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Atlante del Vicino Oriente antico



Excavations and Surveys of 2022 and 2023 at Wadi al-Ma'awil (Oman)

edited by

Ahmed Fatima Kzzo, Alessandro Di Ludovico, Marco Ramazzotti



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In copertina | *Cover image:* A view of part of Wadi al-Ma'awil showing: the Hafit burial on the top of the mountain (left of the picture), grave G1 and G2 (Area B) under the mountain, and Muslimāt with its oasis.

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which was badly damaged by trucks and bulldozers flattening small parts of the upper parts driving over it, and it is now protected by the MHT.

On the other hand, since the beginning we tried to communicate, explain and disseminate our researches, approaches and studies to the local students of Muslimāt and Wasit primary schools, and we have been proud to be hosted in 2022 and 2023 by the teachers of such schools, to meet their students and to have their always meaningful feedbacks thanks to the active coordination work of our dear friend Ahmed Hamed Hilal al-Ma'wali.

My deep gratitude also goes to Dawood al-Ma'wali with whom we are now collaborating to define the administrative, economic, and managerial framework of our proposal for the creation of an archaeological and naturalistic park of Wadi al-Ma'awil; a proposal that we presented first to the Ministry of Cultural Heritage and Tourism of the Sultanate of Oman, discussed with representatives of local communities (Muslimāt and Afi), and with the authorities of the *Muhafazat* Baṭinah South.

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I would like to recall here that this archaeological surveys and excavations report at Wadi al-Ma'awil, published by Atlas of the Ancient Near East, was made possible thanks to the commitment of the many colleagues of Sapienza University of Rome who have accepted, supported and signed our institutional applications for Italian funding; to the work of the various international specialists with whom we continue to collaborate; to the intensive surveys and stratigraphical excavations carried out by researchers, PhDs, PhD students, postgraduates, undergraduates students of Archaeology, Art History and History of Western Asia and the Eastern Mediterranean.

Our research activities in the Arabian Peninsula and the Gulf include fieldwork that is always designed in accordance with the requests, needs and perspectives of local communities, which is agreed, coordinated and authorized by the local ministries responsible for the defence and enhancement of tangible and intangible heritages and which dedicates space and resources to the university training of archaeologists, restorers and designers of communicative events intended to increase knowledge and sustainable employment of the territory.

Marco Ramazzotti

Introduction

The present volume, edited by Ahmed Fatima Kzzo, Alessandro Di Ludovico, and Marco Ramazzotti on the *Excavations and Surveys of 2022 and 2023 at Wadi Al-Ma'awil (Oman)*, is the first number of the Reports of the Atlas of the Ancient Near East / *Rapporti dell'Atlante del Vicino Oriente antico* (RAANE 1 / RAVOA 1), the scientific, didactic, and editorial project of the Department of Sciences of Antiquity.

The first issue of this new series integrates the AANE series published by Sapienza Università Editrice, which contains the monographs, which has reached the publication of 4 volumes, and the collective works, which currently has 3 volumes. RAANE / RAVOA is the new series of AANE / AVOA, and it is open to the publication of archaeological excavations and surveys between the Eastern Mediterranean and Western Asia.

Since 2021, we have supposed that the detected spatial clusters in Wādī al-Ma'āwil (simplified in this volume as Wadi al-Ma'awil), Khaṭum, Mahalil, and al-'Awābī could also have marked on the ground the possible adaptation and direction followed by some of the settled and mobile groups in this area since the end of the 4th millennium BCE until the Islamic period. In fact, the ground truthing of satellite anomalies grouped in points close to each other and often aligned revealed in 2022 intense traces of an ancient adaptation and human mobility on the valley, plateau, and high terraces crossed by the flow of extinct streams, at the ridges or margins of *widyān* beds, or on the crests of rocky hills.

During 2022 and 2023, our field activities focused on Wadi al-Ma'awil, a very large wadi close to the Muslimāt village in between Nakhal and Afī oasis, where in 2022 we discovered a completely unexplored and multifaceted ecotope. We selected a 10 x 10 Km squared area encompassing this ecotope after ground truthing because of the high intensity of the archaeological features and because it featured three adaptive conditions that we considered to be of particular interest: the presence of large *widyān* with central terraces, the presence of an anthropized oasis and the presence of a possible ancient settlement pattern in which the anthropic features (settlements, graves, pathways) were almost close together and intervisible.

At the beginning of the 2022 season, we defined the new topographic characteristics of the whole area fixing and connecting the satellite and drone aerial

images in a topographically integrated network in order to have a geomatic control of each excavations areas (Area A: Settlement, Mound 1; Area B: Western Cemetery, and Area C: South-Western Cemetery), of the extension of our intensive survey in al-Ḥajar and al-Akhḍar rocky mountains and foothills as well of the natural and anthropic landscape all around the oasis of Muslimāt.

On the road connecting Muslimāt and Tawiyah we established the seat of the expedition team and placed the logistic and scientific base to continue our multidisciplinary research and to support the proposal, the planning, and the opening of a multimillennial natural and archaeological protected area dynamically connecting Wadi al-Ma'āwil, Khaṭum, Mahalil, and al-ʿAwābī with other important tourist attractions such as al-Gasham House, Nakhal, and Wakan Village.

The project plan has been presented and discussed with local communities, approved and supported by the MHT in 2024, and it is ongoing.

RAVOA 1 is a preliminary report on the surveys, excavations and enhancement project plans carried out by the Mission during two campaigns (2022 and 2023) in the area under the Ministry of Heritage and Tourism's 5-years institutional permit in a vast area between Nakhal, al-ʿAwābī e Wadi al-Ma'awil, in a territory bounded to the East by Nakhal (long. 23°23'34.3"N; lat. 57°48'56.1"E) to the West by al-ʿAwābī (long. 23°18'30.4"N; lat. 57°32'11.7"E) and to the north by Khaṭum (long. 23°29'15.8"N; lat. 57°41'07.6"E).

The Ministry of Heritage and Tourism's 5-years institutional permit has been co-signed by HM Salim bin Mohammed Al-Mahrouqi and by Marco Ramazzotti on 05 December 2022, and yearly renewed until now, 2025. The preliminary report focuses on Wadi al-Ma'awil province of Baṭinah South Governorate, on the two campaigns of 2022 and 2023. In addition, it anticipates some of the discoveries and results that have been made in 2024, which will be presented in detail in a forthcoming report scheduled for October 2026, which will include, as well, the Mission's field activities of 2025.

The preliminary report on Wadi al-Ma'awil is divided in 4 parts and 16 chapters encompassing the excavations and surveys approaches and methods (first part); pottery, objects, samples and human remains (second part); the planning to transform the surveyed and excavations areas in a natural and archaeological protected areas (third part); catalogue of the finds: ornaments, stone vessels, weapons and tools, ground stones, and miscellaneous (fourth part).

For their advices, scientific and academic supports the volume's editors thank: Sultan Saif Al Bakri, Ali Hamood Al-Mahrooqi, Sultan Al-Makhmari, Samiya al-Shaqsy, Mohamed Hesein, Khaled Douglas, Nasser Said Ali Al-Jahwari, Musaab Mhalla, Ghiath Rammo, Ahmed Karbotly, Joaquín Córdoba, Daniel T. Potts, Robert Carter, Jennifer Pournelle, Paul Yule, Martin Sauvage, Corinne Castel, Conrad Schmidt, Stephanie Döpper, Carmen Del Cerro, Fernando Escribano Martinez, Lauren Erker, Maria Giovanna Biga, Alfredo Coppa, Vittorio Loreto, Fulvio Cruciani, Simone Celani, Luigi Cinque, Cesare Manetti, Emanuela Borgia, Fabrizia Buongiorno, Adolfo La Rocca, Fabio Attorre, Fernando Martinez De Calzada, Michelina Di Cesare, Rita Francia, Maria Laura Santarelli, Alessandra Celant, Massimo Musacchio, Maurizio Cattani, Elena Maini, Michele Degli Esposti, Silvia

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During our surveys and excavations, PhD students and MA students have worked with us on the field, we sincerely thank them for their efforts. We hope to have repaid their trust and dedication with the offer of a high-profile scientific and didactical experience: Nunzia La Rosa, Giampiero Tursi, Francesco Del Bravo, Guido Antinori, Francesco La Pastina, Ana Sofia Meneses, Francesco Caputo, Andrea Stagliano, Luca Tuozzolo, Letizia Cecere, Aidai Sonunbekova, Federico Abbatiello, Nicole Franchi, Caterina Agostinelli, Debora Michilli, Patrick Michael Felici, Martina Tramontana.

Finally, we would like to dedicate this volume to the people of Wadi al-Ma'awil.

Marco Ramazzotti

PART I

SURVEYS, EXCAVATIONS, AND METHODOLOGIES

1. General View on Surveys, Excavations, and Valorization Programs

Marco Ramazzotti

The multidisciplinary research that the Sapienza Archaeological Mission in the Arabian Peninsula and the Gulf (MASPAG)¹ has been carried out in the South-Eastern Arabian Peninsula since 2016, thanks to the Atlas of the Ancient Near East, since 2019 thanks to the funding of the University's Great Excavations, and since 2022 to the co-financing of the Ministry of Foreign Affairs and International Cooperation².

The excavations were concentrated, from October 20 to December 20, 2023, in the province of Wadi al-Ma'awil, in the Muḥāfazat of Ḡanūb al-Bāṭina (Sultanate of Oman), in a vast alluvial plain, at the villages of Muslimāt and Afī, west of Nakhal town and furrowed by the flow of paleo riverbeds (*widyān*) that from Afī converge towards the major tributary that reaches the coast, interposed between the eastern slopes of Jabal al-Akhḍar and the Western al-Ḥajar chain and the Semail Gap Fault³.

In this macro-area, south-east of the village of Muslimāt, where the Wadi Jaḥfān, Wadi al-'Ayn, and Wadi al-Misīn converge, which flow into the large Wadi al-Ma'awil, a completely unexplored ecotope had been discovered (with traces of ancient human frequentations widespread on the south-western and western edges of the oasis, a capillary network of underground canals (*aflāj*, for further discussion see Wilkinson 1983, pp. 177-194) between the oases of Muslimāt and Tawiya (Fig. 1.1).

An extensive and long river terrace covered by a dense series of mounds on the south-western edge of a composite settlement, later identified with the Southwestern Cemetery (ca. 100 hectares), and a second, even larger funerary landscape located on the western slope of the oasis of Muslimāt (ca. 500 hectares), interposed between Wadi Jaḥfān and the sloping rocky hills of Jabal al-Ḥalah, recognized now as the great Western Cemetery of the Bronze Age and Iron Age⁴.

¹ Ramazzotti ed. 2024.

² Ramazzotti 2021, pp. 81-104; id. 2022, pp. 185-196; id. 2023a, pp. 347-374; id. 2024c, pp. 55-80.

³ Ramazzotti 2023a, pp. 347-374.

⁴ Ramazzotti 2024b, pp. 188-194.

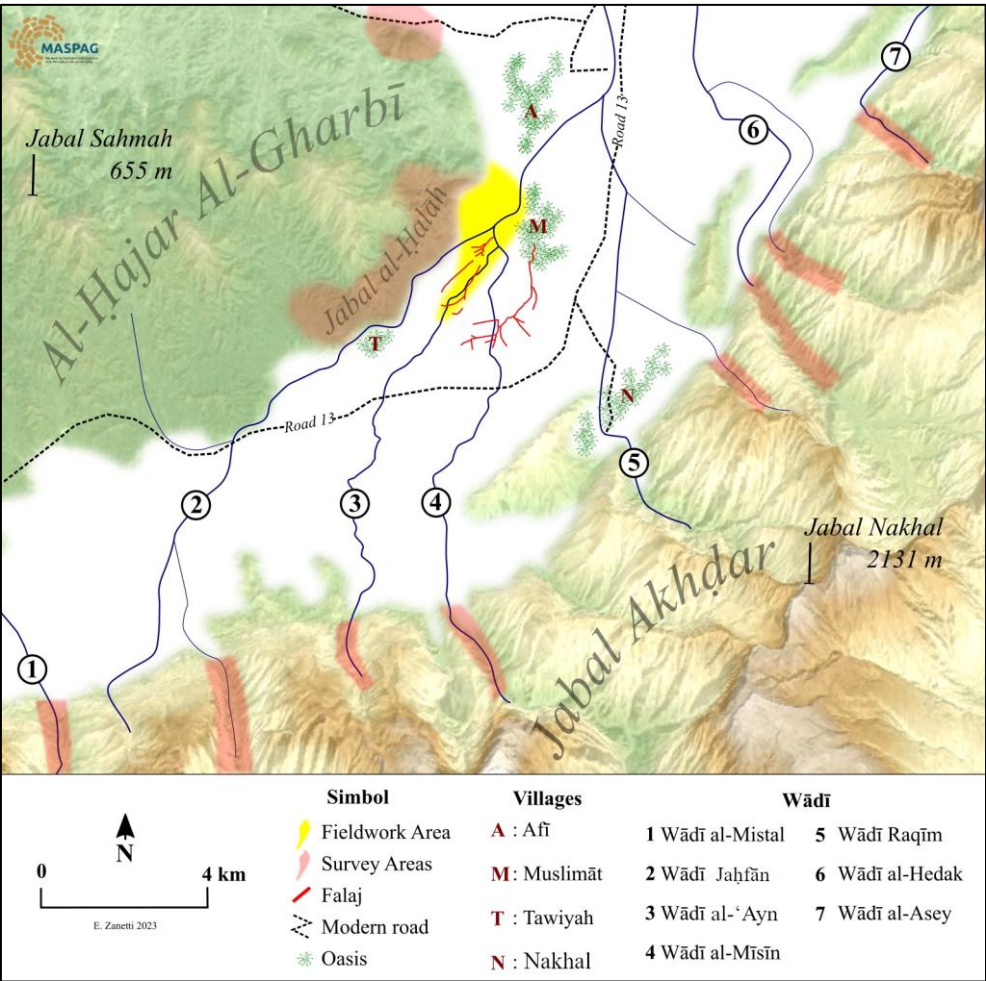


Fig. 1.1. Wadi al-Ma'awil hydrology plane (Elaborated by E. Zanetti, ©MASPAG, courtesy MHT).

1.1. Settlement, Jannat al-Manqal, Area A

On Mound 1 (2.27 hectares ca), the southwestern settlement of five mounds, we collected diagnostic material in 2022 and in 2023. In Worksite 1, on the southwestern slope of Mound 1, we confirmed the presence of a collapsed mudbrick structure wall adapted to the slope of the settlement as a retaining wall of a fortified system reused for other industrial activities, a fortified system such many other Early and Late Iron Age fortresses, Fizḥ, Lizq L1, Hili H14, Ḥuṣn Awhala, Salūt, Muweilah, Ṭiwī TW2, Maḥram/Qariyat al-Saiḥ, Alāyat Ibrāʾ/al-Qanāṭir I52, Samad S1, al-ʿAtqiyah/J. Ṣunṣunah, al-Moyassar M34⁵.

In 2024, we opened a new large excavation area on the south-western slope of Mound 1 (Worksite 2 and Worksite 3). Even though we will attend radiocarbon dates for the new area, here we started to collect extensive architectural data and many

⁵ Yule 2019, pp. 143-176. For more detailed information, see Chapter 2.

diversified archaeological contexts to detail the inner spatial organization of the settlement as well as its different occupation phases (Fig. 2.10).

The discovery in 2024 of a very rich funerary chamber SE-NW oriented in Area A (Worksite 3) with bronze rings that find parallels in the Samad Late Iron Age (SLIA) inventory⁶. Thus, al-Manqal mound was possibly settled and fortified during the Early and Late Iron Age period, while the funerary reuse of the upper southwestern surface of the mound could be dated back to the SLIA (cfr. Yule 2018, pp. 438-486).

1.2. Western Cemetery, Area B: G1

Area B was attributed to the stripe under and long Jabal al-Ḥalah. Area B is the western part of the large Western Cemetery, a 500 square meter area where intensive reconnaissance had geolocated over 300 archaeological contexts, mainly circular tombs, which can be morphologically and planimetrically subdivisible into three clusters (Hafit / Umm an-Nar / Wadi Suq – Iron Age).

The excavations involved Grave 1, the northernmost of the five tombs interposed between the Hafit tombs located on the rocky ridges of Jabal al-Ḥalah, a southwestern offshoot of al-Ḥajar mountain, and the Wadi Suq / Iron Age tombs at the western limits of the alluvial plain in front of the oasis of Muslimāt.

The stratigraphic excavation has exposed and revealed a monumental tomb of the Early Bronze Age, probably datable to the Hafit / Umm an-Nar transition, with a circular plan (diameter 10 m) morphologically similar only to four other funerary structures located to the south between the slope of the mountain and the plateau, with two burial chambers side by side in an almond shape (Fig. 1.2).

The northern chamber had no material, while the southern chamber contained, together with a few scattered and heavily damaged bones, an imposing bronze axe, a flint instrument, and a small biconical jar, typologically attributable to the cultural phase of Jemdet Nasr, therefore probably residual parts of a rich funerary equipment. Moreover, since in the same stratigraphic context of the bronze and flint axes, we collected the fragments of a biconical jar, possibly dated back to the Jemdet Nasr period.

The Early Bronze Age funerary context of the grave G1 in Area B seems not so chronologically distant from those of the Hafit cultural milieu. This possible Umm an-Nar grave is planimetrically different from those of the nearest Hafit period and can be compared with Bat Grave 156⁷, but probably was filled with some stolen/sacked, or simply reused objects which originally were placed in some of the monumental Hafit tombs.

⁶ P. Yule personal communication.

⁷ Döpper 2015, pp. 83-92.

confirmed our first hypothesis, but the relevant discoveries also detailed a very intriguing research scenario on the Late Bronze – Iron Age funerary landscape.

In 2023, the grave G1 in Area C was opened in the funerary area, where we discovered on the surface a very precious and fine shell inlay (Fig. 1.5) comparable with a similar object from Bidya 1 in Fujairah⁸. The excavation here revealed a monumental, stratified grave with an inner single rectangular room oriented North-South (Fig. 1.7). The outer perimeter of the inner rectangular chamber contained different irregular pits later adapted to the north-eastern limit of the massive structure, but a very regular oval small grave was placed on the collapsed stone of the main structure at the western side. In the thick filling deposits of the main chamber, we collected hundreds of fragmentary human bones, dozens of fragmentary incised stone vessels, seven extraordinary gold beads and bead coatings, and two fragments of gold foils, a residual part of a very precious composite jewel.



Fig. 1.4. Area C, Southwestern Cemetery, drone view to south (Photo by A. Khalfan al-Rawahi, ©MASPAG, courtesy MHT).

It is just a hypothesis that needs to be confirmed by radiocarbon dates, but the unusual plan seems typologically similar to some Wadi Suq graves (cfr. Bawshar, Cleuziou and Tosi 2007, p. 269, fig. 285; Bortolini and Munoz 2015, p. 72, fig. 11) while the most precious gold objects (gold foils, gold beads, gold rings) coming from the thick mixed layer filling of the main rectangular chamber of the grave G1 are highly sophisticated jewels both typologically and technologically similar to those discovered in LC-G1 Grave in Daba al-Baya in Musandam (Oman) and in Grave 76/1 in Dibba in Fujairah (EAU).

However, for some technological characteristics (metallurgy of coating, metallurgy of granulation, metallurgy of gold-coated silver) the jewels of the grave G1, the *Princess's Grave*, are also similar – but according to our stratigraphical

⁸ Al-Tikriti 1989, pl. 77L.

reconstruction, a little bit earlier – to some precious gold beads and gold-coated silver jewels found in Saruq al-Hadid, ranging from ca. 1200 up to 800 BCE.



Fig. 1.5. Shell inlay discovered on the surface in the survey of 2023, Area C, Southwestern Cemetery (©MASPAG, courtesy MHT).

In 2023, grave G2 in Area C revealed a large funerary context with six small chambers close to each other, NW–SE oriented, with each chamber almost empty except for some scattered bones and fragmentary semi-precious and precious materials, very few pottery fragments, and traces of charcoal at the base of two graves. The highly heterogeneous materials from the grave it is almost fragmentary, but this “multiple grave” was realized in a time sequence, step by step, when the complex was encapsulated in a single funerary area marked with standing stones on the western end.

The typological plan of this Wadi Suq – Iron Age funerary contexts is unknown, and it can be defined as a large multiple grave (not collective), but a quite complete pottery typologically comparable with some attested in Hili 8, and some soft-stones lids also could be associated with the Wadi Suq period (Fig. 2.28). Fragments of vessel stones from the graves G1 and G2 are studied under the chapter “6. Stone Vessels”.

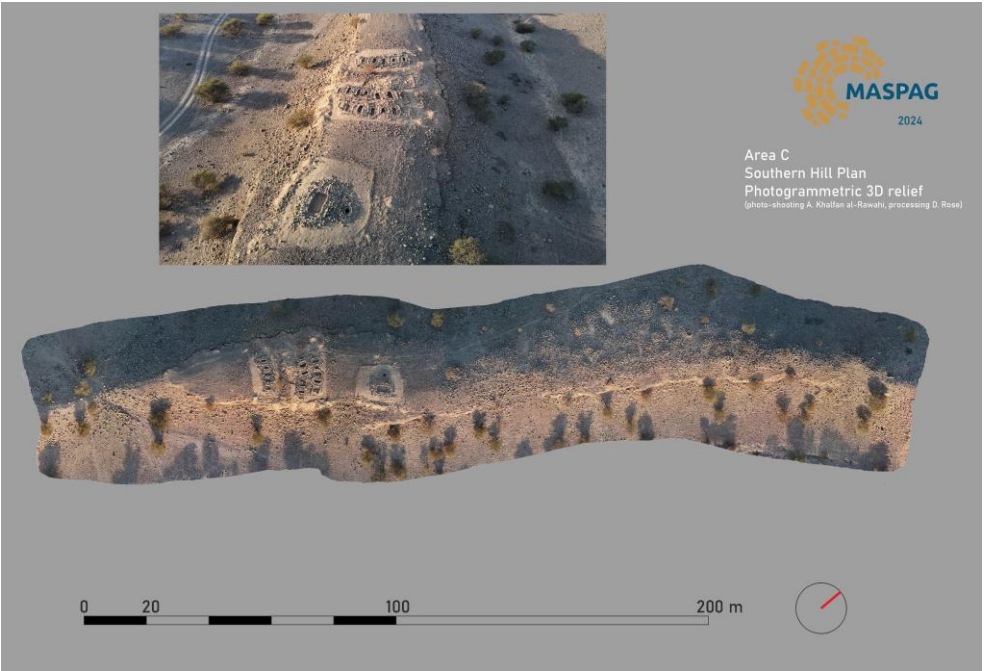


Fig. 1.6. Area C, Southwestern Cemetery, photogrammetric 3D relief (Photo-shooting A. Khalfan al-Rawahi, processing D. Rose) and drone view to South (©MASPAG, courtesy MHT).

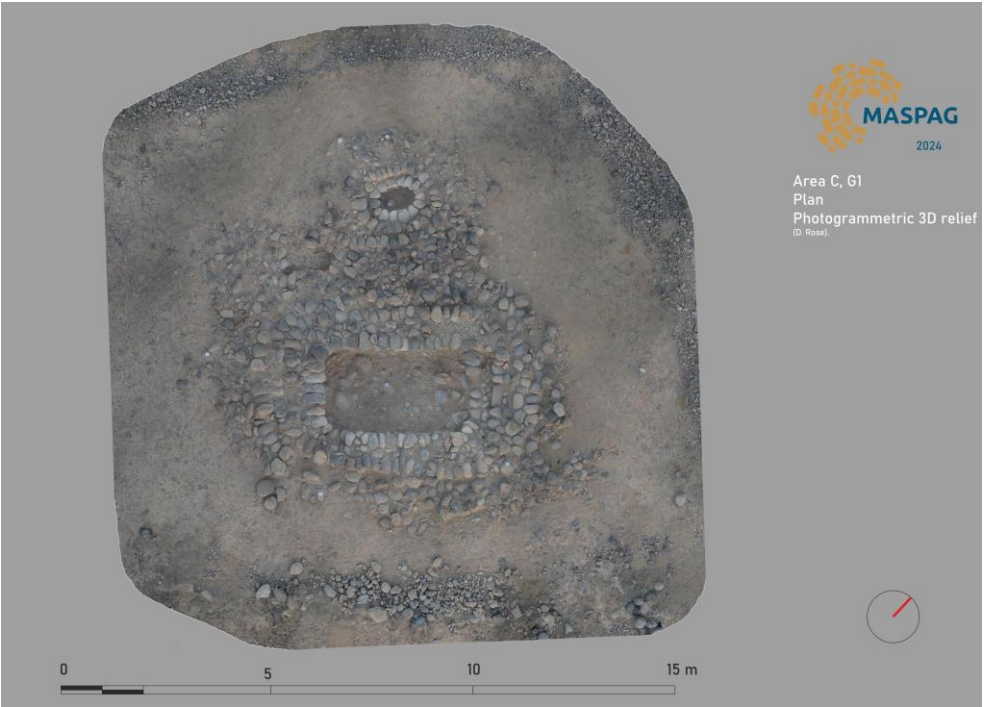


Fig. 1.7. Grave G1, Area C, Southwestern Cemetery, photogrammetric 3D relief (Elaborated by Dario Rose, ©MASPAG, courtesy MHT).

1.4. Wadi al-Ma'awil Natural and Archaeological Project

On a macroscale, thanks to the extensive surveys we discovered, identified, and mapped new settlements, sites, cemeteries, and petroglyphs, revealing until now over 1896 feature points or ancient anthropic contexts and enormously enlarging the integrated knowledge of the core area we are working under the Ministry's institutional permit.

In 2022, we discovered a multiple settlement system in Muslimāt (Fig. 1.8) and two large cemeteries (Southwestern Cemetery and Western Cemetery). In 2023, we identified a fortified settlement near Afī, possibly covered by two impressive circular graves (Fig. 1.12). We documented and georeferenced another 45 petroglyphs, reaching until now a total of 186 petroglyphs and rock-art documentation dating from the third millennium BCE onwards (Figs. 1.9, 1.10), some of them iconographically well connected with those discovered in Salut⁹.

At the same time, intensive surveys on a microscale are revealing new archaeological records and are integrating the first maps we have realized. In the Southwestern Cemetery, where in 2022 we located over 160 feature points, at the end of the season, we mapped, identified, and verified another 25 graves and reaching a total number of an impressive cemetery with 185 graves subdivided into four specific morphological classes.

To enhance Oman's tourism potential, the MASPAG project has proposed a project that aims to create a natural and archaeological park in Wadi al-Ma'awil. This park will start by including at least two archaeological areas, a settlement and a cemetery with several graves, and provides for the enhancement of the historical area through cultural tourism initiatives (Fig. 1.11).

In a second step, this core area (Muslimāt) will be linked to the hinterland and in connection with the diffuse well known, and unknown tangible and intangible heritages of Nakhal, al-ʿAwābī, Khaṭum, and Mahalil. Proposed actions include the protection of risk area affected by building activities and demolitions (Fig. 1.12), the architectural works of the future visitor center, the archaeological restoration of the excavated graves, the establishment of an interactive space to explore the multimillennial landscape and its historical deepness, and training activities with schools and local community to promote the sustainable tourism practices.

The main objective is to create a park that preserves the rich heritage of the Wadi al-Ma'awil Wilaya, increasing its tourist attractiveness, integrating the real visit on the naturalistic and archaeological landscape through immersive experiences for visitors, and the adoption of innovative technological tools. According to our research in the field of local needs and comparing the proposal with the tourist flows reaching the area of Nakhal from Muscat, our proposal project, which aligns with Omani strategic objectives, needs a budget of \$ 2.91 million and will take place over about three years, from 2025 to 2027.

The project has been planned according to the leading expertise in the related fields of the Sapienza Department of Science of Antiquity, and it is adapted to the

⁹ Degli Esposti et al. 2020, pp. 327-351; Zerboni et al. 2022; Zerboni et al. 2024, pp. 253-257.

needs and the perspectives of the local communities. However, it is necessary to point out that the project represents a strategic investment in Oman’s tourism sector, leveraging the rich cultural heritage and natural beauty of the place to attract visitors, while ensuring sustainable development. The project was born with the intention of balancing the preservation and promotion of heritage, and aims to unveil the full potential of the Wadi al-Ma’awil region as a leading tourist destination near Muscat, contributing to the economic growth and cultural enrichment of the Baṭinah South.



Fig. 1.8. Al-Manqal mound (Area A), and Wadi al-Misīn (Elaborated by C. Schiatti, © MASPAG, courtesy MHT).

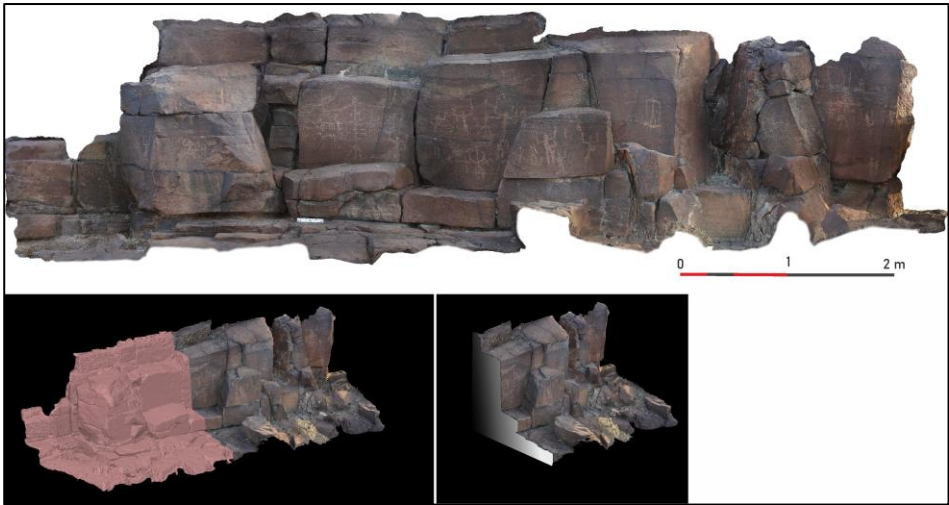


Fig. 1.9. Photogrammetric 3D relief of petroglyph FID 361-369 S_23, Jabal al-Hajar (Elaborated by D. Rose, ©MASPAG, courtesy MHT).

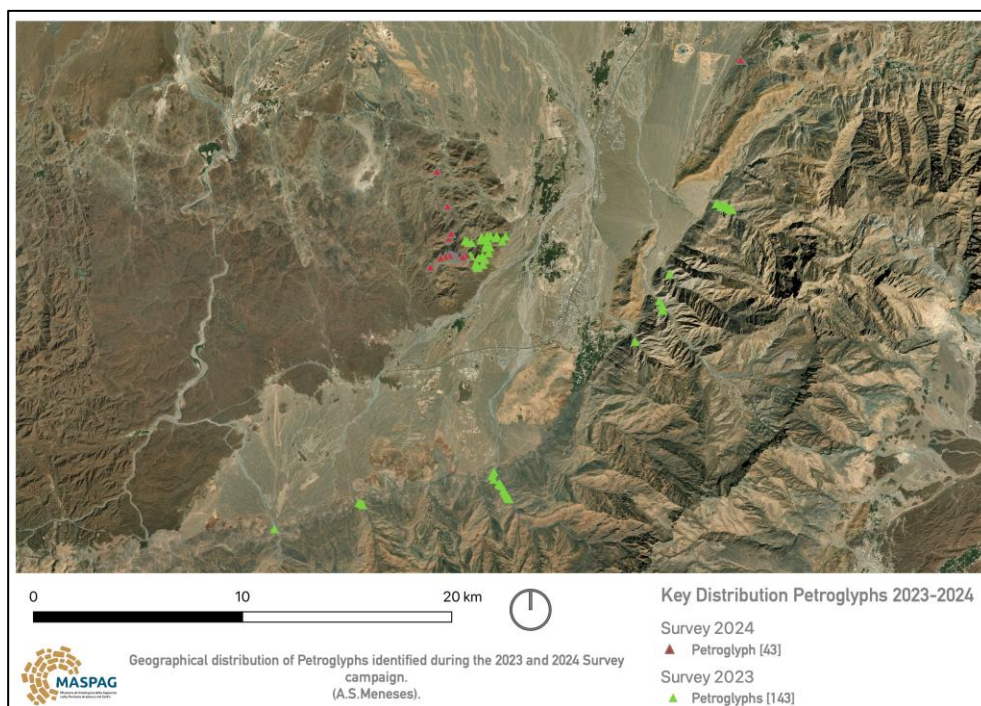


Fig. 1.10. Wadi al-Ma'awil, the petroglyphs discovered in the area during the 2023 and 2024 campaigns (Elaborated by A. S. Meneses Pineda, ©MASPAG, courtesy MHT).

1.5. Conclusion and Perspectives

Within this historical, archaeological and anthropological context, with the support of a multidisciplinary research set on the integration between excavations, surveys and computational modelling of territorial data, today we have the opportunity to undertake a highly specialized study of nomadism, semi-nomadism and in general of those expressions of human mobility that put the Arabian Peninsula, Mesopotamia, Syria-Palestine in mutual contact, and in particular between the end of the Bronze Age and the beginnings of the Iron Age, the civilizations that arose along the coasts, on the islands and swamps of the Arabian Sea with those of the central-eastern Mediterranean¹⁰.

At the current state of our work, at least two complementary perspectives of this research can then be indicated: the first oriented to grasp the relations that occurred in the Second and 1st Millennium BCE between the coastal cultures of the southeastern Arabian Peninsula and the Gulf and the so-called Peoples of the Sea / Peoples of the Sea Islands of the Central-Eastern Mediterranean¹¹; the second intended to resume the analysis of the socio-economic organization of the Magan and Dilmun civilizations, whose political strength is recalled in the epigraphic tradition in cuneiform since the second half of the 3rd millennium BCE, but which

¹⁰ Agostini 2022, pp. 103-122; Ramazzotti 2022, pp. 3-26; Ramazzotti 2023b, pp. 661-678; Ramazzotti ed. 2024.

¹¹ Boivin 2018; Ramazzotti 2025.

would seem to have been formed as a territorial identity already at the end of the 4th millennium BCE¹².

The small and precious objects that are coming to light in the Wadi al-Ma'awil Southwestern Cemetery (G1 and G2 in 2023, and G3 in 2024)¹³ and from the fortified settlement in Mound 1 (WS1 in 2023, WS2, and WS3 in 2024) dated to a chronological arc between the end of the Bronze Age and the end of the Iron Age, seem to already refer to the first perspective. They are, fragmentary gold and bronze jewels and beads common by type, technology, use and reuse to many others objects, precious and semi-precious, which simultaneously, since the end of the Late Bronze, have circulated in the Mediterranean putting the coasts of Syria-Palestine and Lower Egypt in contact with Cyprus, Crete, Sicily, Malta, Sardinia and southern Italy.

These materials will give us the opportunity to better define the transitional phase between Wadi Suq and the Early Iron Age period in the South-Eastern Arabian Peninsula¹⁴ and will enrich our knowledge of the "international style"¹⁵ opening the Euphrates gate as an umbilical connection between the two apparently distant worlds, Syria-Palestina and the Arabian Peninsula¹⁶. In relation to what has already been acquired in literature, it will be important, in the coming years, to investigate the places of origin of this "international style", integrating to the now increasingly refined knowledge of the relations that have connected Egypt, Syria-Palestine and western Anatolia to the central-eastern Mediterranean also those that, passing through the Euphrates / the North-West route, travelled over the centuries the central section of Eurasia and related the Upper Sea and the Lower Sea, the Arabian Sea and the eastern Mediterranean, the countries and cultures that overlooked the Gulf with the countries and cultures aimed at the Shores of the central-eastern Mediterranean. A contact that became increasingly fluid and integrated at the end of the Bronze Age, when environmental crises and political changes gave new impetus to nomadism, and in particular to the so-called "nomads of the sea".

The second perspective, complementary and integrated to the first, was opened by the discovery of the impressive Wadi al-Ma'awil Western Cemetery, where we will have the opportunity to explore the Hafit, Umm an-Nar, and Wadi Suq phases and transitional phases on more than 300 funerary contexts. Here, the stratigraphic excavations of G1 revealed a Umm an-Nar grave containing Hafit materials possibly

¹² Potts 1986, pp. 121-160; Potts 2000; Reade 2000, pp. 133-138; Crawford 2001; Højlund et al. 2008; Matthiae 2010; Carter 2013, pp. 579-599; Bortolini and Munoz 2015, pp. 61-80; Degli Esposti 2016, pp. 665-678; Giardino 2017; Swerida et al. 2021, pp. 75-96; Podany 2022; Castel et al. 2022, pp. 71-86; Williams ed. 2023; Döpper 2024; Ramazzotti 2024c, pp. 55-80; Suryanarayan et al. 2024, pp. 41-60; Kennet et al. 2025.

¹³ The forthcoming publication will contain the material of the excavations of 2024 and 2025.

¹⁴ Liverani 1990; Carter 1997a; Carter 1997b, pp. 87-99; Méry 2000; Matthiae 2010; Magee 2014, pp. 214-258; Righetti 2015; De Cataldo et al. 2019; Velde 2018, pp. 112-123. Weeks et al. 2017; Pellegrino et al. 2019, pp. 1-43; Frenez et al. 2020, pp. 120-124; Döpper 2021, pp. 313-327; Genchi 2024, pp. 63-80; Genchi et al. 2022, pp. 94-122; Pienkowska et al. 2025, pp. 1-18.

¹⁵ Feldman 2006.

¹⁶ Ramazzotti 2025a, pp. 75-92; Ramazzotti 2025b.

stolen by the upper Hafit necropolis.

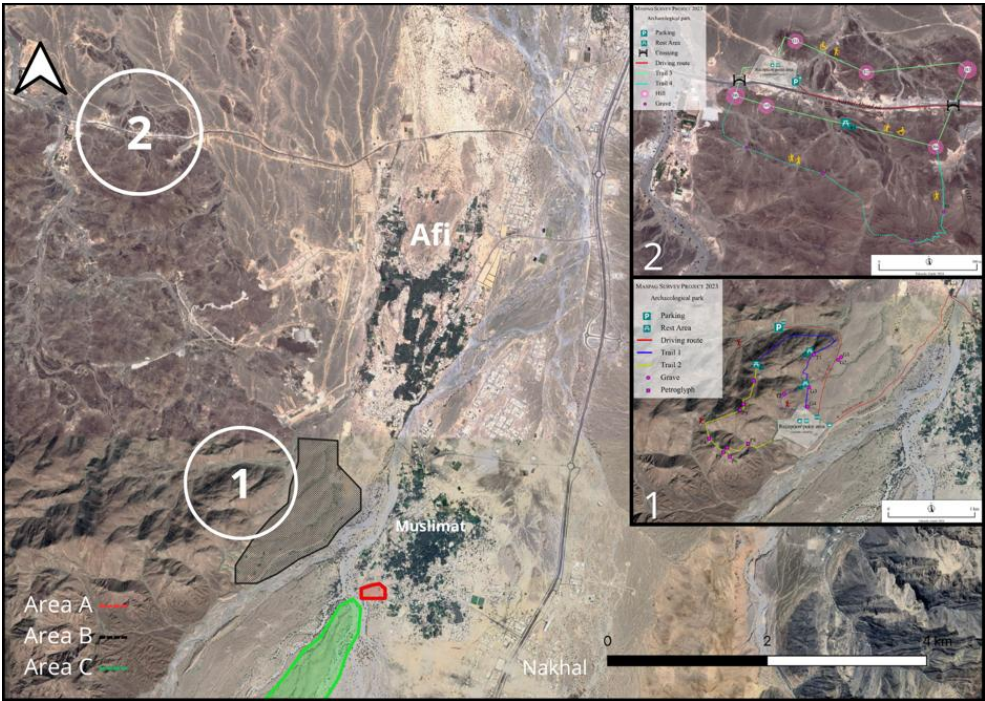


Fig. 1.11. Wadi al-Ma'awil, two proposed visit routes in the natural and archaeological park (Elaborated by E. Zanetti, © MASPAG, courtesy MHT).



Fig. 1.12. Late Bronze Age and Iron Age funerary and fortified site, located on the hill top, not too far from Bait Al Ghasham in Wadi al-Ma'awil the site location are as follows (23.468016, 57.811156). The site was badly damaged by trucks and by bulldozers flattening small parts of the upper parts driving over it. Now it is protected by the MHT inside the Natural and Archaeological Park of Wadi al-Ma'awil (© MASPAG, courtesy MHT).

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2. Surveys and Archaeological Excavations

Alessandro Di Ludovico, Ahmed Fatima Kzzo

Two survey campaigns have been carried out in the Governorate of Baṭinah South, before starting the excavations in Wadi al-Ma‘awil in October 2023.

2.1. Survey Campaigns of 2022-2023

The first Campaign lasted eleven days: it began on January 31st and ended on February 10th, 2022. The aim of that first general investigation was to verify the archaeological interest and potential of some areas and features that had been singled out in the images produced by satellite photographic coverage. In fact, in the preliminary phase of the work, we used passive remote sensing surveying to observe and identify any features, anomalies, and clues that might indicate places of archaeological interest. This led to outlining three main areas that became the main targets and reference points for the first field survey¹⁷. Thus, based on the evidence that was collected, in the second field survey campaign, which took place in January 2023, an intensive and careful exploration of one of those areas, namely Wadi al-Ma‘awil, was carried out.

2.1.1. Survey of January and February 2022

For the first campaign, the schedule of the field survey was based on the geographic position of the three main areas that had been outlined: al-‘Awābī and Mahālīl; Nakhal and Wadi al-Ma‘awil; Khaṭum (Fig. 2.1).

In al-‘Awābī, two small mounds were explored. The first mound (Territorial Unit 1 – TU1) is located next to Road 13 (connecting Nakhal with al-‘Awābī): there, we could collect a few potsherds and noticed no structures. No further potsherds were recorded on the surface in the other places explored in this area, except for a glazed fragment which was found on the second mound (TU2), mostly made of rocky outcrops and located about 1.5 Km south of TU1, in a place called Laujah (Fig. 2.2).

Close to a little circular stone structure placed on the top of the mound – possibly the remains of a grave – also an agate bead was found.

¹⁷ The detailed report of the 2022 survey campaign was published in Antinori et al. 2023.

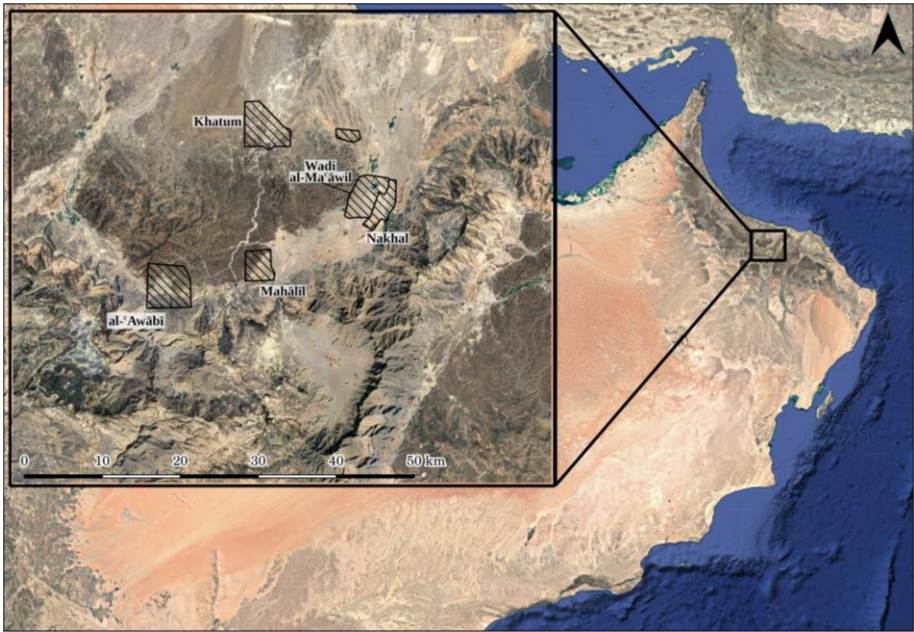


Fig. 2.1. The areas of survey investigation (Elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).

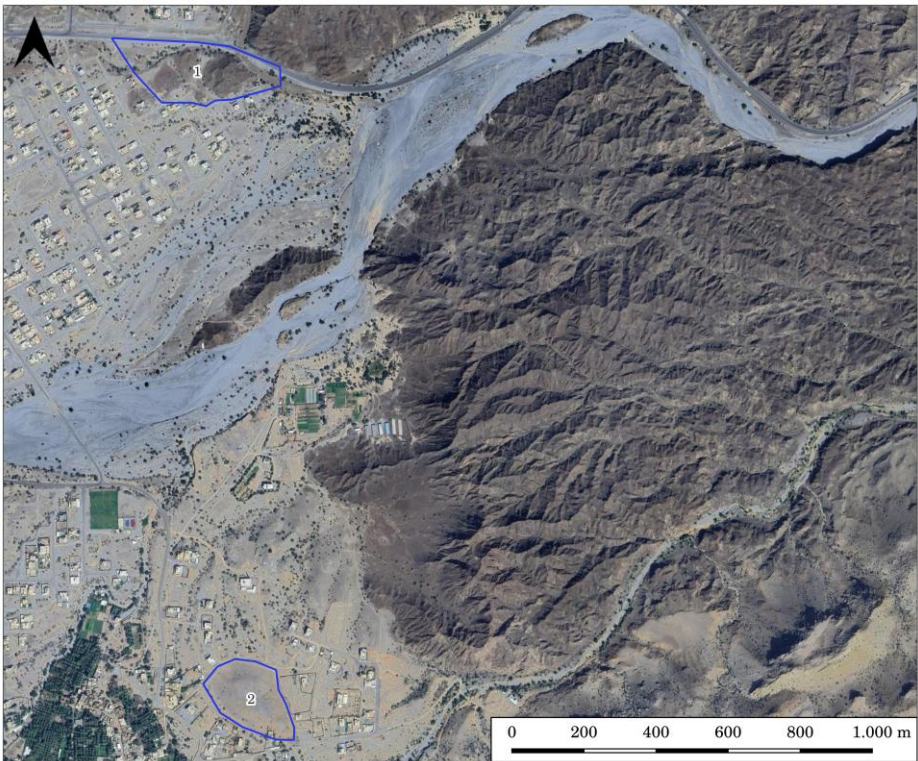


Fig. 2.2. The two main areas (Topographic Units) surveyed in al-‘Awābī (Elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).

Mahālīl is a system of small fertile plains that host a number of farms and are surrounded by hills and heights. We explored different areas, and the place called Madrah showed an extraordinary density of ceramic fragments on the soil surface.

In the eastern part of Madrah also a couple of cairns placed on low hills were also recorded, but especially interesting were some approximately circular formations visible on the soil. One of them is isolated and quite large, but completely deprived of potsherds; there, we collected a Neolithic arrowhead¹⁸. The other twelve wide circular spots (with diameters of about 15 metres) cover a small area which is rich in soil deriving from wadi deposits and lies about 200 metres further west (Fig. 2.3). They stand out from the rest of the area, since they are made of single layers rich in potsherds and dark cobbles which lie directly on the yellowish fine sand deposit of the wadi that is visible on the surface in the whole area.

A particular concentration of potsherds was also detected on the low mounds located in a wadi bed close to Nakhal, in an area which we named “Nakhal East”, where neither other traces of ancient human activities nor deposits of possible archaeological interest were found.

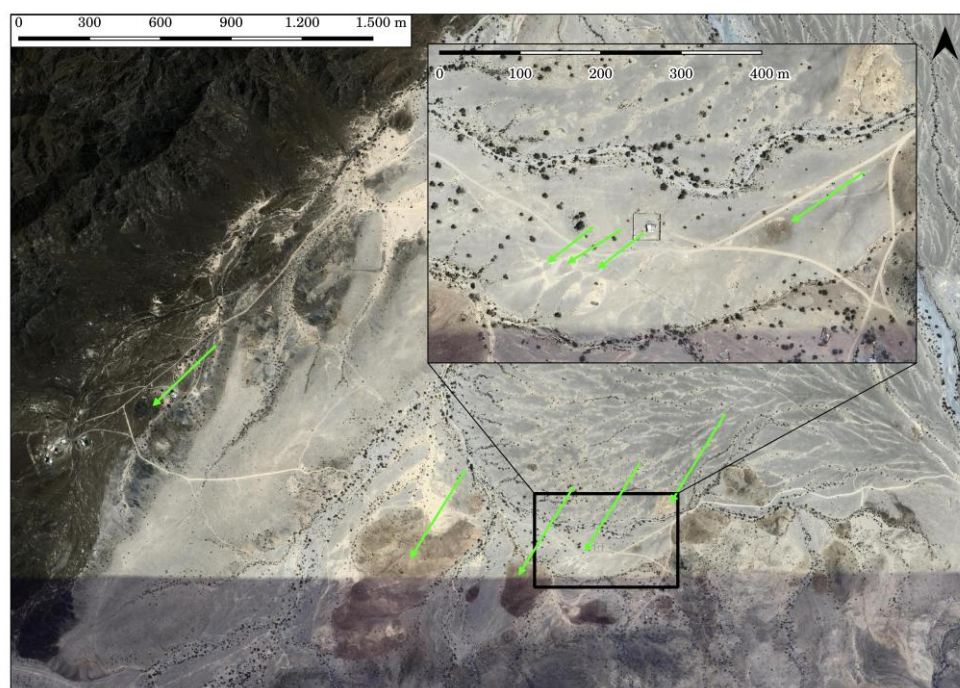


Fig. 2.3. Madrah, in the region of Mahālīl, and the areas on which the survey focused (Elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).

