Hausleiter, Arnulf – Dinies, Michèle – Bouchaud, Charlène – Intilia, Andrea – Schimmel, Lena – Zur, Alina

Al-Ula, Saudi-Arabia. Archaeology and Environment from the Early Bronze Age (3rd mill. BCE) onwards. Season 2019

aus / from

e-Forschungsberichte des Deutschen Archäologischen Instituts, 2021-1, § 1-22

DOI: https://doi.org/10.34780/b5t2-t686

Herausgebende Institution / Publisher:
Deutsches Archäologisches Institut

AL-ULA, SAUDI ARABIA
Archaeology and Environment from the Early Bronze Age (3rd mill. BCE) onwards

Season 2019

Orient Department of the German Archaeological Institute
by Arnulf Hausleiter and Michèle Dinies
in collaboration with Charlène Bouchaud, Andrea Intilia, Lena Schimmel and Alina Zur

e-FORSCHUNGSBERICHTE DES DAI **2021** · Faszikel 1

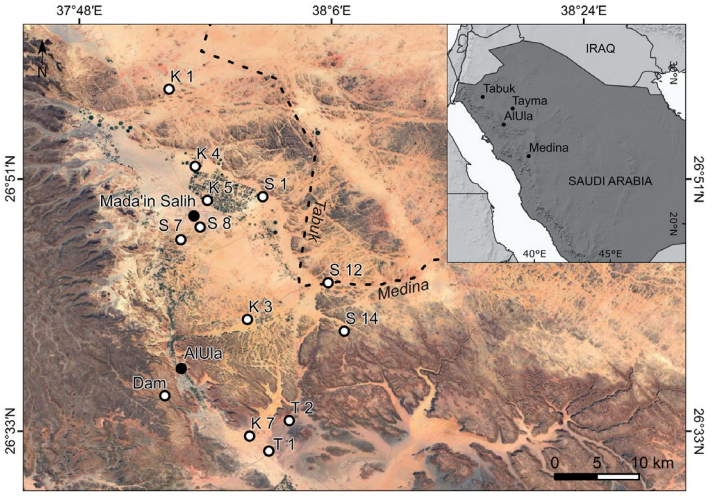
Die Oase von Al-Ula war in der Antike ein politisch, kulturell und wirtschaftlich bedeutendes Zentrum Nordwestarabiens und Sitz der im 1. Jahrtausend v. Chr. bekannten regionalen Hauptstadt Dadan. Multidisziplinäre Untersuchungen im Rahmen eines internationalen Forschungsprojektes lieferten erste Informationen zur bislang wenig bekannten Siedlungsgeschichte während der Bronzezeit (3.–2. Jt. v. Chr.), die durch mehrere Standorte innerhalb der Oase gekennzeichnet ist, darunter der Fundort Tell Saq. Dort gefundene Getreidereste, die anhand von ^{14}C-Messungen in das 3. Jahrtausend v. Chr. datieren, weisen zusammen mit wenigen weiteren Kulturpflanzen auf lokalen Anbau. Daneben sind typische Vertreter der natürlichen Oasen- und (Halb-)Wüstenvegetation belegt.

Cooperation partner: Royal Commission for Al-Ula (RCU), Oxford Archaeology; Freie Universität Berlin, Institut für Geowissenschaften; Museé National d'Histoire Naturelle (MNHN), Paris.
Financial support: Royal Commission for Al-Ula (RCU).
Head of project: A. Hausleiter, M. Dinies.
Team: Ch. Bouchaud, T. Collie, A. Intilia, J. Quartermaine, S. Ritchie, L. Schimmel, A. Zur.

Introduction

1 In spring 2019, a team of the DAI participated in the Assessment of the Al-Ula Oasis ↗, Phase 1 in the Al-Ula valley (Fig. 1), province of Madinah

1



2a

1 Al-Ula, Saudi Arabia. View on the Al-Ula valley from south-west. (Photo: Sebastiano Lora)

2 Al-Ula, Saudi Arabia. a. The Al-Ula Valley and its surroundings with surveyed geomorphological features. (Map: Lena Schimmel using Google Earth)

al-Munawwara, Saudi Arabia. This project was initiated by the Royal Commission for AlUla (RCU) as part of Master Plan 1. A major aim of the season was an environmental assessment in the *wadi* of the Al-Ula oasis itself and in the wider surroundings. At the same time archaeological remains within the *wadi*-oasis were systematically investigated, between the ancient site of Dadan and the oasis farms associated with Al-Ula's Old Town.

