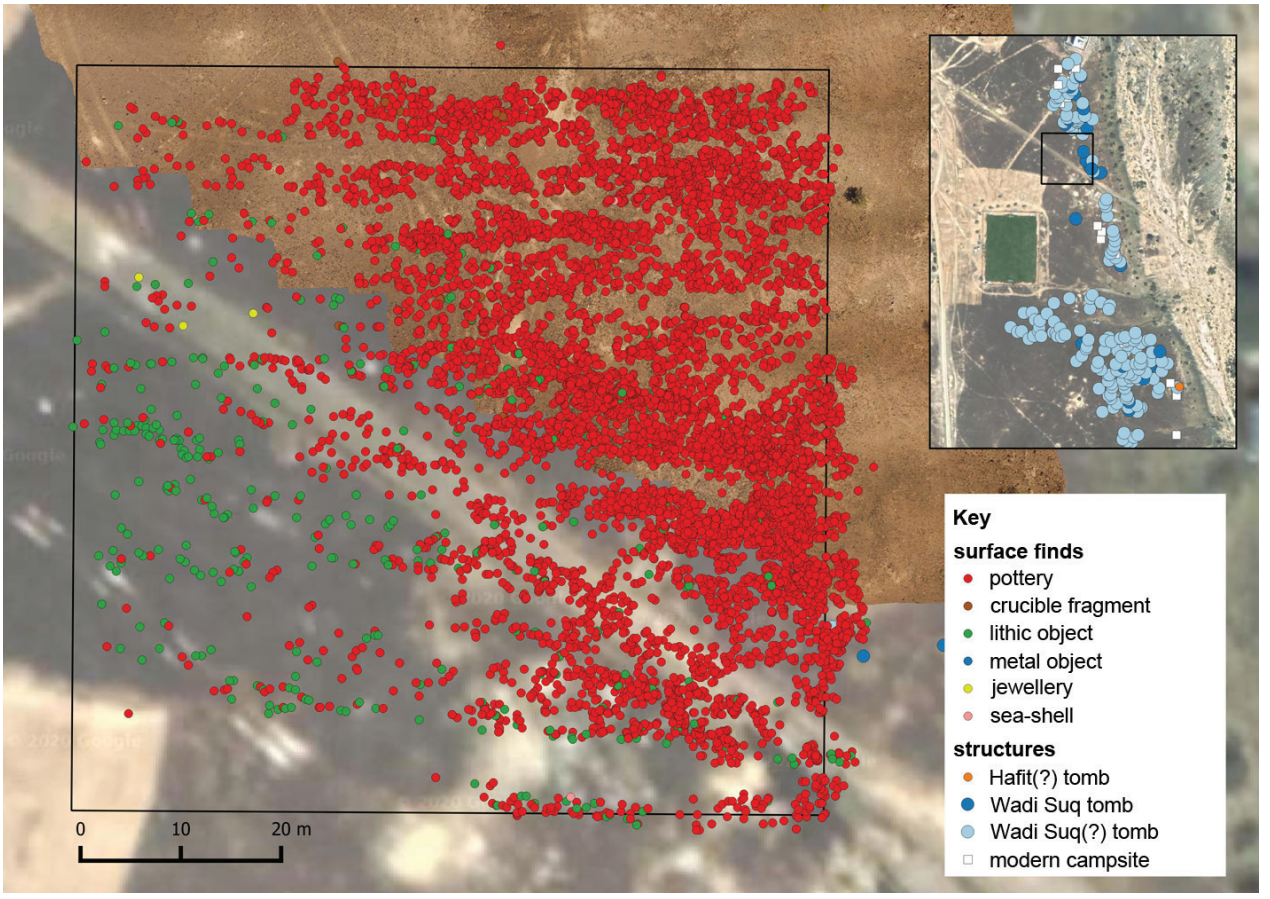

Figure 8. *Distribution of finds at Mukhtru.*

2008: 679 table I.2), despite the small size of the area field-walked at Mukhtru.[1] This might be due to different survey methods and the intensity of the investigation (2008: 108–111), but with the exception of Al-Khashbah (CS.5), Umm an-Nar-period pottery made up no more than 2.6 % of all pottery collected in a single pottery collection area during the Wādī Andam survey (2008: 126: table 21). To explain these differences, Al-Jahwari (2008: 163–170) suggests that Al-Khashbah represents a major site with monumental towers and a high density of Umm an-Nar pottery sherds, while those with only a few sherds hint at a short occupation or temporary campsites. Additionally, Al-Jahwari (2008: 167–168) identifies Al-Rawdhah (CS.9) as a small Umm an-Nar village, as here more pottery has been found as well as possible remains of mud-brick architecture. Mukhtru could be a similar kind of site, as several rectilinear structures were visible from the digital surface model from Mukhtru, hinting at the presence of Umm an-Nar-period domestic architecture. The subsistence and degree of mobility of the Umm an-Nar community of Mukhtru is, however, still to be determined. Small-scale excavations were conducted at Mukhtru in two trenches during the 2020 field season. Trench 1 encompasses the corner of a room, whose double-sided wall reaches a width of 0.60 to 0.75 m and is built of small gabbro pebbles, measuring between 20 x 15 x 10 cm and 30 x 26 x 18 cm (Fig. 9, left). Two to three courses of stones were

[1] Twenty-eight Umm an-Nar pottery sherds from Al-Fulayj (CS.1), fifteen Umm an-Nar pottery sherds from Al-Khurais (CS.3), two Umm an-Nar pottery sherds from Al-Qaryatain (CS.4), 244 Umm an-Nar pottery sherds from Al-Khashbah (CS.5), and three Umm an-Nar pottery sherds from Al-Rawdhah (CS.9) collected by Al-Jahwari (2008: 679 table I.2).

Figure 9. *A stone wall (left) and fireplaces (right) from trench 1 at Mukhtru.*

Lab code	^{14}C age	±	cal 2-sigma	material
MAMS46424	3818	22	2395–2148 BC	charcoal
MAMS46425	3808	58	2460–2047 BC	charcoal
MAMS46426	3848	22	2454–2204 BC	charcoal
MAMS46427	705	25	AD 1269–1383	charcoal
MAMS46428	789	25	AD 1221–1276	charcoal
MAMS46429	659	25	AD 1282–1392	charcoal

Figure 10. *Radiocarbon dates from Al-Fath (MAMS46427–46429) and Mukhtru (MAMS46424–46426). Calibrated with OxCal v4.4.4.; atmospheric data from Reimer et al. 2020.*