The surface investigation in Wadi al-Ma‘awil gave excellent results since the earliest approach, when in a single day the areas of al-Manqal, Fōrī and Jannat al-Ḥṣiniyyāt were surveyed (Fig. 2.4). Al-Manqal mound immediately provided very interesting clues, with a large amount of diagnostic potsherds – mostly dating to the Iron Age – and numerous metal slags, but also showing on the surface stone alignments that

¹⁸ We are grateful to Maria Pia Maiorano for the interpretation of this find.

suggest an intense human activity on it. Just north of al-Manqal, in the area called Fōrī, four other little mounds with ceramic materials scattered on the surface were explored. The concentration of potsherds on these mounds is much lower, and the few specimens that were collected can be referred mostly to Islamic ages. The whole area of Fōrī also showed the presence of erosion and risk factors, like past and ongoing road works and building activities. On the opposite side of al-Manqal mound, southwest of it, a narrow and almost three kilometers long hill was explored, called Jannat al-Ḥṣiniyyāt. It stands between Wadi al-ʿAyn and Wadi al-Misīn, which also runs between this hill and al-Manqal, approximately following their orientation. The ridge of al-Ḥṣiniyyāt is almost completely deprived of potsherds, but it hosts hundreds of burials belonging to various ages and types.

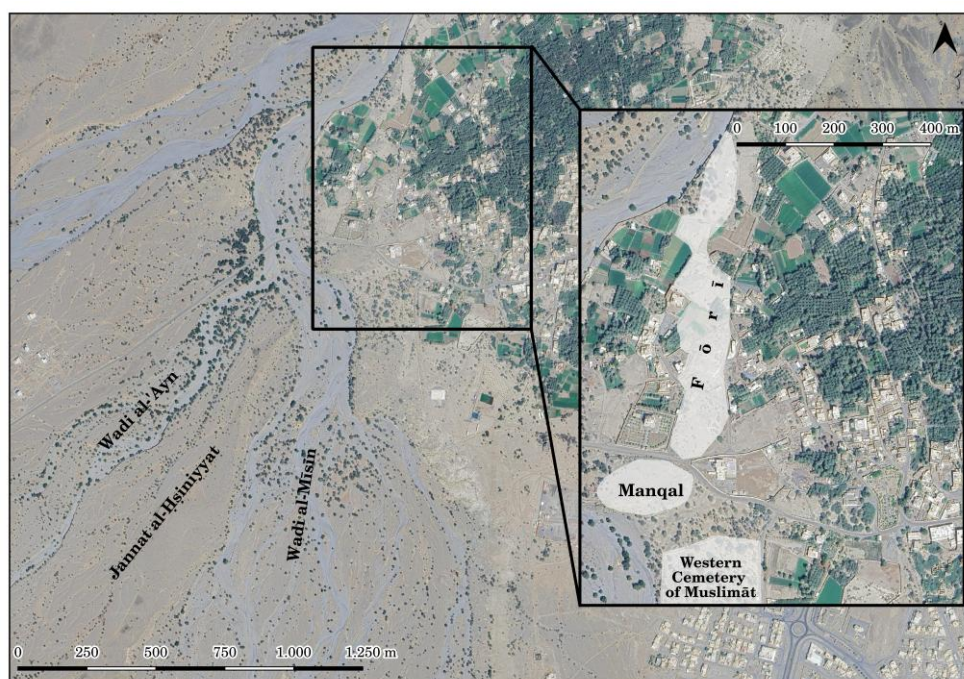


Fig. 2.4. The areas of Wadi al-Ma'awil which were explored during the first survey campaign (Elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).

Since its first investigation, the area of Wadi al-Ma'awil caught our attention for being very rich in quantity and quality of archaeological evidence, and thus promising for possible future field work activities. For these reasons, during the 2022 field survey campaign also aerial photo sessions were also carried out on the main Territorial Units that had been outlined in this area.

The field survey in the area of Khaṭum covered two main regions separated by the bed of the Wadi Far. The first is made of low hills and irregular plateaus, which are located by the northern bank of the wadi and cover approximately 160 hectares (Fig. 2.5). Here, the remains and positions of numerous stone cairns were recorded. A large part of such structures is not much evident because they have been heavily damaged by weather phenomena or, in rare cases, by human aggressive activities. The second region is made of higher hills with stone cairns well visible on their

ridges and a wide valley in which almost all potsherds collected in the area of Khaṭum were found.



Fig. 2.5. The area surveyed in Khaṭum (Elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).

2.1.2. Survey of January 2023

The second field survey campaign focused on the area of Wadi al-Ma'awil and included an intensive surface investigation of areas that were especially interesting and the expansion of the exploration to places that could not be reached during the first campaign due to time constraints.

On the mound of al-Manqal, two orthogonal strips have been ideally traced, crossing in its central area and approximately oriented north-south and east-west (Fig. 2.6). Two teams collected the materials scattered on the surface, each working in one of the strips. After these operations, we recorded and reported on the digital map the most evident surface stone alignments.

The diagnostic potsherds collected during the two survey campaigns on al-Manqal mostly pertain to phases dating back to the Iron Age. Particularly meaningful are the specimens with the snake applique (WMN22.TU1.189-190) and the handles of long-handled bowls (e.g., WMW23.TU1.2).

Just south of al-Manqal, the low mounds of the Western Cemetery of Muslimāt were quickly explored. No materials were collected, since no excavation activities can be planned on those mounds; we only observed that the ceramic materials scattered on their surface were of the same types and fabrics as those already recorded on al-Manqal.

Jannat al-Ḥṣiniyyāt was subjected to a new survey in order to establish with a better approximation the number of burials that remain on it: at least 153 of them

were georeferenced on the GIS archive. While carrying out these tasks, two objects were found on the surface layer of this mound: the stone vessel lid WMS.TU1.1 and the shell ornament WMS.TU1.2-SH1 (Fig. 1.5).

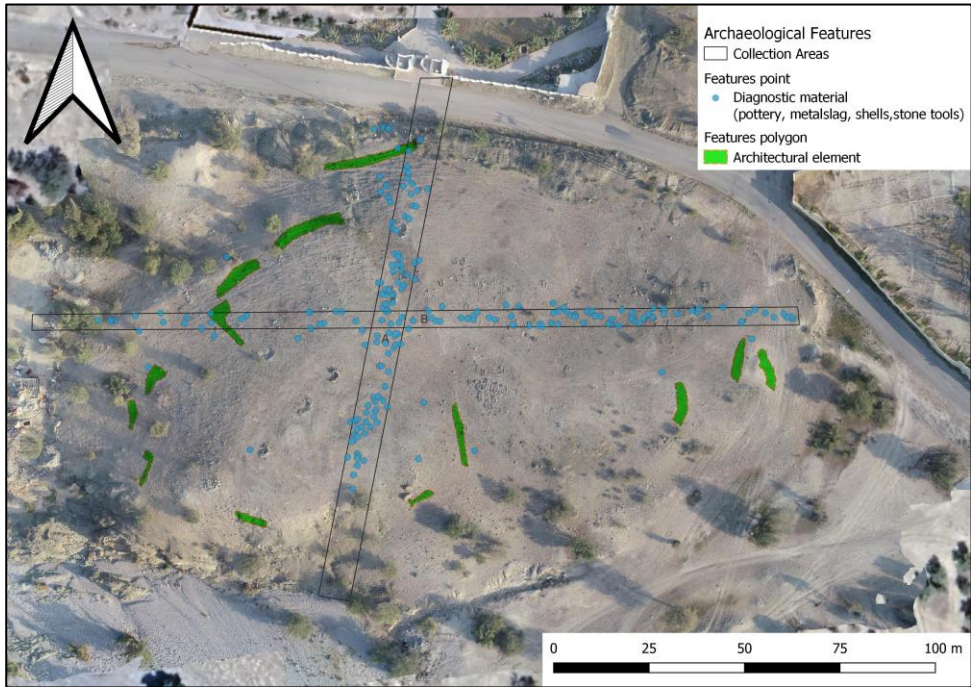


Fig. 2.6. Scheme of the intensive survey carried out on al-Manqal mound in January 2023 (Elaborated by S. Lischi, ©MASPAG, courtesy MHT).

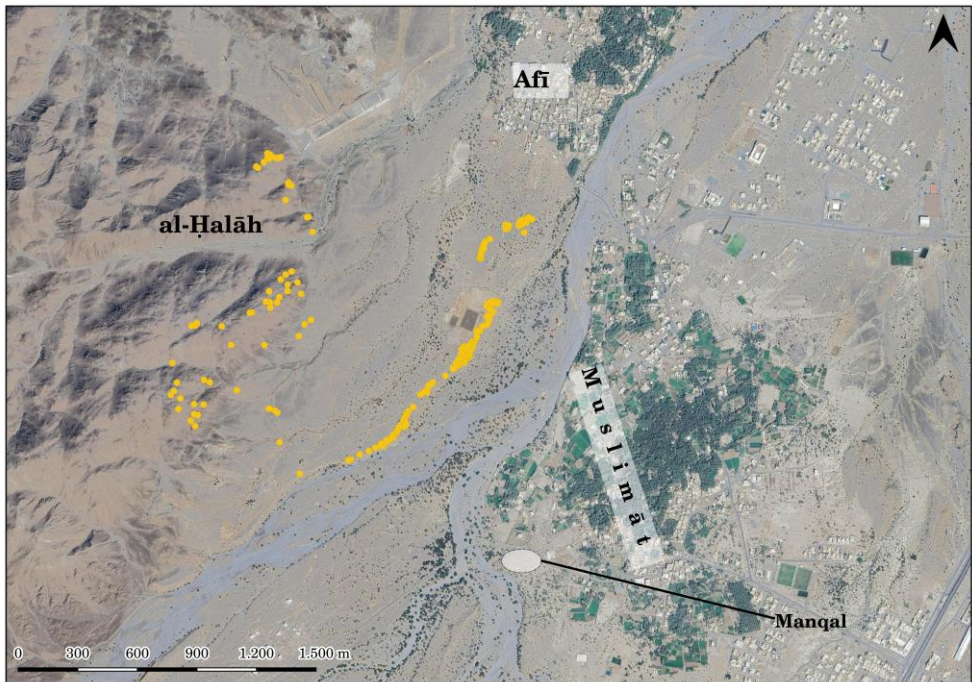


Fig. 2.7. Georeferenced cairns and traces of burials observed in the region of al-Halāh and Afī South in January 2023 (Elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).

The survey was then extended to areas located west of both Wadi Jaḥfān and Wadi al-Ma‘awil, in the regions of Afī South and al-Ḥalāh mountains, where it was possible to locate more than 250 ancient burials (Fig. 2.7). Based on their morphology and building techniques, they can be dated back to different historical periods, from the Hafit period to the Iron Age. Their state of preservation also varies considerably, and some of the burials are very poorly preserved. This is partly due to a number of modern risk factors of anthropic origin that we could spot. The removal of such risk factors began very soon, thanks to the prompt intervention of the Authorities, and is continuing successfully.

2.2. Archaeological Excavations of 2023

Between October 20th, and December 20th, 2023, archaeological excavations were conducted in the region of Wadi al-Ma‘awil (Fig. 2.8). We choose two areas close to the village of Muslimāt: Area A (Jannat al-Manqal) and Area C (Jannat al-Ḥṣiniyyāt). In addition, we worked in the so-called Area B, close to Afī, under al-Ḥalāh mountains.

2.2.1. Excavation Area A

During the survey campaign carried out in February 2022, the region of Wadi al-Ma‘awil particularly captured our attention because of the conformation of its landscape, made of a dense set of *widyān* and *wādī* branches between which low mounds and plateaus are placed. Most of these mounds and plateaus are variously populated with diverse types of funerary cairns, the original structures of which can be dated to different periods before the advent of Islam. On some hills, there are well-visible traces of modern agricultural activities on the surface that have probably continued for a long time, but ceased decades ago. Between them, also the pits and the tracks of old and disused *aflāj* are clearly visible. In such a frame, a group of six mounds (Fig. 2.9) located in an area called *Forī* stands out for the features we could record in them. Altogether they cover an area of about 9-9.5 hectares and are arranged in a succession covering an area of more than 700 linear metres in a north-south direction and between 100 and 115 metres in an east-west direction. *Forī* lies by the southwestern edge of the present-day settlement of Muslimāt and close to the western edge of its oldest district, of which few mudbrick structures in ruins are still visible (Fig. 2.10).

In the whole survey activities carried out in the campaigns of 2022 and 2023, potsherds were observed only on the surface of these mounds, together with myriads of pebbles and boulders, and in no other area of the whole region under investigation. Such pottery fragments are very densely present and are especially numerous in the two southernmost mounds, where they also date back to the earlier periods, namely from the Iron Age to the Pre-Islamic. As one proceeds northward, moving from one hill to the next, the ceramic sherds become less frequent and refer to later periods, thus from the early Islamic Age onwards. It is also worth stressing here that all mounds have been affected by erosion, damage, and attrition, largely due to the action of natural agents and partly due to human intervention.

All mounds have been subject to the erosion activity of rain and wind, and in recent times, this is especially true for the two southernmost mounds, i.e., those showing the most ancient traces of human activities. The latter have also been affected by the erosion of the floods of Wadi al-Misīn sim and by the choice of modern local communities to use them as graveyards, to the point that the southernmost hill was provided with a masonry fence and is still the cemetery of Muslimāt village (*maqbarah al-ġarbiyyeh*). The other mounds, showing on the surface relics of activities dating back to more recent ages, have already been incorporated in the modern village and are placed by its western limits. They have been especially affected by modern building and spatial transformation activities, consisting mainly of the construction of small mud-brick service buildings (for storage and transformation of goods like dates) and carriage roads.

2.2.1.1. Excavation Area A: al-Manqal Mound

The region referred to as Area A is a mound with an almost ellipsoidal plan that emerges as a small relief on the edge of the flat area of the village of Muslimāt and its oasis (Figs. 2.9, 2.10). The mound is called *al-Manqal* and is located near the north-western extremities of the village, close to the area known as "Forī". In plan, the mound surface is approximately 21000 sqm, while its main axis roughly follows an east-west orientation, for a maximum length of approximately 204 metres and a north-west width of about 137 metres, as the crow flies.

Al-Manqal is the second low hill from the south of those that have returned a considerable quantity of ceramic fragments on the surface. This mound is of particular interest because of the features that could be observed on its surface, in addition to the findings mentioned above. Besides potsherds, the most visible and showy constituents of the surface of this mound are pebbles, boulders, and rock outcrops. The latter are of two types: the compact conglomerate made of pebbles and limestone, which is a geological formation resulting from an early intense and very prolonged water action over time, and the greenish-greyish bedrock (Figs. 2.11, 2.12), which is much more compact and less friable than the conglomerate when exposed to weathering. Especially in the central and southern parts of the mound, it was possible to detect and collect a large amount of metal slags. Such peculiarities could be observed on al-Manqal as early as during the survey campaign carried out in February 2022, and they were the first main reason for the choice of planning an intense survey activity, especially dedicated to that mound in January 2023. The second reason was the evidence of stone alignments on the surface of the mound, which could be the remains of one or more walls or wall foundations belonging to large buildings, perhaps even to defensive structures in some cases.

Al-Manqal stands for a maximum height of a few more than 5 metres on the level of the asphalted street that runs at its foot, along its northern and eastern sides, and about 8 meters on the level of the wadi bed. The first excavation activities, which began in October 2023, confirmed the early impressions about the nature of this mound, namely that it should be made mostly of the natural bedrock and the geological conglomerate that lies on it. The archaeological deposit seems to reach a depth of thirty to sixty centimeters in most parts of the mound, but it is likely deeper in its central areas.

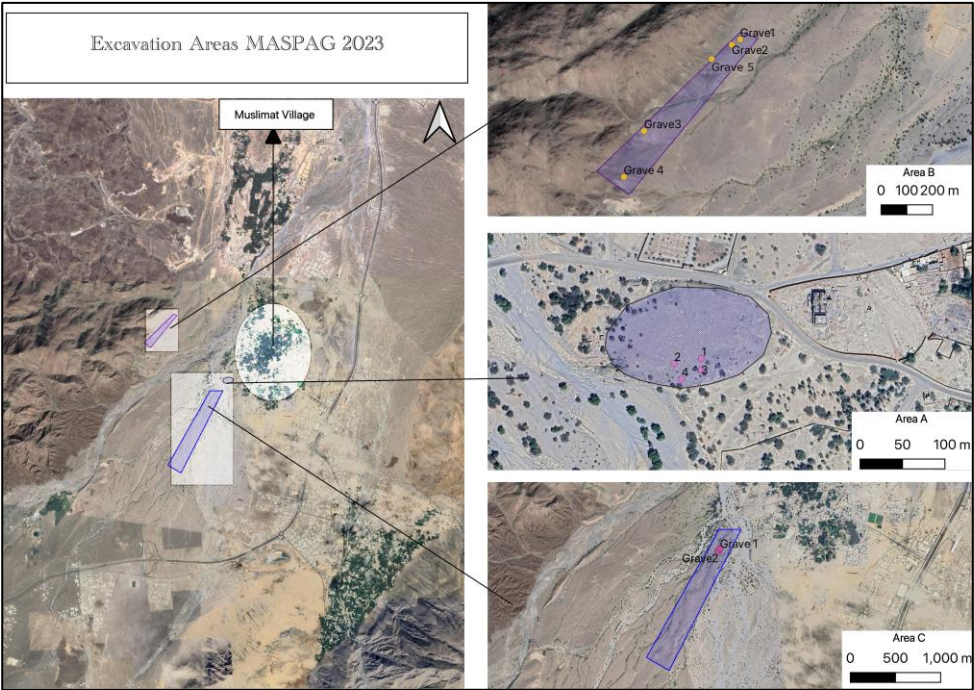


Fig. 2.8. Areas of excavations: A, B and C (Elaborated by A. S. Meneses Pineda, ©MASPAG, courtesy MHT).

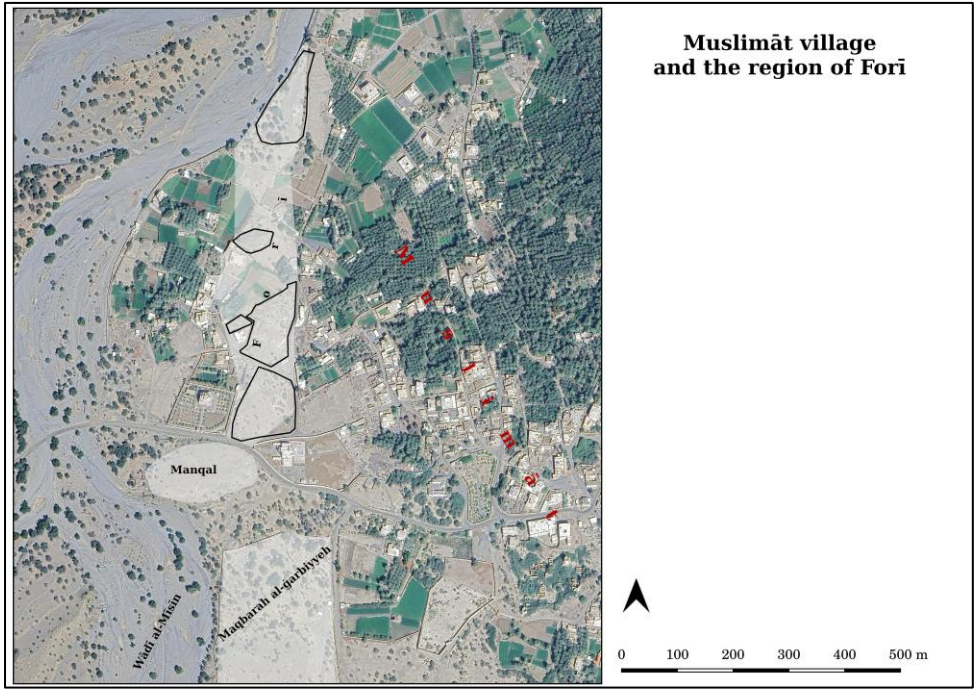


Fig. 2.9. The location of Forī, al-Manqal, and the western current graveyard in Muslimāt (Elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).

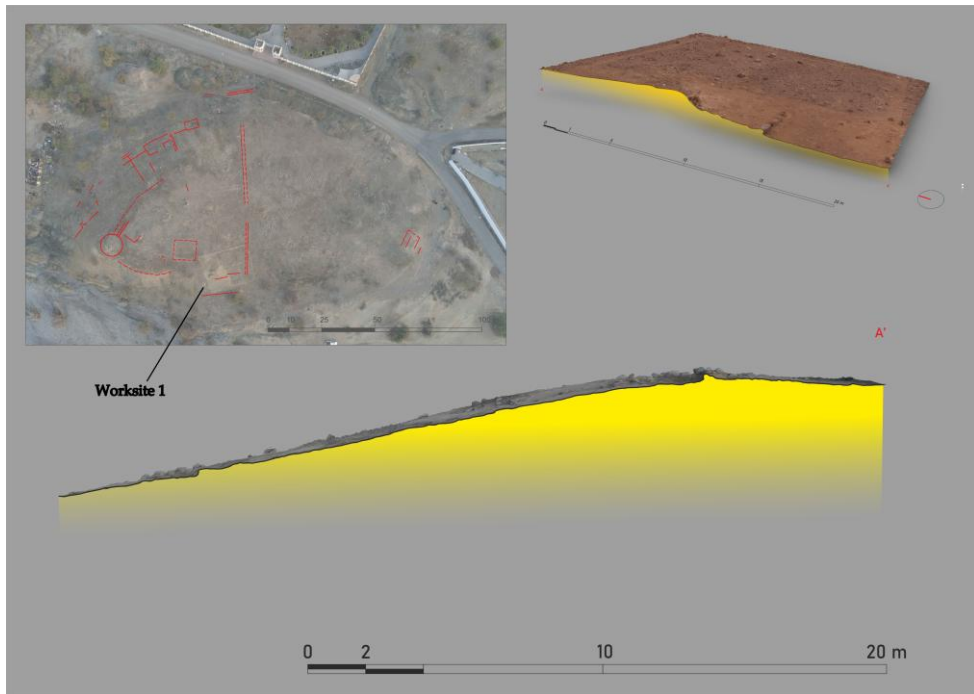


Fig. 2.10. Al-Manqal mound and Worksite 1 (Elaborated by D. Rose, ©MASPAG, courtesy MHT).

Area A – Worksite 1 (WS 1)

The first excavation activities in Area A focused on the central-southern region of the mound and covered a part of the southern slope, which included a remarkable conglomerate outcrop and, at close distance, stone alignments of middle and large dimensions (Figs. 2.10, 2.13).

The preliminary phase of the work consisted of a series of drone photographic shots aimed at producing an orthophotography plan and a three-dimensional digital model of the entire Area A. At the same time, the cleaning of a roughly rectangular space of approximately 450 square metres was carried out. This space was circumscribed on the ground in such a way as to include the emerging conglomerate and some stone alignments that could be relevant to a single structure. In the first cleaning phase, which was concentrated on the westernmost third of the rectangular space, the surface was cleared of the many scattered stones (of medium and small dimensions, ranging between 5 and 40 cm), and the potsherds that were abundant on it were collected. As mentioned above, also metal slags have been found and recorded in this region (samples S1_S1, S1_S3, S1_S10, S1_S11), especially by the western and northern limits of the circumscribed space, as well as shells (samples S1_S5, S1_S6, S1_S9) and fragments of bricks and clay wall coating (samples S1_S2, S1_S7 and S1_S8). The surface stratigraphic unit was subdivided into two parts, since it seemed useful to distinguish a small part of it, located at the western limit of the worksite and called SUS2, from its remaining part, SUS1. The reason for this distinction is that, differently from the deposits of other regions of this worksite, the deposit in SUS2 was largely made of a very friable yellowish earth with whitish mineral fragments: this is probably due to the exposure of earth and minerals to high

temperatures.

About ten days after completing the work in SUS1 and SUS2, the cleaning of the surface level was extended along two stone alignments oriented approximately SSW-ENE: the materials collected in this area were attributed to SUS3.

In SUS1, three fragmentary basalt tools (WMN23.A.WS1.S1_O3, WMN23.A.WS1.S1_O4, and WMN23.A.WS1.S1_O5, see Cat. 95) an unfinished stone bead (WMN23.A.WS1.S1_O1, see Cat. 1), and the small fragment of a bronze container, perhaps a bowl (WMN23.A.WS1.S1_O2, see Cat. 83) have been found.

The amount of pottery fragments collected on the surface is remarkable, but they are mostly non-diagnostic and of quite rough manufacture.

Under the surface level, in SU1, in the area between the two larger conglomerate outcrops (the minor of which could actually be just a part detached from the larger one), a little lead ball, a rifle bullet dating back probably to the nineteenth century, was found (WMN23.A.WS1.1_O1, see Cat. 91).¹⁹ Further south, a quite compact soil has been detected in the central part of the working area, between the stone alignments, but the deposit became richer in potsherds and more friable towards the south, where the possibility of working further was strongly limited by the presence of recent graves, which partly superimposed on the stone alignments.²⁰

Consequently, for the main part of the campaign, the investigation focused on the area close to the conglomerate outcrops and the stone alignments that are just south and southeast of them.

Close to the conglomerate, just west-southwest of it, traces of a little and probably circular or almost circular structure have been detected: it is made of clay and has probably been exposed to fire and very high temperatures for a very long time. Its state of preservation is such that not much can be hypothesized about its original function, except that it was certainly part of facilities for processing materials, e.g., for metal smelting. Just north of it, a stone tool, probably a muller (WMN23.A.WS1.2_O1, see Cat. 95) was found.

In the area between the conglomerate and the nearer stone alignments, the amount of potsherds diminished significantly in the first stratigraphic units lying under the surface. As the work advanced, it became more and more evident that the conglomerate must have flaked apart, collapsing toward the south-east. This must have caused the destruction and the loss of parts of the stone alignments that lie there below. The two alignments that were clearly visible on the surface in the western part of WS1 have been named with a locus and stratigraphic unit number. The alignment closer to the conglomerate has been labeled L1, corresponding to SU4, while that placed near the southern corner of the worksite has been named L2, and it corresponds to SU5 (Figs. 2.14, 2.15).

¹⁹ Similar bullets are on display in the *Arms and Armour Gallery* of the National Museum of the Sultanate of Oman, Musqat.

²⁰ It seems that there is no more memory by the population of Muslimāt about the identity or the family relationships of the people buried in such graves. Based on the information we obtained from some locals, we can hypothesise that these burials are about eighty years to one century old.

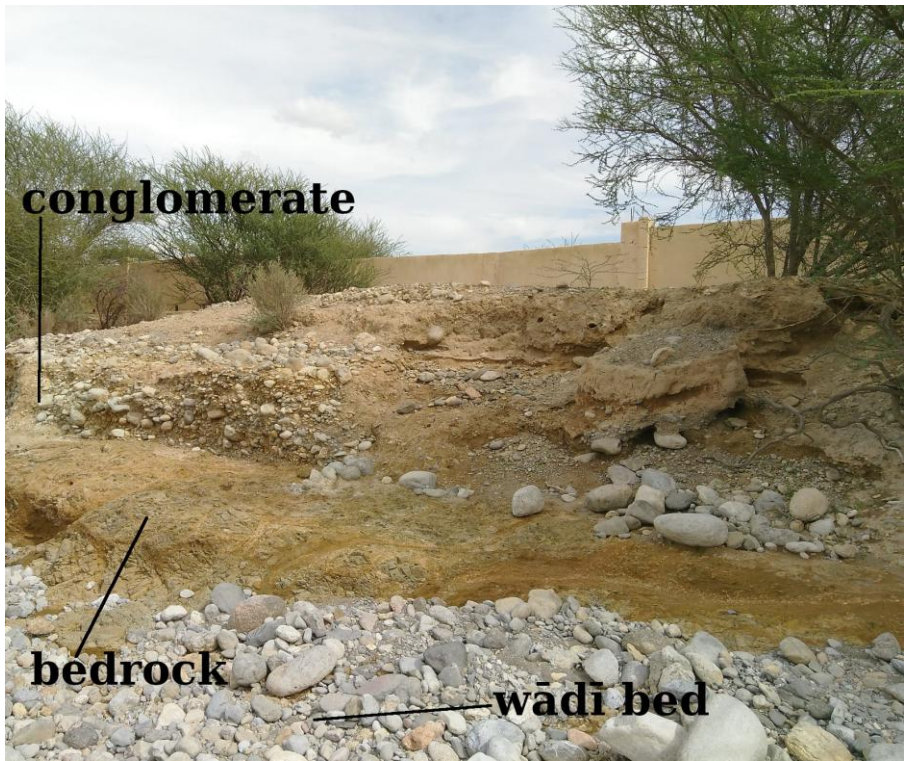


Fig. 2.11. The main geological formations of the area by Wadi al-Misīn: the conglomerate, the bedrock and the wādī bed. Picture taken from the wādī bed, west of the western graveyard (elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).



Fig. 2.12. The main geological formations of the area by Wadi al-Misīn: the conglomerate, the bedrock and the wādī bed. Picture taken from the wādī bed, west of the western graveyard (elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).

Southeast of the conglomerate outcrop, the deposit was very thin, and a part of the natural conglomerate surface could be reached very soon. That surface has a whitish colour and has been partly cut in, at least on two occasions: first to build L1, and then in later cuts (SU14, filled by SU3, and SU11, filled by SU7) that have also affected a collapse layer (SU8) consisting of stones, potsherds, and mudbrick fragments.

The deposit of SU3 was very rich in potsherds – some of which were clearly burnt – mudbrick fragments, clay wall coating fragments, pebbles, and boulders. The latter two are clearly the remains of conglomerate parts that collapsed in the pit. Here the potsherds were often in vertical position in the deposit, mixed with fragments of clay coating, while at the bottom of the pit alignments of little stones were discovered, and by them there were burnt potsherds reduced to flakes; these features of the deposit lead to think that it could be a pit prepared in order to install a workshop structure. In SU3 also metal slags (3_S2) and coal samples have also been collected (3_S11, 3_S12). An interesting finding in SU3 was a small object in baked clay with incised lines. Initially, it seemed to be part of a vessel handle, but after cleaning it gave the impression of being rather a fragment of a terracotta animal figurine, namely part of a paw (WMN23.A.WS1.3_O1; see Cat. 97).

Under SU3, a second layer of collapsed stones was detected: SU10. This deposit is made of fine brownish and non-compact earth with many stones of very small size (Fig. 2.16). Large and thick potsherds emerged in a considerable number. It seems to be the earliest part of the collapse of the structure of SU3.

The filling of pit SU11, i.e., SU7, was made of a dark sandy deposit mixed with ashes, a large amount of small potsherds, and a number of mudbrick fragments.

The collapse layer SU8 was definitely more compact than the fillings of the two pits, and the presence of potsherds in it was much rarer, while mudbrick fragments are significantly numerous. A stone tool (8_O1) and a stone vessel fragment were found in SU8 (WMN23.A.WS1.8_O2, see Cat. 35) and shell (8_S1, 8_S22), slags (8_S19) and coal (8_S3, 8_S8, 8_S10, 8_S11, 8_S12) samples were collected.

That the deposit in this area was repeatedly eroded and disturbed is clear from further evidence, such as the pits mentioned and further remnants of later human intervention, like the thin deposit of SU9 (by the northeastern edge of L1), consisting of greenish-brownish soil accumulated on an oval of small stones in a north-south orientation.

Especially meaningful could be the collapse layer that lies just beneath SU8 and has been called SU12. This stratigraphic unit is made of a subtle light brown sandy deposit, almost deprived of inclusions, which covers little fragments of coal, traces of clay coatings, and well-preserved bricks, besides fragments of conglomerate. The westernmost part of SU12 ends with an alignment of two rows of stones, which seem to lie on a substratum made of smaller stones. This stone alignment runs almost parallel to L1 and north of it, at a distance of 1.26 metres. Although its thickness is 44 cm, just like L1, its state of preservation makes it unclear whether it is actually part of a wall structure, so no specific structure name was attributed to it (Fig. 2.17).

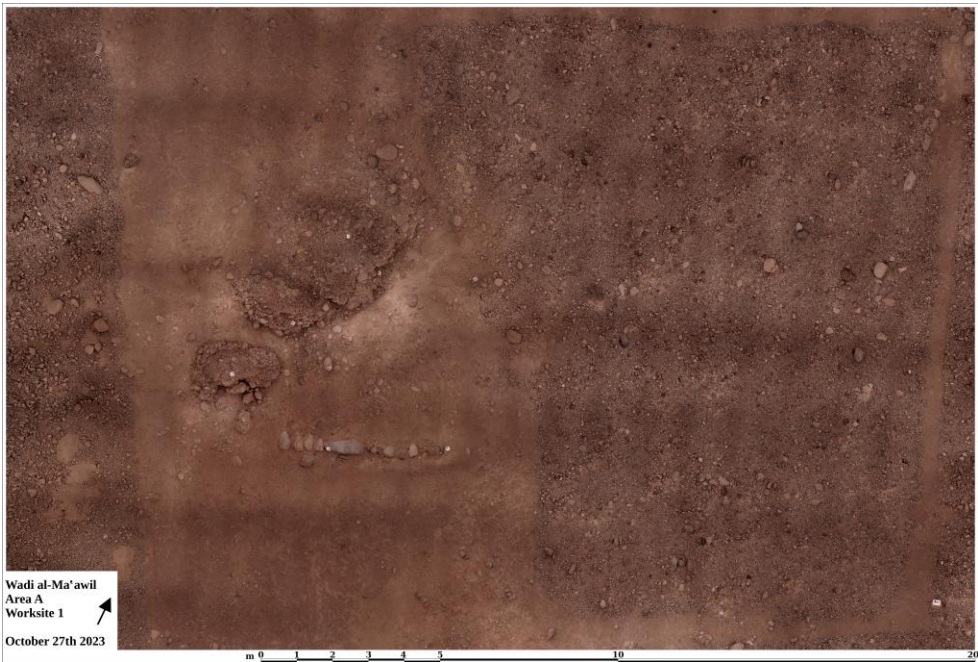


Fig. 2.13. Worksite 1 in al-Manqal mound, Area A (Orthophoto by D. Rose, elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).



Fig. 2.14. Stone alignments L1 and L2 in Worksite 1 seen from the south (Photo by A. Di Ludovico, ©MASPAG, courtesy MHT).



Fig. 2.15. Stone alignment L1 in Worksite 1 seen from the east (Photo by A. Di Ludovico, ©MASPAG, courtesy MHT).



Fig. 2.16. Close-up view of SU10 (Photo by A. Di Ludovico, ©MASPAG, courtesy MHT).

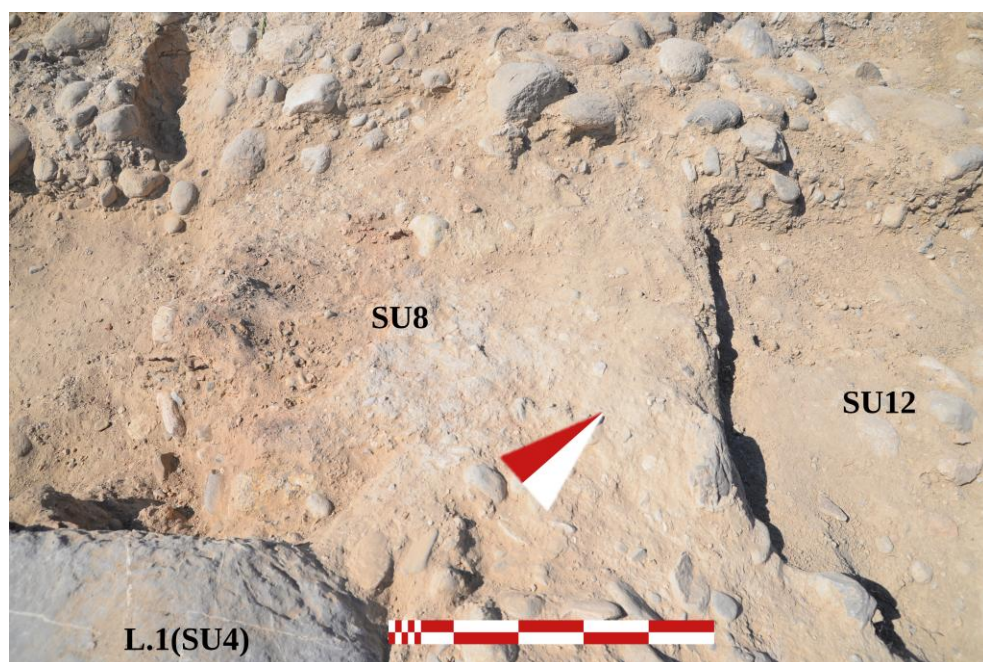


Fig. 2.17. Close-up view of SU8 and SU12 (Photo by A. Di Ludovico, ©MASPAG, courtesy MHT).

East and northeast of L1 and SU12, a layer which interrupts SU8 by its northeastern limits is greenish and very friable and contains very few potsherds and a large number of very small stones; in its eastern part, close to L1, this deposit seems also to contain a good amount of ashes and heavily burnt potsherds. It was labeled SU13, and in it a number of coal samples were collected (13_S2, 13_S3, 13_S4). Just east of SU13, a compact clay layer, maybe part of a platform, could be detected in the last operations of the excavation season (Figs. 2.18, 2.19).

2.2.1.2. Final Remarks

The archaeological evidence of Worksite 1 in Area A suggests that this region of al-Manqal mound had hosted manufacturing structures, mainly related to metal smelting. The remains are in very poor condition, and so is the deposit and the materials it contained, and it is meaningful that no ceramic vessel form could be reconstructed, using the potsherds collected, for more than 40 per cent, and almost all the fragments collected correspond to less than 20 per cent of the relevant form.

The stone alignment L1 is very likely part of a structure that had been abandoned for a long time, when the region was reused as a dump of workshops in a period in which also other little building remains were slowly ruining, together with parts of the conglomerate formations, and collapsing eastwards (Fig. 2.20). The clues that could be collected are not enough sound to confirm it, but it is reasonable that both L1 and L2 were originally retaining walls that had to support the facilities placed on the highest regions of the mound. All building and workshop activities should have been carried out in this area, considering the evidence of the material culture, in the middle to the late Iron Age. For sure, in modern times, there were minor human interventions in the whole mound, but they did not affect the deposit and material remains as much as natural erosion agents did.

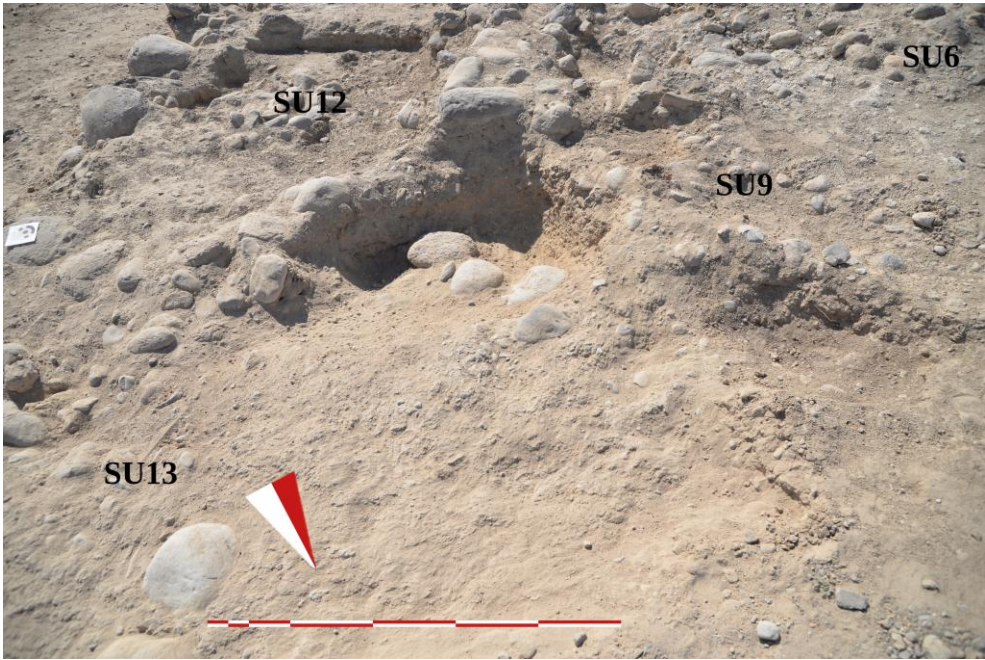


Fig. 2.18. Close-up view of SU13, with SU6, SU9, and SU12, from the north (Photo by A. Di Ludovico, ©MASPAG, courtesy MHT).

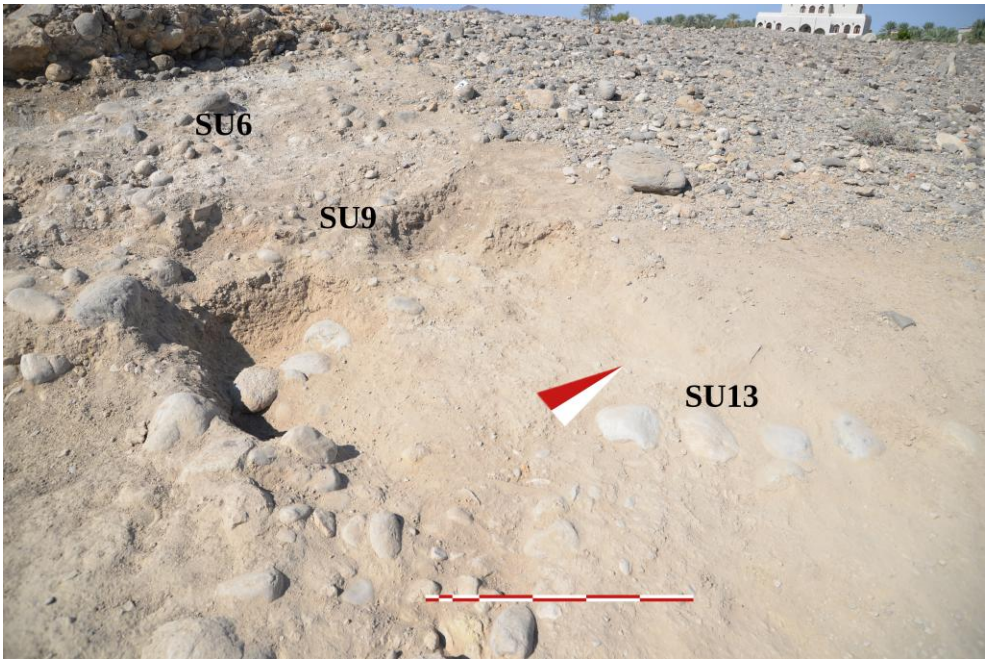


Fig. 2.19. Close-up view of SU13, with SU6, and SU9, from the southeast (Photo by A. Di Ludovico, ©MASPAG, courtesy MHT).

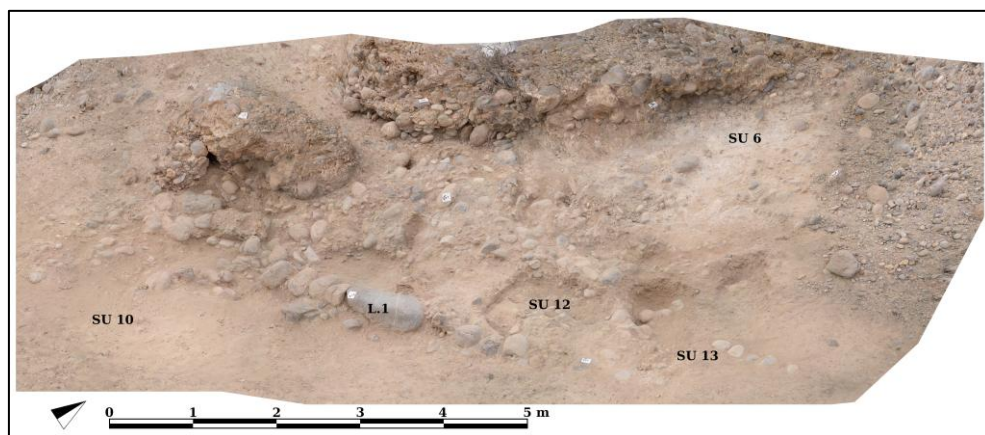


Fig. 2.20. Orthomosaic of Worksite 1 at the end of the autumn 2023 fieldwork activities (Elaborated by A. Di Ludovico, ©MASPAG, courtesy MHT).

2.2.2. Excavation Area B

This area (Fig. 2.8) extends from north to south along Jabal al-Ḥalah, which is part of the western chain of al-Ḥajar mountains. It is a part of the topographic unit 1 (TU1), which was created in the survey of 2022-2023. During this survey, it was identified in this area, Area B, five archaeological features which represent five graves with circular forms. We named the graves as: G1, G2, G3, G4, and G5 (Fig. 2.8). In the excavation of October-December 2023, we excavated G1 and cleaned G3.

2.2.2.1. Grave G1

Its geographical coordinates are 581194.2590180552, 2591461.857086555 in the UTM system and 154°15'32.465", 1°51'25.512" in the Latitude-longitude system. In November 2023, we started the excavation in the grave G1, which is situated in the northern part of Area B. It is circular with around 14 m. in diameter. It consists of different circular features (Fig. 2.21). The first external feature we called "Ring", which consists of small stones that, probably, belonged to the external wall but, by natural factors (heat, cold, rain), were broken and fell around the grave. Then we have wall W1, which was built in casemate, so it consists of two parallel lines of stones similar to the ophiolite. Between these two lines, there is a fill that consists mostly of small stones and pebbles. The wall W1 is more conserved in the higher elevation in the eastern and northeastern parts of the grave. After photographic documentation by camera and drone to create a 3D and photogrammetry model, we started to clean the surface of the grave from the small stones and aeolian soil, so we removed what we called SU1. To the south of the structure, we found a fragment of a stone tool, probably a chisel, WMW23.B.G1.1_O3 (Cat. 91), made from flint. During the removal operations of SU1, a fragment of animal bone, probably ovicaprid, was found and collected under the number WMW23.B.G1.1_B1. Then we started to remove the collapse, which we called SU2. This collapse layer consists of medium and large stones (ophiolite and pebbles). Between these stones, we found the first pottery fragments, which are mostly of kitchenware (Fig. 4.5). These pottery fragments were collected under the number WMW23.B.G1.2 in addition to some fragments of bones under the inventory number WMW23.B.G1.2_B1. Both the bones

and pottery could be not ancient. By removing the collapse SU2, we identified the first rectangular funerary chamber, Locus 1 (L1). After that, we identified another chamber, L2, which is located along north the L1.

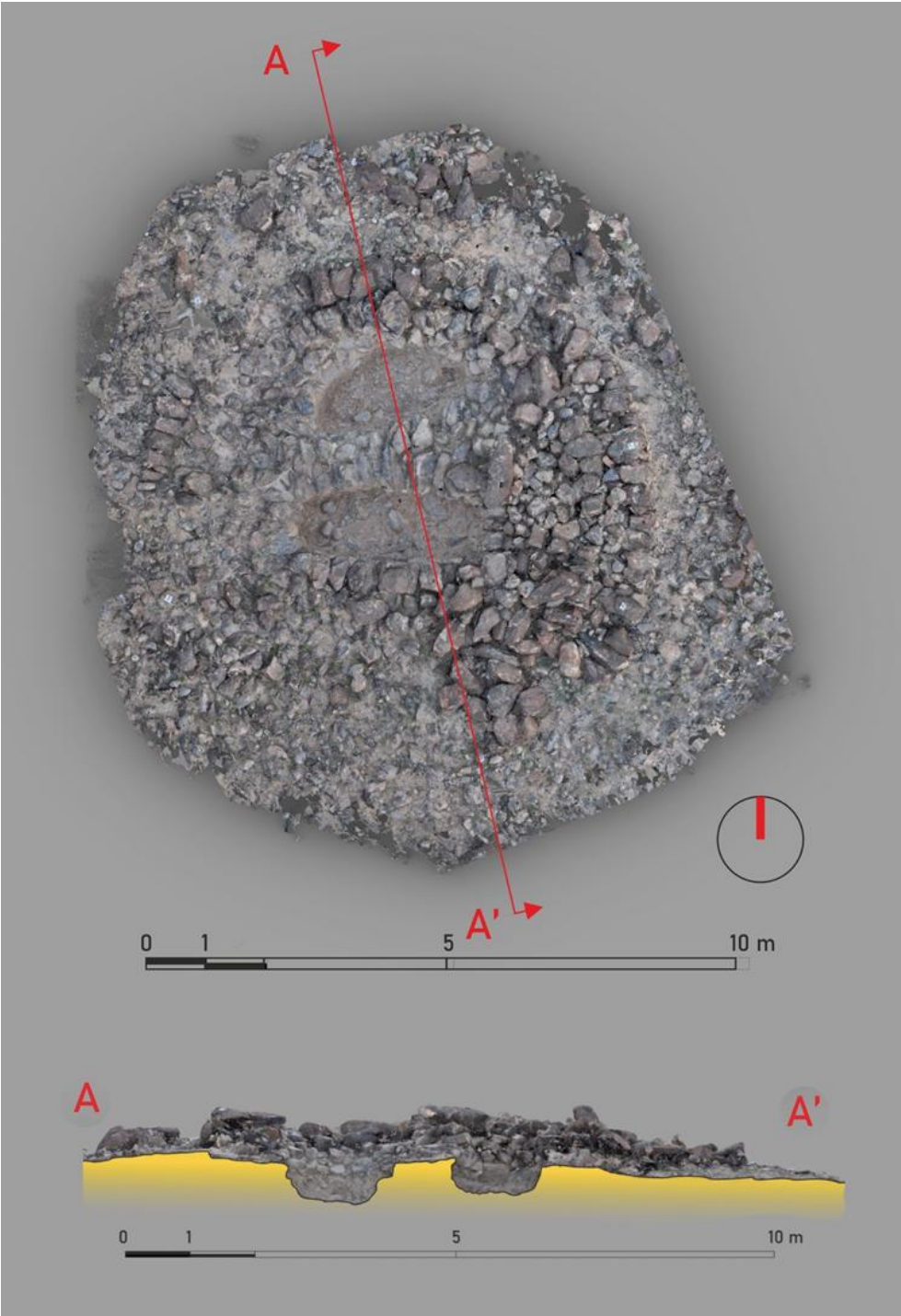


Fig. 2.21. Photogrammetric 3D relief of grave G1, Area B, L1, the southern chamber, L2, the northern chamber (Photo shooting by A. F. Kzzo, processing D. Rose, ©MASPAG, courtesy MHT).