2 Al-Ula is well known for the ancient city of Dadan with its ruins at the site of al-Khuraybah, located east of the main *wadi* of the oasis. Dadan is mentioned in the Bible and by the last Babylonian king Nabonidus (r. 556–539 BCE) on the occasion of his ten-year stay in northwest Arabia. The city was the residence of the dynasty of Lihyan (approx. 6th to 1st centuries BCE) before the rise of the Nabataean Kingdom with its main northwest Arabian settlement at the site of Hegra (al-Hijr/later Mada'in Salih) located ca. 20 km north of it. Recent ongoing investigations in the Al-Ula region are uncovering remains of preceding periods of human activities, going back as far as prehistory.

Environment and Crop Cultivation

3 Different from other northwest Arabian oases (e.g. Tayma ↗) with regard to its environmental settings (geology, water balance, topography), Al-Ula fits into the pattern of a *wadi*-oasis. In order to better understand settlement development within the *wadi*-oasis and its region in the context of Holocene environmental change, the project's integrated ›Oasis Sampling‹ strategy was directed towards geomorphological and palaeoecological investigation and survey. Thus, it was hoped that environmental changes driven by climatic variations as well as anthropogenic impact could be traced.

4 Analysis of remote sensing data and of maps of the Al-Ula region indicated numerous possible *sabkhas*, i.e. salt flats with a potentially long-lasting depositional history providing geoarchives beyond the oasis valley. Several of these sites were visited in the context of the palaeoenvironmental survey (Fig. 2a), but they did not turn out to be suitable, since they were *khabras* (Fig. 2b), remaining dry for approx. 75 % of the year – impeding preservation of organic remains, such as pollen.

2b

3a

3b

2 Al-Ula, Saudi Arabia. b. Khabra K1. (Photo: Michèle Dinies)

3 Al-Ula, Saudi Arabia. a. Cross section of a charcoal fragment of Amaranthaceae from Trench 14; b. Sample of a charred fig seed (Ficus) from Trench 14. (Photos a. b: Michèle Dinies)

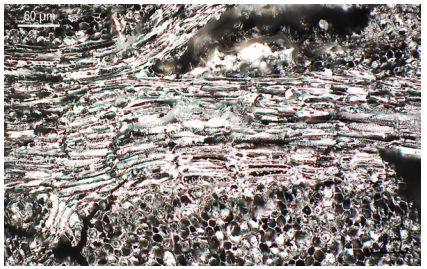
5 From within the oasis, flotation samples were collected from 9 out of 22 archaeological-palaeoenvironment soundings. In most cases preservation of macro- and micro-remains of plants was very poor. The uppermost layers displayed very impoverished and distorted spectra, implying that these archives are not suitable for reconstructing comprehensive past ecological settings or land-use patterns based on archaeobotanical investigations.

6 First archaeobotanical analysis of macro-remains from the archaeological site of Tell Saq (see below) confirmed the presence of the expected natural desert vegetation, such as e.g. Amaranthaceae (Fig. 3a). A few radiocarbon dated cereal fragments indicate their cultivation in the late 3rd millennium BCE, while fig seeds (Fig. 3b) point to horticulture, probably also of Bronze Age date, as evidenced in the oasis of Tayma. Frequently attested are representatives of oasis and *wadi* vegetation, i.e. acacia (*Acacia*) and tamarisk (*Tamarix*; Fig. 3c. d).

7 The first schematic geomorphological map of the core area of the Al-Ula oasis was created (Fig. 4) depicting the present-day situation of the oasis, mainly characterized by anthropogenic landuse, in particular extended palm gardens in combination with other cultivated fruit trees. At some locations, remains of the ancient *wadi* terraces have been traced, mainly on the western bank, since the eastern terraces were largely destroyed by the construction of the Hijaz railway more than a century ago.