preserved, reaching a height of 0.35 m. In the southern end of this trench, two fireplaces were found (Fig. 9, right), which produced radiocarbon dates on charcoal of between 2450 and 2050 BC (see Fig. 10). Trench 2, located 9 m to the east of trench 1, yielded another stone wall, similar in construction to that found in the other trench. Besides Al-Khashbah, Mukhtru is the only known Umm an-Nar-period settlement in the survey area, reinforcing the impression of a concentrated Umm an-Nar-period presence (see Fig. 1). The relationship between Mukhtru and Al-Khashbah is not yet clear; the distance from the domestic structures excavated at Mukhtru to the closest known Umm an-Nar-period tower at Al-Khashbah is approximately 3.5 km. Additionally, the two sites are separated from each other by the deep Wādī Andam.

Discussion and outlook

The second field season of the Al-Mudhaybi Regional Survey clearly demonstrates the different outcomes of field-walking transects compared to remote sensing combined with ground-proofing, which was conducted during the first field season in 2019. During remote sensing, only larger-built structures, mainly tombs, were found whereas by field-walking transects, it was possible to discover find scatters indicating settlement activities. Remote sensing in 2019 led to the identification of numerous Hafit- and Wadi Suq-period tombs, while settlement remains were restricted to the, so far, undated site of Al-Batha and (late) Islamic mud-brick houses, in addition to the third-millennium BC tower at Al-Fath and the Iron Age fort at Lizq — both known from previous surveys in the region and not visible in remote sensing — as well as the numerous third-millennium BC structures at Al-Khashbah. Field-walking the first transect and documenting the Iron Age settlement near Sinaw resolved the puzzling absence of Iron Age settlements in the survey area, a period during which settlements drastically increased in other regions of the Oman peninsula. Thus it is hoped that completing the transects in the coming field seasons will further balance the current mismatch between funerary and non-funerary sites, offer more information on currently under-represented periods such as the Late Bronze Age, Samad, and early and middle Islamic periods, as well as generally provide new insights into the settlement pattern and its development in the survey area.

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Author's address

Stephanie Döpper, Institute for Archaeological Sciences, Department of Near Eastern and Classical Archaeology, Johann Wolfgang Goethe University Frankfurt am Main, Norbert-Wollheim-Platz 1, 60323 Frankfurt am Main, Germany.
e-mail doepper@em.uni-frankfurt.de