Locus 1 (L1)

This locus/chamber is surrounded by a semi-rectangular dry-stone wall, which we called W2. The wall consists of three courses of stone. The length of the locus is 300 cm, and the width is 130 cm. The collapse above this chamber was given a separate stratigraphic unit number, SU3, even though it was similar to SU2, but it has mainly pebble stones. In this stratigraphic unit, we found two fragments of pottery, WMW23.B.G1.3 (Fig. 4.6) and a small piece of probably human bone, collected under the number WMW23.B.G1.3_B1. Under the SU3, there is a layer, SU5, which is not so thick, around 5 cm, and consists of loamy soft sand of yellowish color. We found in this stratigraphic unit some pottery and bone fragments, which were collected under the numbers WMW23.B.G1.5 and WMW23.B.G1.5_B1. SU5 covers a layer of river pebble stones with a medium size. This layer was named SU7 and contained fragments of pottery and bones. Exactly under this layer, we identified an important layer, SU8, which consists of sand and clay stratum predominantly crumbly mixed with flakes and small-sized stones. In this layer, in the center of the chamber, we found pottery fragments which form an almost complete small biconical pottery jar, WMW23.B.G1.8_1 (Figs. 2.22, 4.7). It seems that somebody collected the broken jar and placed it in this location, because a big fragment flipped and was placed inside a bigger fragment. After restoration, the jar is missing its neck and a piece of its body. The jar is a biconical shape without any decoration, with a diameter of ca. 15 cm. A very similar jar was discovered at the site of Zukayt (Fig. 1.3), located around 50 km south of our site²¹. We should mention that we found a fragment belonging to the jar in upper stratigraphic units: SU7 and SU3. While fragments from SU7 could be attributed wrongly, but from SU3, which is the stone collapse, affirm that the chamber was dug up and filled again.

In association with this jar, we found two axes (one of copper and the other of flint) and human bones (Figs. 2.22, 8.1, 8.2). Axe WMW23.B.G1.8_O4 was made of copper (Fig. 8.1, Cat. 91). The axe is narrow, elongated, flat, and trapezoidal. Its length is 24.6 cm, minimum width 3.8 cm, maximum width 8.3 cm, its thickness is 1.3 cm, and its weight is 929 g. It seems that the axe consists of two axes fused together, which is a particular way of manufacturing. Axes similar to this axe were found in Ras al-Jinz in Oman, Jabal Buhais (number BSH67), and Mleiha in Sharjah, which date back to the mid-3rd millennium and ca. 2200 BCE²². Instead, the flint axe WMW23.B.G1.10_O1²³ was placed at the southern side of the chamber L1, next to the wall (Figs. 2.22, 8.2, Cat. 92). Its length is 13.3 cm, width 6.6 cm and its weight is 133 g. Next to this axe, some bones were found and collected under the number WMW23.G1.10_B2. On the other side of the chamber, the northern side, we found a fragment of cranium which was collected under the number WMW23.G1.10_B4. The

²¹ For similar example see Cleuziou and Tosi 2020, p. 204 and 205, fig. 93 and 94.

²² See Cleuziou and Tosi 2020, p. 390, fig. 35.7; p. 218, fig. 120 and p.344, fig. 207. See also Giardino 2019, p. 74, fig. 7.20.

²³ It was attributed to the successive layer, SU10, because it is more compact than SU8. But by rechecking the soil, the materials, and pictures, we can attribute it to SU8. While SU9 was canceled.

isotopic analysis showed that it belongs to a male adult (for further information, see chapter 12. Anthropological Remains).

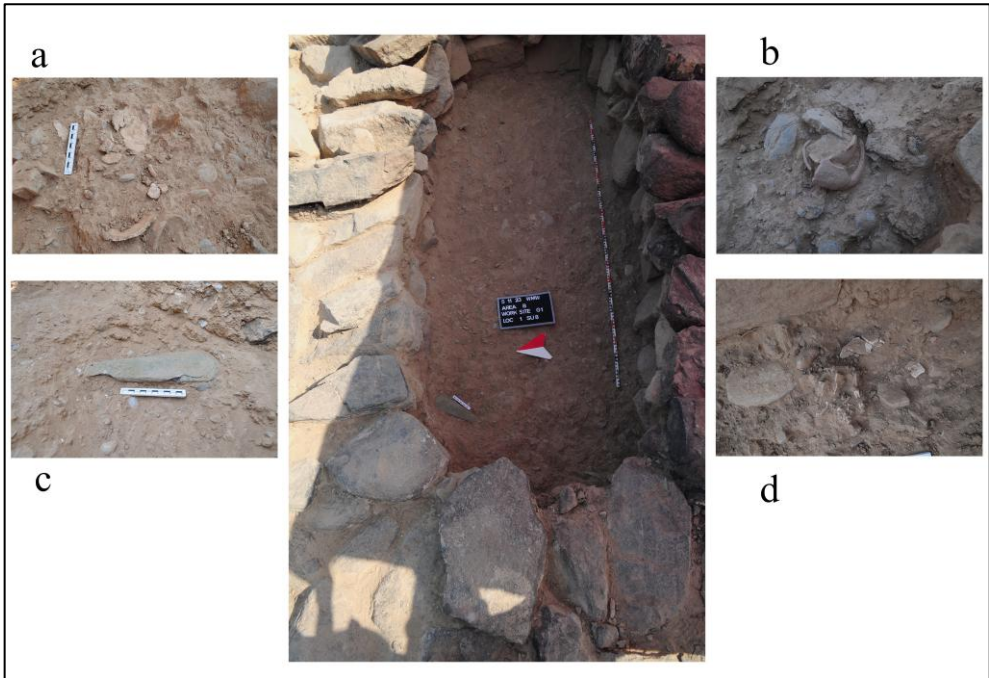


Fig. 2.22. Locus 1, Grave G1, Area B: (a) human remains, (b) the biconical jar, (c) bronze axe, and (d) the flint axe with bones (Photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

At the last phase of removing the layer SU10, we found two small fragments of charcoal, labelled as WMW23.B.G1.10_S1 and WMW23.B.G1.10_S3. In the same place, we collected more charcoal samples from the subsequent layers, SU15 and SU16. However, under the SU10, we identified two layers: SU13, located in the western part of L1, and SU14, located in the eastern part. The soil of both of them is similar, compact clay with small stones, but the SU13 one's is crumbly. We distinguish between them because of the appearance of a bigening of stone line in the middle of the chamber, which we thought was used to separate the chamber into two spaces. But further work we found that this line is a half circle and it is limited at the southern side of the chamber. This line forms the border of a hearth (Fig. 2.23) that was attributed to two stratigraphic units: SU15 for the half circular line of stones and SU16 for the soil inside the half circular line of stones. We took charcoal samples from these SU: WMW23.B.G1.15_S1, WMW23.B.G1.16_S1, WMW23.B.G1.16_S2, and WMW23.B.G1.16_S3 in aim to make C14 analysis. It is possible to hypothesize that the hearth was installed inside the chamber for ceremonial aims, probably a sign for purification, especially since it has almost no ash, which could indicate that it was used only once. Finally, under SU13, SU14, SU15, and SU16, we reached layer SU18, which consists of big rocks and is empty of any human activity evidence (Fig. 2.21).



Fig. 2.23. The fireplace in Locus 1, G1, Area B (Photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

Locus 2 (L2)

Its length is c. 250 cm and its width is c. 120 cm. This locus has a similar situation to the L1; the locus was covered by rubble of collapsed stones, which consists of stones of medium and large sizes. Under this layer, we found SU6, which is equivalent to SU5 in L1. Thus, it is not a thick layer of loamy soft sand of a yellowish color. In this layer, we found some bones which were collected under the number WMW23.B.G1.6_B1. Under the SU6, we reached the layer SU11, which consists of clay with a yellowish color, including small stones. We found in this layer a bone fragment, labeled as WMW23.B.G1.11_B1. This layer has a pit we called the cut of the pit by SU12B and the filling of the cut (pit) SU12. The SU12 is formed by a brownish stratum with some small stones. By removing SU11, we found a carbonized stone which was taken as a sample WMW23.B.G1.11_S1. This carbonized stone was located above a new layer, SU17, which consists of brownish soil with some small stones. Under SU17, we found a layer, SU19, that includes micro black spots, like charcoal, and sometimes limestone. A few small stones have a dirty black surface, which could be traces of burn or organic decomposed materials. However, a sample, WMS23.B.G1.19_S1, was taken for further analysis. Removing the SU19, we identified SU20, which consists of very compact soil with some big stones, which could indicate the bedrock (Fig. 2.21).

It is noticeable that we did not find any bones, pottery, or elaborated cultural materials in the layers after the first two layers of collapse (SU4 and SU6). This leads us to believe that this locus, L2, was never used as an entombing space. Instead of the carbonized stone, it could be thrown from the hearth in L1 in locus L2. Thus, this space was never dug up after the SU11, because the layers' soil in L2 is different from L1.

2.2.2.2. Grave G3

Its coordinates are 580821.0665163161, 2591107.7837514747 in the UTM system and 141°3'59.459", 7°47'1.505" in the Latitude-longitude system. It is located in the central part of Area B, north of the G4. Next to G3, there were construction works going on last year. It had already been built a platform from bricks (Fig. 2.24). Fortunately, the Omani Ministry of Heritage and Tourism stopped these works after our notification. During the excavation season of October-December 2023, we worked to clean up the G3. We removed the construction materials from the grave's surface and from the surrounding area (Fig. 2.24) to be ready for excavation in the next year.

2.2.3. Excavation Area C, Jannat al-Ḥṣiniyyāt

It is located south of the village of Muslimāt (Fig. 2.8). It covers the hill called by local Jannat al-Ḥṣiniyyāt, literally the foxes' hill. This hill is located between Wadi al-'Ayn and Wadi al-Misīn. The hill was under survey in January 2023, when hundreds of graves were identified. Area C is part of what was labeled as topographic unit 1 (TU1) in that survey.

During October-December 2023 excavations, we worked in two graves, G1 and G2, which were located in the central part of the hill.



Fig. 2.24. Grave G3, Area B, (above) before cleaning, (down) after cleaning (Photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

2.2.3.1. Grave 1

Its geographical coordinates are 581912.7768727324, 2589831.7869414967 in the UTM system. It consists of two structures attached to each other: rectangular and oval (Fig. 2.25). The eastern part of the grave is a rectangular structure that consists of a rectangular chamber (mainly locus 4) surrounded by a wall that consists of three courses of stone, only the upper one above the land surface. This wall is surrounded

by three other lines, thus we have walls, W1, W2, W3, and W4. The grave measurements are ca. 11 m west-east, and ca. 10 m north-south. The rectangular chamber, locus 4, is 3.40 m long (N-S) and 2.10 m wide (E-W). In addition, the wall (W1, W2, W3, and W4) has different thicknesses because of the conservation state: the northern part is 1.70 m, the eastern part is 1.60 m, the southern part is 1.74 m, and the western part is 1.50 m. These make the total measurements from east to west ca. 5.20 m and from north to south ca. 6.84 m. Thus, it was a huge structure, but unfortunately, we do not know how high it was. Currently, it has one course of stones above the land surface and two courses under the surface, which reach ca. 0.7 m of depth.

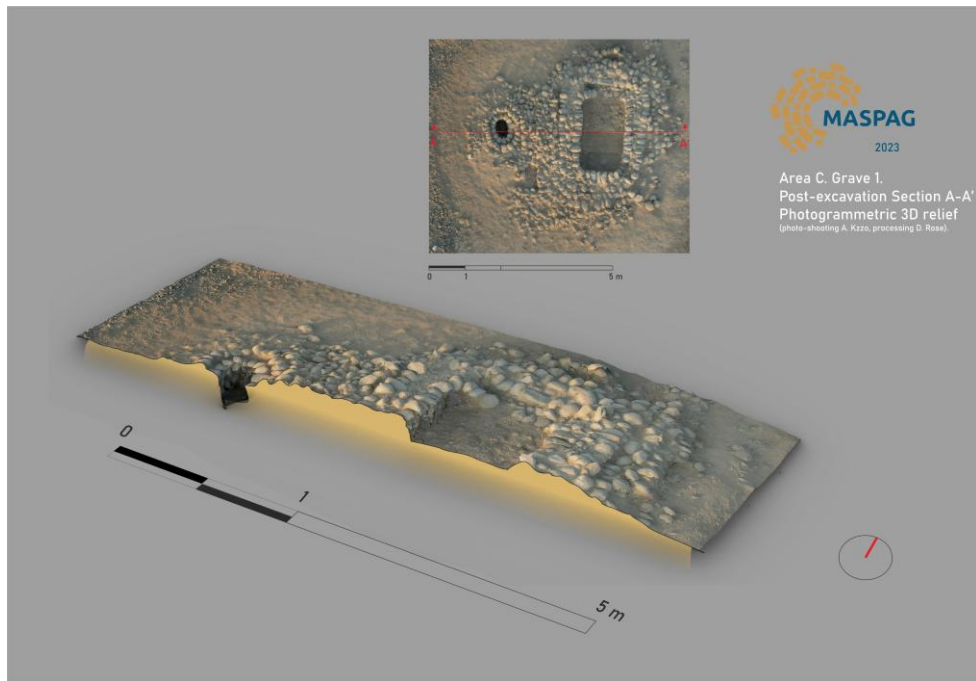


Fig. 2.25. Photogrammetric 3D relief and section of grave G1, Area C (Elaborated by D. Rose, ©MASPAG, courtesy MHT).

Instead, the oval structure occupies the western part of the G1. It consists of an oval chamber (locus 9, see below) and a wall consisting, at least, of four rings, which the bigger two are partially conserved. The chamber is 87 cm long (N-S) and 62 cm wide (E-W). The rings together are thick between 0.5 and 1 m, depending on how much remains of them. It seems that this structure was built as a consequence of the rectangular structure. This could be proved from the L7, which cuts W4 of the rectangular structure, and this locus in turn is cut by the ring of the oval structure (Figs. 2.25, 2.26).

However, we started excavations by removing the first stratigraphic unit, SU1, which consists of small stones and aeolian soil on the surface. During the removal of this layer, which was ca. 10 cm thick, we found various fragments of stone vessels (Cat. 35: WMS23.C.G1.1_O1, WMS23.C.G1.1_O7, WMS23.C.G1.1_O9; Cat. 36:

WMS23.C.G1.1_O10), pottery collected under WMS23.C.G1.1, and bones collected under WMS23.C.G1.1_B1 and WMS23.C.G1.1_B2. Under SU1, we identified a new stratigraphic unit, SU2, which consists of the collapse of the structure. In the rectangular chamber, under SU2, we identified different loci. These loci are added in a later period of the building of the grave with its main chamber, which we called L4. These loci were: L1, L2, L3, L5, L6, and under them L10. Instead, L7 and L8 are outside of the chamber, L4 (Fig. 2.26). The L9 is the oval structure, located to the west of the rectangular structure. This tumulus is similar to Wadi Suq single burials, which were discovered in other sites such as Wadi Sunaysl (near ‘Ibri), Khudra, al-Moyassar (in Wadi Samad), Sachrut al-Hadri (in Masirah island), and Bawshar²⁴.

The rectangular chamber is surrounded by 4 dry stone walls, of 2 or 3 courses. Between the first wall, W1 (the inner one), and the second, W2, there is space filled with stones. The walls are more conserved on the southern side; instead, the other sides are very damaged or missed.

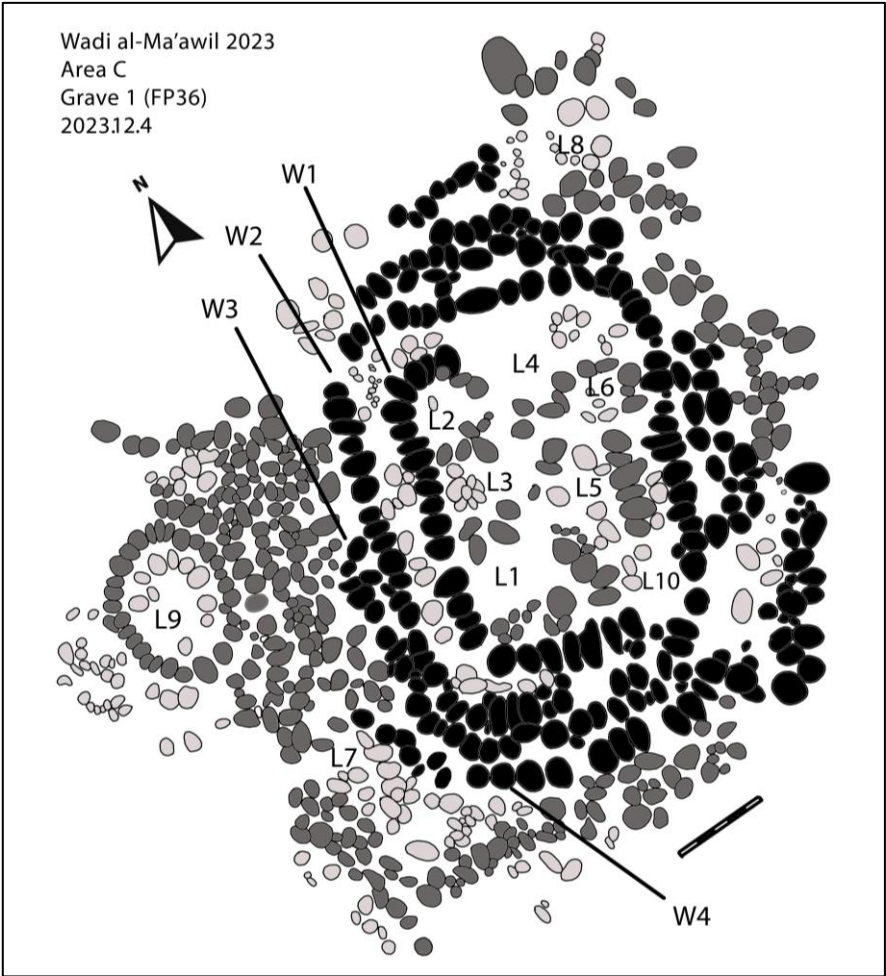


Fig. 2.26. Grave G1, Area C (Drawing by C. Agostinelli, ©MASPAG, courtesy MHT).

²⁴ Cleuziou and Tosi 2020, p. 424, fig. 248.

Locus 1 (L1)

It is located in the southwestern corner of the rectangular main chamber (Fig. 2.26), laid on the western wall of the chamber. It is circular with ca. 1 m of diameter. Here, we identified two layers of fill, SU5 and SU9. The SU5 is characterized by a sandy soil with the presence of small stones. This layer included six fragments of stone vessels (Cat. 38, 39), a bead (Cat. 3), and two fragments of pottery, in addition to bone fragments, WMS23.C.G1.5_B1, which was very fragmented and not possible to extract any information. While SU9 did not offer any findings, thus SU9 could be the natural layer free from any human activity traces and equivalent to the SU20 in the main chamber.

Locus 2 (L2)

It is located at the northwestern corner of the rectangular chamber (Fig. 2.26). It is a circular space with ca. 1 m of diameter. Half of its wall consists of the upper course of the wall W1, the wall of the main chamber, and the second half, continued by smaller stones. We identified two layers: SU6 and SU8. The soil of SU6 is similar to that of SU5 of L1. In SU6, we found two fragments of stone vessels, WMS23.C.G1.6_O1 and WMS23.C.G1.6_O2 (Cat. 39), in addition to bones WMS23.C.G1.6_B1, but not pottery. While in SU8, we recovered seven finds: three fragments of stone vessels, WMS23.C.G1.8_O2, WMS23.C.G1.8_O4b (Cat. 40), WMS23.C.G1.8_O6 (Cat. 61), two stone vessels' lids, WMS23.C.G1.8_O1, WMS23.C.G1.8_O3 (Cat. 40), one bronze arrowhead, WMS23.C.G1.8_O5 (Cat. 92), and a gold leaf, WMS23.C.G1.8_O4 (Cat. 3).

Locus 3 (L3)

It is also semicircular with ca. 1 m in diameter. It is at the center of the western wall of the rectangular chamber, between L1 and L2 (Fig. 2.26). We identified a layer of SU7, which is characterized by sandy soil with small stones. It is similar to SU6 and SU5. In this layer, SU7, we found a fragment of a stone vessel, WMS23.C.G1.7_O1 (Cat. 41), in addition to bone fragments WMS23.C.G1.7_B1, which were very fragmented and not possible to extract any information.

Locus 4 (L4)

It forms most of the rectangular chamber. Our interpretation is that the rectangular chamber, within the grave, was the locus 4, which then, in the next periods, was plundered or reused, and on its surface were created these small loci (L1, L2, L3, L5, and L6). However, in L4, we identified SU3 with very friable sand, located immediately under the collapse of SU2. This layer gave many finds, 148 artifacts, and 41 pottery fragments. The artifacts are: 50 stones beads (Cat. 3 - 14), six fragments or complete gold beads, WMS23.C.G1.3_O21 (Cat. 4), WMS23.C.G1.3_O28 (Cat. 5), WMS23.C.G1.3_O64 (Cat. 6), WMS23.C.G1.3_O67 (Cat. 7), WMS23.C.G1.3_O95 (Cat. 10), WMS23.C.G1.3_O128 (Cat. 14), two fragments of golden ring WMS23.C.G1.3_O126 and WMS23.C.G1.3_O127 (Cat. 14), 73 fragments of stone vessels (Cat. 41 - 60), 14 cluster of bronze's fragments which contains 53 fragments of bronze (Cat. 83 - 87), two bronze arrowheads, WMS23.C.G1.3_O66

(Cat. 92), WMS23.C.G1.3_O85 (Cat. 93), a small pestle, WMS23.C.G1.3_O93 (Cat. 96). In SU3, as well, we collected several fragments of human bones: WMS23.C.G1.3_B1 and WMS23.C.G1.3_B2. In the western central part of the chamber, we identified SU4, which is similar to SU3 but with a gray color and more small stones. In SU4, we found a fragment of bronze, WMS23.C.G1.4_O1 (Cat. 87). Under the SU3 and SU4, we identified a new layer, SU18, which is sandy soil with brownish color and stones. This layer was completed by excavation in 2024. It gave 100 artifacts which consist of 52 stone beads (Cat. 15 - 26), one gold foil, WMS23.C.G1.18_O32 (Cat. 18), one gold bead or coating, WMS24.C.G1.18_O32 (Cat. 23), three inlays, WMS24.C.G1.18_O7 (Cat. 21), WMS24.C.G1.18_O9 and WMS24.C.G1.18_O21 (Cat. 22), 39 fragments of stone vessels (Cat. 61 - 72), four cluster of fragments of bronze (Cat. 87, 88), and one arrowhead, WMS24.C.G1.18_O6 (Cat. 93). In addition to this number of finds, the layer contained great quantity of bones fragments. The anthropological study of these bones with the bones collected from SU3 allowed us to identify three individuals (See chapter 12. Anthropological Remains). Under the SU18, we identified a new layer, SU20, which is silty gray soil with small stones. It did not offer any find. SU20 is similar to the composition of the lowest and natural layer found in the loci of the nearby grave, G2 (See below). To ensure that we reach a natural layer without any human activity traces. We excavated 30 cm deeper to reach a new layer, SU21, with silty gray soil and medium-sized and large-sized stones.

Locus 5 (L5)

It was assigned when a line of stones appeared, but at the end, it was not a closed space, and its soil continued as well as the soil SU3 in locus 4. So, it was not given a different stratigraphic unit.

Locus 6 (L6)

It is a semicircular space delimited by a course of stones. It is located in the northeastern part of the chamber (Fig. 2.26). The fill, SU10, consists of silty soil and stones. We found only bone fragments, WMS23.C.G1.10_B1.

Locus 7 (L7)

Outside the walls of the rectangular chamber at the southwestern corner, we identified a space that was formed by a course of small stones (Fig. 2.26). Its first fill was given the number SU11, which contains animal and human bone fragments (WMS23.C.G1.11_B1), one bead WMS23.C.G1.11_O6, and a bracelet's fragment WMS23.C.G1.11_O2 (Cat. 26), and three fragments of stone vessels (Cat. 73).

Locus 8 (L8)

Outside the walls of the rectangular chamber, at the northeastern corner, we identified another space (Fig. 2.26) which offered different finds. The layer was named SU12, where we found four beads (Cat. 26, 27), a cluster of bronze (Cat. 88), two bronze arrowheads (Cat. 93 - 94), and two flint fragments.

Locus 9 (L9)

To the west of the walls of the rectangular chamber, it was formed in sequences time an oval burial space (Figs. 2.29, 2.27). It consists of an oval chamber and 4 rings of dry-stone walls (see above). The first layer, SU13, consists of stones closing the chamber. In this layer, we found a bead, WMS23.C.G1.13_O2 (Cat. 27), and a fragment of a stone vessel, WMS23.C.G1.13_O1 (Cat. 73), in addition to a few fragments of bones. Under the SU13, we identified a new layer, SU14, of compact clay brownish soil. In this layer, we found a fragment of a stone vessel, a fragment of bronze (Cat. 89), and bones, in addition to a fragment of shell and some malacofauna, which were taken as samples. Under SU14, the new layer, SU16, is similar in composition to the previous one but with a gray color. From this layer, we did not find any objects. We only collected some bones and some samples of shells. After removing medium-sized stones, we reached another layer, SU17, with compact sandy gray soil. In this layer, we found a bead, WMS23.C.G1.17_O1 (Cat. 27), and a bronze arrowhead, WMS23.C.G1.17_O2 (Cat. 94), in addition to bones.

Under SU17, we identified a new SU, called SU19, which is a silty and sandy gray soil, with stones of medium size. This was the end of the locus, as this layer did not offer any finds. With this, we reached a depth of around 1 m and can see the structure inside the chamber, which consists of three courses of stones, with a fourth course visible on the surface of the hill (Fig. 2.27).



Fig. 2.27. Locus 9, Grave G1, Area C (Photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

Locus 10 (L10)

It is at the same level as L1, L2, L3, L5, and L6. It is located in the southern part of the rectangular chamber (Fig. 2.26). Its fill was called SU15, where we found one bead, WMS23.C.G1.15_O7 (Cat. 28), six fragments of stone vessels (Cat. 74 - 75), a fragment of flint, sherds and bones. Under SU15, there is the SU3 of L4.

2.2.3.2. Grave G2

It is located further south of the G1. It has a long rectangular shape. Its length from east to west is ca. 14 m. While its width from the western part is ca. 5 m, and from the eastern part is 3 m. It consists of five burial chambers (L1, L2, L3, L4, and L5) in a semi-rectangular shape, in a row extending from east to west. At the western part, a sixth smaller chamber (L6), in a half circle shape, is attached to the southern side of the main structure (Fig. 2.28). Each chamber is surrounded by two elongated oval stone lines separated by a large area of filling. During the cleaning of the whole surface of the grave and removing the first layer, SU1, which consists of aeolian accumulation and small stones, we found a metal fragment, WMS23.C.G2.1_O1 (Cat. 89). The removal of SU1 exposed SU2, which is composed of sand and small to medium-sized stones, constituting the collapse of the structure. SU2 is characterized by the presence of ceramic material (WMS23.C.G2.2) and five fragments of stone vessels decorated with incised geometric decoration (Cat. 75 - 76). After the removal of SU2, we started to see clearly the chambers and distinguish the loci: L1, L2, L3, L4, L5, and L6. We started to work on each one separately. Outside the structure, but attached to it, on the western side, at the southwestern corner of the external ring of L1, we found a fire spot (SU11). It was ca. 5 cm under the surface, thus we are not sure about its date.



Fig. 2.28. Grave G2, Area C (Photo shooting A. al-Rawahi, processing by D. Rose, ©MASPAG, courtesy MHT).

Locus 1 (L1)

It is in the western part of the grave. It is a semi-rectangular chamber, long 1.52 m N-S, and wide 0.60 m E-W. The fill of the chamber (L1) was identified as SU5, while the layer outside the chamber, between its ring and the oval large ring, was

identified as SU4. The layer SU5 is sandy yellowish soil with some small stones. We found in this layer only seven sherds. Instead, the SU4, outside the chamber, contained two sherds and some bones. Removing SU5, we identified another layer, SU9, with sandy brownish soil with small stones and some conglomerate. SU9 contained nine beads and an inlay (Cat. 28 - 30), three fragments of stone vessels (Cat. 77), one pestle (Cat. 96), in addition to some sherds. Extremely fragmented bones and shells were found as well in this layer. Removing this layer we reached a different layer, SU20, which consists of sandy yellowish soil with small stones. We found in this layer some bones which were not diagnostic and one bead, WMS23.C.G2.20_O2 (Cat. 30). Under SU20, we identified SU29 with red brownish sandy soil with stones. We found bones, and one sherd, in addition to three beads (Cat. 30), and two fragments of stone vessels (Cat. 78). Under SU29, we reached the SU30 characterized by sand brownish compact soil. This layer did not offer any find in addition to the three courses of the locus wall finished at this layer. Thus, we reached the end of the burial. In this layer, we found a gray soil spot limited by a line of small stones; it is probably a fire spot which was given the number SU33.

Locus 2 (L2)

It is a semi-rectangular chamber. Its structure is the same as L1. Its measurements are 1.35 m N-S and 0.66 m E-W. The external ring of the chamber is extended north of the body of the whole grave. At the beginning, it seemed like a separate feature, so we gave it a stratigraphic unit number, SU8. In this layer, we found one sherd and one fragment of a stone vessel, WMS23.C.G2.8_O1 (Cat. 77). Instead of the chamber itself, we named the upper layer SU13, laid under SU2. SU13 is friable brownish sand with some small stones and bones. We found only a sherd. Under this layer, we identified another layer, SU17, which is similar to SU13 but with more small and medium-sized stones. In SU17, we found animal and human bones which some of which belong to a female individual aged 20-50 years old (see chapter 12. Anthropological Remains). This layer gave us four beads (Cat. 31). Under this layer, we found in the southwestern part of the chamber a gray, soft soil spot. It is identified as a fire spot, which was named SU23. The layer surrounding SU23 was named SU27. Removing the SU27 at the northeastern corner, we found another gray spot, SU35, which was identified as a second fire spot (Fig. 2.29).

Locus 3 (L3)

It is a semi-rectangular chamber, and its measurements are 2 m N-S and 0.63 m E-W. The upper layer, SU7, was formed by brownish sandy friable soil with stones, which were organized in a semicircle shape, probably for a modern fireplace. The layer did not offer any finds. Under this layer, we identified another layer, SU16, with compact brownish soil with medium and large-sized stones. This layer offered a flake of quartz (WMS23.C.G2.16_S2) and sherds which form almost a complete cup with black paint of geometric pattern (Fig. 4.8). The shape and paints of the cup are similar to other cups dated to the Wadi Suq period, such as from Hili 8 (see Righetti 2015). Below SU16, we identified SU18, which is characterized by a friable sandy soil with the presence of small stones and bones (WMS23.C.G2.18_B1). In addition, it

offered three beads (Cat. 31, 32) and a lid of stone vessels, WMS23.C.G2.18_O1 (Cat. 78). After removing SU18, two new SU were identified:

- SU21: a fire spot positioned almost at the center of the locus 3; we took a sample (WMS23.C.G2.21_S1);
- SU26: a layer similar in color and composition to SU18 but different in terms of consistency; this one is more compact. This layer gave us only two sherds.

After removing SU26, we reached SU37, which is characterized by the absence of anthropic materials, and we have identified it as a natural layer. We also found an ash lens called SU38 located in the SE side of the locus (Fig. 2.29).



Fig. 2.29. Locus 2 (left) with fire spot and Locus 3 (right) with fire spot, Grave G2, Area C (Photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

Locus 4 (L4)

It is also, semi-rectangular chamber, long 1.75 m N-S, and wide 0.63 m E-W. Under the SU2, we identified SU14. It is characterized by an extremely friable sandy soil with the presence of small stones and bone fragments (WMS23.C.G2.14_B1). In addition, it was found three sherds and a quartz flake. After removing SU14, we identified a new layer, SU15, which was characterized by a sandy soil with the presence of small stones, small pieces of plant roots, and a high concentration of bone fragments (WMS23.C.G2.15_B1). The layer offered eight sherds, in addition to a fragment of a stone vessel, WMS23.C.G2.15_O3 (Cat. 78). Under SU15, a new layer, SU28, was identified. It is characterized by brownish compact soil with small stones and the presence of sherds and a few well-preserved human bones. According to the laboratory analysis, the bones belong to a male individual aged 20-50 years old (see

chapter 12. Anthropological Remains). In addition, we found four beads (Cat. 32, 33), two lids, and five fragments of stone vessels (Cat. 79, 80). We collected, as well, two flakes of quartz, two flakes of flint, and a shell from this layer. After SU28, we reached the natural layer, SU39, which consists of compact brownish soil with small stones and does not offer any finds related to human activity.

Locus 5 (L5)

It is located on the eastern side of the grave G2. It is slightly on a lower level, probably because of the slope of the hill. However, its shape is semi-rectangular with a length of 1.92 m N-S, and a width of 0.76 m E-W. The upper layer, under SU2, is SU19. It is friable sandy soil with medium to large-sized stones. We found in this layer a few sherds, and possibly a grounding stone, long 17.6 cm, WMS23.C.G2.19_O1 (Cat. 96). Following the removal of SU19, a semicircular line of stones divided the Locus 5 into two parts were exposed, thus we assigned two layer numbers: SU24 and SU25. The SU24 is positioned inside the stone line, in the western part of L5. In this layer, we found four sherds. Instead, the SU25 is positioned outside the stone line, on the northern and southern sides of the L5. In this layer, as well, we found some sherds. Under these two layers, we identified a new layer, SU31, which consists of compact brownish soil with medium and large-sized stones, which looks like a collapse. It contained a fragment of a stone vessel (Cat. 81) and some sherds, in addition to a bone cluster (Fig. 12.7). Under this layer, we identified a new layer, SU34, which was characterized by sandy soil with small stones and by the presence of a few bones. After this layer appears a natural layer.

Locus 6 (L6)

It is located on the southwest side of the main structure of G2. It was added to the structure as it is clear from its half circle, which abuts on the external ring of L1. However, its width is 0.42 m N-S, and length 0.80 m E-W. The upper layer, under SU2, was named as SU3, which consists of sandy brownish soil. It did not offer any finds. Under this layer, we reach a more compact layer, SU32, with a few smashed little bones and nine beads (Cat. 33, 34). After this layer, we arrived at the bottom of the locus.

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3. Epigraphic, Rock Art, and Landscape Surveys: Purposes and Methodology

Alessio Agostini, Edoardo Zanetti

3.1. Epigraphic Survey

The south-eastern portion of the Arabian Peninsula, although bordering regions with ancient and well-developed writing traditions—from the Indus Valley to Mesopotamia and up to the western side of the Peninsula—hasn't provided significant written documentation to date before the Islamic era. In the investigation of human mobility trajectories in northern Oman, however, the possibility of integrating the epigraphic datum would be one of the most significant, as it would offer sensitive information to be considered from a wider historical and cultural perspective. More recently, a few inscribed materials surfaced from the southern Gulf (especially the U.A.E.), which show that some external influence could be envisaged, but apparently with no significant regional development or emulation. In fact, such written documents seem to remain concentrated only in the Hellenistic era, with evidence in Aramaic, Ḥasaitic, or in other documents written in the South Arabian script, also in the minuscule variant²⁵.

An exception to this situation seems to be represented just by the larger documentation coming from southern Oman, especially Dhofar, which also reveals a close relationship with some graphic forms of the ancient South Arabian alphabet (the so-called Omani *musnad*), although their decipherment is not yet satisfactory²⁶.

Previous investigations in northern Oman have, on the other hand, documented a varied and chronologically extensive rock art²⁷, which has therefore suggested undertaking a more systematic survey in the area in concession to MASPAG, also in the perspective that this operation might help in the identification of new inscribed material, in synergy with the multidisciplinary approach of the present project.

In the Baṭinah region, the engravings from Wadi Saḥtan, located just outside the concession area, but near its north-eastern limit, have already been widely

²⁵ Stein 2019.

²⁶ King 1992; al-Jahwari 2018.

²⁷ Fossati 2019.

documented as possible texts ²⁸. Although these short incisions are still undeciphered, and one may therefore still question their relation to any form of intentional writing, they indeed comprise a few signs that recall some letters of the South Semitic linear graphic system. These inscriptions are between the two villages of al-Ḥaḍra' and Fashaḥ, near the small settlement of al-Huwajar. There are three inscriptions, two of which comprise just a few signs (Fig. 3.1), while one is longer and appears to run along two lines, to the left of a large human figure, and probably the result of two different writing acts (Fig. 3.2). The inscriptions are near to each other, on the vertical natural wall delimiting the wadi bed to the east; a concentration of many petroglyphs occupies a specific section of this surface, covering an area of several dozen square meters. It is clear from the style of the petroglyphs that the area has been used continuously for engravings of various types and styles, up to the present day.



Fig. 3.1. Inscription from Wadi Sahtan (a) (Photo by E. Zanetti and A. Agostini, ©MASPAG, courtesy MHT).

The epigraphic survey was carried out on 3-10 December 2023 within the parallel and more extensive landscape survey conducted by Dr. Edoardo Zanetti (see here below, § 3.2), and was concentrated in the Survey Area (SA) 3-10 (Fig. 3.3) which aimed at investigating the wadis that flow from the south-east of al-Akhḍar mountains into the Muslimāt plain. The wadis analyzed, from the west to the east, not in chronological order of visit, were Wadi Mistal, Wadi Jaḥfān, Wadi al-‘Ayn, Wadi al-Mīsīn, Wadi Raqim, Wadi Ḥedak, Wadi al-Asey (Fig. 1.1).

All these wadis were visited departing from Muslimāt inwards until natural barriers prevented further internal walking, a condition which usually occurs after a few kilometers from the mouth. The environmental conditions met are in some cases very different: some wadis are easily walkable, such as Wadi al-Asey, which includes the well-known al-Ḥasnat canyon, or the very large Wadi Ḥedak, which certainly experienced large flows in ancient times, discernible from the abundant and extensive deposit covering the valley, now partially eroded. A similar situation is also found at Wadi al-Mīsīn, which is characterized by a wide, substantially free

²⁸ Clarke 1975; Yule 2013; Fossati 2019, pp. 159–160.

bed and with an internal driveway stretching for at least 5 km. An internal road also characterizes Wadi Mistal, and in this case, that road has largely disturbed the original environment. In other situations, the bed of the wadi is occupied by immense rocks that preclude following a path through the interior.



Fig. 3.2. Inscription from Wadi Sahtan (b) (Photo by E. Zanetti and A. Agostini, ©MASPAG, courtesy MHT).

The visit to the al-Ḥasnat canyon, rich in petroglyphs (for which see below), was very useful, as it allowed to highlight some recurrent conditions which were also helpful in setting up the subsequent survey strategy. In fact, it was possible to notice that the many carvings become rarer the further inland one goes, finally stopping after about 3 km from the mouth of the wadi. This could suggest that all these representations were made by people coming from the exit of the wadi, who consequently were traversing these valleys only in part. It is also noticeable that the elevation of such engravings is sometimes very low, almost at the level of the wadi itself.

While this survey has been very useful for the quantity and variety of petroglyphs encountered, it has not provided any new inscription from the pre-Islamic period. In any case, this operation proved useful to set up possible future investigation in the area.

3.2. Across the Magan Mountains: MASPAG Survey Project

The extensive field survey at the Muslimāt plain (*wilayat* of Nakhal and Wadi al-Ma'awil) took place over a period of 18 days. Ten different Survey Areas (SA) were demarcated to highlight the archaeological context surrounding the excavation units. SA 1 and 2 were investigated over a period of 13 days (October 26th to December 18th, 2023) following a methodology that can be defined as "mountaineering". In fact, the two survey areas were the foothills, mountain slopes, and summits of the last group of promontories of the western Jabal al-Ḥajar. Six peaks were reached in a reconnaissance perimeter of about 7x2 km. These reach altitudes between 370 m and a maximum of 530 m. Next, the reconnaissance of 8 wadis in the Jabal al-Akhḍar was conducted with Prof. Dr. Alessio Agostini (from 3 to 10 December 2023). In this case, the survey of the area proceeded "in line" following the bed of the wadis as far as possible. Below is a summary of the previous activity and the results achieved during the reconnaissance campaign, October - December 2023.

3.2.1. History of Studies

MASPAG's scientific interest turned to the Muhafazat Janub al-Baṭīnah in 2021, at the end of the excavation activities at Daba al-Bayah (Muhafazat Musandam). The need was to investigate an area in which no previous studies had been carried out; hence, the possibility of dealing with an unprecedented archaeological context: *an unexplored landscape to document and study, a georeferenced ecotope to analyse through computational and digital modelling as an Artificial Adaptive System*²⁹. The governorate of Baṭīnah South fulfils this characteristic³⁰.

The aim of the field survey was to lay the foundations for a new study of the complexity of human mobility and social organizations experienced in the area under consideration. Between November 2021 and January 2022, the study outlined by means of an initial mapping of the anomalies visible from satellites, i.e., the recognition of landscape elements useful for identifying the potential presence of archaeological sites. With the start of field reconnaissance activities in February 2022³¹, the perimeter of investigation for the subsequent campaigns has been defined an ideal rectangle of 40x28 km oriented as follows:

- N-W corner: the area of the Jamma dunes.
- N-E corner: the area of the Bani Na'ab promontory.
- S-W corner: the area of the village of al-'Awābī.
- S-E corner: the area of the Jabal Nakhal massif.

At the end of the first extensive reconnaissance campaign of the area, 249 funerary monuments were recognized (89 near Khaṭum West; 152 near Wadi al-Ma'awil

²⁹ Antinori et al. 2023, p. 49.

³⁰ Concerning the location of the excavations in Oman related to the 3rd-1st millennium BCE contexts, see also the summary by Schreiber (2007, pp. 28-55) and the commentary by Cleuziou and Tosi (2020, p. 198 comment fig. 84).

³¹ Antinori et al. 2023b.

South). Subsequently, in January 2023, a second reconnaissance campaign was conducted in the territory of Wadi al-Ma‘awil, more specifically near the villages of Muslimāt and Afī. The activity more precisely defines the area observed in February 2022. At least two cemetery areas are identified, with a total of 475 burials, from the slopes of al-Ḥajar Mountains on which several Hafit tombs can be located, to the plains of the alluvial valley that host the remains of a multitude of Umm an-Nar and Wadi Suq graves (Areas B and C). In addition, a mound (Area A) near the village of Muslimāt was also identified. The intensive investigation conducted in the latter context reveals a considerable amount of diagnostic ceramic material, metal slag, and stone objects. The results obtained encouraged the decision to insist on this area for the planning of stratigraphic excavation activities, which subsequently took place between October and December 2023.

3.2.2. Geographical Context

The lack of an up-to-date map for the area under investigation meant that a topographical study was carried out, which was essential for orienting the Survey Areas and understanding the environmental context in which MASPAG operates (at the village of Muslimāt). The summary is as follows (Fig. 1.1).

Between the Jabal al-Ḥajar and Jabal al-Akhḍar mountains lies a wide valley in which the wilayat of Nakhal and Wadi al-Ma‘awil are located. This descends from the al-‘Awābī pass, where the mountain ranges of Jabal Hajar and Jabal al-Akhḍar converge, gradually opening to the floodplain in the coastal belt of Baṭinah, beyond the village of Hibra. At least five oases can be identified. From upstream to downstream: Tawiyah, Nakhal, Muslimāt, Afī, and Hibra³². The valley is cut by several wadis, most of which converge at the village of Muslimāt. They all stem from the Jabal al-Akhḍar mountains. Following the slope of the valley, they are: Wadi Mistal; Wadi Jaḥfān; Wadi al-‘Ayn; Wadi al-Misīn; Wadi Raqīm; Wadi Ḥedak; Wadi al-Asey. These watercourses are no longer active, only filling up during heavy rain. They do not follow easily passable fault lines but descend the mountain in V-shaped valleys clogged with the residue of ancient and modern landslides. They are therefore not comparable with the well-known Jabal al-Ḥajar crossings, the corridor between Dhaid and Fujeirah; Wadi Jizzi- Wadi Suq; the "Samail Gap"; Wadi Fulay³³.

The valley of Nakhal and Wadi al-Ma‘awil is “closed” in itself: it does not communicate directly with either the Khaṭum or the Samail Gap area. There is only one easy access, to the north, coming from the coast. Ideally, the village of Muslimāt presides over the access, hence the strategic value that this site had in the past; and, not surprisingly, it is in this area that most of the archaeological remains are found.

The area enjoys the high rainfall of al-Akhḍar mountains, 250 mm per year compared to 100 mm in the rest of the country³⁴. The type of carbonate rock favors the phenomenon of karstification, with the possibility of access to underground

³² These oases fall into the category of “Foothill Oases”, for further information see Luedeling and Buerkert 2008, pp. 1193-1194, fig 3.

³³ Cleuziou and Tosi 2020, p. 7.

³⁴ Orchard and Stanger 1994, pp. 89-90, tab. 1. See also the summary by Dabrowski et al. 2024, p. 3.

water sources that can be diverted downstream.³⁵ Due to the gradual lowering of the natural banks of the torrents, ancient and modern settlement areas are located on plateaus that are naturally defended from the aggressiveness of floods, which can reach significant hydrometric levels, up to a ring of 2-3 meters.³⁶ This is the case of the mound (Area A) and the cemeteries Western and South-Western (Areas B, C), but also of the extensive archaeological context brought to light by the reconnaissance campaign. The remains are all hydraulically safe.

3.2.3. Reconnaissance October-December 2023

The extensive field survey took place over a period of 18 days, divided into 13 days for the exploration of the valleys and slopes of al-Ḥajar mountains, and the remaining 5 days dedicated to the exploration of the wadis between al-Akhḍar mountains. From a methodological point of view, an attempt was made to highlight the archaeological context surrounding the excavation areas (Areas A, B, C). The Survey Areas are as follows (Fig. 3.3):

- SA 1: the massif facing excavation areas B and C, on whose slopes the presence of several Hafit tombs had already been noted (January 2023). The reconnaissance unit is geographically located between an anonymous wadi that flows into Wadi Jaḥfān near the oasis of Tawiyah and the small valley near the military base near Afī;
- SA 2: the massif that forms the southern apex of the western al-Ḥajar mountains, as well as one of the two ideal buttresses of the entrance to the Muslimāt plain (together with the promontory stretching between the villages of Bani Na'ab and al-Ḥasnat). Satellite observation and feedback from local collaborators indicated the presence of a cluster of anomalies in this area. The survey area is geographically located between the Afī military base and the outlet of Wadi ash-Shibak, along the Nakhal-Abyad Road;
- SA 3-10: wadis along al-Akhḍar mountains. The aim was to verify the presence of contexts like the one observed in Wadi Saḥtan near the village of al-Hiwayjir, as well as to recognize routes that could connect the Muslimāt plain with the Samail Gap area. The survey areas are geographically located between the entrance to the plain, near the village of al-Ḥasnat, and the foothills of the al-'Awābī pass, bordered by the bed of Wadi Mistal, from which there is access to the Ghubrah bowl area.

The reconnaissance activity reveals the presence of: 168 topographical units, locatable in the valley bottom of al-Ḥajar and al-Akhḍar mountains, and also on the summit of al-Ḥajar mountains, most of which can be identified as burials; 71 petroglyph compositions, locatable at the valley bottom, halfway up the hillside, on the summit and peak of al-Ḥajar mountains, and in the wadis between al-Akhḍar

³⁵ At least 11 underground water conduits can be observed in the Muslimāt area. The excavation of such falaj is attested from the 9th/10th century A.D. (Kennet 2007, pp. 107-108, according to Costa and Wilkinson 1987; Wilkinson 1980, p. 128; Wilkinson 1983, pp. 177-194).

³⁶ For example, the hydrometric indicator placed in Wadi al-Misīn reports a level of 2.9 meters as the limit of the expected flood wave in that bed.

mountains, to which is added a gorge decorated with petroglyphs for ca. 500 m (similar to the well-known context of Wadi Saḥṭan); 69 tombs, on the flanks of the mountain slopes of al-Ḥajar mountain, datable to the Hafit period; 7 burial tumuli, located on the top of rocky ridges in the Muslimāt plain, comparable to those of the cemeteries Western and South-Western; 1 large grave, located in the plateau on which area B partly extends, probably datable to the Umm an-Nar period (the so-called G4). The archaeological evidence was mapped using the QField software and subsequently processed in QGIS by Dr. Ana Sofia Meneses Pineda.