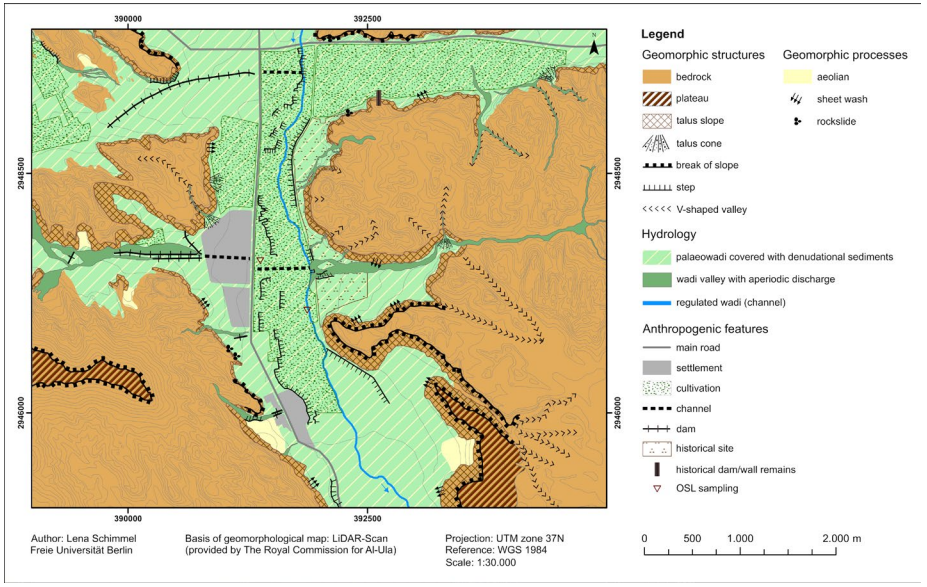
History of Occupation and Spatial Organization

8 Historical and archaeological scholarship has focused mainly on the mid-1st millennium BCE and Nabataean history of the Al-Ula valley. The pottery record of excavations both by the King Saud University and the former Saudi Commission for Tourism and National Heritage (SCTH) provides, however, unequivocal evidence for an occupation of the Al-Ula oasis during the Bronze Age, such as at Dadan (pottery similar to late 3rd and 2nd millennium BCE wares observed at Tayma [1]) and Tell al-Katheeb, a site located west of the main *wadi* (late 2nd to mid-1st millennium BCE ceramics known from Tayma and Qurayyah [2]). Furthermore, circular tombs and rectangular buildings excavated at Jabal Khuraymat, similar to those attested at Tayma and



3c

3d



4

3 Al-Ula, Saudi Arabia. c. Tangential section of a charcoal fragment of Tamarix from Trench 1; d. Cross section of a charcoal fragment of Tamarix from Trench 1. (Photos c. d: Michèle Dinies)

4 Al-Ula, Saudi Arabia. Geomorphological map of the core area of the Al-Ula valley. (Map: Lena Schimmel)

associated with late 3rd millennium BCE ceramics, are attested [3]. Already this evidence indicates a complex Bronze Age occupation within the Al-Ula oasis, apparently not restricted to a single site.

9 Thus, it was one aim of the Oasis Sampling project to systematically investigate the area west of Dadan for the presence and nature of archaeological remains outside this site, as well as the spatial organization of the settlement within the *wadi*, starting as early as in the Bronze Age.

Soundings in the Summer Farms

10 The DAI team participated in the excavation of altogether 22 trenches (T1–T22) led by Oxford Archaeology (Fig. 5). Among the archaeological remains, built structures (Trenches 1, 7, 21 and 22), pottery from the Bronze to at least the Iron Age (Trenches 1, 12 and 14), and objects (Trench 2, 12 and 14) were identified.

11 In Trench 1 excavations revealed the corner of a structure built with medium and large stone blocks. A sequence of superimposed layers was excavated in the area north and west of the building. 537 pottery sherds have been recorded none of them originating from primary contexts. Among the datable material there are sherds of Late Bronze Age (mid 2nd millennium BCE–11th century BCE) Qurayyah Painted Ware (QPW). Furthermore, painted sherds, probably related to what has been named »Khuraybah Pottery« or »Al-Ula style pottery« [4] are attested. Bases of beakers very similar to those of Tayma Early Iron Age Ware (11th to 9th century BCE [5]) have been identified among the pottery from Trench 1. Other unpainted items may probably represent younger periods.