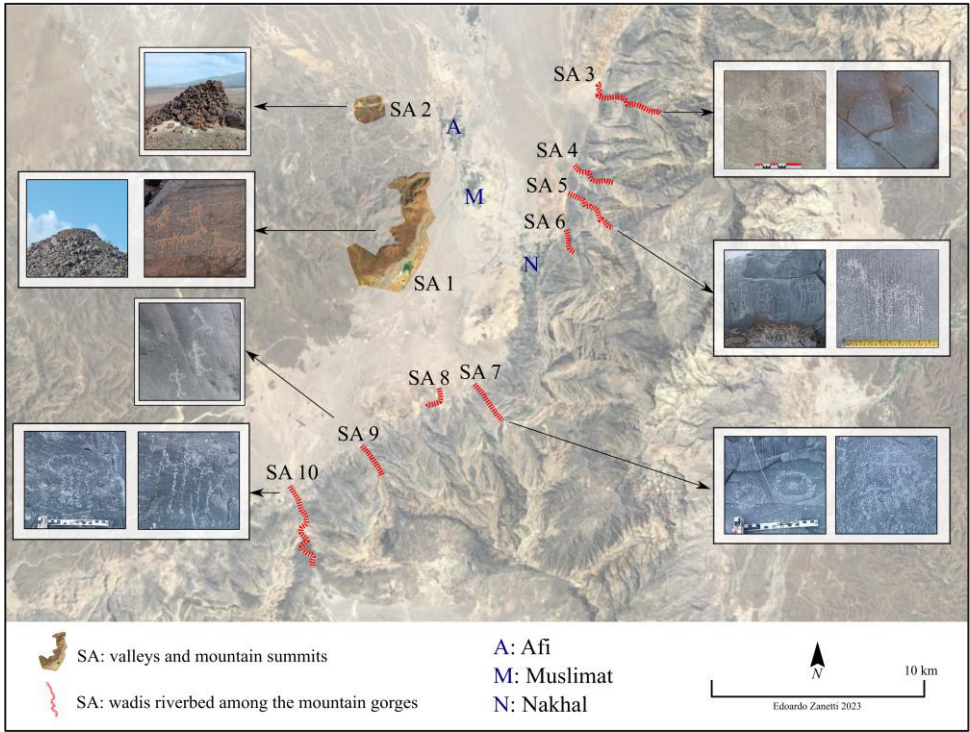


Fig. 3.3. The 10 Survey Areas surrounding the Muslimāt plain (Elaborated by E. Zanetti, ©MASPAG, courtesy MHT).

3.2.3.1. Survey Area 1

Geographically, SA 1 is characterized by the presence of: four rocky ridges along the eastern and western margins of the Wadi Jahfān; three promontories whose roots occupy the western margin of the wadi; a small valley circumscribed by the mountains from which one can access the slopes of peaks which are not visible from the plain; and a fourth peak reachable from the small valley and not visible from the excavation areas. There are no well-trodden paths, and human habitation is absent. The mountains and valleys mentioned are anonymous, falling under the more generic local definition of "al-Ḥalah" mountains.

The distribution of archaeological evidence is heterogeneous. More than one hundred stone clusters, interpreted as burial covers, can be located both at the foot of the mountains and on their summits. This shows how the interior of the mountain was frequented in ancient times and economically useful for human activities such

as hunting and pastoralism. This is supported by the presence of 45 petroglyphic compositions, found in the valleys, but also on the summits of the mountains investigated by the writer.³⁷ Most of these rock testimonies can be dated to phases 2 and 3, taking as reference the chronology proposed by Prof. Dr. Angelo E. Fossati, i.e., between the 4th and 2nd millennium BCE³⁸.

The compositions depict human figures and animals, alone or in groups. Having climbed those mountains, finding by myself the safe passages to reach the peaks, I can state that these works were not meant “to be seen”, as in the case of the compositions in the wadis, but “to be found”. These petroglyphs are isolated from each other, even hundreds of meters apart on the vast, stony mountain slopes. They are often hidden, in places that are not easily accessible or on walls sloping downwards, proving that those who made them had to crouch down to realize the work (Fig. 1.10). The more complex compositions recall a flourishing environment, with grazing herds and lurking predators (Fig. 3.4). There are hunting scenes, warriors accompanied by dogs, wild animals. In some cases, it is possible to understand that these works were located along ancient paths, no longer used today³⁹.

Except in one case, the pit burials and petroglyphs are outside the area where the Hafit graves were located, on the mountainside overlooking Area B. There are 37 tombs that, for the most part, still offer their typical tower-like shape to the eye. They are structures that, despite their collapse, reach more than 2 meters in height and 3/4 meters in width. This cemetery follows the side of the mountain that gradually grows towards the summit. One notices, however, that the Hafit tombs maintain the same height, preferring visibility from the plain rather than reaching higher positions, but not visible from below (unlike the pit burials also found on the summits).

At the base of the Hafit necropolis, the remains of a monumental tomb, probably Umm an-Nar, were found at a landfill site. The grave was certainly damaged, with the removal of most of the perimeter stones. However, the surface profile of at least two chambers is clearly visible to anyone observing it. Seven tumuli, on the other hand, occupy the tops of the rocky ridges bordering the course of Wadi Jaḥfān. In this case, four tumuli tend to be in good condition, with the perimeter walls still partially in place.

³⁷ It is noticeable that the peaks investigated show widespread turf and outcrops of chrysocolla, a context not found in the valley. Chrysocolla indicates the presence of copper veins. These minerals can have a copper content of up to 30%. (Giardino 2019, p. 9).

³⁸ Fossati 2019, pp. 162-181.

³⁹ These aspects will be better discussed and argued in a more detailed contribution, already in progress at the time of writing.



Fig. 3.4. A petroglyph compositions in the little valley near Afī (Photo by E. Zanetti, ©MASPAG, courtesy MHT).

3.2.3.2. Survey Area 2

From a geographical point of view, SA 2 is characterized by the presence of 6 rocky hills, terraced at the top, and two rather imposing promontories. In contrast to SA 1, the data are homogeneous. There are 31 Hafit graves, of which 23 are on the tops of the hills; 8 on the flanks of the two mountains that dominate the investigated area; 1 on the fore-summit of the mountain renamed Peak 2, as it is anonymous (Fig. 3.5).



Fig. 3.5. a: Hafit tomb on hill 4, in the background the Hafit tomb located on the mountain fore-summit. b: the Hafit tomb located at the fore-summit of the mountain (Photo by E. Zanetti, ©MASPAG, courtesy MHT).

The tops of the hills host the largest assemblage of graves, up to 7 large graves, close to each other. Here, one recognizes the typical beehive and igloo shape. On the mountain flank and the summit, on the other hand, isolated, tower-like structures can be founded. All of these are visible both from below and from above, with no blind spots. Notable is a tomb at 326 m asl, which can be reached after ascending the mountain flank with a maximum gradient of up to 59 %. It is the highest and most difficult Hafit tomb to reach by climbing up the mountainside.



Fig. 3.6. One of the largest petroglyph compositions found in SA 1 (Photo by E. Zanetti, ©MASPAG, courtesy MHT).

3.2.3.3. Survey Areas 3-10

The context of SA 3-10 consists of V-shaped valleys or gorges with vertical walls that are only accessible through the bed of the torrents. These tend to be passable only for a few kilometers; beyond that, the natural barrier formed by the enormous stone

blocks that have collapsed from the surrounding summits makes passage impossible.

The gorge through which Wadi al-Asey (SA 3) flows, traversed for approx. 2 km, offers a view of approximately 500 m of rock face entirely decorated with petroglyphs, a context comparable to that of Wadi Sahtan.⁴⁰ The chronological span attributable to these works is broad, and includes phases 2-3-4-5, taking as reference the chronology proposed by Fossati, i.e., a period from the 4th to the 1st mil. BCE. There are numerous T-shaped daggers found on the walls, dateable to the 3rd-2nd millennium BCE (Fig. 3.6), and foot and mounted warriors dating from the Iron Age onwards⁴¹ (Fig. 3.7).

In the other wadis explored (SA 4-10), at least 26 petroglyph compositions can be seen on the large boulders that make up the bed of the wadis. Evidence of ancient works, such as camel riders and Iron Age horsemen, are not many (Fig. 3.8). Modern use of the practice of rock carving can be observed especially in Wadi al-Misīn (SA 7): cars, airplanes, coffee pots, and names in Arabic. Unfortunately, there is evidence that today's W. Mistal rd. has probably obliterated entire walls of petroglyphs in Wadi Mistal (SA 10), of which only a small vestige survives.

There are also 38 topographic units related to: stone cluster, which can be interpreted as burials; circular barrows; and wall structures found near the edge of the wadis (particularly near Wadi al-Misīn at the outlet into the plain, and along Wadi Hedak).

3.2.4. Research Perspectives

More than two hundred archaeological evidences found in the ten Survey Areas offer the possibility of organizing a first analysis of historical geography and landscape archaeology for the Muslimāt area. For the first time, in fact, the excavation area is not an isolated point in the territory, but the epicenter of a much larger, circumscribed, and evidence-rich archaeological context. In addition, the mapping of inland mountain areas, not only of the slopes overlooking the valley, allows a more conscious analysis of the mobility of human groups in historical times, but also on the management of spaces intended for grazing and hunting, and on the relationship between oasis and mountain area. These aspects will be elaborated and deepened in a dedicated study to be published soon, with the aim of adding new data and new questions to the debate on the role of the oases between the end of the Neolithic and the early Iron Age.

⁴⁰ The presence of so many petroglyphs implies that this gorge was a passage area. The wadi, however, is not passable: I tried but, despite my experience and equipment, I had to stop. I guess, however, that there is a viable route up the northern flank of the gorge, and based on satellite observation, I hypothesize a safe and practicable passage with donkeys to the Samail Gap. This suggestion will be discussed and argued in a more detailed contribution, already in progress at the time of writing.

⁴¹ Fossati 2019, pp. 162, 172.



Fig. 3.7. Warrior engraved on the rock face in Wadi al-Asey (Photo by E. Zanetti, ©MASPAG, courtesy MHT).



Fig. 3.8. Foot and mounted warriors engraved on a rock in Wadi Hedak (Photo by E. Zanetti, (Photo by E. Zanetti, ©MASPAG, courtesy MHT).

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PART II

POTTERY, OBJECTS, SAMPLES, AND HUMAN REMAINS

4. Pottery

Nicole Franchi, Alessandro Di Ludovico

This report aims to present the pottery collected during the excavation of Areas A, B, and C, from October to December 2023, and to provide an overview of the assemblage. Area A is located in the so-called Wadi al-Ma‘awil North; Area B is further west; Area C is in the southernmost one and, in turn, branches off into two separate, albeit close, burial sites: G1 and G2. The overwhelming majority of ceramic materials collected during the campaign come from Area A. Exhaustive attention will hence be given to those relations, specific to pottery and clay artifacts, which contextualize our findings to the purpose of the worksite and to the culture(s) that operated in it.

4.1. Data Overview

The materials, primarily ceramics, coming from the three areas excavated date back to different periods, from the Early Bronze to the Wadi Suq and the Iron Age. This report provides a classification of the ceramic materials based on the macroscopic examination that was carried out during the field work in Wadi al-Ma‘awil. The sherds were examined at first according to their shape, form to which they can be attributed, and decoration (including painted or incised motifs, and coating processes like slip or glazing). Then a physical description of their fabric was prepared, based on color, composition, inclusions, and heat reaction. Lastly, when possible, the individual pieces underwent a comparative analysis in order to determine stratigraphic relations and prepare the restoration activity. Each of these stages corresponded to thorough documentation in order to obtain an accessible catalog.

It should be noted that the potsherds were uncovered in a scattered state and that they underwent critical fragmentation, possibly due to events that disturbed the deposits. This situation was especially severe in the burial sites. While it is true that Area A exhibited a highly fragmented assemblage of material, its density and quantity are often remarkable, and the treatments and entities of damage to which the individual potsherds were subject are definitely diversified. It is possible that a part of the material from this area derives from one or more dumps. Due to the

aforementioned conditions, a rigorous and in-depth quantitative investigation of the pottery is far from complete, and unfortunately, it will not be achieved without difficulties. Still, some restoration efforts took place, resulting, in a few cases, in almost entirely reconstructed pieces of fine ware.

An excellent example of this would be the case of WMW23.B.G1.8_1, which is particularly noteworthy, for the twenty potsherds recovered from the burial could be restored into a single, albeit incomplete, vessel of the Jemdet Nasr style.

Worksite	sherds	sherds restored	vessels restored	sherds diagnostic
WMN23_A_WS1	192	8	3	103
WMW23_B_G1	36	25	3	31
WMS23_C_G1	51	2	1	18
WMS23_C_G2	38	10	2	13
TOTAL	317	45	6	165

Table 4.1. Potsherds collected in the 2023 campaign: overview.

A similarly significant restoration was conducted on WMS23.C.G2.1_1. The piece was successfully reconstructed from fragments, resulting in a small cup with a diameter of approximately 5 cm and a height of 3.2 cm, of which a good part of the body and rim are well preserved. Its almost square and irregular shape suggests that this object of fineware was handmade, without using a wheel.

Just minor restorations were carried out on the finds from Area A, since the potsherds were comparatively more humble yet interesting. In the instance of WMN23.A.WS1.S1_29, four fragments of the approximate width of 0.5 cm could be put together. They compose the bottom and part of the body of a small jar. Two fragments coming from the surface, as with the previous instance, were reattached, forming a rim with a width of 1 cm. Another rim was partially restored, this time from SU8; WMN23.A.WS1.8_14 and WMN23.A.WS1.8_18. The types of common ware found here are characteristic of Iron Age settlements in the region.

4.2. Area A, Worksite 1

It was evident since the very first surveys on the area that the surface of the mound was saturated with archeological material, mostly potsherds. A high variety of forms and types of ware was attested in all contexts that have been surveyed or investigated in depth. The materials scattered on the surface were exposed to weathering and other external agents for centuries, showing significant wear. In general, this lot includes a substantial amount of decorated, painted, and engraved potsherds largely belonging to Iron Age cultures.

Differently from the funerary contexts, which by themselves contribute only to about one third of the body of evidence, the Worksite 1 of Area A supplied mostly common ware, and many specimens whose purpose possibly resides somewhere in

the productive sphere of the settlement; numerous fragments of large jars for long-term conservation or transportation of goods, sturdy cooking ware, slipware, and common ware for ordinary conservation and consumption.

SU	Selected sample of painted fragments	Selected sample of incised fragments	Selected sample of slipped fragments	Selected sample of glazed fragments
S1-S3	16	15	27	2
1	1	1	-	-
2	-	1	-	-
3	3	-	3	-
7	-	1	3	-
8	2	4	6	-
9	-	1	2	-
10	3	1	5	-
13	1	-	5	-
TOTAL	25	24	51	2

Table 4.2. Potsherds collected in the 2023 campaign: Area A, Worksite 1, surface.

Two fragments of glazed ceramic, coming from the surface layer, are likely products of the Islamic occupation period. Except for a narrow quantity of pieces of fine ware, the bulk of this assemblage is to be considered Iron Age pottery.

What follows is a detailed description of selected sherds from Area A, which display painted or incised decorations or otherwise distinctive characteristics.

WMN23.A.WS1.3_12 (Fig. 4.1) is the fragment of a straight rim from a painted vessel. It shows a red, medium-fine fabric; inclusions are absent. Brown-red slip permeates the internal surface, while the dark red paint on the outside shows an elaborate geometric motif.

WMN23.A.WS1.3_13 (Fig. 4.1) is a wall fragment from a painted vessel. It has orange fabric, gray core, and high inclusion density. It displays a dark red painted decoration in a grid motif consistent with decoration on Iron II ceramics from Sharm. It does not show spinwheel marks.

WMN23.A.WS1.3_15 (Fig. 4.1) is the fragment of a straight rim from a painted vessel. Its fabric is orange and medium-fine. Light red slip permeates the internal surface, while dark red paint decorates the exterior with a thick wave motif.

WMN23.A.WS1.8_9 (Fig. 4.1) is the fragment of a restricted (thick) rim of an incised vessel. Made of orange, medium-fine fabric; inclusions are absent. The external surface is incised thinly with a wave motif, closely matching Iron Age II ceramics from Tell Abraq-Phase II.

WMN23.A.WS1.8_27 (Fig. 4.2) is an everted rim fragment from a small jar. Orange, medium-fine fabric; inclusions are absent.

WMN23.A.WS1.8_30 (Fig. 4.3) is the fragment of a painted rim. It has red, medium-fine fabric. Example of black-on-red decoration in a thick wave motif.

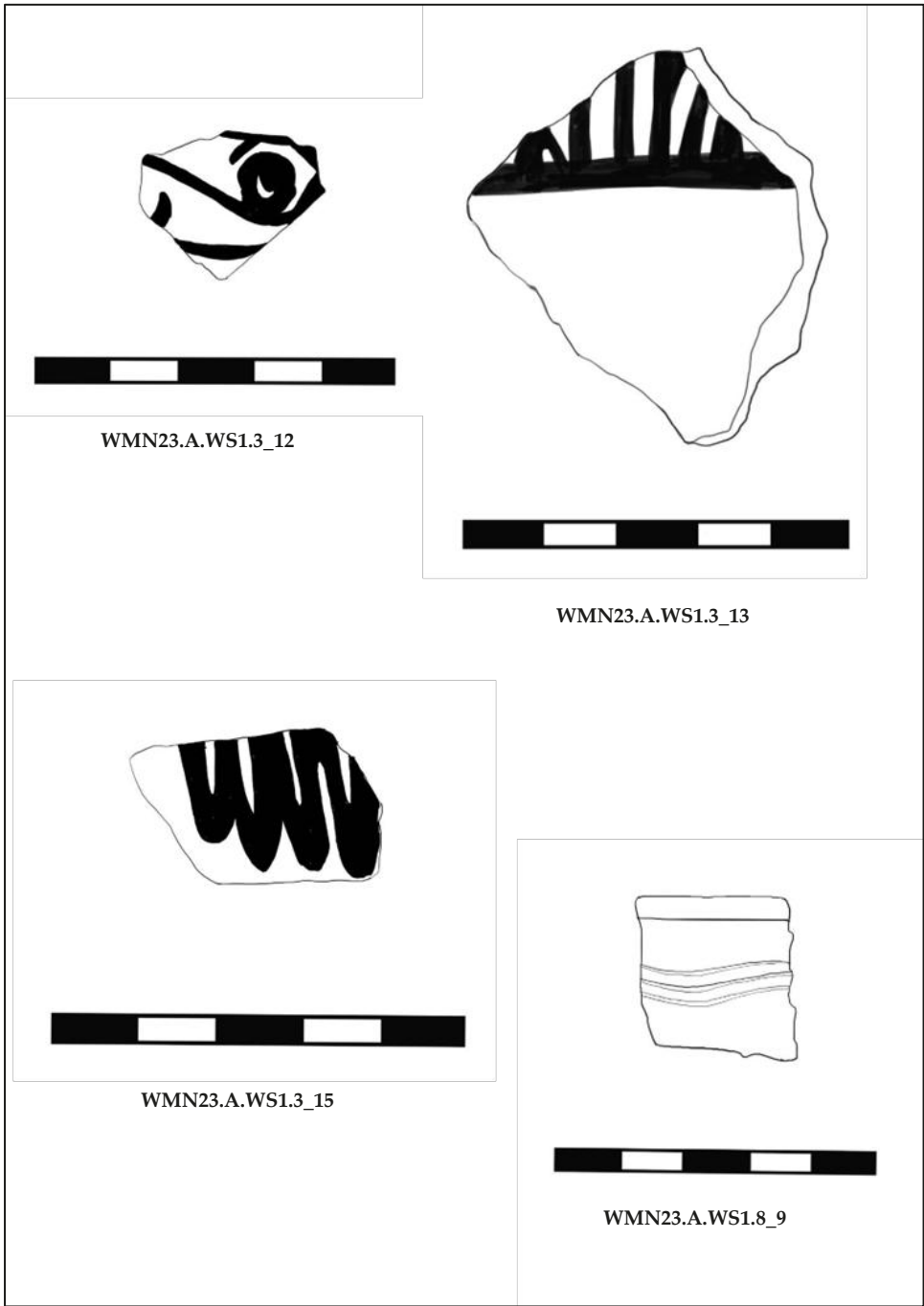


Fig. 4.1. Selection of painted and incised potsherds from SU3 and SU8 of Area A (Drawing by N. Franchi, ©MASPAG, courtesy MHT).

WMN23.A.WS1.8_31 (Fig. 4.3) is the fragmented spout of a jug. Red, medium-fine fabric; inclusions absent.

WMN23.A.WS1.10_1 (Fig. 4.3) is a wall fragment from an incised vessel, with orange, medium-fine fabric; low density of inclusions. It is incised on the external surface with a geometric motif (diagonal lines).

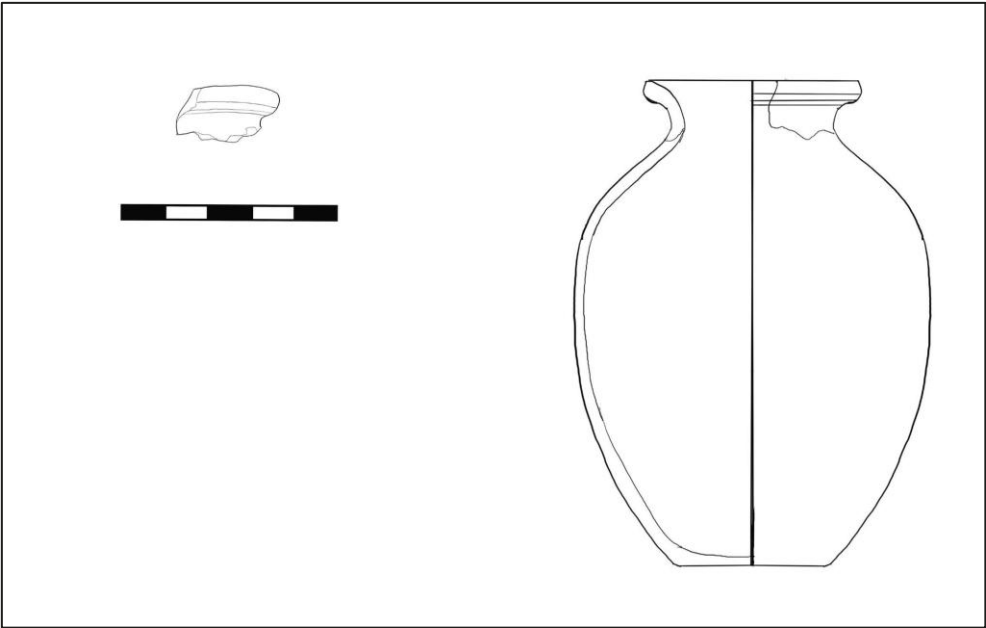


Fig. 4.2. Rim fragment WMN23.A.WS1.8_27 (Drawing by N. Franchi, ©MASPAG, courtesy MHT).

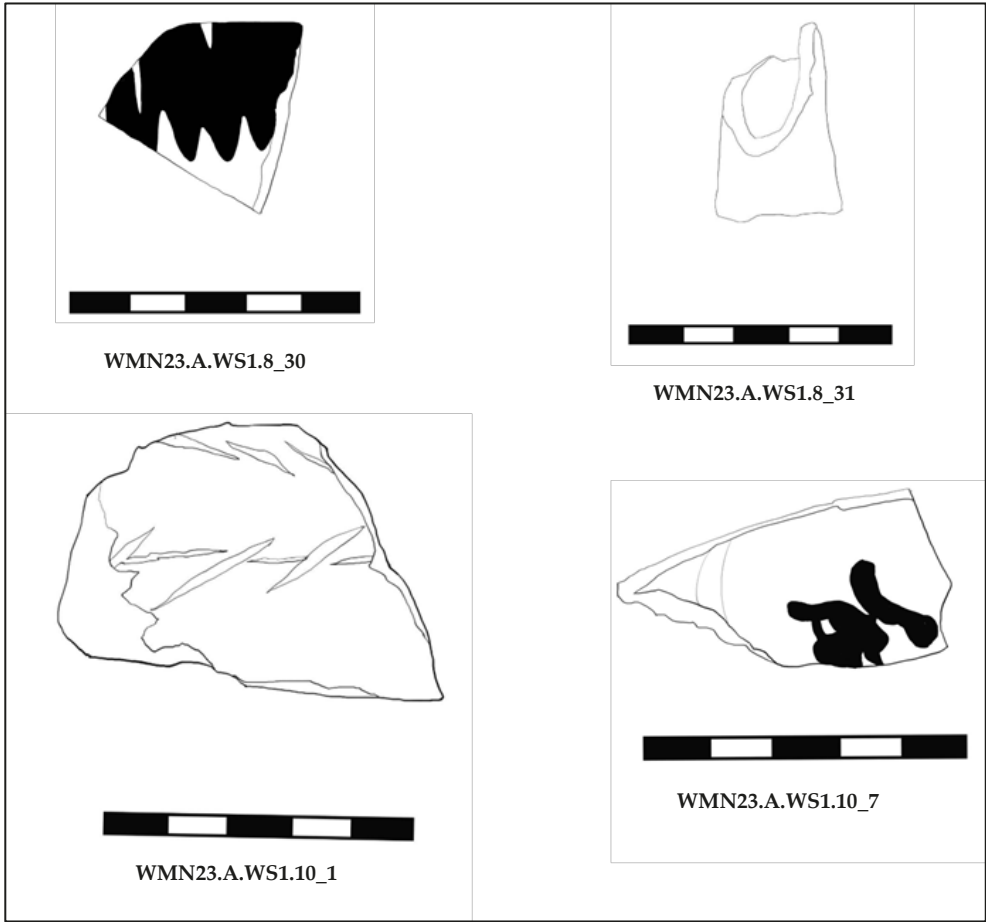


Fig. 4.3. Potsherds walls and a spout, Area A (Drawing by N. Franchi, ©MASPAG, courtesy MHT).

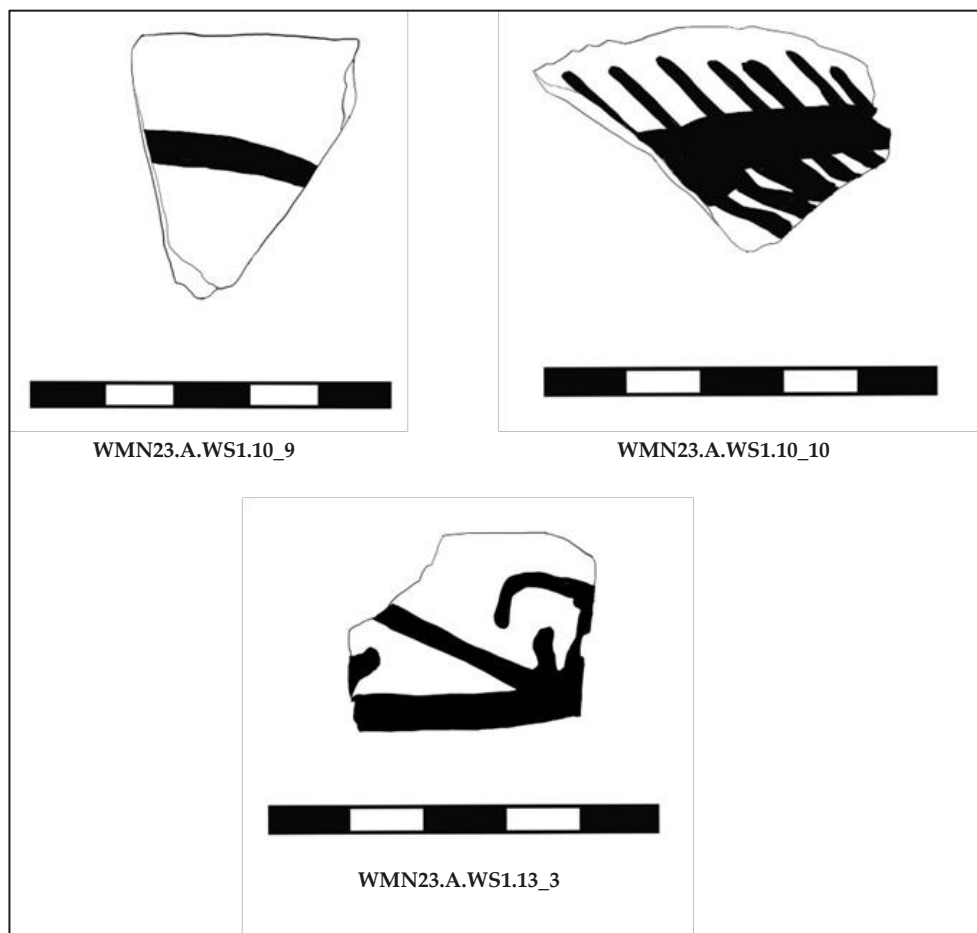


Fig. 4.4. Painted fragments, Area A (Drawing by N. Franchi, ©MASPAG, courtesy MHT).

WMN23.A.WS1.10_7 (Fig. 4.3) is the fragment of a flat bottom. It shows an orange, medium-fine fabric; inclusions are absent. Red slip permeates the internal and external surface. Black paint decorates the internal surface of the bottom, possibly portraying a human or animal figure.

WMN23.A.WS1.10_9 (Fig. 4.4) is the fragment of a flat bottom, from a vessel or a plate. It shows orange, medium-fine fabric; gray core; low density of inclusions. A thick band of dark red paint decorates the internal surface of the bottom.

WMN23.A.WS1.10_10 (Fig. 4.4) is a wall fragment from a painted vessel as well. It is made of orange, medium-fine fabric, gray core, and low density of inclusions. The outer face is decorated with black paint in a geometrical motif (fishbone).

WMN23.A.WS1.13_3 (Fig. 4.4) is the fragment of a straight rim. It is made of a pink, sandy, medium-fine fabric with a low density of inclusions. It displays a dark red painted decoration on the outside and traces of slip on the inside. Lines and dots compose an abstract geometric motif closely matching Iron II painted pottery from Daba 76/1.

4.3. Area B, Grave G1

In the grave G1, a low quantity of potsherds could be collected, twenty fragments of which compose an almost complete vessel. It is clearly part of the funerary goods recovered in the grave, which included bronze and stone objects.

WMW23.B.G1.1_1 (Fig. 4.5) is a restored rim fragment from an open-form vessel. It is made of greenish, medium-fine fabric; low density of chalky inclusions. It displays incisions of a wave motif.

WMW23.B.G1.1_2, WMW23.B.G1.1_3, WMW23.B.G1.3_1 (Fig. 4.6) are a wall fragment and two rim fragments. They're likely part of the same vessel, though they were collected in different SU. Light orange, slightly porous fine fabric; inclusions absent.

WMW23.B.G1.8_1 (Fig. 4.7) is a biconical jar of the Mesopotamian Jemdet Nasr period. Brown, sandy, medium-fine fabric; inclusions are absent. Fine work can be observed in the fabric. The base is 3.5 cm wide, the diameter is 10 cm at the widest point, and the restored vessel is 6.2 cm tall.

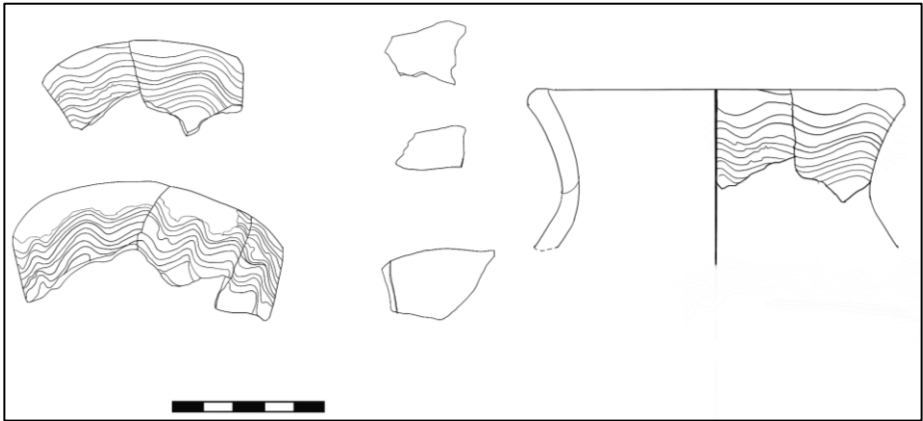


Fig. 4.5. Sherds and reconstructing diagram of fragment WMW23.B.G1.1_1, grave G1, Area B (Drawing by N. Franchi, ©MASPAG, courtesy MHT).

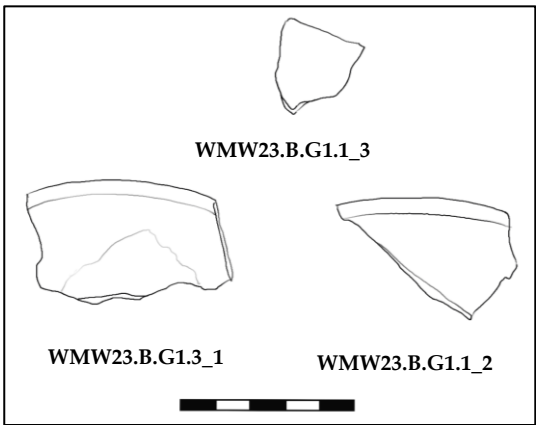


Fig. 4.6. Fragments, grave G1, Area B (Drawing by N. Franchi, ©MASPAG, courtesy MHT).

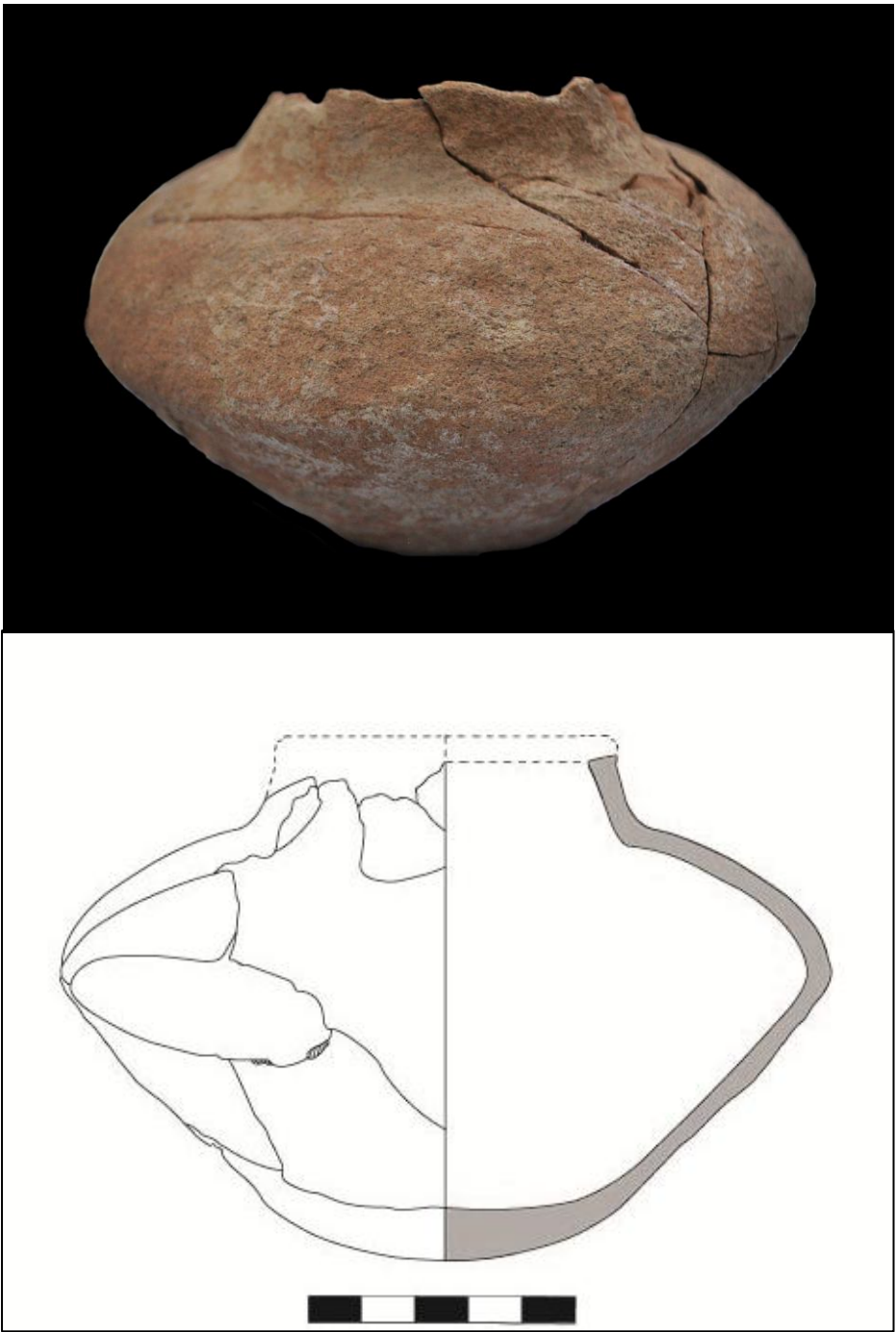


Fig. 4.7. The biconical jar WMW23.B.G1.8_1, grave G1, Area B (Photo by A. F. Kzzo, drawing by D. Michilli, ©MASPAG, courtesy MHT).

4.4. Area C, Graves G1 and G2

The assemblage of pottery from the burials of Area C is scanty, although compact in its association with Wadi Suq material culture. The findings lead us to think that few vessels were originally part of the grave goods and that it is now extremely fragmented. The original placement of the vessels in the tomb can only occasionally be reconstructed. In some cases, fragments were recovered in the stone collapse layers, which were possibly removed and filled in again by grave robbers. The fragmented bottom of a vase was found by a corner of Locus 5 (Grave 2) while the rest of the vessel is likely to have been pulverized, due to the especially soft and permeable quality of the clay.

Grave G1			
SU	Plain fragments	Painted fragments	Slip fragments
1	2	1	1
2	-	1	2
3	18	5	3
5	1	-	2
12	-	-	3
15	1	-	-
17	1	-	-
18	10	-	1
TOTAL	33	6	12

Table 4.3. Potsherds collected in the 2023 campaign: Area C, Grave G1.

Grave G2					
SU	Locus	Plain fragments	Painted fragments	Engraved fragments	Slip fragments
1	-	8	2	-	-
2	-	-	1	1	1
5	-	1	-	-	-
8	-	-	1	-	-
9	-	2	-	-	-
15	4	8	-	-	-
16	3	-	1	-	-
18	3	1	-	-	-
19	5	2	-	-	-
20	1	3	-	-	-
25	5	1	-	-	-
28	4	5	-	-	-
TOTAL		31	5	1	1

Table 4.4. Potsherds collected in the 2023 campaign: Area C, Grave G2.

In some cases, despite the overall exiguity of potsherds, restoration efforts were definitely satisfying.

WMS23.C.G2.16_1 (Fig. 4.8) is a beaker of the Wadi Suq period, which could be largely restored from seven potsherds. The fine, orange fabric of the clay indicates this as a piece of fineware. The restored form is 9.5 cm wide and 9 cm tall. The decoration is a geometric pattern in black paint on a red background, which covers the rim and body of the cup.



Fig. 4.8. The beaker WMS23.C.G2.16_1 restored from seven fragments (Photo by A. F. Kzzo, drawing by D. Michilli, ©MASPAG, courtesy MHT).

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5. Ornaments: Stones, Shells, and Gold

Ahmed Fatima Kzzo

We have 167 objects as ornaments. All of these objects are recovered from the funerary area, Area C (from grave G1 and G2), except one, which was recovered from the settlement area, Area A. This corpus consists of beads, pendants, a ring, fragments of bracelets, and other cosmetic objects. The beads are 147, while the pendants can be 8⁴². We have 8 objects as bracelets or elaborated shells, which could be inlays for jewelry. In addition, there are two gold foils and two fragments of rings. Those last are probably belong to the same ring. Most of these ornaments are recovered from the grave G1, where we found 133 beads, pendants, gold foils, and inlays. Instead, from G2, we recovered 34 beads and pendants.

It is not easy to date these ornaments, especially beads, as some shapes remained the same for millennia. But some objects, fragments of stone vessels, recovered in the same grave, are datable to the Iron Age and to the Wadi Suq period. This allows us to date the beads to these periods.

5.1. Rings

Two fragments, WMS23.C.G1.3_O126 and WMS23.C.G1.3_O127 (Fig. 5.2, Cat. 14), were recovered from the same layer of the grave, G1, by sieving. The two fragments have the same features. Each fragment consists of two long bands of metal, one gold and probably the other bronze are attached to each other. On the long edge of the ring, there are two lines of metal granules. The two fragments could belong to the same ring for the hand or could belong to a decoration band on beads due to their similarity with the gold bands surrounding a carnelian bead recovered in 'Uqdat Al-Bakrah under the number DA26169.m⁴³.

In the bronze objects, we have two fragments, WMS23.C.G1.3_O20 (Cat. 83) and WMS23.C.G1.3_O68 (Cat. 85), which could be parts of ornament objects. WMS23.C.G1.3_O20 (Cat. 83) is wide and curved, which could indicate that it is part

⁴² Object WMS23.C.G2.18_O3 (Cat. 31) could be a bead. We classified it as pendant due its size and uniqueness.

⁴³ See Giardino 2019, p. 136, fig. 11.24.

of a ring for ornament. While the fragment WMS23.C.G1.3_O68 (Cat. 85) can be part of a ring or fishhook. These two fragments are not included in this chapter because of the difficulty in defining their function.

5.2. Gold Foils

By sieving, we found two fragments of gold foil, WMS23.C.G1.8_O4 (Fig. 5.2, Cat. 3) and WMS23.C.G1.18_O32 (Fig. 5.2, Cat. 18). They belong to different layers and loci, respectively, locus 2 and locus 4. This does not mean that they belong to different periods or workshops because the grave was dug up several times in the past and reused, so the cultural materials were mixed and did not stay in their primary place.

5.3. Bracelets and Inlays

We found eight pieces which could belong to bracelets, neckless, or inlay for another jewelry piece. They were found in different loci. Four fragments are similar in shape and material. They are made of a shell in a disc shape with a diameter of c. 5 cm. These fragments are WMS23.C.G1.1_O2 and WMS23.C.G1.1_O5 (Cat. 1) from the surface, in addition to WMS24.C.G1.18_O7 (Cat. 21) and WMS24.C.G1.18_O21 (Cat. 22) from Locus 4.

The object WMS23.C.G1.1_O2 (Cat. 1) is a complete thick disc shell, but it does not have any decoration, as well as WMS24.C.G1.18_O21 (Cat. 22). WMS23.C.G1.1_O2 has, in the center, three holes in the shape of handles, which were probably used to fix it. The fragments WMS23.C.G1.1_O5 (Cat. 1) and WMS24.C.G1.18_O7 (Cat. 21) are engraved on the external side. The fragment WMS23.C.G1.1_O5 has a deep engraving of rosette decoration. Parallels to this fragment were recovered in south-eastern Arabia. Parallels were recovered in the Late Bronze Age and Early Iron Age in the United Arab Emirates' sites such as Sharm, Fashgha 2, Wa'ab 4, and Saruq al-Hadid, in addition to Oman in Shukor and Daba, which has the largest quantity of this style⁴⁴. As other examples from Daba, the petals of the rosette had inlays that consisted of colored stones⁴⁵. While WMS24.C.G1.18_O7 (Fig. 5.1, Cat. 21) has engraved decoration which consists of three bands (from external to internal), triangles, squares, then pomegranates, which are separated by dots surrounded by circles. This decoration is applied on a background that is entirely covered with incised cross-hatching. This technique was found in the piece Sh861, which was recovered in Sumhuram (in Dhofar, south Oman) and has almost identical decoration elements⁴⁶.

Another shell could be elaborated to be an inlay, is the fragment number WMS23.C.G1.1_O6 (Cat. 1), where we see horizontal lines above vertical ribs. Instead, the artifact number WMS24.C.G1.18_O9 (Cat. 22) is a complete object

⁴⁴ Weeks L, David-Cuny H, Avanzini A, et al. 2019: 222.

⁴⁵ See Weeks L, David-Cuny H, Avanzini A, et al. 2019, figure 8.

⁴⁶ See Weeks L, David-Cuny H, Avanzini A, et al. 2019, figure 2.

consisting of a biconcave shape, which has the spiral line of the shell, and it is perforated from the longer side. It could be used as an inlay in a necklace or bracelet. An identical piece was discovered on the surface of the same grave during the survey work in 2023 (Fig. 1.5). A parallel example was recovered in Bidya 1 in Fujairah⁴⁷, in Shimal (Ras al-Khaima), al-Qusais (Dubai), and from a late 1st millennium BCE grave in Samad cemetery in Oman⁴⁸. Also, fragment, WMS23.C.G1.11_O2 (Cat. 26), seems to be part of a bracelet. It is curved and probably made of shell. From the grave G2, we have one fragment, WMS23.C.G2.9_O7 (Cat. 28), from Locus 1, which could be an inlay for an ornament piece.



Fig. 5.1. Drawing of the shell disc fragment WMS24.C.G1.18_O7 (Drawing by D. Michilli, ©MASPAG, courtesy MHT).

5.4. Pendants

We found eight objects which can be used as pendants, four from the grave G1 and four from the grave G2. Three of the pendants of G1, WMS23.C.G1.1_O11 (Cat. 2), WMS23.C.G1.3_O38 (Cat. 5), and WMS24.C.G1.18_O48 (Cat. 26) are particular and identical, but one of them is smaller than the other two. These pendants are in a triangular shape. While the pendant WMS23.C.G1.1_O11 (Cat. 2) was found on the surface of Locus 4 of the grave G1, the other two were found in lower stratigraphic units, SU3 and SU18, of the same locus⁴⁹. It is worth noting that the anthropological analysis showed that in the grave there were a male, a female, and a child. This raises the question of whether each one of these pendants belongs to one individual. In

⁴⁷ Al-Tikriti 1989, pl 77L.

⁴⁸ Vogt and Franke-Vogt 1987, pp. 32-33, fig. 18.5.

⁴⁹ As we mentioned before the grave suffered of digging and probably reused in the past, thus the stratigraphic units are disturbed and the cultural materials are not *in situ*.

addition, the fourth pendant, WMS23.C.G1.3_O27 (Cat. 5), is in a mushroom shape or phallus, which can give a symbolic indication of belonging to the "family". The types of stones used in all four pendants are the same, which supports that they could be produced in the same period and same stone. Similar to the phallus pendant but from a different type of stone, three pieces were found in Locus 1 of the grave G2. Two of these three are complete WMS23.C.G2.9_O4 (Cat. 28), and WMS23.C.G2.9_O8 (Cat. 28), while the third one, WMS23.C.G2.9_O10 (Cat. 29) only half of it recovered. Unfortunately, the bones recovered in this locus are fragmented, and it was not possible to extract any information. From the Locus 3 of the same grave, G2, we found a big size of shell, WMS23.C.G2.18_O3 (Cat. 31), with a hole across its longer axis. Thus, this shell could be used as a pendant of a bead.

5.5. Beads

Beads form the largest quantity of finds. As we mentioned before, we found 147 beads. One of these, WMN23.A.WS1.S1_O1 (Cat. 1), was found on the surface of Area A, which is not a funerary site, but a settlement. This bead, actually, could be the primary material to produce several beads because it is so long, 2 cm in length, and the perforation is not completed to cross the long axis of the bead. This means that it could still be an uncompleted bead or a stick to slice beads.

From the funerary area, Area C, we recovered 117 beads from the grave G1 (Cat. 1 - 28), and 29 beads from the grave G2 (Cat. 28 - 34). In the grave G1 we recovered seven beads and bead's coating of gold (Fig. 5.2): WMS23.C.G1.3_O21 (Cat. 4), WMS23.C.G1.3_O28 (Cat. 5), WMS23.C.G1.3_O64 (Cat. 6), WMS23.C.G1.3_O67 (Cat. 7), WMS23.C.G1.3_O95 (Cat. 10), WMS23.C.G1.3_O128 (Cat. 14), WMS24.C.G1.18_O32 (Cat. 23). The most sophisticated one between these gold beads is WMS23.C.G1.3_O28 (Fig. 5.2, Cat 5). It is a small, plain, cylindrical shape, its length is 0.5 cm, and its diameter is 0.3 cm, with a row of granules surrounding each edge to make the total diameter 0.5 cm. This type is rare. Similar shapes were found in Daba and Saruq al-Hadid, but they are bigger and made completely of granules in cylindrical shape⁵⁰.

The other 110 beads of G1 are made of shell, and mostly of different types of stones such as carnelian, agate, and limestone. These beads are made in different shapes and colors. It is distinguishable into eleven shapes: flat circular or semi-circular bead, truncated spindle, spherical, cylindrical, biconical, doughnut-shaped, biconvex, biconcave, plano-concave, and conical shape (Fig. 5.3).

From the grave G2, we recovered many lesser beads in its six chambers. The beads are in different materials, sometimes from fragile materials⁵¹. Two beads, WMS23.C.G2.17_O3 (Cat. 31) and WMS23.C.G2.18_O4 (Cat. 32), are so small, diameter of 0.25 cm, and are also made of very fragile material. The beads were in different shapes, such: spindle, spherical, cylindrical, biconical, disc, doughnut-shaped and conical bead in the shape of a vase (Fig. 5.3).

⁵⁰ For Daba see Genchi 2020: 469, figure 39.7. For Saruq al-Hadid see Soriano et al. 2018: 3, fig. 2 and table 1.

⁵¹ We have the piece WMS23.C.G2.18_O5 (Cat. 32), which seems to be made of clay.



Fig. 5.2. The gold objects: rings, foils, beads and coatings found in grave G1, Area C, Wadi al-Ma'awil (Photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

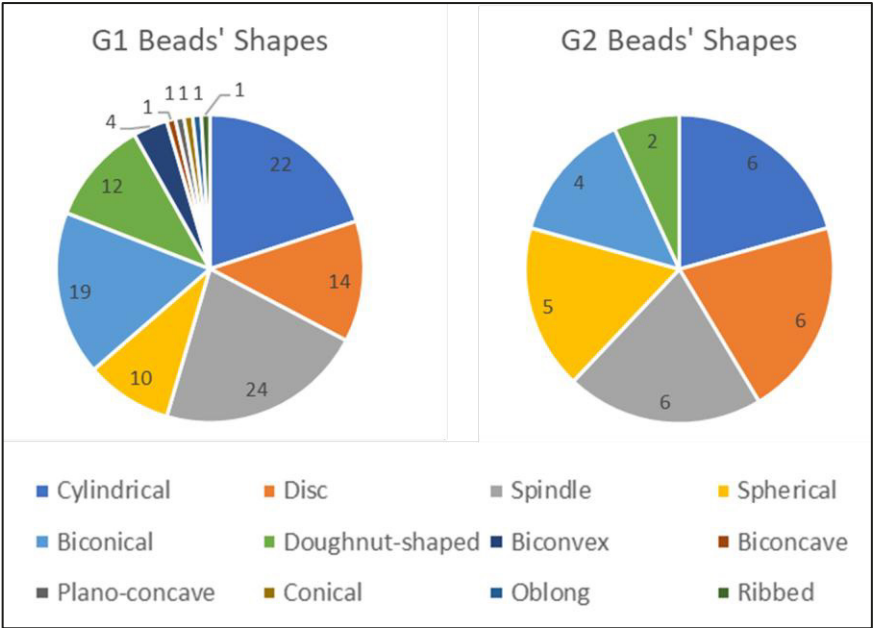


Fig. 5.3. Numbers and shapes of the beads recovered in graves G1 and G2, Area C.

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6. Stone Vessels

Federico Abbatiello, Ahmed Fatima Kzzo

During MASPAG excavation in 2023 in Area C in the Southwestern Cemetery in Jannat al-Ḥṣiniyyāt (Muslimāt), we recovered 137 fragments from the grave G1 and 22 fragments from G2. During the next season, season 2024, we finished the excavation in G1, where we recovered another 24 fragments of stone vessels. Thus, the total fragments that came from G1 are 161, while our *corpus* from both graves is 183 vessel stone fragments. In addition to this *corpus*, we have one stone vessel fragment, WMN23.A.WS1.8_O2 (Cat. 35), from the settlement area, Area A⁵².

Almost every fragment has standard decorations, such as vertical and horizontal lines, single or two concentric circles (called “circle-dots”), triangular shapes with, often, associated zig-zag lines running around them.

Some of these fragments are lids were associated with the stone vessels. From the shape of the lids, it is possible to guess the shape of the vessels they belonged to, such as circular or rectangular shapes.

However, the *corpus* is divided into: walls, rims, bases, lids and rims with bases (Fig. 6.1). For the dating, fragments that have many circle-dots accompanied by other geometric engravings, such as small triangles with horizontal and vertical lines (inserted inside bands formed by two horizontal lines) are considered to belong to the Wadi Suq period (2000-1300 BCE). Instead, fragments showing zig-zag lines with minimal presence of circle dots belong to the Early Iron Age (1200-1000 BCE). Further indicator, are chlorite cups with spouts dating to the Early Iron Age, the body of which is decorated with vertical lines; this form, moreover, is the one most attested in both graves⁵³.

⁵² This fragment is not included in this statistic study which focused only on the funerary area.

⁵³ For this classification rules see Genchi and Tursi 2021.

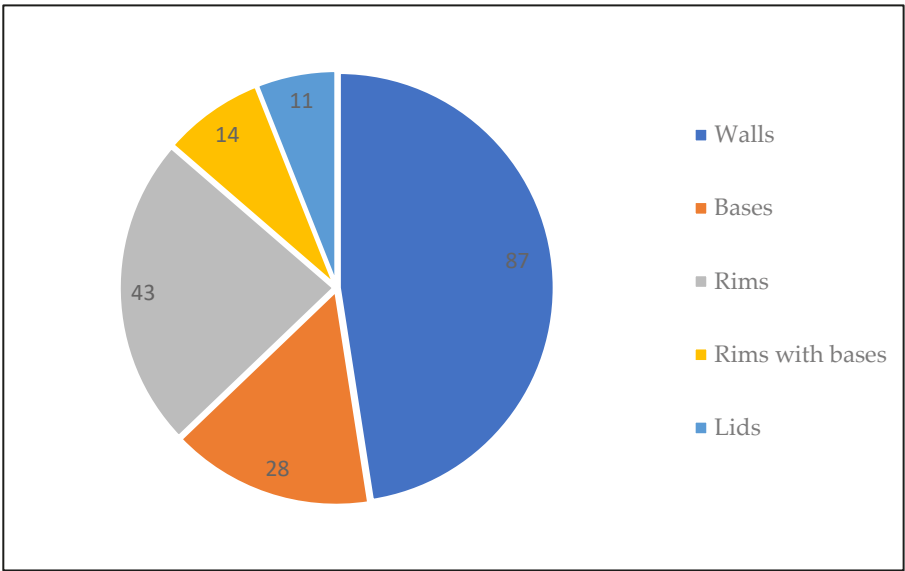


Fig. 6.1. Distribution of the fragments of stone vessels recovered from graves G1 and G1, Area C.

6.1. Stone Vessels Fragments from Grave G1

Grave G1 (Fig. 6.2) consists mainly of one locus, locus 4, in which most of the chlorite fragments were found by the MASPAG mission. They have different decorations attributable to different periods; for example, in locus 4 (SU18), fragment WMS23.C.G1.18_O12 (Fig. 6.3, Cat. 61) has decorations typical of the Wadi Suq period, namely circle dots in two rows and traces of intertwining vertical and horizontal lines. Also, fragment WMS23.C.G1.18_O11 (Fig. 6.3, Cat. 61) bears Wadi Suq decorations. However, in the same stratum and locus, Early Iron Age stone vessel fragments were found decorated with zig-zag lines and triangular shapes, with a marked decrease in the presence of circle dots. An example is fragment WMS24.C.G1.18_O11 (Fig. 6.4, Cat. 67), where many zig-zag lines and triangular shapes are discernible, with a secondary presence of circle dots. Another example from Iron Age types is the fragment WMS23.C.G1.6_O1 (Fig. 6.4, Cat. 39), which contains zig-zag lines with horizontal lines at the rim and above the base.

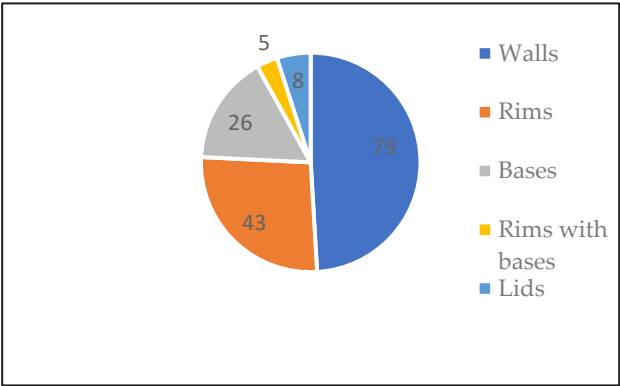


Fig. 6.2. The distribution of the fragments of stone vessels of grave G1.

In strata above the layer SU18, such as SU3, stone vessels fragments of the Wadi Suq and Early Iron Age periods have been found together; an example is fragment WMS23.C.G1.3_O84b (Fig. 6.4, Cat. 54), with two rows of circle dots and oblique lines above intersecting; in the same layer, fragment WMS23.C.G1.3_O50 (Fig. 6.4, Cat. 49) was found, decorated with triangular zig-zag and acute-angle shapes and no presence of circle dots, so it is attributable to the Early Iron Age.

Stone vessel fragments of the Wadi Suq period were found only in Locus 4 (SU3 and SU18), while Early Iron Age fragments were also found in other layers, including more superficial ones, such as the fragment WMS23.C.G1.2_O5 (Fig. 6.4, Cat. 37) with a spout.

Above and inside Locus 4, subsequent to its creation, other loci were identified, formed by a small encircling of a course of stones, namely Locus 1, Locus 2, Locus 3, Locus 5, Locus 6, and Locus 10. Thus, we can assume that the grave was made in the Wadi Suq period and reused in the later period, namely the Early Iron Age.

Looking at the decorations in general, one can notice a large presence of horizontal lines on many of the fragments, both under the rim and above the base, but it is impossible to always understand for sure their original vessel derivation.

The rest of the fragments present circle dots, zig-zag lines, triangular geometries, and tow-lines surrounded by zigzags, as said before. An exceptional fragment is WMS24.C.G1.18_O45 (Fig. 6.5, Cat. 71), which has lozenges made of zig-zag lines.

Some stone lids were also found, such as WMS23.C.G1.8_O1 (Fig. 6.5, Cat. 40) and WMS24.C.G1.18_O5 (Fig. 6.5, Cat. 66), which follow the same decorative motifs as the rest of the vessels' fragments: zig-zag and oblique lines, acute angles and circle dots. Also their holders are decorated with those patterns. Their form can be rectangular or round, and this depends on the vessel of belonging.

Some of the fragments were also found on the most superficial layer of grave G1, such as WMS23.C.G1.1_O1 (Fig. 6.5, Cat. 35), which is an Early Iron Age fragment; this indicates that the grave was reused or plundered.

Another consideration can be noted from G1; most of the vessel's forms are Early Iron Age cups, such as WMS23.C.G1.3_O33 (Fig. 6.5, Cat. 45), usually bearing vertical lines covering their entire body.

In loci 5, 6, and 8, no vessel fragments were found.

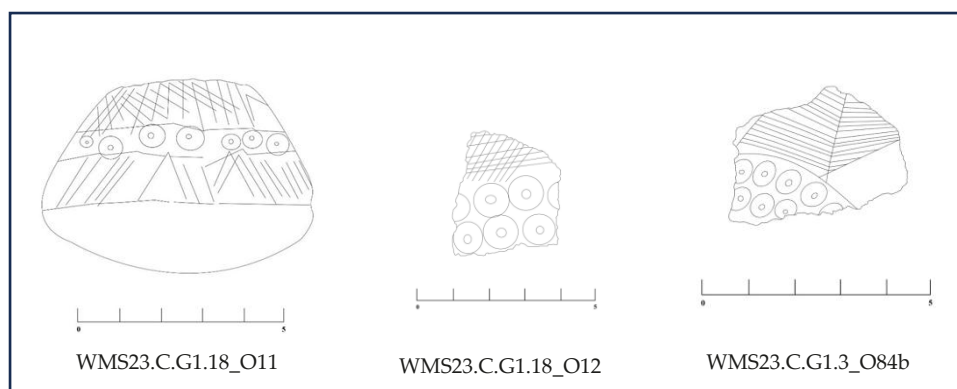


Fig. 6.3. Stone vessels fragments from the grave G1 datable to Wadi Suq period (Drawing by F. Abbatiello, ©MASPAG, courtesy MHT).

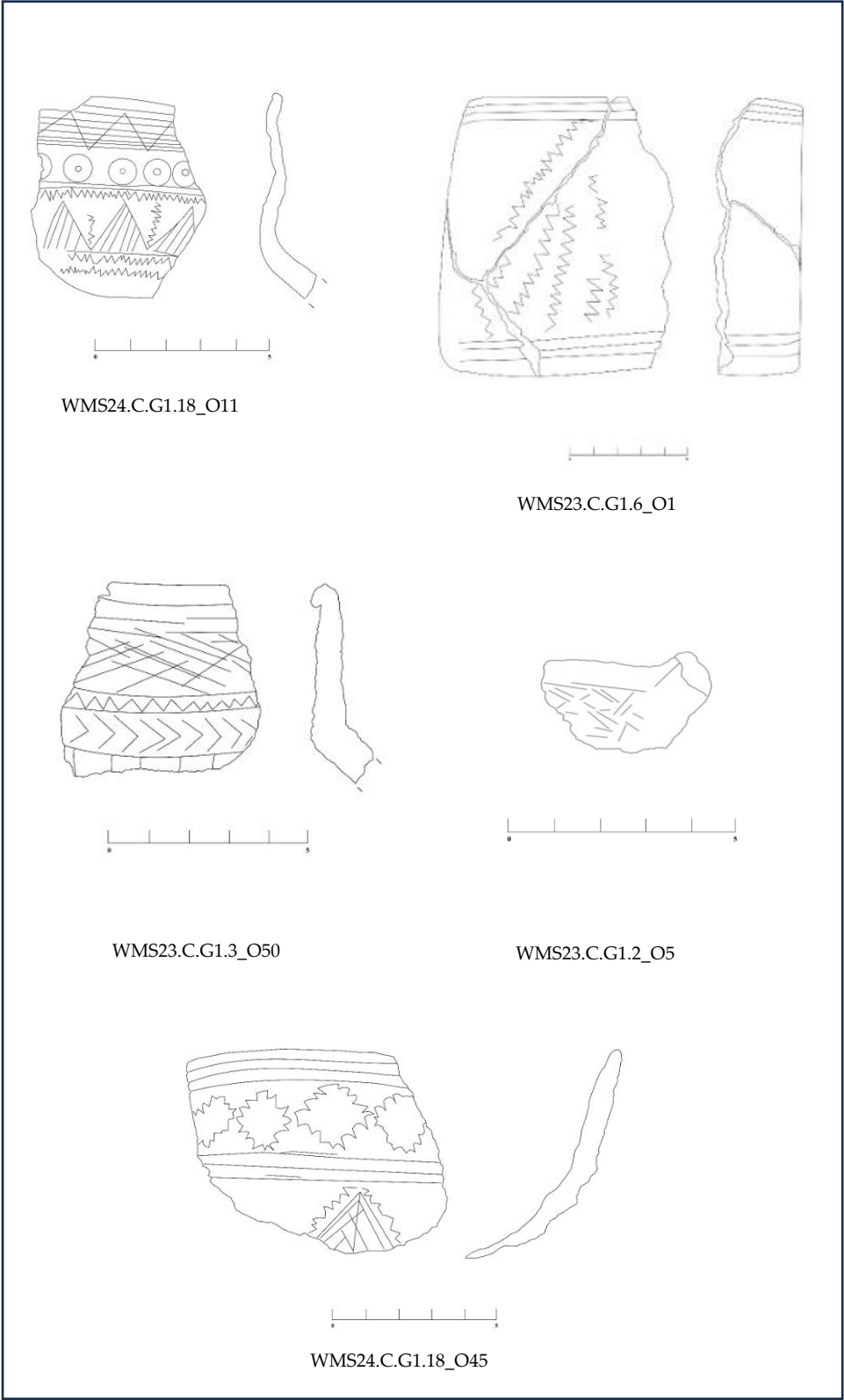


Fig. 6.4. Stone vessels fragments from the grave G1 datable to Early Iron Age (Drawing by F. Abbatiello, ©MASPAG, courtesy MHT).

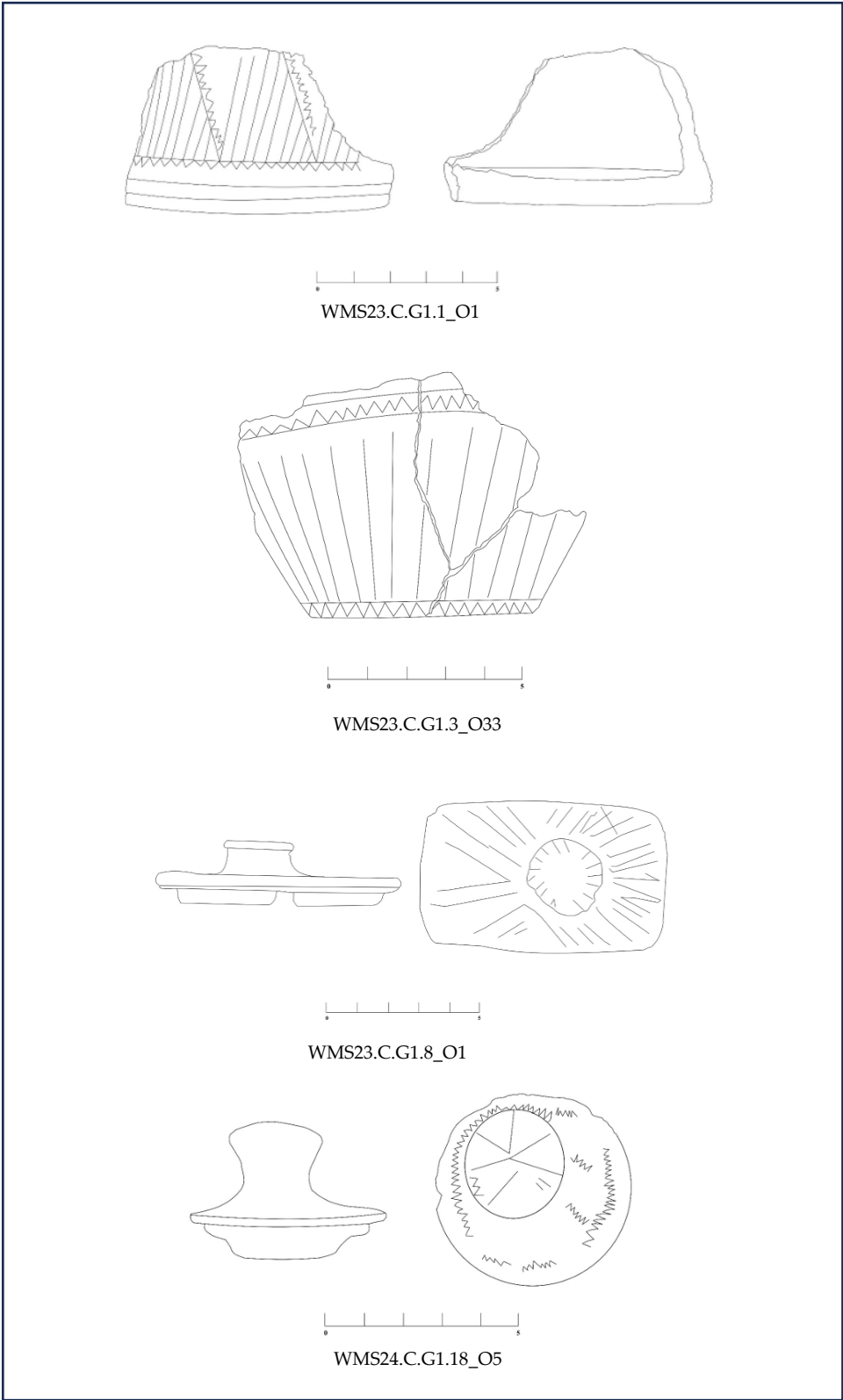


Fig. 6.5. Stone vessels fragments and lids from the grave G1 datable to Early Iron Age (Drawing by F. Abbatiello, ©MASPAG, courtesy MHT).

6.2. Stone Vessels Fragments from Grave G2

Grave G2 has an elongated shape containing five separate loci and a sixth small one south of Locus 1. From all these loci, we recovered only 22 fragments, which mostly consist of walls of stone vessels (Fig. 6.6).

Above the grave G2, in SU2 (surface of the grave), five fragments of stone vessels have been recovered (three rims and two walls). All are characterized by similar geometric decorations, such as fragments WMS23.C.G2.2_O1 (Cat. 75) and WMS23.C.G2.2_O2 (Fig. 6.7, Cat. 76), which present part of the rim followed by horizontal lines. Fragment WMS23.C.G2.2_O2 features several small circle-dots under the horizontal lines. The third fragment, from SU2, is WMS23.C.G2.2_O3 (Cat. 76), displays decorations with oblique lines and one horizontal line. The fourth and fifth were collected under the same inventory number WMS23.C.G2.2_O5 (Cat. 76), because they seem to belong to the same vessel. They show two horizontal lines just under the rim and a set of oblique parallel lines that cross to form a triangular geometric motif. This decoration leads us to attribute them to the Early Iron Age.

In SU9, inside Locus 1, three fragments with the same decorations and coloring were found. One of them, WMS23.C.G2.9_O2 (Fig. 6.7, Cat. 77), displays part of the rim with horizontal lines just below it and intersecting oblique lines, very similar to WMS23.C.G2.9_O5 (Cat. 77). Thus, they probably belonged to a single stone vessel, deposited inside Locus 1.

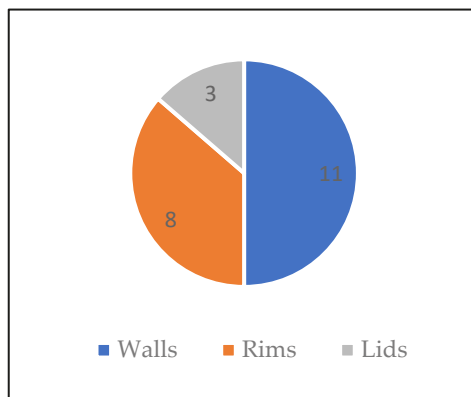


Fig. 6.6. Distribution of the fragments of stone vessels recovered from grave G2.

In Locus 4 (SU15 and SU28), fragments of stone vessels with very similar decorations and also lids were recovered. From SU15, a stone vessel fragment, WMS23.C.G2.15_O3 (Cat. 78), was found presenting decorations with two-concentric circles with central dots. The same decoration was found on the fragments WMS23.C.G2.28_O11 (Fig. 6.7, Cat. 80) and WMS23.C.G2.28_O2 (Cat. 79). This pattern is attributed to the Wadi Suq period. We can see a material continuity in the two SU of the same locus. The same decoration is presented on the fragment WMS23.C.G2.28_O10 (Cat. 80).

We can say the same thing about the fragment WMS23.C.G2.34_O1 (Cat. 81), which was recovered from Locus 5, and has similar decoration of two-concentric circles with central dots, which is attributed to the Wadi Suq period.

Two vessels' lids were found in Locus 4, WMS23.C.G2.28_O1 (Cat. 79) and WMS23.C.G2.28_O9 (Fig. 6.7, Cat. 80), both are decorated with two-concentric circles with central dots across their entire surfaces. They are both attributed to the Early Iron Age I.

Fragments are datable to the Wadi Suq and Iron Age periods leads us to assume that the grave was started in the Wadi Suq period and reused in the Iron Age.

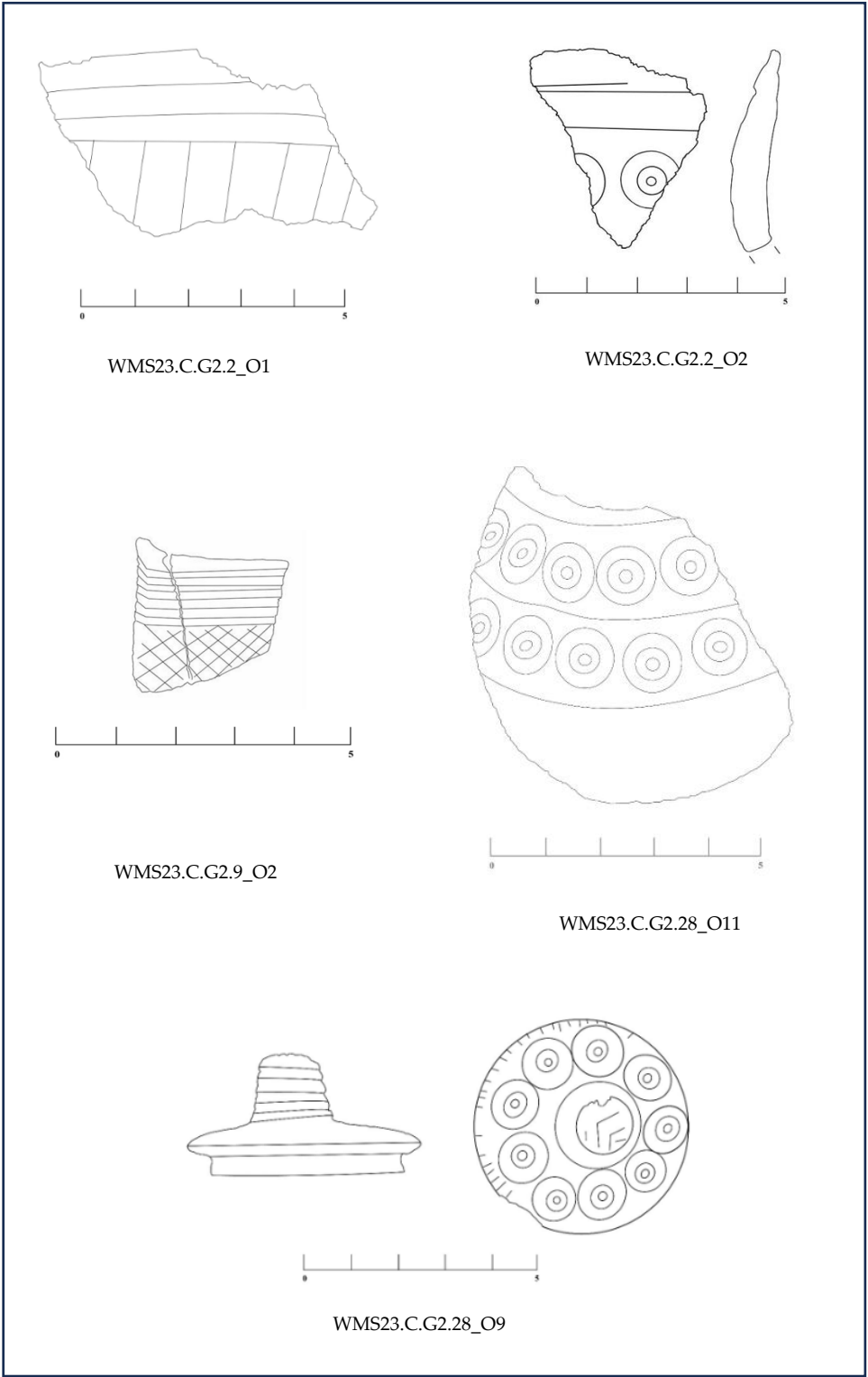


Fig. 6.7. Fragments of stone vessels and lid from the grave G2 datable to Wadi Suq and Early Iron Age (Drawing by F. Abbatiello, ©MASPAG, courtesy MHT).

6.3. Patterns on the Fragments of Stone Vessels from G1 and G2

The 183 fragments from both graves, G1 and G2, bear different decorations. We can classify them into ten groups (Fig. 6.8). Each group has different sub-groups. However, here we will show examples from these groups:

- Group A, fragments with horizontal lines (Fig. 6.9);
- Group B, fragments with vertical lines (Fig. 6.9);
- Group C, fragments with horizontal and vertical lines (Fig. 6.9);
- Group D, fragments with circle-dots (Fig. 6.9);
- Group E, fragments with zig-zag and other geometrical decorations (Fig. 6.9);
- Group F, fragments with small triangles and other geometrical decorations (Fig. 6.9);
- Group G, fragments with circle-dots and other geometrical decorations (Fig. 6.9);
- Group H, fragments with triangles and zig-zag (Fig. 6.9);
- Group I, fragments without decorations;
- Group J, lids (Fig. 6.10), which contains different patterns.

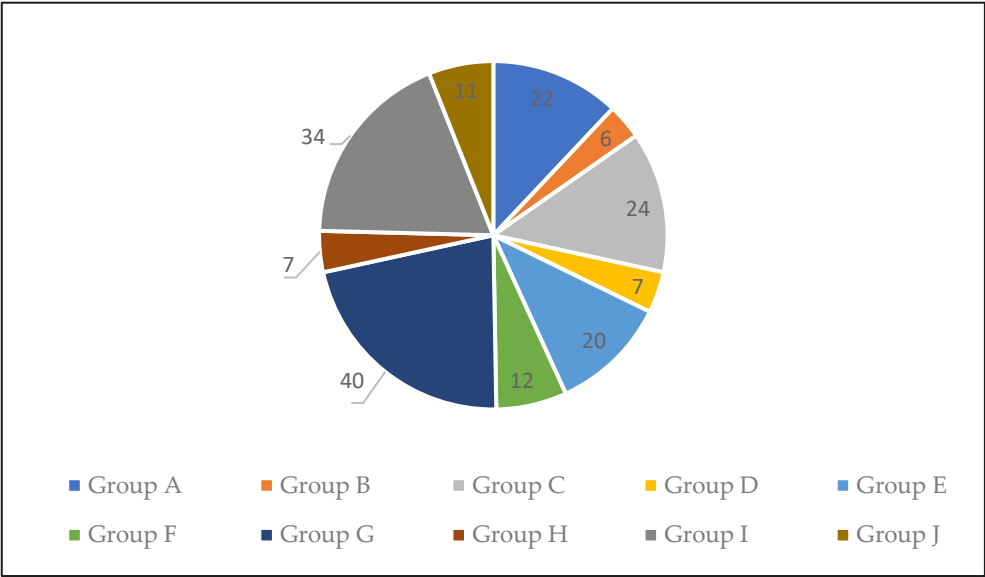


Fig. 6.8. Distribution of the fragments of stone vessels from G1 and G2 on pattern’s groups.

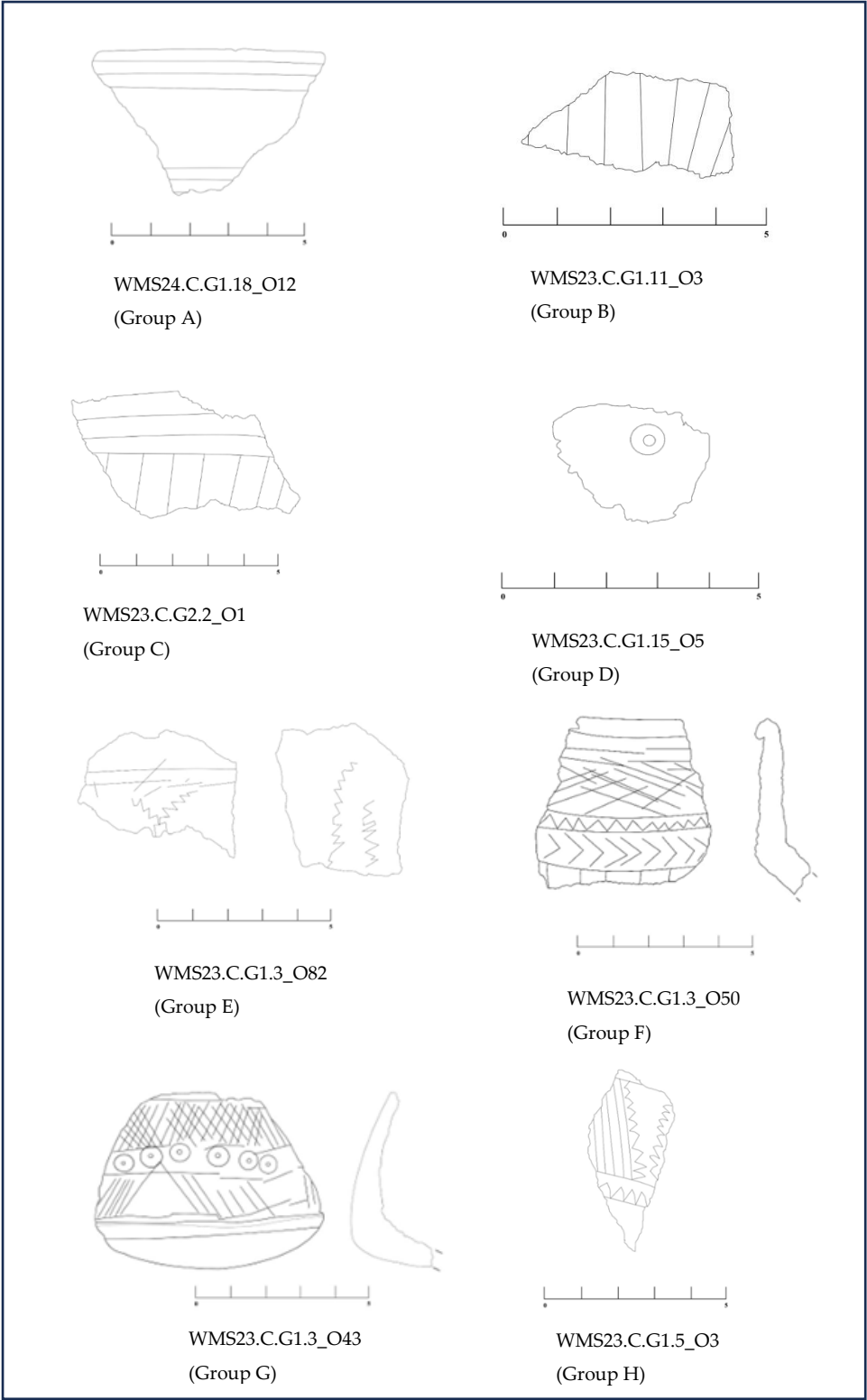


Fig. 6.9. Examples of the pattern's groups (Drawing by F. Abbatiello, MASPAG, courtesy MHT).

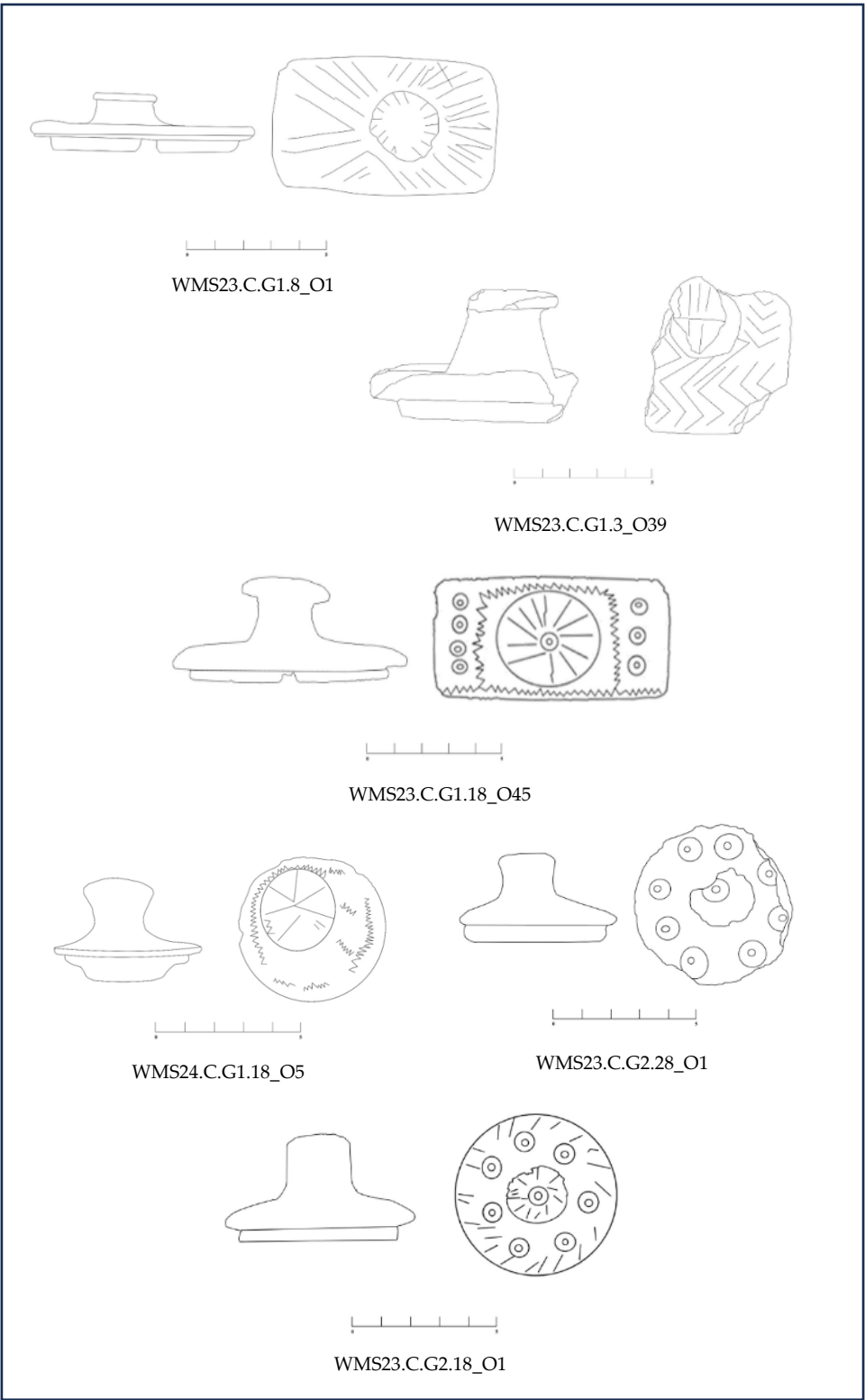


Fig. 6.10. Group I, the lids (Drawing by F. Abbatiello, MASPAG, courtesy MHT).

7. Bronzes

Ahmed Fatima Kzzo

Oman is, and has long been since antiquity, a significant source of copper, an essential component of bronze, which is an alloy of copper and tin⁵⁴. During our 2023 excavation at Wadi al-Ma'awil, a total of 77 fragments of bronze artefacts were recovered (Cat. 83–89). Some of these were catalogued under shared inventory numbers due to their recovery in proximity to one another, although the majority were obtained through sieving. In total, the assemblage is registered under 23 inventory numbers.

From the settlement context, Area A, only a single bronze fragment was recovered: WMN23.A.WS1.S1_O2 (Cat. 83). This is a thick, flat piece with no diagnostic features, making it impossible to determine its original function.

The remaining fragments were recovered from the Southwestern Cemetery, Area C, primarily from grave G1. One exception is fragment WMS23.C.G2.1_O1 (Cat. 89), which was found on the surface of grave G2. This piece, a 5 cm-long stick, shows no corrosion and is likely made of lead rather than bronze. A similar artefact, WMS23.C.G1.18_O28a (Cat. 88), was recovered from grave G1.

Most of the G1 fragments originate from the main rectangular chamber, Locus 4. Several fragments can be functionally interpreted. Cylindrical pieces, likely associated with nails or fishhooks, include:

- WMS23.C.G1.3_O30b and c (Cat. 84);
- WMS23.C.G1.3_O57 (Cat. 85);
- WMS23.C.G1.3_O79a (Cat. 86);
- WMS23.C.G1.3_O94c and d (Cat. 86);
- WMS23.C.G1.3_O114 (Cat. 87).

A second group includes fragments bearing rim features, suggesting they originated from bronze vessels. These include:

- WMS23.C.G1.3_O16a (Cat. 83);
- WMS23.C.G1.3_O30d, m, and o (Cat. 84);
- WMS23.C.G1.3_O32 (Cat. 84);

⁵⁴ Giardino 2019, 13.

- WMS23.C.G1.3_O65 (Cat. 85);
- WMS23.C.G1.3_O73c and d (Cat. 85);
- WMS23.C.G1.3_O114f (Cat. 87).

Two distinctive fragments merit particular attention:

- WMS23.C.G1.3_O20 (Cat. 83) is a wide, curved piece, possibly part of a decorative ring;
- WMS23.C.G1.3_O68 (Cat. 85) is cylindrical and curved with a thinner edge, suggesting it may also represent a ring or possibly a fishhook.

The remainder of the assemblage consists of flat, undiagnostic fragments. These may derive from a variety of objects such as blades, knives, or vessel components.

8. Tools and Weapons

Ahmed Fatima Kzzo

Under this category, we have classified several objects: a stone chisel, axes, seven arrowheads, and a bullet. In the settlement area (Area A), in Layer 1 beneath the surface, we recovered a bullet, WMN23.A.WS1.1_O1 (Cat. 91), which can tentatively be dated to the 19th century.

In Area B, the Western Cemetery—located at the base of the al-Ḥalah mountain—we recovered a fragment of a flint tool on the surface, near grave G1. Its size and shape suggest that it may have been a chisel. In contrast, from within the grave itself, a bronze axe and a flint axe were recovered.

The bronze axe, WMW23.B.G1.8_O4 (Fig. 8.1, Cat. 91), was found *in situ* near the northern wall of the chamber (Locus 1) of grave G1 (Fig. Ahmed 4e), in association with a jar attributed to the Jemdet Nasr typology (Fig. Marco 3d). The axe is thick and appears to have been formed by fusing two layers of metal. Its shape is highly unusual. Other copper axes have been recovered from southeastern Arabia—such as those from Tell Abraq, Umm an-Nar, Ras al-Jinz RJ-2, Jabal Buhais BSH67, and al-Moyassar—but all differ in form and dimensions⁵⁵.

At the southern wall of the same chamber (Fig. Ahmed 4e), we recovered a flint tool, WMW23.B.G1.10_O1 (Fig. 2.5.2, Cat. 92). While it might be interpreted as an axe, it could also be used as a blade, given that it is sharpened on three sides.

All seven arrowheads (Fig. 2.5.3) were recovered from grave G1 in Area C. One arrowhead, WMS23.C.G1.8_O5 (Cat. 92), was found in Locus 2—a small sub-locus that formed within the main rectangular chamber, Locus 4. Additional arrowheads from Locus 4 include WMS23.C.G1.3_O66 (Cat. 92), WMS23.C.G1.3_O85 (Cat. 93), and WMS24.C.G1.18_O6 (Cat. 93). From Locus 8—a small area outside Chamber L4 at the northeastern corner—two further arrowheads were recovered: WMS23.C.G1.12_O2 (Cat. 93) and WMS23.C.G1.12_O5 (Cat. 94). The final arrowhead, WMS23.C.G1.17_O2 (Cat. 94), was recovered from Locus 9, a semi-circular chamber situated west of the main rectangular structure (Locus 4).

Each arrowhead displays a distinct shape. But all of them do not exhibit a visible midrib, with the exception of WMS23.C.G1.12_O5 (Cat. 94). This arrowhead has a

⁵⁵ See Frenez 2020, p. 390, figure 35.7.

visible midrib and appears to have been made from a different alloy, as suggested by its lesser degree of corrosion compared to the others. This may indicate, as well, a later manufacturing date.

However, arrowheads lacking a visible midrib have also been discovered at ‘Uqdat al-Bakrah (Safah)⁵⁶. These examples have been dated to the early Iron Age, which aligns with the context of grave G1, where associated finds include stone vessel fragments attributable to the Wadi Suq and Iron Age periods. Nevertheless, further analysis and study are required to confirm these interpretations.

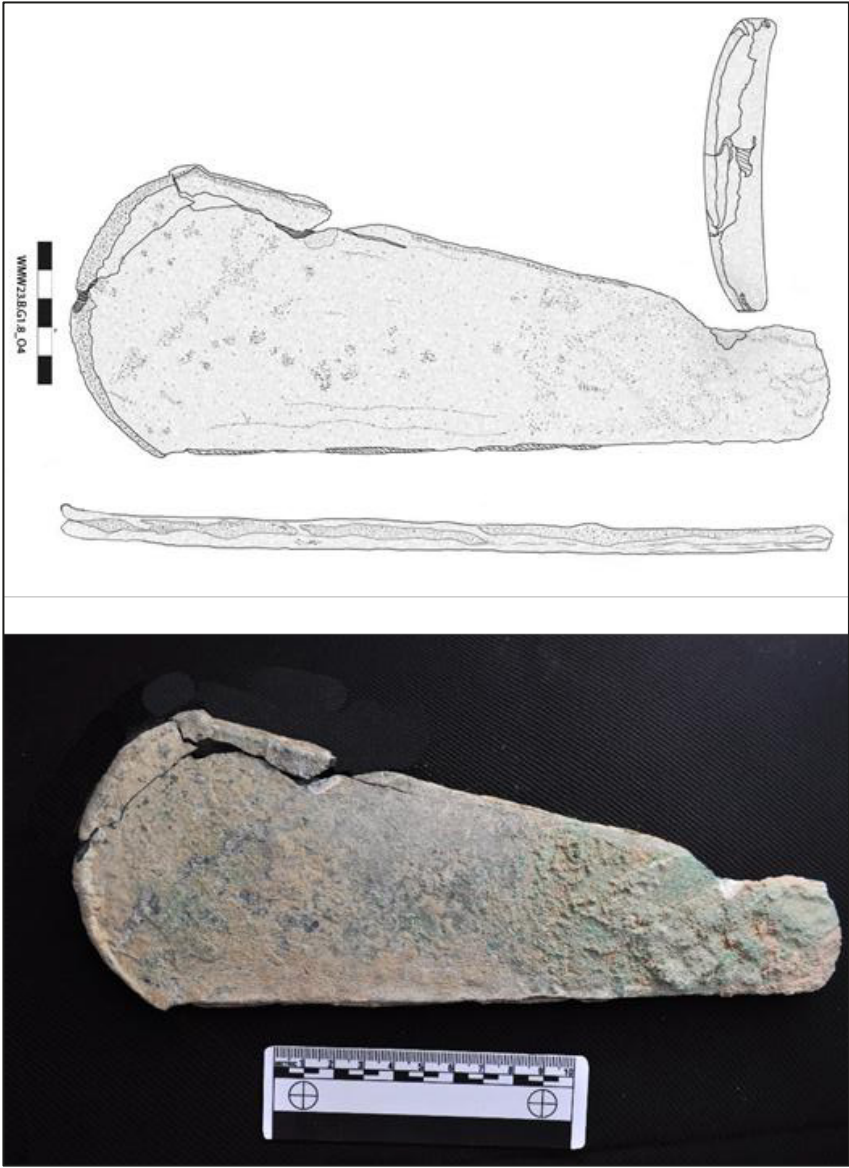


Fig. 8.1. Bronze axe WMW23.B.G1.8_O4 found in the grave G1, Area B (Photo by A. F. Kzzo, drawing by D. Michilli, ©MASPAG, courtesy MHT).

⁵⁶ See Aksoy 2018, especially, fig. 17 and 18.

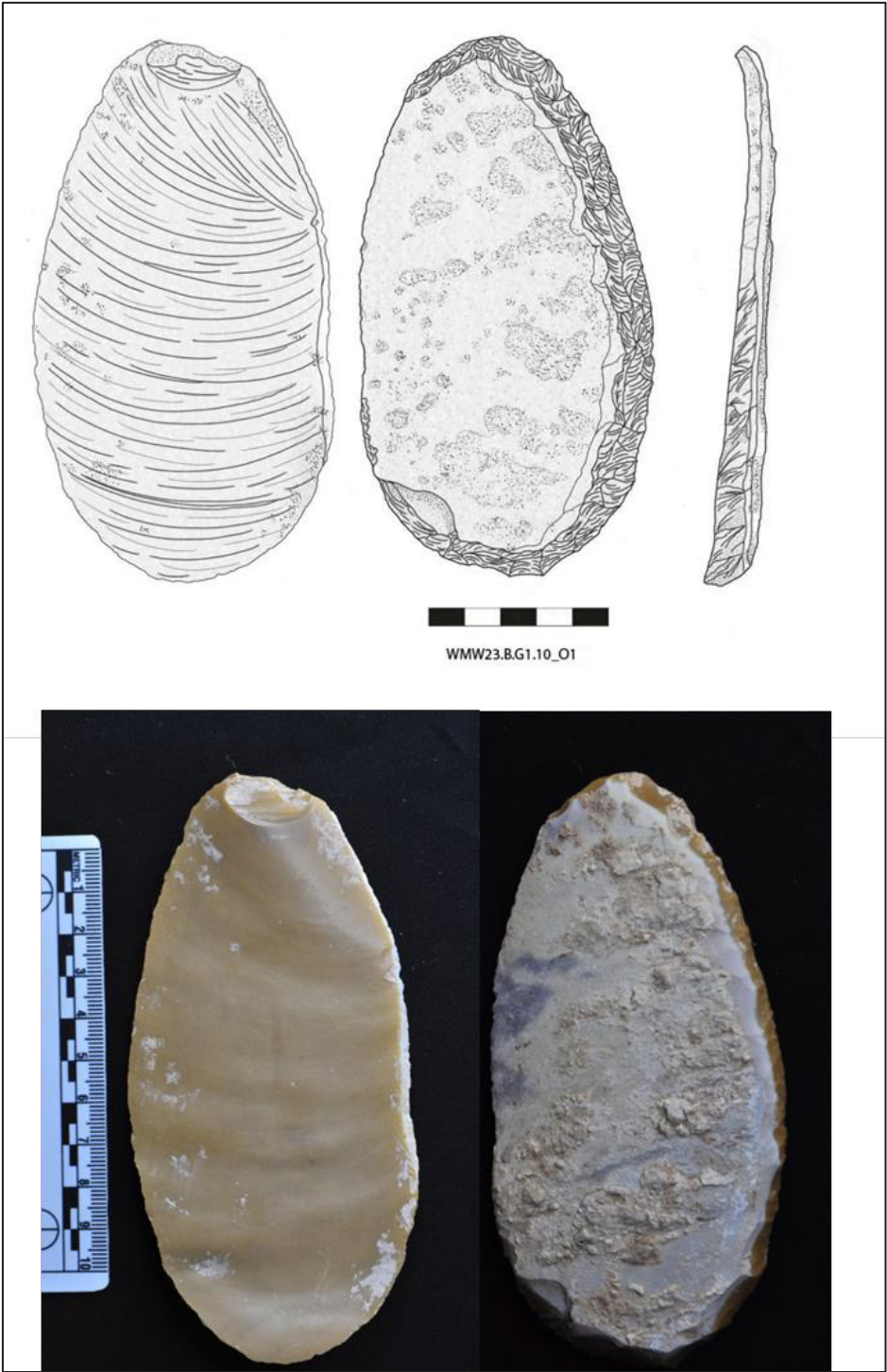


Fig. 8.2. Flint axe WMW23.B.G1.10_O1 found in the grave G1 in Area B (Photo by A. F. Kzzo, drawing by D. Michilli, ©MASPAG, courtesy MHT).