12 Trench 2 (Fig. 6a), located 75 m west of Trench 1, provided a small figurine made of copper alloy representing a caprine in crouched position (Fig. 6b). Parallels from Northwest Arabia are not known until now, but at the site of Ras Shamra, ancient Ugarit, a major Late Bronze Age commercial center on the northern Levantine coast, several similar figurines have been excavated which have been interpreted as weights [6]. A comparable object from Uruk/Warka, Iraq, has been dated to the preceding Old Babylonian period [7].

5 Al-Ula, Saudi Arabia. Core area of the Al-Ula Valley with location of the Oasis Sampling project. (Map: Jamie Quartermaine)

13 Trench 7, located 200 m south of the site of ancient Dadan (and 25 m west of the line of the Hijaz railway) exposed the opening of a well-preserved qanat shaft of yet unknown date. The structure identified 1.5 m beneath present-day surface consists of two distinct parts, an upper one, which was fully investigated, and a lower one, which was only observed through gaps in the closing system, divided by a ledge on which the upper part is set, and photography captured by extending a camera down the shaft.

14 Trenches 21 and 22 are located immediately west of the modern road running along the western edge of the site of Dadan. The only structure identified inside Trench 21 was the stone foundations of a section of the mud-brick wall built at the base of the modern road (the mud-brick above in this section is gone). Trench 22, located approx. 10 m northwest of Trench 21, revealed several structures, all of them built with middle-sized, roughly-hewn, sandstone blocks and clearly belonging to three main phases of occupation, the youngest of which of modern date.

Tell Saq

15 The regional survey carried out by RCU, identified two further mounds west of the *wadi* Al-Ula both located south of Tell al-Katheeb, i.e. Tell Salimiyyah and Tell Saq. The larger of the two (approx. diameter 75 m, height: 5.5 m), Tell Saq (Fig. 7a), is located near the confluence of *wadi* Saq and the main *wadi*.

16 The eastern part of the mound is covered by a walled modern cemetery. The western part, which has been protected by a fence by SCTH, shows substantial remains of a probable enclosure with access. On the top of the mound architectural remains are recognizable. Although mentioned by Abdullah Nasif in his ethnographic-archaeological study on Al-Ula [8], the site has remained unexplored.

17 Surface observations within the fenced area of the site in spring 2019 provided Red Burnished Ware (RBW), Qurayyah Painted Ware (QPW) and »Khuraybah Pottery«, covering a chronological range from the late-3rd to probably until the mid-1st millennium BCE. In view of this evidence, two archaeological soundings (Trenches 12 and 14) were carried out on Tell Saq outside the fenced area.

6a

6b

6 Al-Ula, Saudi Arabia. a. Trench 2 after completion of excavation. (Photo: DAI Orient Department, Andrea Intilia); b. Figure of a caprine made of copper alloy. (Photo: Alina Zur)

18 Trench 12 located in the central area of the mound (and west of the modern cemetery), showed a sequence of deposits suggesting that this area has been seriously impacted by later activities, probably connected to the construction of the cemetery enclosure. Trench 14, located southwest of the latter revealed a series of deposits made of sand and sandy silt, some of them containing small stones and mud-brick fragments. Similar to the surface at this location, these deposits slope down at an approximate angle of 35°. Whether they represent material originating from the top of the mound or material which accumulated against its southern slope is unclear. As in Trench 12, no architectural remains were identified within the sounding.

19 From the exposed deposits in Trench 14 (Fig. 7b) archaeobotanical and archaeological samples were collected. Whereas in the yet the oldest sample crops such as cereals are recorded for the Early Bronze Age (late 3rd millennium BCE ^{14}C-date), two samples of early Iron Age date (late 2nd/early 1st millennium BCE ^{14}C-date of two charred Amaranthaceae wood fragments) indicate the yet youngest date from this sequence. Pottery sherds include Gritty Ware (mid-3rd millennium BCE), Red Burnished Ware (Fig. 7c) with Barbotine decoration or incised patterns (late 3rd to mid-2nd millennium BCE), Qurayyah Painted Ware (15th century BCE to late 2nd millennium BCE) as well as »Khuraybah Pottery«, probably reaching the mid-1st millennium BCE. Unpainted pottery was also present at the surface.