Fig. 8.3. Arrowheads of the grave G1, Area C (Photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

References

- Aksoy, Ö. (2018), *Functions and uses of metallic axe-heads and arrowheads from Safah, Oman: An analysis of metalwork wear and weapon design*, in "Journal of Archaeological Science: Reports", 19, pp. 727-752.
- Frenez, D. (2020), *The Indus Civilization Trade with the Oman Peninsula*. In S. Cleuziou, M. Tosi (eds), *In the Shadow of the Ancestors. The Prehistoric Foundations of the Early Arabian Civilization in Oman*, (second expanded edition), pp. 385-396.

9. Ground Stones

Ahmed Fatima Kzzo

Under this category, we have classified seven objects which can be considered as pestles, mullers and millstones (Cat. 95 - 96). Four of these were recovered from the settlement area, Area A (Cat. 95). Three are basalt millstones, while the fourth, WMN23.A.WS1.2_O1 (Cat. 95), is possibly a muller.

From the Southwestern Cemetery (Area C), we recovered an additional three grinding stones. One fragment, WMS23.C.G1.3_O93 (Cat. 96), was recovered from grave G1, where numerous beads, fragments of stone vessels, and bronze artefacts were also found. This object is a small, semi-cylindrical stone fragment, likely used as a pestle for grinding cosmetics or pigments.

Another small pestle was recovered from grave G2, within chamber Locus 1. This object (WMS23.C.G2.9_O1, Cat. 96) is broken into two fragments. It is a small semi-cylindrical stone; thus, it may have been used to grind small items, most likely related to cosmetic or pigment preparation. From the same chamber, several beads and pendants were also recovered (Cat. 28–30), along with stone vessel fragments (Cat. 77–78), which support the use of ornament and beauty items.

The final grinding tool is probably a muller, WMS23.C.G2.19_O1 (Cat. 96), which was found in chamber Locus 5 of grave G2. This locus gave only one other object—a stone vessel fragment, WMS23.C.G2.34_O1 (Cat. 81)—in addition to some potsherds. This muller is bigger than the aforementioned pestles, thus it is likely used for processing cereals or other materials.

10. Miscellaneous

Alessandro Di Ludovico

In the little pit filled by the deposit of SU3, in the southern region of Worksite 1, the terracotta fragment WMN23.A.WS1.3_O1 (Cat. 97) was collected. The stratigraphic unit was quite rich in large potsherds, besides stones (probably the result of the deterioration of the near-natural conglomerate outcrop) and brick fragments, and for this reason, at first, this object was interpreted as the handle of a vessel. At the moment of its discovery, the fragment had encrustations, just like a number of potsherds from the same SU: such encrustations clearly reveal a prolonged exposure to substances released by conglomerate leaching. After its careful cleaning, it was evident that the find 3_O1 is rather part of a terracotta figurine, and that it probably represents the paw of a feline or even (less probably) a stylized human limb. The fragment has a flat face and a solid clay mass with a rounded profile, so that observed from the perspective of the break, it resembles a partially altered cylinder, namely a cylinder that has a partially flattened outer surface. The rounded face of the fragment is slightly flared from the fracture to about its half length, then it widens out in an almost fan-shaped end. Three or four (it is not clear whether one of the external furrows is just a consequence of the object's wearing out) parallel furrows are traced on the rounded surface, and they follow the flaring profile, while two further series of at least three more shorter furrows cross the longer ones, running from the centre-top of the cylindrical face to its lateral ends at an angle of roughly 45 degrees to them.

11. Samples for Anthropological Analyses

Francesco La Pastina, Alessia Nava

The application of bioarchaeology in the analysis of ancient societies in Southern Mesopotamia and Eastern and South-Eastern Arabian Peninsula during the 3rd and 2nd millennia BCE represents an innovative and fundamental approach to understanding the social dynamics and patterns of human mobility in these regions. In this context, the cemeteries of Wadi al-Ma‘awil were investigated in the framework of the PRIN (Progetti di Rilevante Interesse Nazionale): “Marshlands, Islands, and Marine Coasts: Social Complexities, Tribal Alliances, and Human Mobility between Southern Mesopotamia and Eastern and South-Eastern Arabia during the 3rd and 2nd millennium BCE” project. Wadi al-Ma‘awil emerges as a particularly relevant site, given the geographical characteristics of the area and the historical-archaeological evidence showing occupational continuity through the Hafit, Umm an-Nār, and Wadi Suq periods.

Information about human mobility patterns will be obtained by applying an integrated methodology that includes strontium ($^{87}\text{Sr}/^{86}\text{Sr}$) and oxygen ($^{18}\text{O}/^{16}\text{O}$) isotope ratio analyses.

The objective of this first study campaign is to develop a baseline of bioavailable strontium, constructed from samples of soil, faunal remains, terrestrial snails, and grass, which will be incorporated into a GIS reference system. The sampling will be done following the protocol developed by Price et al. [2002] and Ambrose [2006] and standardized by K. Wade [2018]. The baseline resulting permit allows us to clearly define the group of the autochthonous population, and consequently identify the non-local group.

The subsequent broadening of the baseline, based on the emerging historical-archaeological data, will make it possible to define the origin of people as local or non-local. Together with the archaeological data, the monolithic pattern of the area under study will be defined.

11.1. Sampling: Site Selection

The research strategy and the selection of sampling locations were determined by various factors, such as the characteristics of the territory, the proximity to burial

areas, and the reliability of archaeological contexts. Partly based on the assumption that human communities tended to bury their deceased near settlement areas, even in the case of semi-nomadic communities, burial areas serve as an indicator of territorial affiliation to a specific geographical area.

The sample collection and gathering action focused on three distinct areas, all located within the Wadi al-Ma'awil area, near Muslimāt (Fig. 11.1): The settlement area, Area A, chronologically assignable to the Iron Age I, and the large cemeteries areas, distinguished as Area B and Area C, chronologically assignable between the Umm an-Nār and Wadi Suq periods.

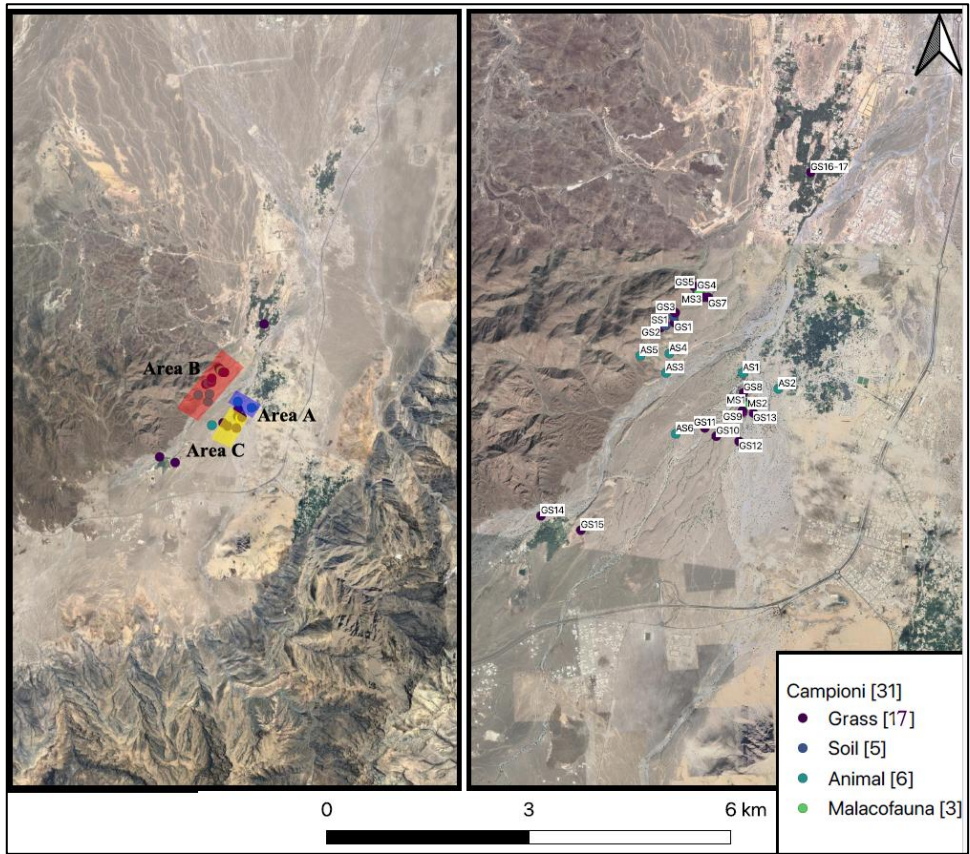


Fig. 11.1. Maps showing the samples locations: On the left, an overview of the samples in relation to the excavation areas identified during the campaign. On the right, detail of the sample type distribution (Elaborated by A. S. Meneses Pineda, ©MASPAG, courtesy MHT).

To ensure the maximum precision and reliability of the baseline and to define the isotopic ratios of strontium ($^{87}\text{Sr}/^{86}\text{Sr}$) and oxygen ($^{18}\text{O}/^{16}\text{O}$) with reference to the Wadi al-Ma'awil site, various types of samples were collected: Wild grass, dental enamel from ovicaprine and fennec remains, soil, and malacofauna samples. The use of different elements allows the consideration of multiple factors that can influence the analysis, thus revealing potential issues that might otherwise create

problems in the accurate interpretation of the data⁵⁷. Ultimately, this approach enables a more precise determination of the variance factors contributing to the minimal fluctuations observed in the data.

11.2. Sampling: Reliability of Samples

The sampling process requires a series of precautions and rigorous protocols to minimize the risk of contamination and ensure that the samples accurately reflect reality; thus, we took different issues into consideration:

- Sample preservation: To avoid the risk of contamination or degradation of samples during storage and transportation;
- Quality control: To identify and mitigate potential sources of error;
- Standardization: To validate the accuracy of measurements and ensure consistency across samples;
- Duplicate Sampling: Duplicate samples are collected and analyzed independently to assess the results' reproducibility and verify the sampling procedure's reliability;
- Documentation: Detailed documentation of sampling procedures, including location, time, and collection method, is maintained to provide transparency and facilitate reproducibility;
- Peer Review: Sampling protocols and results undergo peer review by experts in the field to evaluate their validity and reliability.

In the context of Wadi al-Ma'awil, particular attention has also been devoted to minimizing the risk of sample contamination.

11.2.1. Faunal Samples

To ensure the reliability of samples related to faunal remains selected from a non-archaeological context, specific precautions were adopted, as they are subject to intense commercial activity. Therefore, sampling operations were carried out, ensuring that the samples originated from animals born and raised in the vicinity of the study area, rather than imported ones. This criterion was crucial to prevent the strontium ($^{87}\text{Sr}/^{86}\text{Sr}$) and oxygen ($^{18}\text{O}/^{16}\text{O}$) isotope ratios from reflecting values of an area located hundreds of kilometers away.

11.2.2. Wild Grass Samples

Particular attention was paid to the authenticity of the growth context of the wild grass samples. It was ensured that the soil in which the wild plants grew was not a backfill composed of soil from other areas. This precaution was taken to prevent, similar to what could occur if faunal samples were mistakenly taken from animals imported from other areas, the isotopic values from reflecting those of geographically distant regions.

11.2.3. Soil and Malacofauna Samples

For soil and malacofauna samples, a rigorous policy of selecting archaeological

⁵⁷ Gregoricka 2021.

contexts was also adopted. Samples were exclusively taken from reliable archaeological contexts to ensure the absence of modern contamination and the authenticity of the data obtained. This precaution was crucial to ensure that the analyses accurately reflected the environmental and cultural conditions of the period under study.

11.3. Baseline Sample Wadi al-Ma‘awil

Label	Description	Area	Sitework	Locus	SU
WM23-Grass S_1	Grass	B	G3	N/A	N/A
WM23-Grass S_2	Grass	B	G3	N/A	N/A
WM23-Grass S_3	Grass	B	G3	N/A	N/A
WM23-Grass S_4	Grass	B	G1+G2	N/A	N/A
WM23-Grass S_5	Grass	B	G1+G2	N/A	N/A
WM23-Grass S_6	Grass	B	G1+G2	N/A	N/A
WM23-Grass S_7	Grass	B	G1+G2	N/A	N/A
WM23-Grass S.8	Grass	C	G1+G2	N/A	N/A
WM23-Grass S.9	Grass	C	G1+G2	N/A	N/A
WM23-Grass S.10	Grass	C	G1+G2	N/A	N/A
WM23-Grass S.11	Grass	C	G1+G2	N/A	N/A
WM23-Grass S.12	Grass	C	G1+G2	N/A	N/A
WM23-Grass S.13	Grass	C	G1+G2	N/A	N/A
WM23-Grass S.14	Grass	C	G1+G2	N/A	N/A
TW23_Grass_S.16	Grass	Tawiyah	N/A	N/A	N/A
TW23_Grass_S.17	Grass	Tawiyah	N/A	N/A	N/A
WM23 Soil S.1	Soil	B	G3	N/A	N/A
WM23 Soil S.2	Soil	B	G1+G2	N/A	N/A
WM23 Soil S.3	Soil	B	G1+G2	N/A	N/A
WM23 Soil S.4	Soil	C	G1+G2	N/A	N/A
WM23 Soil S.6	Soil	B	G2	1	N/A
WM23 Soil S.5	Soil	C	G1+G2	N/A	N/A
WM23_Animal_S_1	Ovicapride	WMW	N/A	N/A	N/A
WM23_Animal_S_2	Ovicapride	WMW	N/A	N/A	N/A
WM23_Animal_S_3	Ovicapride	WMW	N/A	N/A	N/A
WM23_Animal_S_4	Ovicapride	WMW	N/A	N/A	N/A
WM23_Animal_S_5	Fennec	WMS	N/A	N/A	N/A
WM23_Animal_S_6	Fennec	WMS	N/A	N/A	N/A
WMS23.C.G1.3_S1	Malacofauna	C	G1	4	3
WMW23.C.G1.11_S2	Malacofauna	B	G1	1	8-10
WMS23.C.G2.8_S3	Malacofauna	C	G2	N/A	8

Fig. 11.2. List of the samples collected during the excavation campaign of the Sapienza archaeological mission at Wadi al-Ma‘awil 2023, which constitute the elements upon which the baseline is established.

11.4. Conclusions

The reliability of the sample is an essential prerequisite for establishing a solid and dependable baseline for future studies on human mobility. Through a rigorous and multidisciplinary methodological approach, it has been possible to create a robust database that will be crucial for conducting more thorough and detailed analyses of human mobility over time.

Specific precautions have been adopted for each sample category to help ensure the integrity and authenticity of the collected data as much as possible. Verifying the origins of animals for faunal samples, evaluating the growth context for wild grass specimens, and selecting the most reliable archaeological layers for soil and malacofauna samples. These measures help to avoid contamination and ensure the representativeness of the data to the best of current capabilities.

Furthermore, the future integration of these data with those from historical archaeological sources and supporting scientific disciplines will enrich the baseline established by the isotopic analysis, allowing for a more detailed understanding of the environmental and cultural conditions of the studied populations. This multidisciplinary baseline will serve as a starting point for future analyses, accurately tracing population movement patterns over time and space, enabling the formulation of new hypotheses regarding migration routes, cultural interactions, and ultimately, a better understanding of the social and economic dynamics that have shaped the Arabian Peninsula throughout its long history.

References

Gregoricka, L. A. (2021), *Moving Forward: A Bioarchaeology of Mobility and Migration*, in "Journal of Archaeological Research", 29.4, pp. 581-635. <https://doi.org/10.1007/s10814-020-09155-9>.

12. Anthropological Remains

Francesco La Pastina, Alessia Nava

The work described in the present report was conducted in full collaboration with the other specialists present on site. The structures were described, topographically positioned, photographed, dug, and interpreted with the archaeologists of the team and the scientific director. As for the data related to funerary architecture and archaeological materials (pottery and objects), detailed analysis can be found in the chapters dedicated to the archaeological part of the report.

The anthropological work included the excavation of osteological remains, their documentation, storage, and preliminary analysis. Taphonomic indicators were discussed with archaeologists in order to better interpret the structures in which the individuals were entombed, and enabled, in some cases, suppositions to be made about the overall funerary architecture.

The excavation areas were chosen based on strong evidence of archaeological materials emerging on the surface. They were excavated with the primary objectives of understanding the structures and preserving their integrity. However, it became evident that the dispersion of ancient artefacts on the surface was the result of a past action of emptying the burial sites. Unfortunately, this had significant repercussions on the preservation state of the skeletal remains, which are heavily fragmented.

12.1. Wadi al-Ma‘awil West (WMW), Area B, Grave G1

Grave 1 (Fig. 2.21) has two distinct loci, separated by a dividing wall, designated as Locus 1 and Locus 2, which both show traces of ancient disturbance.

12.1.1. Locus 1

Below the stratigraphic units interpreted as collapse and chamber fill, we found the units showing signs of ancient disturbance. Very few human osteological remains emerge from SU10. These included a few diagnostic fragments (Fig. 12.1) - cranial and postcranial - that were, in all cases, compatible with an adult individual.



Fig. 12.1. Wadi al-Ma'awil (West), Area B Grave 1, Locus 1, SU10 (Photo by F. La Pastina, ©MASPAG, courtesy MHT)

This deposition was laid down in the central portion of the chamber, close to the wall. The human skeletal remains were scattered in the fill, making it impossible to identify primary burials or indications of burial surfaces, burial practices, or deposition positions. Despite the scarce skeletal remains, it was possible to determine the sex of one adult individual as male based on a few sexually dimorphic cranial features, including frontal inclination, supra-orbital margin, and nuchal plane morphology.

Further fragments show the presence of other individuals, but these fragments were too few and poorly preserved to enable an estimate of the minimum number of individuals.

12.1.2. Locus 2

Although recognized as a burial chamber, the almost total absence of archaeological materials and human remains suggests that it was constructed, but not used or completely emptied in ancient times.

12.2. Wadi al-Ma'awil Sud (WMS), Area C, Grave G1

Grave G1 (Figs. 2.25, 2.26), situated within Area C, next to grave G2, exhibits evidence of ancient disturbance. A substantial rectangular sepulchral chamber, designated as Locus 4, was detected. At the surface of Locus 4, beneath modern strata formed by aeolian accretion and sporadic anthropogenic activity, persist circular structures, sequentially ordered in time. Within these structures lie exceedingly fragmentary human osteological remains, precluding conclusive

determination as to whether they represent emptied secondary depositions from antiquity or are remnants of significantly disrupted lower depositional strata. The subterranean layers of Locus 4, strata SU3 and SU18 (Fig. 12.2), yield a large amount of human skeletal fragments, mainly non-diagnostic.



Fig. 12.2. Wadi al-Ma'awil (Sud), Area C, Grave 1, Locus 4, SU3-18 (Photo by F. La Pastina, ©MASPAG, courtesy MHT).

The disposition of these remains precludes discernment of primary and/or secondary interments, as well as the determination of burial practices or depositional orientations. Nonetheless, preliminary analysis has facilitated the estimation of the minimum number of individuals buried within Locus 4.

From the bone fragments, we identified a minimum of three individuals:

- Ind. A: Adult 25-50 years; Sex Male;
- Ind. B: Sub-adult 14-18; Sex Indeterminate;
- Ind. C: 25-50 years; Sex Female.

12.3. Wadi al-Ma'awil (Sud), Area C, Grave G2

Grave 2 (Fig. 2.28) is located in Area C of the Southwestern Cemetery of Wadi al-Ma'awil. It consists of five circular structures, within five rectangular loci, in addition to a small sixth space named Locus 6. These loci are clearly interpreted as burial chambers⁵⁸.

⁵⁸ Please refer to Chapter 2. Archaeological Excavation for a detailed description of the structure.

12.3.1. Locus 1

Resulted in the discovery of a few badly damaged, mostly non-diagnostic human bone fragments (Fig. 12.3). These were scattered throughout the fill of Locus 1 and did not allow the identification of primary burial or indications of burial surfaces, burial practices, or deposition positions.

12.3.2. Locus 2

Resulted in the discovery of a few badly damaged, mostly non-diagnostic human bone fragments (Fig. 12.4). These were scattered throughout the fill of Locus 2 and did not allow the identification of primary burial or indications of burial surfaces, burial practices, or deposition positions.

However, some remains attributable to an adult individual of possibly female sex were identified.

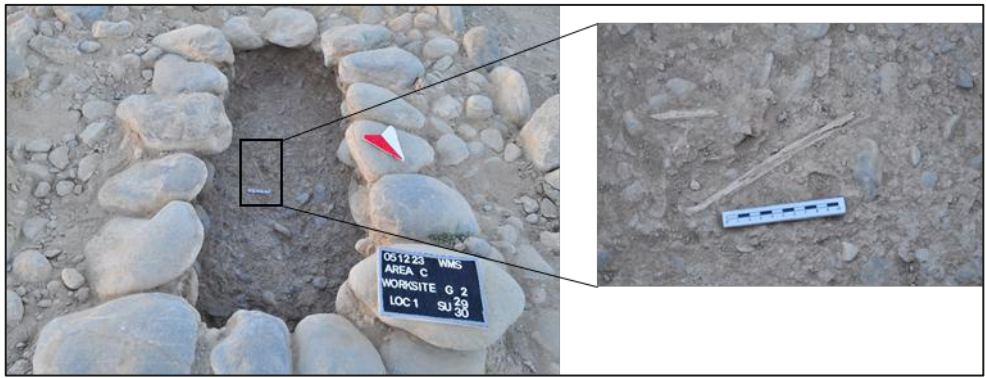


Fig. 12.3. Wadi al-Ma'awil (Sud), Area C , Grave 2, Locus 1 (Photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

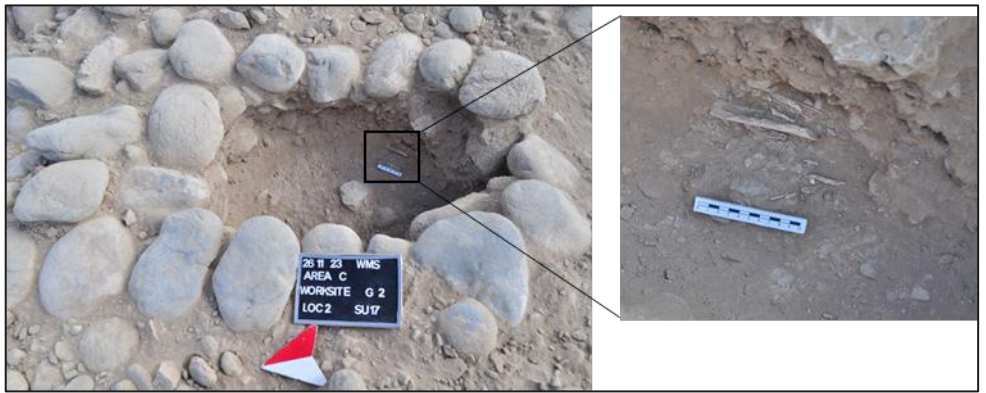


Fig. 12.4. Wadi al-Ma'awil (Sud), Area C, Grave 2, Locus 2 (Photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

12.3.3. Locus 3

Resulted in the discovery of a few badly damaged, mostly non-diagnostic human bone fragments (Fig. 12.5). These were scattered throughout the fill of Locus 3 and did not allow the identification of primary burial or indications of burial surfaces, burial practices, or deposition positions.

12.3.4. Locus 4

Resulted in the discovery of a few badly damaged, mostly non-diagnostic human bone fragments (Fig. 12.6). These were scattered throughout the fill of Locus 4 and did not allow the identification of primary burial or indications of burial surfaces, burial practices, or deposition positions.

However, some remains attributable to an adult individual of presumably male sex were identified.



Fig. 12.5. Wadi al-Ma'awil (Sud), Area C, Grave 2, Locus 3 (photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

12.3.5. Locus 5

The discovery of a few badly damaged, mostly non-diagnostic human bone fragments (Fig. 12.7). These were scattered throughout the fill of Locus 5 and did not allow the identification of primary burial or indications of burial surfaces, burial practices, or deposition positions.

12.3.6. Locus 6

It is a small space which was added in a later period to the G2 (Fig. 12.8). Few non-diagnostic fragments were discovered.



Fig. 12.6. Wadi al-Ma'awil (Sud), Area C, Grave 2, Locus 4 (photo by F. La Pastina, ©MASPAG, courtesy MHT).



Fig. 12.7. Wadi al-Ma'awil (Sud), Area C, Grave 2, Locus 5 (photo by A. F. Kzzo, ©MASPAG, courtesy MHT).



Fig. 12.8. Wadi al-Ma’awil (Sud), Area C, Grave 2, Locus 6 (photo by A. F. Kzzo, ©MASPAG, courtesy MHT).

12.4. Conclusion

Most of the human remains are fragmentary and non-diagnostic, avoiding to get detailed information about the individuals who were buried in Wadi al-Ma’awil. However, it was possible to identify the following individuals:

Label	Grave	Locus, SU	Sex	Age	Note
WMW23.B.G2.10_Ind A	G.2	L.1, SU10	M	20-50 y	extremely fragmentary
WMS23.C.G1.3/18_Ind A	G.1	L.4, SU3/18	M	20-50 y	extremely fragmentary
WMS23.C.G1.3/18_Ind B	G.1	L.4, SU3/18	ND	14-18 y	extremely fragmentary
WMS23.C.G1.3/18_Ind C	G.1	L.4, SU3/18	F	20-50 y	extremely fragmentary
WMS23.C.G2.17_Ind A	G.2	L.2, SU17	F	20-50 y	extremely fragmentary
WMS23.C.G2.28_Ind A	G.2	L.4, SU28	M	20-50 y	extremely fragmentary

PART III

WADI AL-MA‘AWIL NATURAL AND ARCHAEOLOGICAL PARK

13. Geomatic Approach MASPAG 2023: Software and Structures

Ana Sofia Meneses Pineda

It is greatly important to understand the central role that GIS has had in the improvement of archaeological data collection and interpretation. Historically, it was the implementation of this tool that spearheaded the advancement of the discipline into the 21st century. It was in the realm of archaeological prospection that GIS found its place in archaeology, and it served not only as a platform on which archaeological prospection and excavation could cooperate to draw a more accurate interpretation of the buried material culture⁵⁹.

Due to the historical role that GIS has had within archaeology, the development of a comprehensive geospatial database for archaeological purposes should encompass several aspects and consider different variables that are aimed at portraying the spatial data in the most comprehensible manner for further analysis to be carried out. It is with the importance and potential that a well curated GIS database can provide in the framework of an archaeological project that the present contribution will present the advantages and disadvantages of the software and geomatic tools chosen.

In the case of the MASPAG 2023 archaeological mission, the features of interest were epigraphic/iconographic (Fig. 13.1) and funerary monuments (Fig. 13.2). The latter are of particular interest considering the importance of archaeological excavations carried out in the Sultanate of Oman in the context of funerary monuments. One of the most important excavations carried out to date is the Daba al Bayah burial complex⁶⁰. These excavations helped shed light on the use of large collective funerary monuments and established the importance of these sorts of archaeological remains in the Omani landscape and in the study of mobile societies. These sorts of monuments are often the only remains available from these ancient societies, given the fact that they were nomadic or semi-nomadic and moved between the coast of Oman and the internal mountains of the country according to the seasonal cycles⁶¹.

⁵⁹ Neubauer 2004.

⁶⁰ Genchi et al. 2022.

⁶¹ Ramazzotti 2021.

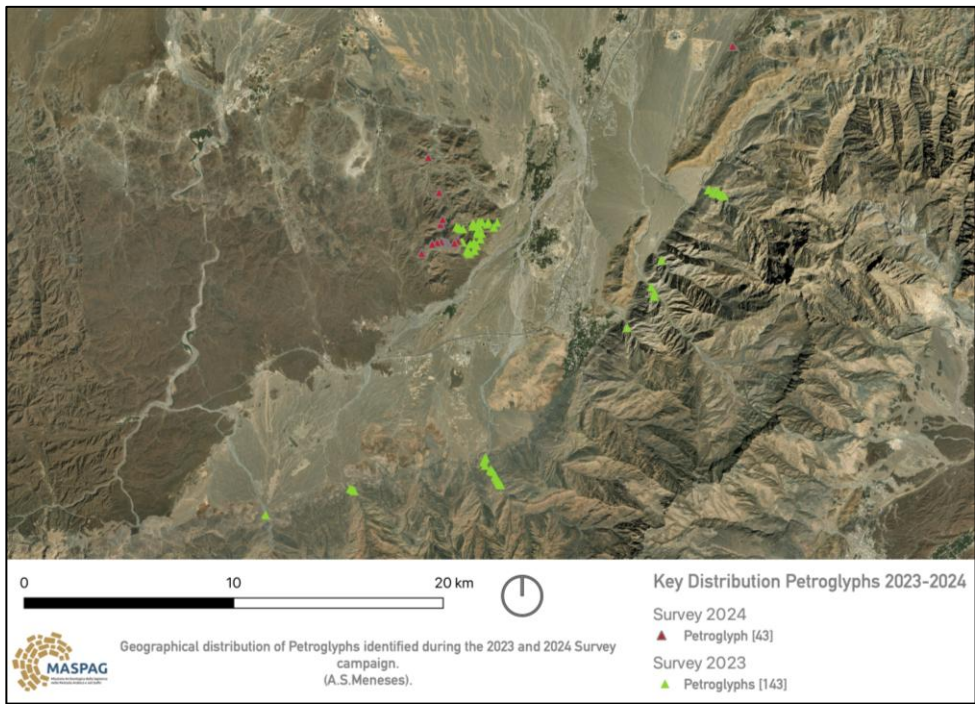


Fig. 13.1. Map of the spatial distribution of Petroglyphs identified during the 2023 and 2024 campaign (map elaborated by Ana Sofia Meneses Pineda, ©MASPAG, courtesy MHT).

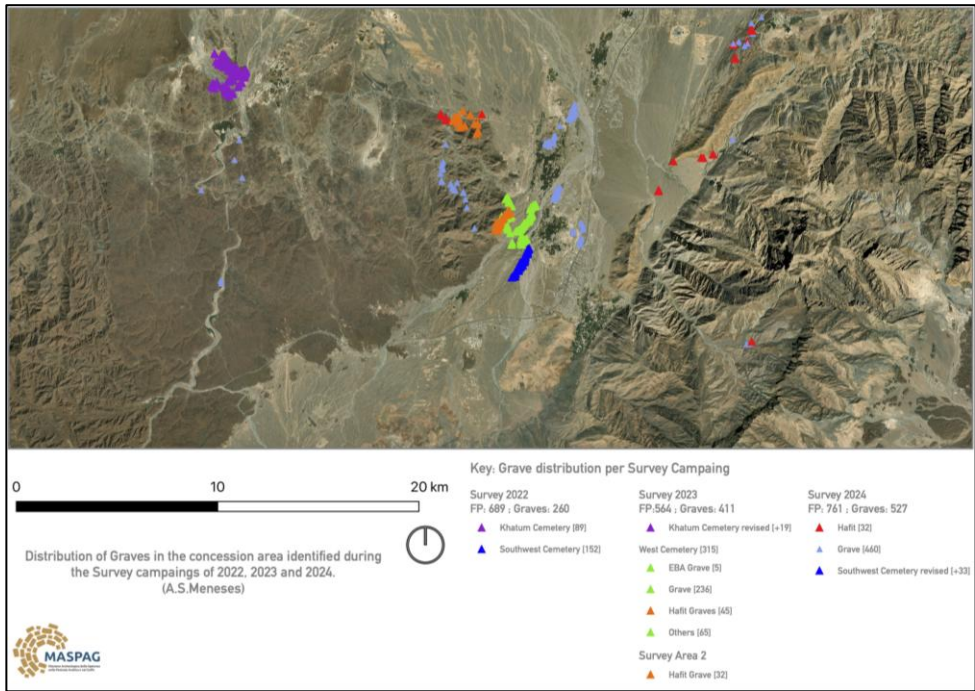


Fig. 13.2. Map of the spatial distribution of Funerary elements identified during the 2022, 2023 and 2024 campaign (map elaborated by Ana Sofia Meneses Pineda, ©MASPAG, courtesy MHT).

Thus, an important focus on the spatial distribution of said features was of utmost importance to understand patterns of mobility in the area of Wadi al-Ma‘awil. To this end, the creation of the GIS database for this archaeological mission was essential to accurately portray the spatial distribution of the features.

In the MASPAG 2023 archaeological mission, one of the main goals for the GIS was not just to host information pertaining to the archaeological excavation, but also to house information about the wider landscape surrounding the area of interest with the pertinent anthropic features (Fig. 13.3). In this manner, a comprehensive recognition over the adjacent territory was to be carried out as a parallel activity to the excavation activities.

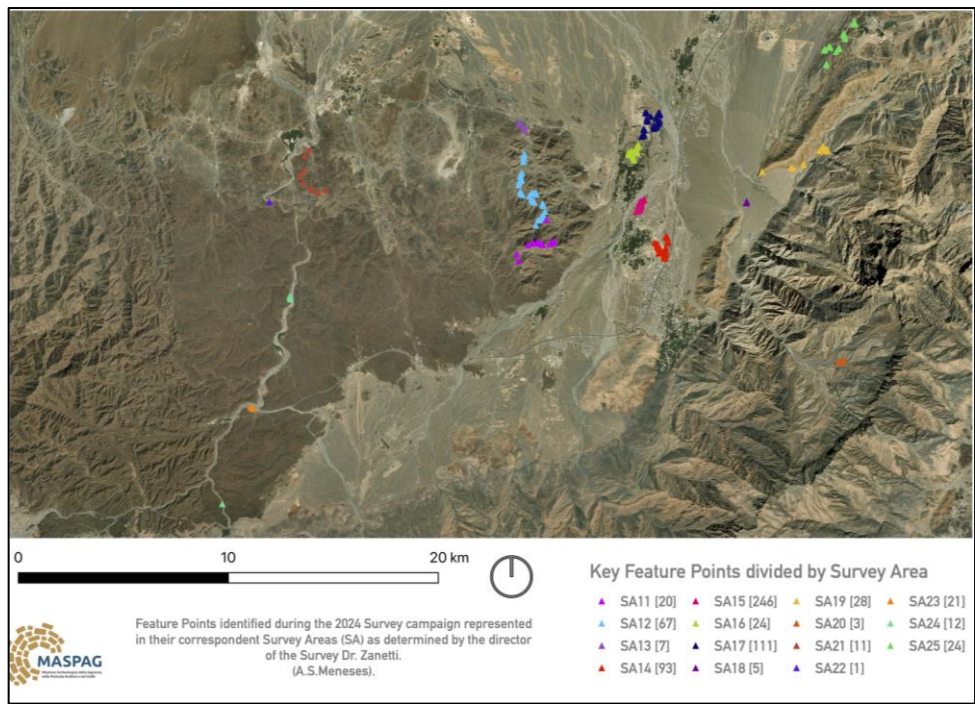


Fig. 13.3. Map of the spatial distribution of the Anthropic Features identified during the 2024 campaign as an example of the extent of the Survey campaign and the data inserted into the GIS system (map elaborated by Ana Sofia Meneses Pineda, ©MASPAG, courtesy MHT).

13.1. Software and Tools

Since the January recognition of 2023, the field data collection saw the collaboration between two programs QField and QGIS, and an attempt to incorporate an external platform in the shape of PyArchInit. These two programs and platforms were chosen to perform this exploration due to the easy communication that exists among them. The following subsections describe the software used and its functionalities in order to understand if these chosen tools for the geomatic approach of the landscape are the best options available, considering the goals in mind for the survey of the area in the framework of the MASPAG mission.

13.1.1. PyArchInit

The 2023 January ground truthing campaign was charted after extensive remote sensing and satellite exploration of the geographical context⁶². In this manner, the culmination of the desktop survey was carried out by studying in depth the Google Earth Pro satellite images of the area to identify those sectors with the most relevant anomaly clusters⁶³. From this work, three major areas, Mahalil, Wadi al-Ma'awil, and Khaṭum, were considered of archaeological importance and were selected as the places to carry out the ground truthing process⁶⁴.

The campaign also saw the collaboration between the MASPAG team and the PyArchInit team to develop a Python plug-in for QGIS that would allow the transfer and placement of the archaeological data, enhancing the documentation process of the data obtained⁶⁵. With the aims of having a fruitful collaboration, the MASPAG mission set out to incorporate the pyArchInit plug-in into their own documentation process because the aforementioned plug-in had a clear operational workflow and could gain access to a platform that could handle an archaeological geodatabase⁶⁶.

13.1.2. QGIS

The software QGIS is a Geographic Information System platform that is open source and works on several operating systems. This particular GIS system is a software that supports vector, raster, and database spatial data formats. The implementation of several data formats allows for the creation and navigation of spatial data maps. Additionally, from these space data formats, the software also allows for the implementation of community developed plug-in, which could be helpful in the exploration and/or analysis of the spatial data inserted into the GIS.

One of the main characteristics of this type of GIS is that, as an open-source software, it is constantly under development and contributions of the community in the form of code, bug reports, bug fixes, and other sorts of contributions that might develop the software further, enhancing the potential this software has and the analysis it can carry out.

Therefore, due to the open-source nature, the documentation for QGIS is constantly changing, and new versions of the software are released constantly, taking into consideration the contributions made by the community of users. In the case of this archaeological mission, the version of QGIS used is the 3.16, which has proven to be more stable and less prone to crashes with large amounts of data influx, as an archaeological mission will require.

Furthermore, QGIS has the ability to install the necessary plug-in to process the data obtained in the field. In this manner, the predilection of QField as the field collection software made the selection for the desktop GIS quite straightforward. In doing so, it facilitated communication between both software and allowed

⁶² Antinori et al. 2023a.

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ Antinori et al., 2023b.

⁶⁶ Antinori et al., 2023a.

researchers to take full advantage of the different algorithms present in QGIS to study the different spatial datasets.

13.1.3. QField

Furthermore, in the documentation presented by the developers of the QField software, this software was developed in light of three major concepts with the aim of facilitating data collection in the field. The concept the developers kept in mind while working on this software was to keep it simple, compatible with desktop GIS, and mode bases. These concepts seem to be directed at the easy communication QField can have with the desktop QGIS. To this end, this particular software runs with the specific libraries used by QGIS and uses the same engine that powers the desktop QGIS; this particular feature allows the project in the QField ecosystem to look the same as it will do in the desktop QGIS. Furthermore, this software works with a project configuration and with the involvement of third parties in the development of the software packages.

The project configuration of QField presupposes that there is a user/owner who is usually the administrator of the project and the one who is able to perform configurations and changes to the basics set up of the project, while there are other users who will only be able to contribute data without the option to make significant modifications, since it could lead to data loss. This means that in the QField ecosystem, there is a clear hierarchy that is followed and on which the entire project, from configuration to development, is based. These aspects became key items in the simplification process of data field collection and data processing in the desktop GIS⁶⁷. However, being an open-source software, it is still under development with a big reliance on contributions from third parties. This aspect of third-party contributions for the development of the software becomes a disadvantage because some of the errors have not been debugged, and many of the malfunctions of the software can hardly be fixable if the user is not familiarized with the back-end code of the package.

Thus, in the development aims of the software, some accurate goals are being tackled; however, the problem of debugging and problem shooting to fix any sort of malfunction still prevents the software from working at its highest performance level.

13.1.4. Communication, Advantages and Disadvantages

Considering the brief description aforementioned of the different geomatic tools selected for the first MASPAG archaeological mission, it can be said that both of these software have the quality of being open source and, as such, are in constant development from the international community, allowing for bugs and errors to be fixed and explored constantly. Another great advantage of the QField software is that its user interface resembles the layout of the QGIS software, but simplified, thus if one is familiar with at least one of these two software, then navigating the other should be rather intuitive for the user. Therefore, the aforementioned similarities

⁶⁷ Antinori et al., 2023a

between the two software imply that only for one of them training is required before starting to use the other, since they are using the same engine and the same libraries⁶⁸. This aspect reduces the time a user spends learning a new software and allows for a symbiotic relation among the user, libraries, and interface to occur.

Furthermore, the set-up of a QField project should mostly be done directly on a desktop GIS, in this case QGIS. This signifies that there is an inherent logic to apply to the design of the spatial database in QGIS that happens before the creation of the project in the QField system⁶⁹. This is an advantage because it drives the user to consider all the options that should be available for the simplification of the data collection process. Which in turn presupposes the fact that there should be a component of time efficient processes in the field that can reduce the errors and processing times.

It is fair to assume that the aforementioned advantages of both software signify a simplification of the processes of data collection and subsequent processing⁷⁰. However, that is not always the case since the time that can be saved from having one software be the simplified version of the other is lost due to the disadvantages and failures that QField, as a software, can present.

Some of the disadvantages were quite evident in either the data collection process or in the data processing phase. These issues happened at the code level of the software and thus were unsolvable by the user if the individual does not have the necessary knowledge and/or familiarity with the code. This forced users to rely on the technical support from the company, which is not always beneficial, especially considering the possible delay in their response and solution of the problem. This unfortunately leaves users stranded and relying on others to spot the bug and fix it, or to just report the problem and have to wait until the support team fixes the errors pointed out by the user.

Also, quite evident with QField were the random and spontaneous failures of the GPS and location systems in the field during the data collection process, and the failure to import the photographs taken in the data processing phase of the process. Both of these failures deterred the processing of data because they required hands-on solutions, like relocating the vector point manually and hard coding the path to the photo that pertained to each vector point to make them visible for the user. In terms of coding, this is something to avoid since the hard code does not make the database easily transferable; thus, if opened on another device, this hard code portion would need to be changed to become visible for the user and avoid getting errors.

Now, these disadvantages, particularly with the QField software could diminish the accuracy of the data obtained in the field and in doing so renders the entire collection process inefficient as it cannot be assumed that all the points are located exactly where they should and so a manual verification of the location of each vector point should be carried out to spot and fix any mistake. In the scope of the 2023

⁶⁸ Montagnetti and Guarino 2021.

⁶⁹ Ostadabbas et al. 2020.

⁷⁰ Montagnetti and Guarino 2021.

MASPAG mission, the failures of the QField software were not critical since, in the scope of the mission, 565 vector points were identified and they were systematically added to the GIS after the completion of each survey day; in doing so, dealing with the potential failures from the software itself while also verifying the quality of the work. If the scope and objectives of the MASPAG archaeological mission for the future are considered, one of the most relevant goal is that of understanding the environment that surrounds the archaeological site and thus the chase of this goal entitles a wider landscape recognition; this implies that the volume of data is bound to increase exponentially and as such these potential issues can become critical if not fixed immediately or replaced with another more reliable field collection software, which is an aspect under consideration for the future survey campaigns.

Furthermore, there is a disadvantage of GIS in general that concerns the development of this tool in the framework of the technological advancement encountered nowadays. The potential disadvantage of QGIS can lay in the failure of the software to cope with the fast-changing technological world and advancements in terms of multimedia technology, multimedia output, and the hardware options⁷¹. If we consider that an archaeological mission and a survey project produces quite a big influx of data, in particular visual and other multimedia formats, it is fair to then question the correctness of using this geomatic tool in the scope of an archaeological project to determine if it is the best course of action. This assessment is being done and considered to be the best course of action for the MASPAG archaeological mission.

However, as previously mentioned, these failures did not overpower some of the advantages and simplicity of using this program in the field, and at this stage of the 2023 MASPAG mission, did not prove to be critical. On one hand, QField can work offline and is a program that works almost exclusively with discrete datasets and thus allows for a simple compilation of information associated with a point. On the other hand, due to the QField plug-in, the points added during the survey can be imported into QGIS in a georeferenced manner. This efficient communication between both programs has allowed the Survey to be a systematic collection of data that is updated in the main project the same afternoon after the field work. In this manner, the communication between QField and QGIS proved to be quite relevant in dealing with the archaeological mission survey dataset and useful to maintain the dataset in a singular environment in terms of libraries and operating engines. However, this is by no means a reason to refrain from constantly assessing the functionality of this software, the functionality it brings to the mission, and its suitability to deal with the datasets produced by the archaeological mission and the survey project; opening the scene for a potential change of software selection in the course of the mission. Because as archaeologists it is our job to try out and assess the different tools that are available to do our job and find the ones that are better suited for our project's goals and needs, it is part of the process to weigh the advantages and disadvantages of the geomatic tools used and determine whether it is appropriate to keep using them or if they ought to be replaced by another software

⁷¹ Lü et al. 2019.

or tool.

The brief discourse aforementioned of the software in the scope of the MASPAG mission, offered in the course of this section, presents a rather synthesized version of the problems and advantages encountered with the geomatic tools used. In this way, making them easy to evaluate and discuss whether the use of them is appropriate for future missions or if there is a need to find other tools that can cope better with the needs of the archaeological mission. It is important to disclose that the failure of software and possible disadvantages are permissible and can occur; to minimize those failures, the user should establish protocols that are as clear and strict. Therefore, the following section will offer an overview of the set-up protocol for the 2023 MASPAG mission, a protocol that sought to achieve a degree of systematization in the entire dataset as well as the institution of a basic tree-like database framework where the files' names, categories, and location follow a logical order.

13.2. Set-Up Protocol

In light of the importance a GIS database represents for this archaeological mission, the set-up protocol is essential, and the improvements brought upon the GIS are key to understanding the advancements made during the course of the mission. Therefore, in the process of defining the set-up protocol, it was important to understand the points where there was a need to improve from the January 2023 recognition.

The 2023 MASPAG archaeological mission saw the definition of three major excavation areas in the administrative locality of Wadi al-Ma'awil: Area A, B, and C. These identified excavation areas contained a selection of anomalies that had been previously defined as feature points during the recognition session of January 2023, but were renamed as Grave with an assigned number to identify them in QGIS.

Due to the nature of the dataset that has been in use since the recognition mission that occurred at the beginning of 2023, a discrete point vector dataset, there was a need to keep the names of the features as integers. Therefore, for clarity, the worksites inside the QGIS layer were renamed in the following manner:

- For Areas B and C (G1 and G2);
- For Area A (Worksite 1).

The decision to name these worksites with the capital G and a successive integer stems from the need to differentiate the funerary worksites from those that contain non-funerary structures, like in the case of Area A.

Therefore, with the identification of the general excavation areas and the individualization of the worksites, the arrangement of three independent groups of layers that contained all the information produced from these different excavation areas was carried out. To this end, each excavation area contained the following files:

- Vector shapefile named Excavation progress2023 with point geometry to insert the information pertaining to the different Stratigraphic units identified during the excavation of the site;

- Vector polygon shapefiles to define the limits of the area and a point geometry file to define the different worksites;
- Raster tiff file with the bird-eye view of the site before excavation activities began;
- CSV file with DGPS coordinated pertaining to the site.

Together, these three different files make the structural framework of the information database to be geo-referenced, and that pertains to each of the areas of excavation.

Let us refer first to the data that was collected from the excavation activities. This data referred mostly to the stratigraphic information of each layer and to the objects/artifacts of interest that were found within that layer. Therefore, in order to accurately represent all this information for each individual stratigraphic level, the decision to represent each one of these layers as a singular vector point was made so the information pertaining to the layer would be isolated from others, and the chances for confusion would be reduced to a minimum. The aforementioned vector points were allocated in the surroundings of the funerary monument that was excavated, and each one of them had as an attribute table a comprehensive layout where the stratigraphic relation could be represented, the number of objects found within the layer stated, and the inventory numbers listed. These fields were carefully selected to be introduced into the attribute table of the vector points for each stratigraphic level because it provided those accessing the spatial database with the relevant information for each stratigraphic unit and with the basic information to further the research in the inventories of the excavation.

This comprehensive layout of information sought to provide as much context as possible without overloading the user with information that may not be entirely necessary as a starting point in the exploration of the excavation activities in the area. Therefore, the archaeological data obtained directly from the excavation activities were treated as vector points in which the standardization of the attribute table allowed for the conversion of these vector layers into the containers of the most relevant information pertaining to each stratigraphic level that could help orientate and navigate the user through the complexities of the inventory/archival reality of the excavation material. Furthermore, the QGIS project for the 2023 MASPAG mission not only contains the information pertaining to the development of the excavation of the three funerary contexts and the structural contexts that were tackled in all the predefined areas, but it also contains the information that regards a wider exploration of the Landscape. This exploration of the landscape was conducted in different stages, and the information collected was then duly processed and inserted into the mission's QGIS project. In order to effectively process the information that was obtained in this recognition of the landscape, there was a need to improve and standardize the data collection, transfer, and processing of the data obtained during the course of the recognition. Given that there was a system already in place to collect and process the data in January 2023, the work undertaken in the months of October-December pertained more to the simplification of the processes and the implementation of some improvements that would make all this data easier to handle and manipulate.

Therefore, these aspects allowed for an easier systematization of processes that simplified in a certain way, the introduction of these data into the spatial dataset. This allowed for a progressive visual exploration of the enrichment of the Survey dataset (Fig. 13.3) and for the introduction of a control filter every afternoon, where issues/problems/faults could be easily identified and fixed immediately.

In terms of the set-up protocol for the Landscape survey spatial database, the identified Anthropic Features were categorized into 3 main Classes: Site, Petroglyphs, and Graves⁷². These three Classes have within themselves subdivisions that have been declared as Type.

This subdivision was first applied to the Grave Class because it is the most predominant feature present to date in the landscape; it felt necessary to distinguish the different types of graves found scattered in the territory. Due to their differences in chronology, morphology, and location, 3 types of Graves were defined: Hafit, Early Bronze Age (EBA), and tumuli. This resulted first in the identification of a total of 118 Hafit tombs, which were identified as follows: 32 Hafit tombs were identified in 2024, 77 Hafit tombs were identified in 2023, and 9 Hafit tombs were identified in 2022. Secondly, while this staggering number of 118 Hafit tombs is quite relevant, the tumuli and other typologies of graves differ from the Hafit total number of 989 graves. Finally, there is a specific group of tombs that have been identified that does not fit completely the morphology of the Umm an-Nar samples that have been found elsewhere in the Arabian peninsula but it rather seems to be a transitional morphology of tombs and as such has been named Early Bronze Age (EBA) tombs and for this particular group 5 samples have been identified, bringing the grand total of the entire Grave Class to 1112 graves comprising all the types found. This grand total showcases how the landscape contains quite a relevant number of funerary features scattered, and the GIS allows to have a visual of how these elements can be found in the different morphologies present in the Landscape such as Mountains, Plains, Crests, and/or Hills.

Furthermore, there is another Class that has become quite relevant with its presence on the GIS, and it is the Petroglyphs that have amounted to a total of 186 identified features. Of these features, 143 were identified in the 2023 recognition campaign, while 43 features were identified in the 2024 campaign. At a preliminary stage, the division of these features according to type is still ongoing; however, for the features identified in 2023 and 2024, 7 major types or typologies were identified. These are: Animal (10), Anthropomorphic (13), Tool (3), Writing (5), Geometric (2), Composition (2), and Unknown (8). It is worth mentioning that some of these features were identified outside the area of concession and as such they have been

⁷² The numbers presented in this section that belong to each of the aforementioned Classes are the ones available in the GIS to date and thus include data that was collected and processed in the 2024 campaign. Therefore, the 2024 numbers are included in this section to make sense of the total presented for each of the Classes. The numbers that are of the year 2024 are clearly stated and marked in the breakdown provided for each Class according to the survey campaigns of 2022, 2023 and 2024. The decision to include these numbers, including the 2024 number, was made in order to highlight the functionality of the set-up protocol and how the data collected has been processed and stored in a comprehensive and systematic manner while providing a clear and interpretable result to be employed in further spatial and mobility analysis.

accounted for in the general number provided in this report but should not be taken into consideration when it comes to further studies or planning.

Finally, we refer to the Site Class, we have 5 different typologies of anomalies that are associated: Wall, Settlement, Structure, Room and Threshold. At the end of the 2023 and 2024 recognition campaigns, a total of 100 anomalies associated with Sites were identified, of these 42 were Walls, 3 were Settlements, 28 were Structures, 24 were Rooms and 3 were Threshold.

As can be noted, this set-up protocol focused heavily on the definition of the terminology that was used to identify each one of the different types within a given Class. In this manner, it allowed for the easy recognition and establishment of a system that can be built upon in the upcoming missions. Additionally, this set-up protocol also helped define the terminology used for the different anthropic features identified in the course of the survey. Therefore, this lays the foundation for the establishment of a system that allows for the classification of different features mapped in the course of the landscape recognition and its easier processing in the QGIS project for isolation and selection of the features of interest.

13.3. Conclusion

To sum up, the different geomatic tools used in the course of the recognition in January and during the MASPAG mission in October-December are tools that, overall, worked well considering the aims of the archaeological mission and those of the survey. These software were quite user-friendly and easy to use; however, they did present some technical faults. These faults shed light on the possible functionality of these tools for the upcoming missions due to the increase in the data volume from the continuity of the landscape recognition. Therefore, the functionality of these geomatic tools, particularly the QField software, is under assessment to determine if they cope with the needs of the mission or if they ought to be changed to other tools. This paper also sheds light on the set-up protocol that sought to standardize the terminology used for the different archaeological anomalies identified and lays down the foundation for a system that can be built upon in terms of the data influx and updated as the different missions progress and the landscape recognition expands into a wider area. As it also sheds light on the quite impressive numbers of archaeological features present in the landscape, the GIS has evolved to show the continuous exploration of the territory in the area of Wadi al-Ma'awil in the Baṭinah South Governorate in the Sultanate of Oman. Considering the spatial nature of the data produced during the recognition carried out simultaneously during the excavation campaign of the MASPAG archaeological mission, the GIS is an essential tool that not only helps visualize the location of the different points but also helps to draw conclusions and explore general spatial patterns. In the scope of the MASPAG archaeological mission in Oman, the GIS has evolved to the point where it houses data of over 1000 feature points recorded over a three-year period from 2022 to 2024. The vast dataset needed a form of systematization as mentioned above, and this process considered the unification of data standards so it could be easily visualized and processed without any problems.

This aspect comes from the heels of the data that was available from the January recognition, in which the lack of systematization posed a problem later in the processing. Thus, systematization was key to establishing a couple of general rules that would aid in the overall process of creating this database in the most efficient way possible.

The measures taken were key to reducing the possibility of errors. This dual modality allowed for fluid communication between the responsible and ensured that an agreement in terms of data presentation was achieved. Another measure that was taken was to choose a single language that was going to be the dominant one. Since this archaeological mission was an Italian mission with an international team, for the GIS, it was decided that all the descriptions were to be done in English. Therefore, the standardization of language in the database posed an important advancement in creating a cohesive and efficient spatial database. From these measurements, the set-up protocol was easier to create, modify, and implement for the creation of the GIS. Resulting in the selection and assessment of the geomatic tools and the set-up of certain protocols to deal with the data and the determination of the course to follow with the geomatic tools in the upcoming archaeological missions.

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14. Topographic and Natural Setting

Dario Rose, Cesare Schiatti

It should be known as the archaeological relief, and therefore the study of an ancient structure, given for certain a strict precision is always different, calibrated on it, as suggested and dictated, with a consistent component of improvisation and therefore “undisciplined”⁷³.

In addition, the topographical survey of the three sites to be investigated in the oasis of Muslimāt during MASPAG 2023 was conditioned by the geopolitical events that preceded its start by a few days: historical events, as confirmed by the immense tragedies that have occurred until today⁷⁴.

The impossibility of being able to use the programmed instrumentation has inserted additional variables and gradually forced the search for new solutions that would allow the work to be carried out. For example, the primary network of fiducial points on the sites to be investigated (Areas A, B, and C) was detected for the first time with direct measurements with metric rolls, a flexometer, and a water level, about 40 years ago. Subsequently, as soon as a GPS antenna was found⁷⁵, the same points were acquired with indirect instrumental relief in a common referenced system: the local geodetic system Clarke 1880; finally, at the end of the excavation, reiterated with a Total Station made available by the Ministry of Culture of the Sultanate. This shows the singularity of every field work, linked to the individual context and exposed to the unforeseen events of the moment. The control point geometric measurements by different modalities of collection of XYZ coordinates

⁷³ On the absence of a “discipline” of Ancient Topography - which we recall to include “studies on the anthropic organization of spaces in ancient times, also placed in the paleogeographical context, with particular reference to the classical world and its urban, rural and road settlements, including submerged ones, investigated with the aid of ancient and modern cartographic tools and systems, of literary, epigraphic, iconographic, archaeological and monumental sources, as well as appropriate techniques of photography, photogrammetry, surveying and analysis, with the aim of consolidating knowledge of the relevant historical context,” we appropriately refer to the website of its University Council, <http://www.topografiaantica.it>; AZZENA 2009a, pp. 7-10, 18.

⁷⁴ We refer to the October 7, 2023 attack by Hamas terrorists on Israeli territory and the subsequent ethnocidal war in Gaza, the limitations reflected on the airlift of topographical instrumentation and drones.

⁷⁵ Single GPS antenna used in VRS mode (Virtual Reference Station).

have been comparable, with the usual tolerances, and the Oman experience has once again demonstrated "the non-existence of scientific relief": although the measuring instruments available to it have changed much, it remains in two categories: precise or not⁷⁶.

But the archaeological relief - of an architectural structure, a grave, or a territory - is not limited to the metric collection, to the correct positioning in space, it goes far beyond⁷⁷; it is a cognitive process, since it involves the analysis of the built, the framing of "the problems posed by the ruins before detecting with accuracy and scrupulously all the structural characteristics"⁷⁸.

The RGB color points cloud, which today is configured like a standard three-dimensional relief⁷⁹. Certainly, it isn't the goal of an archaeological survey, and it is wrong to think that a cloud with tens of millions of points can equal the objective complexity of the real. A 3d model, any model representative of perceived reality, involves a selected reduction of the elements in play, a simplification, and augmented reality itself is only a useful expedient to emphasize certain aspects (a reconstructive hypothesis of missing elements, etc.) of the monument⁸⁰. Remains a serious epistemological error to think of "a model that does not derive from a metamodel [...] to confuse the map with the territory"⁸¹ and the relief - even the most precise - with the monument.

However, a well-structured and georeferenced dense point cloud allows a rigorous, punctual, and detailed reconstruction of the three-dimensional morphology of the investigated object; it is also a reservoir of data to draw on for accessory processing such as a textured 3D model, orthophotoplain, contour lines model, sections, etc.

The I Order topographic network consists of stainless pins fixed in holes on rock and metal pegs; that of II Order with a temporary target, both geo-referred topographically. For each site, the monographs of the control points of the topographic I Order network have been catalogued, in order to facilitate the continuity of field work in the future (Fig. 14.1).

The 3D point cloud is generated from aerial photography by drone and terrestrial, proximal ground shooting with digital cameras - Full Frame mirrorless and reflex - mounted on a telescopic pole.

⁷⁶ Concept repeatedly demonstrated by C. F. Giuliani, most recently in Giuliani 2020, p. 19.

⁷⁷ "Often, in the past, reduced to a map, that is, to the modest graphic reference that one feels one must grant the reader burdened by the text: it does not matter that it is accurate, that it reports something referable to reality. The important thing is that it is there, to show that one is technically up to date ... that one is a master ... of the monument.", Giuliani 2020, pp. 19, 316. it is "a system that does not allow for many loopholes or nuances and forces a greater clarity of ideas".

⁷⁸ Giuliani 2020, pp. 315, 320.

⁷⁹ Colored Point Cloud Models have precision and fine details; Alby 2015, pp. 8-9.

⁸⁰ Without constituting a point of arrival or excluding other solutions; cyclically on technically advanced graphic elaborations there reverberates, regardless, a halo of scientificity, Azzena 2009b, p. 193.

⁸¹ The topic is extensively addressed by Franco Farinelli, most recently in Farinelli 2016, pp. 51-53; CINI 2006, p. 7; Azzena 2009b, p. 196.



Fig. 14.1. Area A, Wadi al-Ma'awil, the I Order topographic network (Photo shooting and processing D. Rose and C. Schiatti, ©MASPAG, courtesy MHT).

For drone footage, the level of detail of the information in the point cloud is closely related to the ground pixel size (GSD), which corresponds to the size of the portion of the terrain represented in a pixel. This quality figure, as is well known, is affected by sensor resolution and flight altitude. Specifically, two different types of optical point clouds were made, obtained from photographic images acquired according to photogrammetric principles organized in horizontal swipes: one obtained by flying 20 meters above the ground with a ground pixel size of 0.5 cm/px, and another by

flying 55 meters above the ground with a ground pixel size of 1.5 cm/px⁸².

Immersive panoramic shots were also taken, executed by "stitching" aerial digital footage mounted into 360° viewable images, with the possibility of zooming in to read even minute details obtained and providing impressive computer navigation (Virtual Tour). Flights were carried out around 12 noon, a recommended time to minimize the shadow effect. The II Order topographic network, consisting of temporary markers that can also be identified in aerial photograms, allowed the survey to be georeferenced. The terrestrial photogrammetric survey, as usual, because of its speed of execution and rendering of detail, allowed for the graphical documentation of the different phases of excavation, from initiation to completion of the investigation. The operations of acquiring the photographic data set, once a stable network of topographic cornerstones is established with refinement points highlighted by targets, allow colleagues in the field, and those who will take over from them during the months of the mission's duration, to be able to proceed independently by implementing the source files of the 3D model.

If the pre-processing of the data took place in the field at the same time as the acquisition phase, to be sure of the result, the processing of the final 3D models required the workstations left in Italy. As anticipated, from the dense point cloud models were gradually extracted all the graphic processing needed for the archaeological study and documentation, texturized meshes, and orthophoto mosaics (Fig. 14.2).

In conclusion, the purpose of the archaeological survey, net of the technologies used, remains the same: to force "the scholar to be very familiar with the monument, involves a series of observations and uncertainties that are undoubtedly more complete than when using surveys, even very complete ones, made by others."⁸³ Archaeologists therefore need to be both knowledgeable about the entire process of data acquisition, topographic and detailed, but, more importantly, able to manage it at all stages of processing⁸⁴. The archaeology representation is not separable from its practices.

⁸² For other point clouds obtained from orbicular "rounds," which are functional for surveying more limited structures that are also vertically developed, we always flew at a single altitude of 16 meters with a ground pixel size of 0.4 cm/px.

⁸³ Giuliani 1976, p. 5.

⁸⁴ In fact: "by giving up the first-hand management of what are simple means of investigation, one enters the vortex of unwise documentation, an end in itself, in which GIS (sometimes even patented!), Total Stations, Point Clouds, Laser Scanners, and finally the now indispensable Georeferencing, etc., wander around as protagonists of an integralist ritual. All magic words, identifying simple aids not always necessary, which are now replacing what very banally should be called knowledge.", Giuliani 2010, p. V.

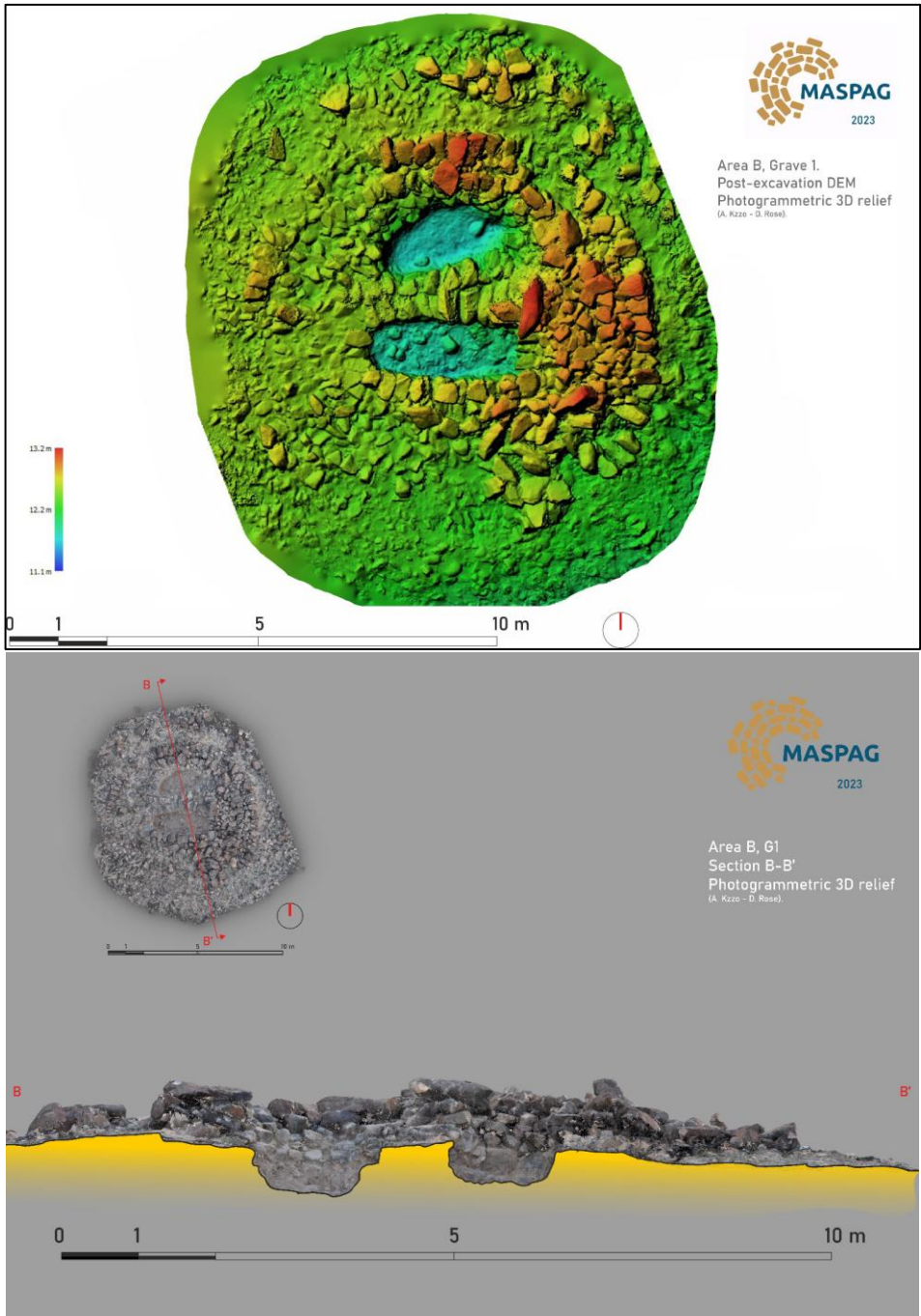


Fig. 14.2. Area B, Grave G1, Area B, Wadi al-Ma'awil, photogrammetric 3D relief, DEM and B-B' section (Photo shooting by A. F. Kzzo, processing D. Rose, ©MASPAG, courtesy MHT).

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15. Management and Economic Asset: A Proposal for Wadi al-Ma‘awil Natural and Archaeological Park

Sara Sampieri, Andrea Stagliano, Alessandro Di Ludovico, Ahmed Fatima Kzzo

In 2023, Oman received more than 4 million tourists⁸⁵. According to the governance data⁸⁶, between 2005 and 2021, tourism grew significantly, especially after the COVID-19 pandemic, reaching a total number of 652,000.00 visitors in 2021. In particular, the medium expenditure in 2021⁸⁷ was \$ 840, with a medium stay of 15 days. In the same year, the highest number of visitors was from the Emirates (1,026,362), India (227,368), and Yemen (84,801). Both historical and natural heritage sites, such as al-Jabal al-Akdhar (46%), Forts and Castles (24%), Wadi Bani Khalid (16%), Ras al-Jinz Turtle (6%), and al-Hoota Cave Visitors (6%) are the most requested places.

Hospitality represents an important sector, with 658 hotels in the country. The highest number of them is concentrated in the Muscat region (210), in Ash Sharqiyah South (94), and in Ad Dakhliyah (83). Most of them are aparthotels (157), guest houses (95), and 1-star hotels (90), while the total number of employees is 15,000 (2021).

According to Boston Consulting Group analysis, Oman is a "Question" market that constantly improves travel requests and the tourists' presence. This surge in tourism can be attributed to Oman's strategic focus on key performance indicators within its tourism sector. For example, the Omani tourism industry aimed to enhance its global performance, diversify its products and target markets, and offer an array of destinations within the country.

Furthermore, promoting cultural tourism, leisure activities, and engagement with local communities were also pivotal aspects of Oman's tourism strategy.

14.1. The Project

Based on previous studies conducted on the balance between the protection and

⁸⁵ Oman Observer 2024.

⁸⁶ Ministry of Tourism and Heritage 2024.

⁸⁷ Last data available.

promotion of heritage for the tourism development of a travel destination⁸⁸, such as Al Ula Sustainability Report⁸⁹, the project concerns the creation of a natural and archaeological park in the Wadi al-Ma'awil region, which includes the three archaeological areas (A, B and C), a settlement, and a cemetery with several tombs and the enhancement of the historical area through heritage tourism.

The actions planned for creating the natural and archaeological park include the architectural restoration of the future visitor center, the archaeological restoration of the cemetery, the creation of a virtual space, and training activities aimed at capacity building and adopting sustainable tourism tools.

The PEST analysis of Oman's travel market, connected to this project, reveals a dynamic landscape influenced by various factors. First, the political stability of the Omani government fosters a conducive environment for tourism development, ensuring safety and security for travelers. Additionally, the nation's economic diversification beyond oil revenues has bolstered infrastructure projects, enhancing accessibility and accommodation options for tourists. Then Oman's rich heritage, hospitality, and traditional values attract visitors seeking authentic cultural experiences. Moreover, technological advancements have facilitated digital marketing strategies and streamlined booking processes, enhancing the overall travel experience. However, environmental concerns such as water scarcity and sustainable tourism practices pose challenges for long-term industry growth.

However, a SWOT analysis suggests a more articulated framework. On one hand, Oman praises the site's historical importance, offering a unique glimpse into its rich past. Additionally, the uniqueness of the location, coupled with its accessibility from major hubs like Muscat and Nakal, provides a compelling draw for tourists. Conversely, weaknesses such as the lack of accommodation facilities, restaurants, paved roads, and trained employees pose significant challenges. Despite these weaknesses, opportunities abound, including the enhancement of local cultural heritage, employment growth, and the creation of new local tourist firms, which can help address shortcomings. Nonetheless, threats loom, such as armed conflicts in the area, potential airline deregulation impacting tourism, seasonality affecting visitor numbers, and the emergence of similar destinations competing for attention.

In conclusion, the strategy, because of the SWOT matrix, confirms that the history of the place makes it unique and suitable for a (cultural) market niche for the sustainable development of the destination. Consequently, the uniqueness of the place makes it attractive despite the lack of developed infrastructure and services in the tourism sector. Therefore, tourism development can improve attractiveness. To make the destination more competitive, attract tourists. At the heart of this strategy, there are three main pillars: in particular, crafting a comprehensive plan for tourism in Wadi al-Ma'awil, meticulous attention must be devoted to enhancing its distinct facets of improvement, development, and involvement. At the heart of this strategy lies the commitment to preserving and celebrating the region's rich tangible and

⁸⁸ Sampieri, Bagader 2025.

⁸⁹ RCU 2024.

intangible heritage and the natural landscape. A second strategic aspect concerns the development initiatives that must be prioritized, bolstering infrastructure and services to ensure seamless visitor experiences. Strengthening road networks, establishing visitor centers, and enhancing accommodation options are paramount in facilitating accessibility and comfort.

Moreover, elevating service standards, such as hospitality offerings and tour guides, will elevate overall visitor satisfaction and encourage repeat visits, catalyzing regional economic growth. Finally, fostering a sense of involvement among local stakeholders is fundamental to the strategy’s success. Embracing a horizontal governance structure empowers communities to participate actively in decision-making processes, ensuring their voices are heard and valued. Simultaneously, fostering public-private cooperation (P4P) through partnerships nurtures synergies between governmental bodies, local businesses, and community organizations, fostering a collaborative ecosystem for sustainable development.

14.2. Marketing Plan

Based on the Weaver Matrix, tourism development in Wadi al-Ma‘awil is Deliberate Alternative Tourism (DAT), assimilated to the exploration and involvement phase of the life cycle of the destination, characterized by low tourist intensity and high regulation. Tourist development is intentionally slowed to preserve the area’s environmental resources and socio-cultural balance. Furthermore, the offer of differentiated products, which have minimal impact on the social structure of the territory, the ecosystem, and the landscape, allows the territory to maintain its traditional form. Niche destinations are, therefore, sustainable (DAT) if they can attract demand segments for sustainable tourism (4L) and apply levels of regulation that preserve the integrity of the natural landscape and the local community’s culture.

So, the distribution of the product is articulated in three different stages: at the booking through international fairs (WTM, TTG, BIT, FITUR, etc); on arrival (airport and ports); on tour (local firms, info point, tour guide/tour leader)

Additionally, ethical aspects will be based on transparency (clarifying the motivations), accountability (accounting for the actions of the stakeholders), participation (transformational inclusion), the capacity to listen, and the ability to avoid imbalance (participants and future users).

14.3. Economic plan

The budget is allocated as follows:

Works	Costs
Architectural restoration	\$ 160000,00
Archaeological restoration	\$ 1100000,00

Interactive space	\$ 750000,00
Capacity building	\$ 1100000,00
Total Base Cost	\$ 2.910.000,00

Furthermore, the activities are articulated as follows:

Year	Month	Architectural restoration	Archeological restoration	Interactive Space	Capacity building
2026	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				
2027	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
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2028	25				
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Table GANTT

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PART IV

CATALOGUE

16. Catalogue Key

The finds in the catalogue are grouped based on the category of the finds, corresponding to the chapters in the volume, so: ornaments, stone vessels, bronzes, tools and weapons, ground stones, and miscellaneous. Inside each category, the finds are in order based on the locus number. Then, they are ordered in progressive inventory numbers. The inventory number ended with the stratigraphic unit number, followed by an underscore and the letter O for object, and then the progressive number of the find.

Ornaments: Stones, Shells, and Gold

Inv. N.: WMN23.A.WS1.S1_O1

Locus: --

Object: bead.

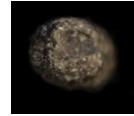
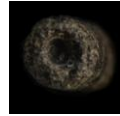
Material: stone.

Color: black.

Measurements: L. 2 cm; Diam. 0.6 cm.

Dating: not definable.

Description: a cylindric of stone from one side a beginning of perforation is visible.



Inv. N.: WMS23.C.G1.1_O2

Locus: --

Object: bracelet?

Material: shell.

Color: ivory.

Measurements: Diam. 6.1 cm; Thk.

0.6 cm; W. 49 gr.

Dating: Iron Age.

Description: a valve of a shell with a circular shape, with a six small holes on the internal side. Probably, it was under preparation to be a piece of jewellery such as a bracelete.



Inv. N.: WMS23.C.G1.1_O5

Locus: --

Object: bracelet?

Material: shell.

Color: ivory.

Measurements: L. 4.8 cm; W. 2.2 cm; Thk. 0.3 cm; W. 7 gr.

Dating: Iron Age.

Description: Fragment of a shell valve, decorated by a central circle surrounded by flower petals decoration. There are also small circular holes on the internal side.



Inv. N.: WMS23.C.G1.1_O6

Locus: --

Object: inlay?

Material: shell.

Color: ivory.

Measurements: L. 1.9 cm; W. 0.8 cm; Thk. 0.2 cm.

Dating: Iron Age.

Description: fragment of elaborated shell probably belongs to a jewelry piece.



Inv. N.: WMS23.C.G1.1_O11

Locus: --

Object: pendant.

Material: stone.

Color: orange with gray.

Measurements: L. 2.4 cm; W. 0.8 cm; Thk. 0.2 cm.

Dating: Wadi Suq period - Iron Age.

Description: pendant, probably, for a necklace made in triangle shape from an orange stone (possibly agate). It is found in the SE side of the structure of G1.

**Inv. N.: WMS23.C.G1.1_O12**

Locus: --

Object: bead.

Material: shell.

Color: beige.

Measurements: Diam. 0.75 cm; Thk. 0.2 cm.

Dating: Wadi Suq period - Iron Age.

Description: bead in disc shape with big whole. It found in the southern side of the structure of G1.

**Inv. N.: WMS23.C.G1.1_O13**

Locus: --

Object: bead.

Material: carnelian.

Color: red.

Measurements: L. 0.9 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead.

**Inv. N.: WMS23.C.G1.2_O7**

Locus: --

Object: bead.

Material: stone.

Color: white.

Measurements: Diam. 1.2 cm.

Dating: Wadi Suq period - Iron Age.

Description: spherical bead.



Inv. N.: WMS23.C.G1.5_O6

Locus: 1.
Object: bead.
Material: stone.
Color: red.
Measurements: L. 0.75 cm; Diam. 0.5 cm.
Dating: Wadi Suq period - Iron Age.
Description: cylindrical bead.

**Inv. N.: WMS23.C.G1.8_O4**

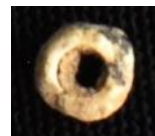
Locus: 2.
Object: foil.
Material: gold.
Color: yellow.
Measurements: L. 2.4 cm; W. 1.3 cm.
Dating: Wadi Suq period - Iron Age.
Description: gold foil, probably used as coating.

**Inv. N.: WMS23.C.G1.3_O10**

Locus: 4.
Object: bead.
Material: stone.
Color: beige.
Measurements: L. 1 cm; Diam. 0.6 cm.
Dating: Wadi Suq period - Iron Age.
Description: biconical shaped bead.

**Inv. N.: WMS23.C.G1.3_O13**

Locus: 4.
Object: bead.
Material: stone.
Color: black.
Measurements: L. 0.2 cm; Diam. 0.3 cm.
Dating: Wadi Suq period - Iron Age.
Description: doughnut-shaped bead.

**Inv. N.: WMS23.C.G1.3_O17**

Locus: 4.
Object: bead.
Material: stone.
Color: black.
Measurements: L. 0.5 cm; Diam. 0.7 cm.
Dating: Wadi Suq period - Iron Age.
Description: doughnut-shaped bead.



Locus: 4.

Object: bead.

Material: stone.

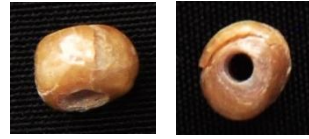
Color: yellowish.

Measurements: L. 0.4 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: doughnut-shaped bead.

Inv. N.: WMS23.C.G1.3_O18



Locus: 4.

Object: bead.

Material: gold.

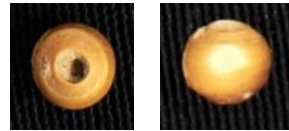
Color: yellow.

Measurements: Diam. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: spherical bead.

Inv. N.: WMS23.C.G1.3_O21



Locus: 4.

Object: bead.

Material: stone.

Color: beige.

Measurements: L. 0.2 cm; Diam. 0.75 cm.

Dating: Wadi Suq period - Iron Age.

Description: disc shape bead.

Inv. N.: WMS23.C.G1.3_O22



Locus: 4.

Object: bead.

Material: stone.

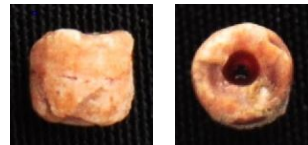
Color: reddish.

Measurements: L. 0.4 cm; Diam. 0.45 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead.

Inv. N.: WMS23.C.G1.3_O23



Locus: 4.

Object: bead.

Material: stone.

Color: orange.

Measurements: L. 0.5 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: biconical bead.

Inv. N.: WMS23.C.G1.3_O24



Inv. N.: WMS23.C.G1.3_O27

Locus: 4.

Object: pendant.

Material: stone.

Color: orange.

Measurements: L. 1.7 cm; Diam. max 1 cm, min 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: mushroom-shaped pendant.

**Inv. N.: WMS23.C.G1.3_O28**

Locus: 4.

Object: bead.

Material: gold.

Color: yellow.

Measurements: L. 0.5 cm; Diam. max 0.5 cm, min 0.3 cm.

Dating: Wadi Suq period.

Description: cylindrical bead with granulate row on each edge.

**Inv. N.: WMS23.C.G1.3_O38**

Locus: 4.

Object: pendant.

Material: stone.

Color: orangish.

Measurements: L. 2.3 cm; W. 1.1 cm.

Dating: Wadi Suq period - Iron Age.

Description: triangle-shaped pendant the whole in its narrower side.

**Inv. N.: WMS23.C.G1.3_O39**

Locus: 4.

Object: bead.

Material: agate.

Color: red.

Measurements: L. 1.8 cm; Diam. max 0.6 cm, min 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead.

**Inv. N.: WMS23.C.G1.3_O40**

Locus: 4.

Object: bead.

Material: agate.

Color: red with white surface.

Measurements: L. 1 cm; W. 0.8 cm.

Dating: Wadi Suq period - Iron Age.

Description: fragment of bead. It seems cylindrical truncated bead.



Inv. N.: WMS23.C.G1.3_O51

Locus: 4.
Object: bead.
Material: stone.
Color: beige.
Measurements: L. 1.2 cm; Diam. 0.7 cm.
Dating: Wadi Suq period - Iron Age.
Description: truncated spindle bead.

**Inv. N.: WMS23.C.G1.3_O58**

Locus: 4.
Object: bead.
Material: stone.
Color: black.
Measurements: L. 0.6 cm; Diam. 0.6 cm.
Dating: Wadi Suq period - Iron Age.
Description: biconical bead.

**Inv. N.: WMS23.C.G1.3_O59**

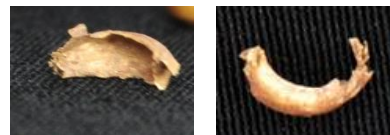
Locus: 4.
Object: bead.
Material: stone.
Color: beige.
Measurements: L. 0.7 cm; Diam. 0.4 cm.
Dating: Wadi Suq period - Iron Age.
Description: truncated spindle bead.

**Inv. N.: WMS23.C.G1.3_O63**

Locus: 4.
Object: bead.
Material: stone.
Color: beige.
Measurements: L. 1.1 cm; Diam. 0.5 cm.
Dating: Wadi Suq period - Iron Age.
Description: cylindrical bead.

**Inv. N.: WMS23.C.G1.3_O64**

Locus: 4.
Object: bead.
Material: gold.
Color: yellow.
Measurements: L. 0.5 cm; Thk. 0.1 cm.
Dating: Wadi Suq period.
Description: fragment of bead or bead coating consists of thin layer of gold.



Locus: 4.
 Object: bead.
 Material: gold.
 Color: dark yellow.
 Measurements: L. 0.3 cm; Diam. 0.5 cm.
 Dating: Wadi Suq period.
 Description: fragment of bead in spherical shape.

Inv. N.: WMS23.C.G1.3_O67



Locus: 4.
 Object: bead.
 Material: stone.
 Color: beige.
 Measurements: L. 0.5 cm; Diam. 0.45 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: biconical bead.

Inv. N.: WMS23.C.G1.3_O69



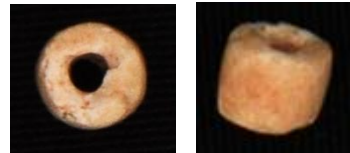
Locus: 4.
 Object: bead.
 Material: stone.
 Color: yellow.
 Measurements: L. 0.3 cm; Diam. 0.6 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: disc shape bead.

Inv. N.: WMS23.C.G1.3_O70



Locus: 4.
 Object: bead.
 Material: stone.
 Color: beige.
 Measurements: L. 0.3 cm; Diam. 0.4 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: cylindrical bead.

Inv. N.: WMS23.C.G1.3_O72



Locus: 4.
 Object: bead.
 Material: stone.
 Color: beige.
 Measurements: L. 0.9 cm; Diam. 0.7 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: truncated spindle bead, broken from side.

Inv. N.: WMS23.C.G1.3_O74



Locus: 4.

Object: bead.

Material: stone.

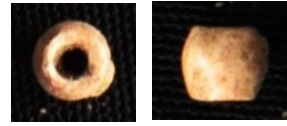
Color: rose.

Measurements: L. 0.25 cm; Diam. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead.

Inv. N.: WMS23.C.G1.3_O75



Locus: 4.

Object: bead.

Material: stone.

Color: beige.

Measurements: L. 0.45 cm; Diam. 0.65 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead, broken from side.

Inv. N.: WMS23.C.G1.3_O76



Locus: 4.

Object: bead.

Material: stone.

Color: beige.

Measurements: L. 0.9 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead.

Inv. N.: WMS23.C.G1.3_O77



Locus: 4.

Object: bead.

Material: shell.

Color: beige.

Measurements: L. 0.3 cm; Diam. 0.8 cm.

Dating: Wadi Suq period - Iron Age.

Description: flat disc bead.

Inv. N.: WMS23.C.G1.3_O78



Locus: 4.

Object: bead.

Material: stone.

Color: white and yellow.

Measurements: L. 4 cm; W. 0.55 cm; Thk. 0.2 cm.

Dating: Wadi Suq period - Iron Age.

Description: a bead in biconvex shape.

Inv. N.: WMS23.C.G1.3_O87



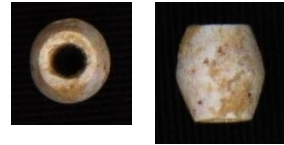
Locus: 4.
Object: bead.
Material: stone.
Color: beige.
Measurements: L. 0.2 cm; Diam. 1.1 cm.
Dating: Wadi Suq period - Iron Age.
Description: flat semi-circular bead.

Inv. N.: WMS23.C.G1.3_O88



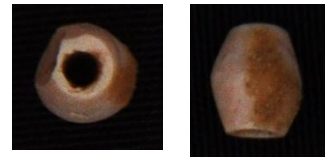
Locus: 4.
Object: bead.
Material: stone.
Color: beige.
Measurements: L. 0.4 cm; Diam. 0.4 cm.
Dating: Wadi Suq period - Iron Age.
Description: biconical bead.

Inv. N.: WMS23.C.G1.3_O89



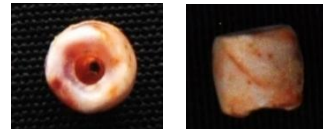
Locus: 4.
Object: bead.
Material: stone.
Color: beige.
Measurements: L. 0.5 cm; Diam. 0.4 cm.
Dating: Wadi Suq period - Iron Age.
Description: biconical bead with small damage.

Inv. N.: WMS23.C.G1.3_O90



Locus: 4.
Object: bead.
Material: stone.
Color: orange.
Measurements: L. 0.4 cm; Diam. 0.4 cm.
Dating: Wadi Suq period - Iron Age.
Description: cylindrical bead.

Inv. N.: WMS23.C.G1.3_O91



Locus: 4.
Object: bead.
Material: stone.
Color: beige and orange.
Measurements: L. 0.2 cm; Diam. 0.35 cm.
Dating: Wadi Suq period - Iron Age.
Description: cylindrical bead.

Inv. N.: WMS23.C.G1.3_O92



Inv. N.: WMS23.C.G1.3_O95

Locus: 4.

Object: bead.

Material: gold.

Color: yellow.

Measurements: L. 0.4 cm; W. 0.25 cm.

Dating: Wadi Suq period.

Description: fragment of bead coating consists of thin layer of gold.

**Inv. N.: WMS23.C.G1.3_O96**

Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 0.65 cm; Diam. 0.85 cm.

Dating: Wadi Suq period - Iron Age.

Description: doughnut-shaped bead.

**Inv. N.: WMS23.C.G1.3_O97**

Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 1.1 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: damaged truncated spindle bead.

**Inv. N.: WMS23.C.G1.3_O98**

Locus: 4.

Object: bead.

Material: stone.

Color: red with white lines.

Measurements: L. 0.7 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead. It could be agata.

**Inv. N.: WMS23.C.G1.3_O99**

Locus: 4.

Object: bead.

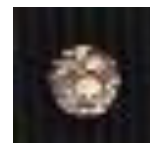
Material: stone.

Color: dark red.

Measurements: L. 0.8 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: doughnut-shaped bead.



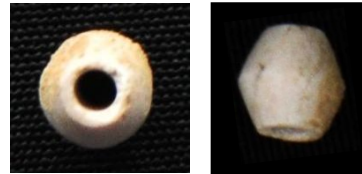
Inv. N.: WMS23.C.G1.3_O100

Locus: 4.
 Object: bead.
 Material: stone.
 Color: beige.
 Measurements: L. 0.15 cm; Diam. 0.5 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: flat disc bead.



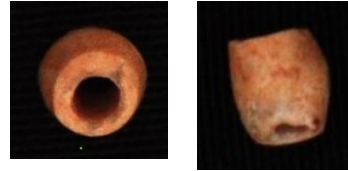
Inv. N.: WMS23.C.G1.3_O101

Locus: 4.
 Object: bead.
 Material: stone.
 Color: beige.
 Measurements: L. 0.5 cm; Diam. 0.5 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: biconical shaped bead.



Inv. N.: WMS23.C.G1.3_O102

Locus: 4.
 Object: bead.
 Material: stone.
 Color: orange.
 Measurements: L. 0.45 cm; Diam. 0.35 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: biconical shaped bead missing small piece.



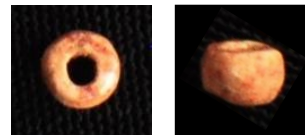
Inv. N.: WMS23.C.G1.3_O103

Locus: 4.
 Object: bead.
 Material: stone.
 Color: black.
 Measurements: L. 0.25 cm; Diam. 0.35 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: cylindrical bead.



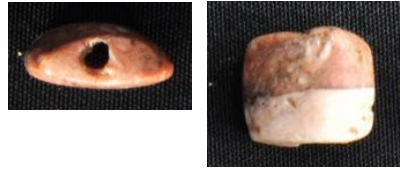
Inv. N.: WMS23.C.G1.3_O104

Locus: 4.
 Object: bead.
 Material: stone.
 Color: brown.
 Measurements: L. 0.3 cm; Diam. 0.35 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: doughnut-shaped bead.

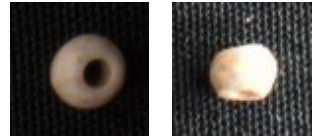


Inv. N.: WMS23.C.G1.3_O115

Locus: 4.
Object: bead.
Material: stone.
Color: white and brown.
Measurements: L. 0.9 cm; W. 1.1 cm.
Dating: Wadi Suq period - Iron Age.
Description: bead in biconvex shape.

**Inv. N.: WMS23.C.G1.3_O116**

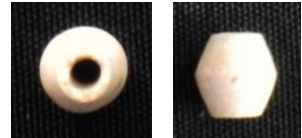
Locus: 4.
Object: bead.
Material: stone.
Color: beige.
Measurements: L. 0.3 cm; Diam. 0.3 cm.
Dating: Wadi Suq period - Iron Age.
Description: truncated short spindle bead.

**Inv. N.: WMS23.C.G1.3_O117**

Locus: 4.
Object: bead.
Material: stone.
Color: white.
Measurements: L. 0.5 cm; Diam. 0.5 cm.
Dating: Wadi Suq period - Iron Age.
Description: biconical bead.

**Inv. N.: WMS23.C.G1.3_O118**

Locus: 4.
Object: bead.
Material: stone.
Color: white.
Measurements: L. 0.5 cm; Diam. 0.4 cm.
Dating: Wadi Suq period - Iron Age.
Description: biconical bead.

**Inv. N.: WMS23.C.G1.3_O119**

Locus: 4.
Object: bead.
Material: stone.
Color: grey.
Measurements: L. 0.3 cm; Diam. 0.7 cm.
Dating: Wadi Suq period - Iron Age.
Description: cylindrical bead.



Locus: 4.

Object: bead.

Material: stone.

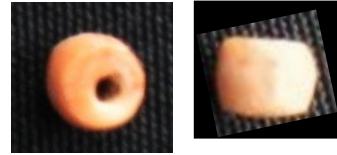
Color: orange.

Measurements: L. 0.3 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead.

Inv. N.: WMS23.C.G1.3_O120



Locus: 4.

Object: bead.

Material: carnelian.

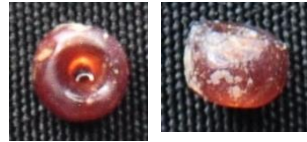
Color: red.

Measurements: L. 0.25 cm; Diam. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: doughnut-shaped bead.

Inv. N.: WMS23.C.G1.3_O121



Locus: 4.

Object: bead.

Material: stone.

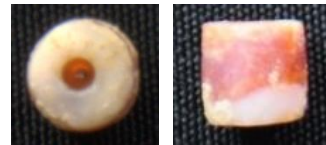
Color: red and white.

Measurements: L. 0.5 cm; Diam. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead.

Inv. N.: WMS23.C.G1.3_O122



Locus: 4.

Object: bead.

Material: stone.

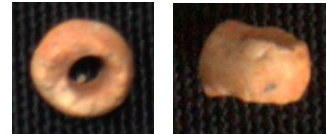
Color: orange.

Measurements: L. 0.2 cm; Diam. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: doughnut-shaped bead.

Inv. N.: WMS23.C.G1.3_O123



Locus: 4.

Object: bead.

Material: stone.

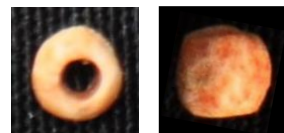
Color: orange.

Measurements: L. 0.2 cm; Diam. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated short spindle bead.

Inv. N.: WMS23.C.G1.3_O124



Inv. N.: WMS23.C.G1.3_O125

Locus: 4.

Object: bead.

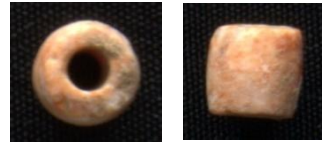
Material: stone.

Color: rose.

Measurements: L. 0.6 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead.

**Inv. N.: WMS23.C.G1.3_O126**

Locus: 4.

Object: ring.

Material: gold.

Color: yellow.

Measurements: L. 0.55 cm; W. 0.2 cm; Thk. 0.08 cm.

Dating: Wadi Suq period.

Description: fragment of a ring with two granulated lines along both edges.

**Inv. N.: WMS23.C.G1.3_O127**

Locus: 4.

Object: ring.

Material: gold.

Color: yellow.

Measurements: L. 1.4 cm; W. 0.25 cm; Thk. 0.1 cm.

Dating: Wadi Suq period.

Description: fragment of a ring with two granulated lines along both edges.

**Inv. N.: WMS23.C.G1.3_O128**

Locus: 4.

Object: bead.

Material: gold.

Color: yellow.

Measurements: L. 0.5 cm; Thk. 0.2 cm.

Dating: Wadi Suq period.

Description: a bead or bead coating consists of thin layer of gold.

**Inv. N.: WMS23.C.G1.3_O141**

Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 0.9 cm; W. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: half bead in spindle shape.



Locus: 4.
 Object: bead.
 Material: stone.
 Color: white.
 Measurements: Diam. 1.4 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: spherical bead.

Inv. N.: WMS23.C.G1.18_O1



Locus: 4.
 Object: bead.
 Material: stone.
 Color: white.
 Measurements: L. 0.6 cm; Diam. 0.8 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: truncated spindle bead.

Inv. N.: WMS23.C.G1.18_O2



Locus: 4.
 Object: bead.
 Material: stone.
 Color: black.
 Measurements: L. 0.3 cm; Diam. 0.7 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: flat disc bead.

Inv. N.: WMS23.C.G1.18_O3



Locus: 4.
 Object: bead.
 Material: stone.
 Color: white.
 Measurements: L. 0.75 cm; Thk. 0.3 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: plano-concave bead.

Inv. N.: WMS23.C.G1.18_O4



Locus: 4.
 Object: bead.
 Material: stone.
 Color: rose.
 Measurements: L. 0.55 cm; Diam. 0.45 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: truncated spindle bead.

Inv. N.: WMS23.C.G1.18_O5



Inv. N.: WMS23.C.G1.18_O6

Locus: 4.
Object: bead.
Material: stone.
Color: white with grey lines.
Measurements: L. 0.7 cm; W. 0.4 cm.
Dating: Wadi Suq period - Iron Age.
Description: half bead in biconvex shape.

**Inv. N.: WMS23.C.G1.18_O7**

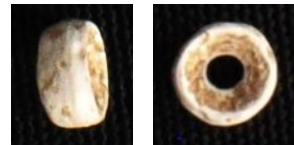
Locus: 4.
Object: bead.
Material: stone.
Color: white.
Measurements: L. 0.4 cm; Diam. 0.4 cm.
Dating: Wadi Suq period - Iron Age.
Description: biconical bead.

**Inv. N.: WMS23.C.G1.18_O8**

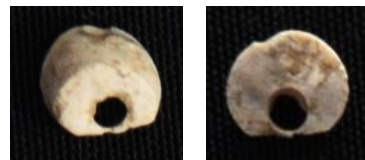
Locus: 4.
Object: bead.
Material: stone.
Color: white.
Measurements: L. 0.5 cm; Diam. 0.5 cm.
Dating: Wadi Suq period - Iron Age.
Description: damaged biconical bead.

**Inv. N.: WMS23.C.G1.18_O9**

Locus: 4.
Object: bead.
Material: stone.
Color: white.
Measurements: L. 0.15 cm; Diam. 0.35 cm.
Dating: Wadi Suq period - Iron Age.
Description: biconcave bead.

**Inv. N.: WMS23.C.G1.18_O10**

Locus: 4.
Object: bead.
Material: stone.
Color: white.
Measurements: Diam. 0.5 cm.
Dating: Wadi Suq period - Iron Age.
Description: fragment of cylindrical bead.

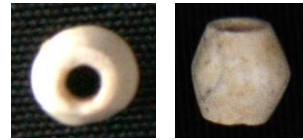


Inv. N.: WMS23.C.G1.18_O20

Locus: 4.
Object: bead.
Material: stone.
Color: white.
Measurements: L. 0.1 cm; Diam. 0.7 cm.
Dating: Wadi Suq period - Iron Age.
Description: flat disc bead.

**Inv. N.: WMS23.C.G1.18_O21**

Locus: 4.
Object: bead.
Material: stone.
Color: white.
Measurements: L. 0.5 cm; Diam. 0.45 cm.
Dating: Wadi Suq period - Iron Age.
Description: biconical bead.

**Inv. N.: WMS23.C.G1.18_O22**

Locus: 4.
Object: bead.
Material: stone.
Color: orange.
Measurements: L. 1.05 cm; Diam. 0.7 cm.
Dating: Wadi Suq period - Iron Age.
Description: damaged truncated spindle bead.

**Inv. N.: WMS23.C.G1.18_O25**

Locus: 4.
Object: bead.
Material: stone.
Color: beige.
Measurements: Diam. 1.3 cm.
Dating: Wadi Suq period - Iron Age.
Description: spherical bead.

**Inv. N.: WMS23.C.G1.18_O29**

Locus: 4.
Object: bead.
Material: stone.
Color: white.
Measurements: Diam. 1.3 cm.
Dating: Wadi Suq period - Iron Age.
Description: spherical bead.



Inv. N.: WMS23.C.G1.18_O30

Locus: 4.

Object: bead.

Material: stone.

Color: red.

Measurements: L. 0.8 cm; Diam. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: spindle bead.

**Inv. N.: WMS23.C.G1.18_O31**

Locus: 4.

Object: bead.

Material: stone.

Color: black.

Measurements: L. 0.4 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: doughnut-shaped bead.

**Inv. N.: WMS23.C.G1.18_O32**

Locus: 4.

Object: foil.

Material: gold.

Color: yellow.

Measurements: L. 0.55 cm; W. 0.35 cm.

Dating: Wadi Suq period.

Description: gold foil.

**Inv. N.: WMS23.C.G1.18_O33**

Locus: 4.

Object: bead.