20 As to the ground stone industry, a high number (95) of different stone tools was recovered from both trenches including pestles, hammer stones, mortars, grinding stones, grinding tables, and weights (Fig. 7d). The majority of them are made of sandstone, likely local in origin. Four of these artefacts, a pestle and three grinding stones were made of basalt. Quantity and typology of the tools suggest that domestic activities, such as food production/processing were carried out at the site, but none of these objects was found in a primary context.

Conclusions

21 The 2019 investigations in Al-Ula and beyond provided limited information on the geomorphology and Holocene deposits in the surroundings. Within

7a

7b

7c

7d

7 Al-Ula, Saudi Arabia. a. Orthophoto of Tell Saq. (Photo: Jamie Quartermaine); b. Trench 14 (Tell Saq), western section. (Photo: Andrea Intilia); c. Trench 14 (Tell Saq), sherds mostly of Red Burhished Ware. (Photo: Alina Zur); d. Trench 14 (Tell Saq), grinding stone. (Photo: Alina Zur)

the oasis of Al-Ula, the very first archaeobotanical sampling of macro- and micro-remains out of archaeological deposits identified taxa typical for *wadi* and oasis vegetation, (semi-) desert vegetation as well as crops known as significant for oasis cultivation in the region. Further analysis of such remains from archaeological contexts will help to provide more detailed information on agriculture within the oasis through time, thus enlarging the base for a socio-economic reconstruction of the site of Tell Saq (and the oasis) during the Bronze and Iron Ages. These results will be contextualised with those obtained by the Dadan Archaeological Project, a joint venture by the Royal Commission for AlUla (RCU), the Centre National de Recherche Scientifique (CNRS) and King Saud University, Riyadh, funded through the Agence Française pour le Développement d'AlUla (AFALULA).

22 Already at the current stage of analysis, the presence of at least three mounds (i.e. Tell al-Katheeb, Tell al-Salimiyyah, Tell Saq) west of the main *wadi* running north-south through the Al-Ula valley, and the site of Dadan east of it, indicates a spatial organisation of settlement and agricultural areas different from other walled Bronze Age oases of similar dimension. They are usually characterised by a single area of occupation adjacent to larger zones suitable for agriculture. In the Al-Ula valley, whose system of walling (if there was one) is still poorly understood, it appears that already in the Bronze Age, there was a multipolar settlement pattern stretching over both sides of the main *wadi*. This may reflect the degree of exploitation of agricultural areas within the *wadi*-oasis. It appears probable, that the oasis of Al-Ula may not only have been an important agro-system already during the Bronze Age but in view of the cultural connections to neighbouring sites and areas, was part of the regional socio-cultural and economic exchange networks.

References

Abu-Azizeh 2015
W. Abu-Azizeh, Excavation of a cairn complex in Jabal al-Khraymât, Massif 22, loci 42000, in: L. Nehmé et al., Report on the Fifth Season (2014) of the Madâ'in Sâlih Achaeological Project, 2015, 171–192

Al-Shehry 2014
M. M. Al-Shehry, Fahhār dādān hilāl al-mawsamayn al-hāmis 1429 H wa-l-sādis 1430 H. Dirāsah tahlīlīyyah. 2014, Riyadh [Arabic]

Al-Zahrani 2007
A. Al-Zahrani, Tall al-Katīb b-il-'Ulā. Dirāsa ātārīyya muqārana. 2007, Riyadh [Arabic]

Boehmer 1994
R. M. Boehmer, Kleinfunde aus Metall, Stein, Muschel u. a., in: U. Finkbeiner, Uruk Kampagne 35–37, 1982–1984. Die archäologische Oberflächenuntersuchung (Survey), Ausgrabungen in Uruk Warka Endberichte Band 4, (Mainz 1994) 141–150

Luciani – Alsaud 2018
M. Luciani – A. S. Alsaud, The new archaeological joint project on the site of Qurayyah, northwest Arabia: Results of the first two excavation seasons. Proceedings of the Seminar for Arabian Studies 48, 2018, 165–184

Nasif 1988 ↗
A. A. Nasif, Al-'Ulā. An historical and archaeological survey with special reference to its irrigation system. 1988, Riyadh

Parr et al. 1970
P. J. Parr – G. L. Harding – J. E. Dayton, Preliminary survey in N.W. Arabia, 1968. Bulletin of the Institute of Archaeology of London 8–9, 1970, 193–242

Tourtet – Hausleiter 2018 ↗
F. Tourtet – A. Hausleiter, Tayma, Saudi-Arabien. Ergebnisse der Keramikauswertung. Die Arbeiten der Jahre 2009 bis 2018, e-DAI-F 2018-2, 126–135

Endnotes

[1] Al-Shehry 2014 and Tourtet – Hausleiter 2018.
[2] Luciani – Alsaud 2018.
[3] Abu-Azizeh 2015.
[4] Parr et al. 1970.
[5] see Tourtet – Hausleiter 2018.
[6] Musée du Louvre 2020 ↗ (accessed on 26th October 2020).
[7] Boehmer 1994.
[8] Nasif 1988.

Authors
PD Dr. Arnulf Hausleiter
Deutsches Archäologisches Institut, Orient-Abteilung
Podbielskiallee 69–71
14195 Berlin
Deutschland
Arnulf.Hausleiter@dainst.de
ORCID-iD: https://orcid.org/0000-0001-7119-6766
GND: http://d-nb.info/gnd/5183530-7

Dipl. Biol. Michèle Dinies
Freie Universität Berlin, Institut für Geographische Wissenschaften
Malteserstraße 74–100
12249 Berlin
Deutschland
michele.dinies@fu-berlin.de
ORCID-iD: https://orcid.org/0000-0003-2196-4418
GND: http://d-nb.info/gnd/2114189-7

Dr. Charlène Bouchaud
Archéozoologie et Archéobotanique-Sociétés, Pratiques et Environnements
UMR 7209 (CNRS-MNHN), Muséum national d'Histoire naturelle
CP 56–57 rue Cuvier
75005 Paris
Frankreich
ORCID-iD: https://orcid.org/0000-0002-1318-027X

Dr. Andrea Intilia
Deutsches Archäologisches Institut, Orient-Abteilung
Podbielskiallee 69–71
14195 Berlin
Deutschland
Andrea.Intilia@dainst.de
GND: http://d-nb.info/gnd/5183530-7

Lena Schimmel
Freie Universität Berlin, Institut für Geographische Wissenschaften
Malteserstraße 74–100
12249 Berlin
Deutschland
l.schimmel@fu-berlin.de
GND: http://d-nb.info/gnd/2114189-7

Alina Zur
Deutsches Archäologisches Institut, Orient-Abteilung
Podbielskiallee 69–71
14195 Berlin
Deutschland
Alina.Zur@dainst.de
GND: http://d-nb.info/gnd/5183530-7

Metadata
Title/*title:* Al-Ula, Saudi Arabia. Archaeology and Environment from the Early Bronze Age (3rd mill. BCE) onwards. Season 2019
Band/*issue*: e-Forschungsberichte 2021-1

Bitte zitieren Sie diesen Beitrag folgenderweise/*Please cite the article as follows:* A. Hausleiter – M. Dinies, in collaboration with C. Bouchaud – A. Intilia – L. Schimmel – A. Zur, Al-Ula, Saudi Arabia. Archaeology and Environment from the Early Bronze Age (3rd mill. BCE) onwards. Season 2019, eDAI-F 2021-1, § 1–22, https://doi.org/10.34780/b5t2-t686

Online veröffentlicht am/*Online published on*: 22.10.2021

DOI: https://doi.org/10.34780/b5t2-t686
URN: https://nbn-resolving.org/urn:nbn:de:0048-efb.v0i1.1032.6
Schlagworte/*keywords*: Bronze Age, Holocene, Oasis, Vegetation

Bibliographischer Datensatz/*Bibliographic reference:* https://zenon.dainst.org/Record/002057526