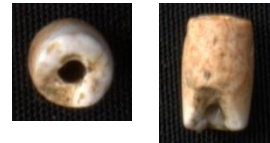
Material: stone.

Color: orange with white side.

Measurements: L. 0.8 cm; Diam. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead broken from the edge.

**Inv. N.: WMS23.C.G1.18_O34**

Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: Diam. 1.2 cm.

Dating: Wadi Suq period - Iron Age.

Description: spherical bead.



Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 0.9 cm; Diam. 0.7 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead.

Inv. N.: WMS23.C.G1.18_O35



Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: Thk. 0.2 cm; Diam. 1 cm.

Dating: Wadi Suq period - Iron Age.

Description: flat semi-circular bead.

Inv. N.: WMS23.C.G1.18_O36



Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: Thk. 0.2 cm; Diam. 1 cm.

Dating: Wadi Suq period - Iron Age.

Description: flat semi-circular bead.

Inv. N.: WMS23.C.G1.18_O37



Locus: 4.

Object: bead.

Material: stone.

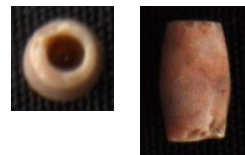
Color: rose.

Measurements: L. 0.6 cm; Diam. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead.

Inv. N.: WMS23.C.G1.18_O38



Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 0.9 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead.

Inv. N.: WMS23.C.G1.18_O39



Locus: 4.

Object: bead.

Material: stone.

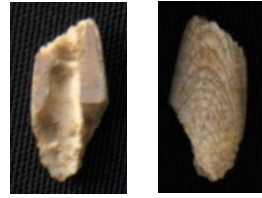
Color: white.

Measurements: L. 0.9 cm; Diam. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: half truncated spindle bead.

Inv. N.: WMS23.C.G1.18_O40



Locus: 4.

Object: bead.

Material: stone.

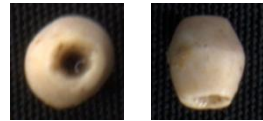
Color: beige.

Measurements: L. 0.3 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: biconical bead.

Inv. N.: WMS23.C.G1.18_O41



Locus: 4.

Object: bead.

Material: stone.

Color: orange.

Measurements: L. 0.5 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: biconical bead.

Inv. N.: WMS23.C.G1.18_O42



Locus: 4.

Object: bead.

Material: stone.

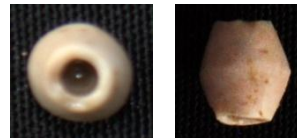
Color: orange.

Measurements: L. 0.4 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: biconical bead.

Inv. N.: WMS23.C.G1.18_O43



Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 0.4 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: conical bead.

Inv. N.: WMS23.C.G1.18_O44



Locus: 4.
 Object: bead.
 Material: stone.
 Color: white and rose.
 Measurements: L. 0.5 cm; Diam. 0.5 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: biconical bead.

Inv. N.: WMS23.C.G1.18_O54



Locus: 4.
 Object: bead.
 Material: stone.
 Color: white.
 Measurements: L. 0.9 cm; Diam. 0.5 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: cylindrical bead.

Inv. N.: WMS23.C.G1.18_O55



Locus: 4.
 Object: bead.
 Material: stone.
 Color: white and orange.
 Measurements: L. 0.4 cm; Diam. 0.4 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: biconical bead.

Inv. N.: WMS23.C.G1.18_O56



Locus: 4.
 Object: bead.
 Material: stone.
 Color: white.
 Measurements: L. 0.4 cm; Diam. 0.4 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: biconical bead.

Inv. N.: WMS23.C.G1.18_O57



Locus: 4.
 Object: bracelet?
 Material: shell.
 Color: white.
 Measurements: L. 1.9 cm; W. 4.1 cm; Thk. 0.1 cm;
 W. 5 gr.
 Dating: Iron Age.
 Description: Fragment of a seashell decorated with pomegranates, circles, squares and triangles. It could be a part of a bracelet.

Inv. N.: WMS24.C.G1.18_O7



Inv. N.: WMS24.C.G1.18_O9

Locus: 4.

Object: bracelet?

Material: shell.

Color: white.

Measurements: L. 4 cm; W. 2.5 cm; Thk. 0.9 cm; W. 19 gr.

Dating: Iron Age.

Description: a shell in biconcave shape with spiral lines on surface. It has a hole to be used as bead or bracelet.



Inv. N.: WMS24.C.G1.18_O21

Locus: 4.

Object: inlay?

Material: shell.

Color: white.

Measurements: L. 4 cm; W. 2.5 cm; Thk. 0.3 cm; W. 7 gr.

Dating: Iron Age.

Description: half of concave shell. It has in the center like holes, probably to fix it on other object.



Inv. N.: WMS24.C.G1.18_O23

Locus: 4.

Object: bead.

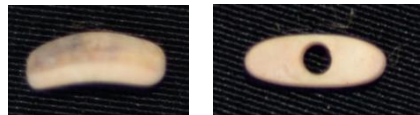
Material: stone.

Color: beige.

Measurements: L. 0.6 cm; Diam. 0.2 cm.

Dating: Wadi Suq period - Iron Age.

Description: oblong bead curved a little bit.



Inv. N.: WMS24.C.G1.18_O24

Locus: 4.

Object: bead.

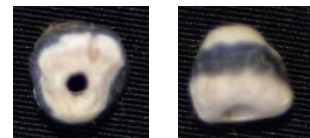
Material: stone

Color: white and black.

Measurements: Thk. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: semi spherical bead has in the center a black line.



Inv. N.: WMS24.C.G1.18_O25

Locus: 4.

Object: bead.

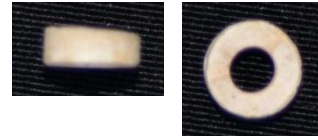
Material: stone.

Color: white.

Measurements: Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: flat disc bead.



Inv. N.: WMS24.C.G1.18_O26

Locus: 4.

Object: bead.

Material: stone.

Color: brown with yellow and blue.

Measurements: L. 0.7 cm; W. 1 cm; Thk. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: bead in biconvex shape with lines of yellow and blue separated by white lines.



Inv. N.: WMS24.C.G1.18_O29

Locus: 4.

Object: bead.

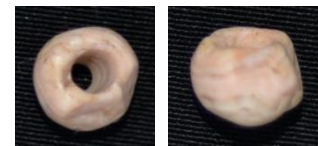
Material: stone.

Color: white.

Measurements: L. 0.5 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead with lines in light grey.



Inv. N.: WMS24.C.G1.18_O30

Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 0.8 cm; Diam. 0.9 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead.



Inv. N.: WMS24.C.G1.18_O32

Locus: 4.

Object: bead.

Material: gold.

Color: yellow.

Measurements: L. 1.1 cm; W. 0.8 cm.

Dating: Wadi Suq period.

Description: fragment of bead or bead coating. It is damaged and consists of a ring surrounded by other rings of which remained a small piece.



Inv. N.: WMS24.C.G1.18_O33

Locus: 4.

Object: bead.

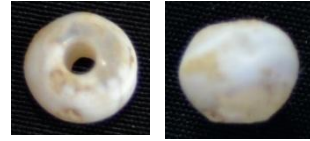
Material: stone.

Color: white.

Measurements: L. 0.6 cm; Diam. 0.75 cm.

Dating: Wadi Suq period - Iron Age.

Description: spherical bead.

**Inv. N.: WMS24.C.G1.18_O34**

Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 1 cm; Diam. 0.75 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead.

**Inv. N.: WMS24.C.G1.18_O36**

Locus: 4.

Object: bead.

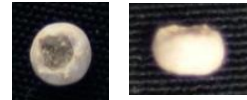
Material: stone.

Color: beige.

Measurements: L. 0.2 cm; Diam. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: doughnut-shaped bead.

**Inv. N.: WMS24.C.G1.18_O37**

Locus: 4.

Object: bead.

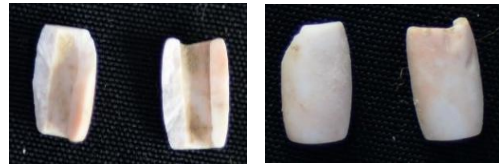
Material: stone.

Color: white.

Measurements: L. 0.7 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead broken into two pieces.

**Inv. N.: WMS24.C.G1.18_O41**

Locus: 4.

Object: bead.

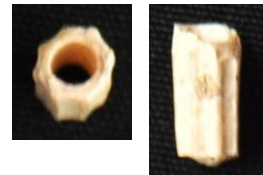
Material: shell?

Color: white.

Measurements: L. 0.5 cm; Diam. 0.35 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead with vertical ribs. It could be part of shell.



Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 0.5 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead.

Inv. N.: WMS24.C.G1.18_O42



Locus: 4.

Object: bead.

Material: stone.

Color: pink.

Measurements: L. 0.09 cm; Diam. 0.1 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead.

Inv. N.: WMS24.C.G1.18_O43



Locus: 4.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 1.3 cm; Diam. 0.55 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead.

Inv. N.: WMS24.C.G1.18_O44



Locus: 4.

Object: bead.

Material: stone.

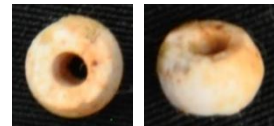
Color: white.

Measurements: L. 0.07 cm; Diam. 0.2 cm.

Dating: Wadi Suq period - Iron Age.

Description: doughnut-shaped bead.

Inv. N.: WMS24.C.G1.18_O47



Locus: 4.

Object: pendant.

Material: stone.

Color: orange and white.

Measurements: L. 1.7 cm; W. max. 0.6 cm, min. 0.05 cm; Thk. 0.1 cm.

Dating: Wadi Suq period - Iron Age.

Description: triangle shape pendant.

Inv. N.: WMS24.C.G1.18_O48



Inv. N.: WMS24.C.G1.18_O51

Locus: 4.

Object: bead.

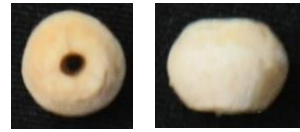
Material: stone.

Color: white.

Measurements: L. 0.2 cm; Diam. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: spherical bead.

**Inv. N.: WMS24.C.G1.18_O56**

Locus: 4.

Object: bead.

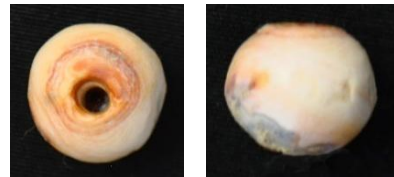
Material: stone.

Color: white.

Measurements: L. 0.8 cm; Diam. 1 cm.

Dating: Wadi Suq period - Iron Age.

Description: spherical bead.

**Inv. N.: WMS23.C.G1.11_O2**

Locus: 7.

Object: bracelet?

Material: shell?

Color: white.

Measurements: L. 6.6 cm; Thk. 1.2 cm.

Dating: Wadi Suq period - Iron Age.

Description: a piece of shell elaborated and visible sign of hole on the side.

**Inv. N.: WMS23.C.G1.11_O6**

Locus: 7.

Object: bead.

Material: stone.

Color: white.

Measurements: Thk. 0.2 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: flat disc bead.

**Inv. N.: WMS23.C.G1.12_O1a**

Locus: 8.

Object: bead.

Material: stone.

Color: white.

Measurements: Diam. 0.9 cm.

Dating: Wadi Suq period - Iron Age.

Description: flat disc bead.



Locus: 8.

Object: bead.

Material: agata.

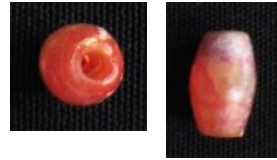
Color: red.

Measurements: L. 0.7 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead.

Inv. N.: WMS23.C.G1.12_O1b



Locus: 8.

Object: bead.

Material: stone.

Color: orange and white.

Measurements: L. 0.7 cm; Diam. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead. It is divided into two colors white and orange.

Inv. N.: WMS23.C.G1.12_O1c



Locus: 8.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 0.9 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: cylindrical bead.

Inv. N.: WMS23.C.G1.12_O4



Locus: 9.

Object: bead.

Material: stone.

Color: dark brown.

Measurements: L. 0.35 cm; Diam. 0.7 cm.

Dating: Wadi Suq period - Iron Age.

Description: disc shape bead.

Inv. N.: WMS23.C.G1.13_O2



Locus: 9.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 1 cm; Diam. 0.8 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle bead.

Inv. N.: WMS23.C.G1.17_O1



Inv. N.: WMS23.C.G1.15_O7

Locus: 10.

Object: bead.

Material: stone.

Color: white and orange.

Measurements: L. 0.3 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: doughnut-shaped bead. It is white bearing orange dots and lines.

**Inv. N.: WMS23.C.G2.9_O4**

Locus: 1.

Object: pendant.

Material: stone.

Color: dark brown.

Measurements: L. 1.8 cm; Diam. max. 0.8 cm, min. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: mushroom-shaped pendant.

**Inv. N.: WMS23.C.G2.9_O6**

Locus: 1.

Object: bead.

Material: stone.

Color: red.

Measurements: L. 1 cm; Diam. max. 0.5 cm, min. 0.35 cm.

Dating: Wadi Suq period - Iron Age.

Description: truncated spindle shaped bead.

**Inv. N.: WMS23.C.G2.9_O7**

Locus: 1.

Object: inlay?

Material: ivory?

Color: beige.

Measurements: L. 1.8 cm; W. 0.25 cm.

Dating: Wadi Suq period - Iron Age.

Description: half circle of shell or ivory. Its section is rectangular. It could be a part of inlay for ornament.

**Inv. N.: WMS23.C.G2.9_O8**

Locus: 1.

Object: pendant.

Material: stone.

Color: dark brown.

Measurements: L. 1.85 cm; Diam. max. 0.75 cm, min. 0.55 cm.

Dating: Wadi Suq period - Iron Age.

Description: mushroom shaped pendant.



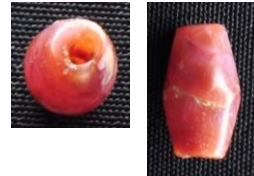
Locus: 1.
 Object: bead.
 Material: stone.
 Color: white and red.
 Measurements: L. 0.9 cm; Diam. 0.55 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: spindle truncated bead.

Inv. N.: WMS23.C.G2.9_O9a



Locus: 1.
 Object: bead.
 Material: carnelian.
 Color: red.
 Measurements: L. 1 cm; Diam. max. 0.6 cm, min. 0.4 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: spindle truncated bead.

Inv. N.: WMS23.C.G2.9_O9b



Locus: 1.
 Object: pendant.
 Material: stone.
 Color: brown.
 Measurements: L. 1.3 cm; Diam. max. 0.7 cm, min. 0.4 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: It seems a fragment of a mushroom shaped pendant.

Inv. N.: WMS23.C.G2.9_O10



Locus: 1.
 Object: bead.
 Material: stone.
 Color: red and white.
 Measurements: L. 1 cm; Diam. 0.45 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: spindle truncated bead damaged.

Inv. N.: WMS23.C.G2.9_O13



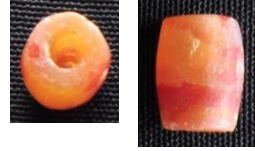
Locus: 1.
 Object: bead.
 Material: stone.
 Color: dark grey.
 Measurements: L. 1.2 cm; Diam. 0.85 cm.
 Dating: Wadi Suq period - Iron Age.
 Description: spherical truncated bead.

Inv. N.: WMS23.C.G2.9_O14a

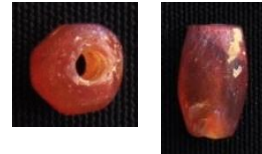


Inv. N.: WMS23.C.G2.9_O14b

Locus: 1.
Object: bead.
Material: stone.
Color: red and orange.
Measurements: L. 0.75 cm; Diam. 0.55 cm.
Dating: Wadi Suq period - Iron Age.
Description: cylindrical bead.

**Inv. N.: WMS23.C.G2.20_O2**

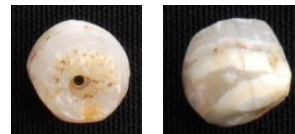
Locus: 1.
Object: bead.
Material: carnelian.
Color: red.
Measurements: L. 0.75 cm; Diam. 0.5 cm.
Dating: Wadi Suq period - Iron Age.
Description: spindle truncated bead.

**Inv. N.: WMS23.C.G2.29_O3**

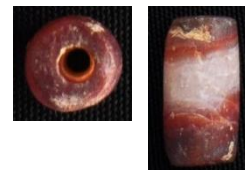
Locus: 1.
Object: bead.
Material: stone.
Color: white with grey.
Measurements: Diam. 1 cm.
Dating: Wadi Suq period - Iron Age.
Description: white spherical bead with grey lines.

**Inv. N.: WMS23.C.G2.29_O4**

Locus: 1.
Object: bead.
Material: stone.
Color: white and grey.
Measurements: Diam. 0.7 cm.
Dating: Wadi Suq period - Iron Age.
Description: spherical bead with some deformation.

**Inv. N.: WMS23.C.G2.29_O5**

Locus: 1.
Object: bead.
Material: stone.
Color: white and red.
Measurements: L. 1 cm; Diam. 0.55 cm.
Dating: Wadi Suq period - Iron Age.
Description: red cylindrical bead with a large white line.



Inv. N.: WMS23.C.G2.17_O1

Locus: 2.

Object: bead.

Material: stone.

Color: white and orange.

Measurements: L. 0.35 cm; Diam. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: white biconical bead with orange stripes.

**Inv. N.: WMS23.C.G2.17_O2**

Locus: 2.

Object: bead.

Material: stone.

Color: orange.

Measurements: L. 1 cm; Diam. max. 0.7 cm, min. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: conical bead in shape of a vase. It has orange color with some white spots.

**Inv. N.: WMS23.C.G2.17_O3**

Locus: 2.

Object: bead.

Material: stone.

Color: white.

Measurements: L. 0.15 cm; Diam. 0.25 cm.

Dating: Wadi Suq period - Iron Age.

Description: broken bead. It seems to have a doughnut-shaped shape.

**Inv. N.: WMS23.C.G2.17_O4**

Locus: 2.

Object: bead.

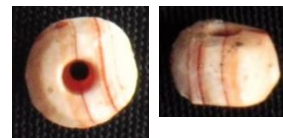
Material: stone.

Color: white and orange.

Measurements: L. 0.35 cm; Diam. 0.55 cm.

Dating: Wadi Suq period - Iron Age.

Description: white biconical bead with orange stripes.

**Inv. N.: WMS23.C.G2.18_O3**

Locus: 3.

Object: pendant.

Material: shell.

Color: ivory.

Measurements: L. 4.5 cm; Diam. 2.15 cm; W. 14 gr.

Dating: Wadi Suq period - Iron Age.

Description: shell of, probably, the type lettered olive, with a hole to be used as a pendant.



Inv. N.: WMS23.C.G2.18_O4

Locus: 3.

Object: bead.

Material: stone?

Color: beige.

Measurements: L. 0.15 cm; Diam. 0.25 cm.

Dating: Wadi Suq period - Iron Age.

Description: doughnut-shaped bead. It is very friable.

**Inv. N.: WMS23.C.G2.18_O5**

Locus: 3.

Object: bead.

Material: clay?.

Color: brown.

Measurements: L. 0.4 cm; Diam. 0.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: irregular cylindrical bead. It is friable and probably made of clay.

**Inv. N.: WMS23.C.G2.28_O3**

Locus: 4.

Object: bead.

Material: stone.

Color: black.

Measurements: L. 0.9 cm; Diam. 1.3 cm.

Dating: Wadi Suq period - Iron Age.

Description: irregular spherical bead.

**Inv. N.: WMS23.C.G2.28_O5**

Locus: 4.

Object: bead.

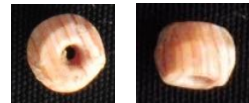
Material: stone.

Color: orange.

Measurements: L. 0.35 cm; Diam. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: almost biconical bead. It has dark orange stipes.

**Inv. N.: WMS23.C.G2.28_O6**

Locus: 4.

Object: bead.

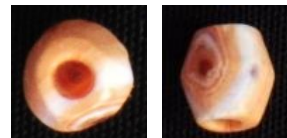
Material: stone.

Color: orange and white.

Measurements: L. 0.5 cm; Diam. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: biconical bead with white and dark orange lines.



Locus: 4.

Object: bead.

Material: stone.

Color: pink and white.

Measurements: L. 0.4 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: irregular cylindrical bead.

Inv. N.: WMS23.C.G2.28_O8



Locus: 6.

Object: bead.

Material: stone.

Color: beige.

Measurements: L. 0.15 cm; Diam. 0.6 cm.

Dating: Wadi Suq period - Iron Age.

Description: flat disc bead.

Inv. N.: WMS23.C.G2.32_O1



Locus: 6.

Object: bead.

Material: stone.

Color: beige.

Measurements: L. 0.1 cm; Diam. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: flat disc bead.

Inv. N.: WMS23.C.G2.32_O2



Locus: 6.

Object: bead.

Material: stone.

Color: beige.

Measurements: L. 0.1 cm; Diam. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: flat disc bead.

Inv. N.: WMS23.C.G2.32_O3



Locus: 6.

Object: bead.

Material: stone.

Color: beige.

Measurements: L. 0.2 cm; Diam. 0.45 cm.

Dating: Wadi Suq period - Iron Age.

Description: flat disc bead.

Inv. N.: WMS23.C.G2.32_O4



Inv. N.: WMS23.C.G2.32_O5

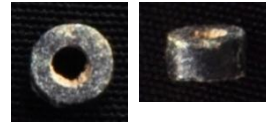
Locus: 6.
Object: bead.
Material: stone.
Color: beige.
Measurements: L. 0.1 cm; Diam. 0.35 cm.
Dating: Wadi Suq period - Iron Age.
Description: flat disc bead.

**Inv. N.: WMS23.C.G2.32_O6**

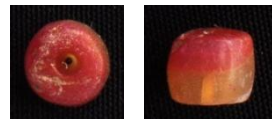
Locus: 6.
Object: bead.
Material: stone.
Color: black.
Measurements: L. 0.7 cm; Diam. 1.1 cm.
Dating: Wadi Suq period - Iron Age.
Description: truncated spherical bead.

**Inv. N.: WMS23.C.G2.32_O7**

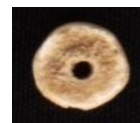
Locus: 6.
Object: bead.
Material: stone.
Color: black.
Measurements: L. 0.2 cm; Diam. 0.4 cm.
Dating: Wadi Suq period - Iron Age.
Description: cylindrical small bead.

**Inv. N.: WMS23.C.G2.32_O8**

Locus: 6.
Object: bead.
Material: stone.
Color: red.
Measurements: L. 0.2 cm; Diam. 0.6 cm.
Dating: Wadi Suq period - Iron Age.
Description: cylindrical bead.

**Inv. N.: WMS23.C.G2.32_O9**

Locus: 6.
Object: bead.
Material: stone.
Color: beige.
Measurements: Diam. 0.65 cm.
Dating: Wadi Suq period - Iron Age.
Description: flat disc bead.



Stone Vessels

Inv. N.: WMN23.A.WS1.8_O2

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6 cm; W. 3 cm

Dating: not definable.

Description: Fragment of stone vessel with part of rim.

**Inv. N.: WMS23.C.G1.1_O1**

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 7.3 cm; W. 5.2 cm.

Dating: Iron Age period.

Description: fragment of stone vessel with part of the base; geometric decorations formed by wavy lines above the base and straight lines on the central body.

**Inv. N.: WMS23.C.G1.1_O7**

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 8 cm; W. 6 cm.

Dating: not definable.

Description: fragment of stone vessel having part of the base; the interior is divided into two small compartments.

**Inv. N.: WMS23.C.G1.1_O9**

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.2 cm; W. 4 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel having part of the base. It has geometrical decorations formed by vertical and horizontal lines above the base.



Inv. N.: WMS23.C.G1.1_O10

Locus: --

Type of object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.7 cm; W. 5.6 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel having part of the base. It has geometrical decorations formed by intersecting oblique and a couple of horizontal lines, forming triangular and rhomboidal shapes above the base. Small triangles above the base between the couple of horizontal lines.

**Inv. N.: WMS23.C.G1.2_O1**

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4 cm; W. 2.8 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel having part of the rim. It has geometrical decorations under the rim with intersected lines which form rhombuses; on the lower part, there are vertical lines connected by semi-circular lines.

**Inv. N.: WMS23.C.G1.2_O2**

Locus: --

Type of object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 7.2 cm; W. 4 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by intersect oblique and vertical lines; on the top right, there are oblique and horizontal lines not intersect.



Inv. N.: WMS23.C.G1.2_O3

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5 cm; W. 5.5 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by horizontal lines under the rim.

**Inv. N.: WMS23.C.G1.2_O4**

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 8 cm; W. 6 cm.

Dating: not definable.

Description: fragment of stone vessel.

**Inv. N.: WMS23.C.G1.2_O5**

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 3 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with a spout. It has geometrical decorations formed by horizontal and intersect oblique lines.

**Inv. N.: WMS23.C.G1.2_O6**

Locus: --

Object: fragment of stone vessel.

Material: stone.

Dating: not definable.

Description: fragment of stone vessel.

Inv. N.: WMS23.C.G1.5_O1

Locus: 1.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5.5 cm; W. 6 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by a couple of double horizontal lines and zig-zag lines in the middle, on the upper part. It has also oblique lines that form triangular shapes surrounded by zig-zag lines, on the lower part.

**Inv. N.: WMS23.C.G1.5_O1b**

Locus: 1.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey

Measurements: L. 4.5 cm; W. 1.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by vertical lines and acute angles shapes.

**Inv. N.: WMS23.C.G1.5_O2**

Locus: 1.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey

Measurements: L. 7 cm; W. 3.5 cm.

Dating: not definable.

Description: fragment of stone vessel.

**Inv. N.: WMS23.C.G1.5_O3**

Locus: 1.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.5 cm; W. 5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines, and oblique lines (that, probably, form triangular shapes) surrounded by zig-zag lines; on the lower part, there are small triangles inserted into a couple of horizontal lines.



Inv. N.: WMS23.C.G1.5_O5

Locus: 1.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 4.2 cm; W. 2.6 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of base. It has geometrical decorations formed by horizontal and oblique lines above the base.



Inv. N.: WMS23.C.G1.5_O7

Locus: 1.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 7.2 cm; W. 3.5 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of base. It has geometrical decorations formed by horizontal lines above the base.



Inv. N.: WMS23.C.G1.6_O1

Locus: 2.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 10 cm; W. 8 cm.

Dating: Iron Age period.

Description: fragment of a rectangular stone vessel with two compartments, and with part of the rim and part of the base. It has geometrical decorations formed by horizontal lines under the rim and above the base, and zig-zag lines on the central part of the vessel itself.



Inv. N.: WMS23.C.G1.6_O2

Locus: 2.

Object: fragment of stone vessel.

Material: stone.

Measurements: L. 1 cm; W. 0.6 cm.

Dating: not definable.

Description: fragment of stone vessel.

Inv. N.: WMS23.C.G1.8_O1

Locus: 2.

Object: lid of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 8.5 cm; W. 5 cm.

Dating: Iron Age period.

Description: stone lid with the holder. It has geometrical decorations formed by oblique lines on all the body of the lid itself and also on the external part of the holder. By its form, we know that this lid belonged to a rectangular stone vessel with two compartments.

**Inv. N.: WMS23.C.G1.8_O2**

Locus: 2.

Object: fragment of stone vessel.

Material: stone.

Measurements: L. 10.4 cm; W. 6.5 cm.

Dating: not definable.

Description: Fragment of stone vessel.

Inv. N.: WMS23.C.G1.8_O3

Locus: 2.

Object: lid of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 8.5 cm; W. 5 cm.

Dating: Iron Age period.

Description: fragment of a stone lid with geometrical decorations formed by zigzag lines that divide the surface in various parts in each one there is a circle-dot motif.

**Inv. N.: WMS23.C.G1.8_O4b**

Locus: 2.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 8.5 cm; W. 5 cm.

Dating: not definable.

Description: fragment of stone vessel.



Inv. N.: WMS23.C.G1.7_O1

Locus: 3.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 3 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by two horizontal lines under the rim.



Inv. N.: WMS23.C.G1.3_O1

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 7.5 cm; W. 5 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel. It has geometrical decorations formed by intersect horizontal and oblique lines, on the lower part; circle-dots, inserted into a register, and simple horizontal lines on the central part; acute angle shapes and horizontal lines on the lower part.



Inv. N.: WMS23.C.G1.3_O3

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5 cm; W. 3 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of rim. It has geometrical decorations formed by horizontal and vertical lines under the rim.



Inv. N.: WMS23.C.G1.3_O4

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4.5 cm; W. 5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the base. It has geometrical decorations formed by oblique lines meet a horizontal line above the base.

**Inv. N.: WMS23.C.G1.3_O5**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4 cm; W. 3.8 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decorations formed by intersect vertical and horizontal lines, and a circle-dot on its side.

**Inv. N.: WMS23.C.G1.3_O6**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 4 cm; W. 3.8 cm

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal and zig-zag lines.

**Inv. N.: WMS23.C.G1.3_O7**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 3 cm; W. 3 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines and intersect oblique lines. On the lower part, there are circle-dots.



Inv. N.: WMS23.C.G1.3_O8

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.5 cm; W. 6 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with the base. It has geometrical decorations formed by two horizontal lines and a line above the base. There are vertical lines connect between the base and the rim.

**Inv. N.: WMS23.C.G1.3_O9**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.5 cm; W. 4 cm.

Dating: not definable.

Description: fragment of stone vessel.

**Inv. N.: WMS23.C.G1.3_O11**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.9 cm; W. 3.2 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines.

**Inv. N.: WMS23.C.G1.3_O12**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2 cm; W. 2.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal and zig-zag lines.



Inv. N.: WMS23.C.G1.3_O14

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 1.3 cm; W. 1.2 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines.

**Inv. N.: WMS23.C.G1.3_O15**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.3 cm; W. 1.1 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines.

**Inv. N.: WMS23.C.G1.3_O25**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2 cm; W. 1.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the base. It has geometrical decorations formed by horizontal and zig-zag lines.

**Inv. N.: WMS23.C.G1.3_O26**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 7.2 cm; W. 1.8 cm.

Dating: Wadi Suq period.

Description: fragment of a rectangular stone vessel with part of rim. It has geometrical decorations formed by horizontal lines, small triangle shapes and circle-dots under the rim. On the lower part, there are oblique lines that form triangle shapes with vertical lines inside them, and also other circle-dots and horizontal lines. The circle-dots are inserted into registers.



Inv. N.: WMS23.C.G1.3_O33

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 9 cm; W. 8 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel cup with part of the base and part of the rim. It has geometrical decorations formed by horizontal and zig-zag lines under the rim. Above the base, there is horizontal line. Vertical lines connect between the lines under the rim and the line above the base.



Inv. N.: WMS23.C.G1.3_O34

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4 cm; W. 4 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by horizontal lines and a circle-dot under the rim.



Inv. N.: WMS23.C.G1.3_O35

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 1 cm; W. 0.5 cm.

Dating: not definable.

Description: fragment of a stone vessel with geometrical decoration formed by a circle-dot motif.



Inv. N.: WMS23.C.G1.3_O37

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.5 cm; W. 4.5 cm.

Dating: Iron Age period.

Description: fragment of stone vessel having part of rim. It has geometric decorations formed by straight and zigzag lines.

**Inv, N.: WMS23.C.G1.3_O39**

Locus: 4.

Object: fragment of a lid of a stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6 cm; W. 7.5 cm.

Dating: Iron Age period.

Description: fragment of a stone lid with the holder. It has geometrical decorations formed by acute angle shapes on all the surface. It has also vertical and horizontal lines on the holder.

**Inv. N.: WMS23.C.G1.3_O41**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 9.7 cm; W. 8 cm.

Dating: Iron Age period.

Description: fragment of a globular stone vessel with part of the rim and part of the base. It has geometrical decorations formed horizontal lines, oblique lines that form triangular shapes and other oblique lines inside the triangles themselves; this kind of decoration repeats itself under the rim and above the base.



Inv. N.: WMS23.C.G1.3_O42

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 5 cm; W. 4.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal and zig-zag lines.



Inv. N.: WMS23.C.G1.3_O43

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.5 cm; W. 5.2 cm.

Dating: Wadi Suq period.

Description: fragment of a globular stone vessel with part of the base. It has geometrical decorations formed by horizontal and oblique lines, circle-dots, inserted into a register. This decoration appears above the base, but it would kept the same decoration until the rim.



Inv. N.: WMS23.C.G1.3_O44

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6 cm; W. 5 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed a couple of horizontal lines and circle-dots, under the rim. On the lower part, there are oblique lines that form triangular shapes.



Inv. N.: WMS23.C.G1.3_O45

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 8 cm; W. 5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the base. It has geometrical decoration formed by horizontal lines above the base.

**Inv. N.: WMS23.C.G1.3_O46**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 6 cm; W. 6.5 cm.

Dating: not definable.

Description: fragment of stone vessel.

**Inv. N.: WMS23.C.G1.3_O47**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 1.5 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by horizontal lines under the rim.

**Inv. N.: WMS23.C.G1.3_O49**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 2.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the base. It has geometrical decorations formed by horizontal and oblique lines.



Inv. N.: WMS23.C.G1.3_O50

Locus: 4.

Type of object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4.8 cm; W. 5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel having with of the rim. It has geometrical decorations formed by horizontal and intersect lines under the rim; on the lower part, there are two couple of horizontal lines in which there are small triangles and acute angles shapes, and vertical lines.



Inv. N.: WMS23.C.G1.3_O52

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.5 cm; W. 6 cm.

Dating: Wadi Suq period.

Description: fragment of a rectangular stone vessel with the base. It has geometrical decorations formed by horizontal and zig-zag lines, circle-dots inserted into two registers, acute angles shapes with a horizontal line in the middle, above the base. By the way, all this composition, repeats itself on all the surface of the vessel.



Inv. N.: WMS23.C.G1.3_O53

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 1.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal, vertical and oblique lines (probably triangle shapes?) above the base.



Inv. N.: WMS23.C.G1.3_O54

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5.5 cm; W. 1.5 cm.

Dating: not definable.

Description: fragment of a stone lid in rectangular shape.

**Inv. N.: WMS23.C.G1.3_O55**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 2 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of rim. It has geometrical decorations formed by horizontal and oblique lines under the rim.

**Inv. N.: WMS23.C.G1.3_O56a**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 1 cm; W. 1 cm

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by a circle-dot.

**Inv. N.: WMS23.C.G1.3_O56b**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 0.5 cm; W. 0.5 cm

Dating: Iron Age period.

Description: fragment of a stone vessel.



Inv. N.: WMS23.C.G1.3_O56c

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2 cm; W. 1 cm

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by oblique lines.

**Inv. N.: WMS23.C.G1.3_O56d**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 1 cm; W. 1 cm

Dating: Iron Age period.

Description: fragment of a stone vessel.

**Inv. N.: WMS23.C.G1.3_O56e**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2 cm; W. 1 cm

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by vertical lines and oblique lines.

**Inv. N.: WMS23.C.G1.3_O56f**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 3 cm

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal and zig-zag lines.



Inv. N.: WMS23.C.G1.3_O56g

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 1.5 cm; W. 1.5 cm

Dating: Iron Age period.

Description: fragment of a stone vessel.

**Inv. N.: WMS23.C.G1.3_O56h**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2 cm; W. 0.7 cm

Dating: Iron Age period.

Description: fragment of a stone vessel with a circle-dot motif.

**Inv. N.: WMS23.C.G1.3_O60**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: a) L. 2 cm; W. 2 cm. b) L. 1.7 cm; W. 1.2 cm.

Dating: not definable.

Description: two fragments of a stone vessel; the fragment on the right has geometrical decorations formed by horizontal lines.

**Inv. N.: WMS23.C.G1.3_O61**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5.9 cm; W. 4.7 cm.

Dating: Iron Age ?

Description: fragment of a stone vessel with a lug. It has geometrical decorations formed by vertical lines on the supposed lug.



Inv. N.: WMS23.C.G1.3_O62

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey

Measurements: L. 4.9 cm; W. 5.5 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines.

**Inv. N.: WMS23.C.G1.3_O80**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4.6 cm; W. 5.6 cm.

Dating: not definable.

Description: Fragment of stone vessel with circle-dots motifs.

**Inv. N.: WMS23.C.G1.3_O80a**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: brown.

Measurements: L. 2.7 cm; W. 2.9 cm.

Dating: not definable.

Description: Fragment of stone vessel with circle-dots motifs and horizontal lines.

**Inv. N.: WMS23.C.G1.3_O80b**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: brown.

Measurements: L. 1.5 cm; W. 3 cm.

Dating: not definable.

Description: Fragment of stone vessel with circle-dots motifs.



Inv. N.: WMS23.C.G1.3_O81

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: a) L. 4.5 cm; W. 3.2 cm.

b) L. 3.5 cm; W. 2.5 cm.

Dating: Iron Age period.

Description: two fragments of a stone vessel; the fragment of the left has geometrical decorations with a straight line and zig-zag lines.

**Inv. N.: WMS23.C.G1.3_O82**

Locus: 4.

Object: fragment of stone vessel.

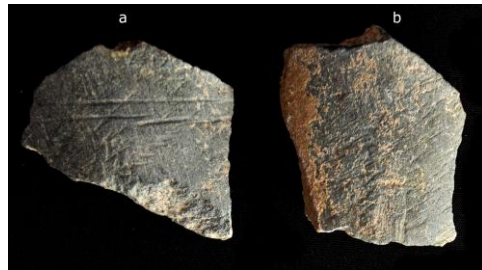
Material: stone.

Color: grey.

Measurements: a) L. 4.5 cm; W. 3 cm. b) L. 3.7 cm; W. 4.5 cm.

Dating: Iron Age period.

Description: two fragments of a stone vessel. Fragment (a) has geometrical decorations formed by horizontal, oblique and zig-zag lines. Instead, fragment (b) does not have any decoration. Both fragments were found in the same spot.

**Inv. N.: WMS23.C.G1.3_O83**

Locus: 4.

Type of object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4 cm; W. 4.5 cm.

Dating: not definable.

Description: fragment of a stone vessel with geometrical decoration formed by horizontal and oblique lines.

**Inv. N.: WMS23.C.G1.3_O84**

Locus: 4.

Object: fragment of stone vessel.

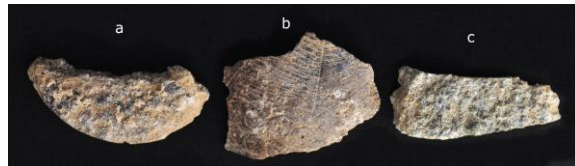
Material: stone.

Color: grey.

Measurements: a) L. 4 cm; W. 2.5 cm. b) L. 3.8 cm; W. 2.5 cm. c) L. 4 cm; W. 2 cm.

Dating: Wadi Suq period.

Description: three fragments of a stone vessel which were found in the same spot. Fragment (b) has geometrical decorations formed by horizontal and oblique lines, on the upper part. It has also circle-dots motifs, on the lower part.



Inv. N.: WMS23.C.G1.3_O105

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.4 cm; W. 1.2 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the base.
It has geometrical decorations formed by vertical and horizontal lines above the base.

**Inv. N.: WMS23.C.G1.3_O106**

Locus: 4.

Object: fragment of stone vessel.

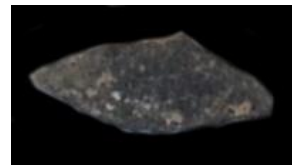
Material: stone.

Color: black.

Measurements: L. 4.7 cm; W. 0.7 cm.

Dating: not definable.

Description: fragment of stone vessel.

**Inv. N.: WMS23.C.G1.3_O107**

Locus: 4.

Object: fragment of stone vessel.

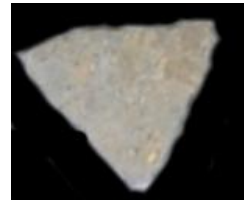
Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 0.6 cm.

Dating: not definable.

Description: fragment of stone vessel.

**Inv N.: WMS23.C.G1.3_O108**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: brown.

Measurements: L. 3.7 cm; W. 1 cm.

Dating: not definable.

Description: fragment of stone vessel.



Inv. N.: WMS23.C.G1.3_O109

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.5 cm; W. 2 cm.

Dating: not definable.

Description: fragment of stone vessel base with part of the base.

**Inv. N.: WMS23.C.G1.3_O110**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: light brown.

Measurements: L. 3.5 cm; W. 0.5 cm

Dating: not definable.

Description: Fragment of stone vessel with part of rim and horizontal line under it.

**Inv. N.: WMS23.C.G1.3_O111**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.7 cm; W. 0.5 cm.

Dating: not definable.

Description: fragment of stone vessel.

**Inv. N.: WMS23.C.G1.3_O112**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: black.

Measurements: L. 3.1 cm; W. 0.4 cm.

Dating: not definable.

Description: Fragment of stone vessel with part of rim with zig-zag decoration.



Inv. N.: WMS23.C.G1.3_O129

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4.5 cm; W. 2.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal, vertical and oblique lines.

**Inv. N.: WMS23.C.G1.3_O130**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 1.8 cm; W. 4 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by zig-zag and horizontal lines under the rim; on the central part, inside a couple of horizontal lines, there are circle-dots. On the lower part, there are zig-zag line between two horizontal lines then at the bottom there are oblique lines (maybe triangles shape).

**Inv. N.: WMS23.C.G1.3_O131**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: brown.

Measurements: L. 2.8 cm; W. 3.1 cm.

Dating: not definable.

Description: fragment of stone vessel with rim. Under the rim, there are three horizontal lines.



Inv. N.: WMS23.C.G1.3_O132

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.5 cm; W. 3.2 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of rim. It has geometrical decorations formed by zig-zag and horizontal lines under the rim and on the lower part of the vessel itself; on the central part, there are circle-dots, inserted into a register.

**Inv. N: WMS23.C.G1.3_O133**

Locus: 4.

Object: fragment of stone vessel.

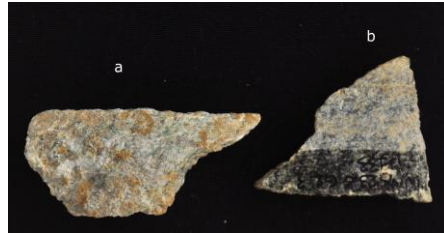
Material: stone.

Color: gray.

Measurements: a) L. 4.7 cm; W. 2 cm. b) L. 2.8 cm; W. 2.5 cm.

Dating: not definable.

Description: two fragments of a stone vessel; the fragment on the right has a painted black band decoration.

**Inv. N.: WMS23.C.G1.3_O134**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Measurements: L. 3.3 cm; W. 0.9 cm.

Dating: not definable.

Description: fragment of stone vessel base.

Inv. N.: WMS23.C.G1.3_O135

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: gray.

Measurements: L. 2 cm; W. 1.5 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decoration formed by vertical lines.



Inv. N.: WMS23.C.G1.3_O136

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.5 cm; W. 1.5 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of rim. It has geometrical decorations formed by horizontal lines under the rim.



Inv. N.: WMS23.C.G1.3_O137

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4.5 cm; W. 3.5 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by horizontal lines and two-concentric circles with central dot under the rim and inserted into a register.



Inv. N.: WMS23.C.G1.3_O138

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2 cm; W. 1 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines and circles-dots, probably inserted into a register.



Inv. N.: WMS23.C.G1.3_O139

Locus: 4

Object: fragment of stone vessel

Material: stone

Color: dark grey

Measurements: L. 2 cm; W. 1 cm

Dating: not definable.

Description: Fragment of a stone vessel with geometrical decoration formed by horizontal lines.



Inv. N.: WMS23.C.G1.3_O140

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

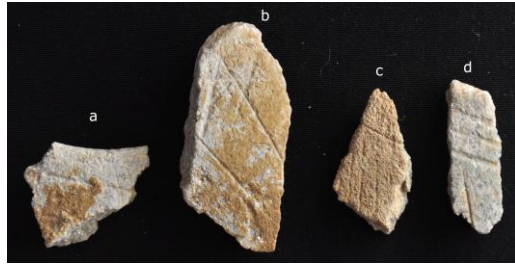
Measurements: a) L. 1.5 cm; W. 2 cm. b)

L. 3.7 cm; W. 1.8 cm. c) L. 1.5 cm; W. 1.5

cm. d) L. 2 cm; W. 0.8 cm.

Dating: not definable.

Description: four fragments of a stone vessel: the first and the fourth have part of the rim. On all the fragments, there are horizontal, vertical and oblique lines. They were found in the same spot.



Inv. N.: WMS23.C.G1.3_O143

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2 cm; W. 2.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by horizontal, zig-zag lines and circle-dots under the rim.



Inv. N.: WMS23.C.G1.3_O144

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: black.

Measurements: L. 2.6 cm; W. 1.1 cm.

Dating: not definable.

Description: fragment of stone vessel.



Inv. N.: WMS23.C.G1.3_O145

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: black.

Measurements: L. 3.3 cm; W. 0.35 cm.

Dating: not definable.

Description: Fragment of stone vessel with part of rim.



Inv. N.: WMS23.C.G1.8_O6

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Measurements: L. 8 cm; W. 1.4 cm.

Dating: not definable.

Description: fragment of stone vessel.

Inv. N.: WMS23.C.G1.18_O11

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.5 cm; W. 6 cm.

Dating: Wadi Suq period.

Description: fragment of a globular stone vessel with part of the base. It has geometric decorations formed by intersect oblique lines, horizontal lines, circle-dots, inserted into a register and normal oblique lines above the base.



Inv. N.: WMS23.C.G1.18_O12

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 3 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel. It has geometrical decorations formed by intersect horizontal and oblique lines, and also circle-dots.



Inv. N.: WMS23.C.G1.18_O13

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 7.5 cm; W. 5 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel. It has geometrical decorations formed by circle-dot between oblique lines (the oblique lines form an acute angle shape). The oblique lines end on two horizontal lines which followed by zig-zag lines on the lower part.



Inv. N.: WMS23.C.G1.18_O14

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4.5 cm;
W. 5.5 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of the base. It has geometrical

decorations formed by intersect oblique lines above the base and simple horizontal and oblique lines on the upper part.



Inv. N.: WMS23.C.G1.18_O15

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 4.5 cm; W. 3 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of rim. It belongs to a rectangular stone vessel. It has geometrical decorations formed by horizontal lines under the rim.



Inv. N.: WMS23.C.G1.18_O16

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 3 cm.

Dating: not definable.

Description: Fragment of a stone lid. By its form, we can deduce that it belonged to a rectangular stone vessel.



Inv. N.: WMS23.C.G1.18_O17

Locus: 4.

Object: fragment of stone vessel.

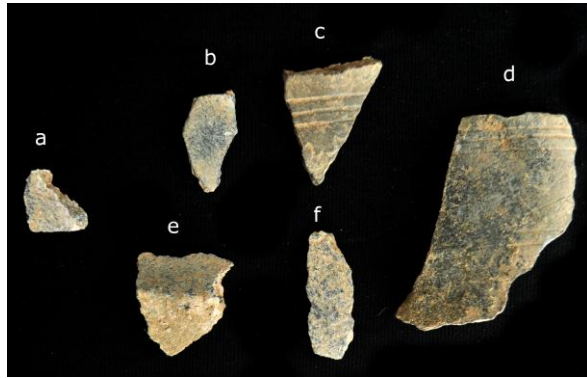
Material: stone.

Color: dark grey.

Measurements: a) L. 1 cm; W. 1 cm. b) L. 1 cm; W. 1.5 cm. c) L. 2 cm; W. 2 cm. d) L. 3 cm; W. 4.2 cm. e) L. 2 cm; W. 2 cm. f) L. 1 cm; W. 2.5 cm.

Dating: Iron Age period.

Description: six fragments of a stone vessel. Fragments (c) and (f) have geometrical decorations formed by horizontal lines and zig-zag lines. Fragment (d) has horizontal lines some of them under the rim. Fragment (e) is part of base.



Inv. N.: WMS23.C.G1.18_O24

Locus: 4.

Object: fragment of stone vessel.

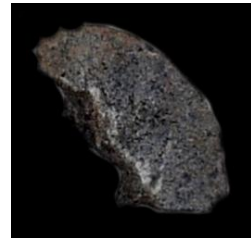
Material: stone.

Color: grey.

Measurements: L. 4.2 cm; W. 2 cm.

Dating: not definable.

Description: Fragment of stone vessel with part of rim.



Inv. N.: WMS23.C.G1.18_O27

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 3 cm.

Dating: not definable.

Description: fragment of a stone vessel having part of the rim and geometric decorations formed by oblique and horizontal lines.



Inv. N.: WMS23.C.G1.18_O45

Locus: 4.

Object: lid of stone vessel.

Color: grey.

Material: stone.

Measurements: L. 9.5 cm; W. 4 cm.

Dating: Iron Age period.

Description: a stone vessel lid with the holder. It has geometrical decorations formed by zig-zag lines on all the surface and, on the sides, circle-dot. There are also geometrical decorations on the holder with oblique lines and a circle-dot in the center of it. By its form, we know that this lid belonged to a rectangular vessel with two compartments.



Inv. N.: WMS23.C.G1.18_O46

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6 cm; W. 3.5 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by horizontal lines, and oblique lines with alternate circle-dots, under the rim.



Inv. N.: WMS23.C.G1.18_O47

Locus: 4.

Object: fragment of stone vessel.

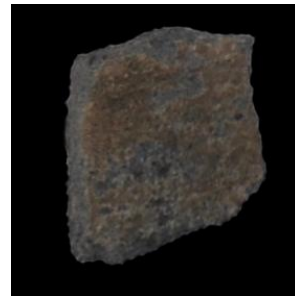
Material: stone.

Color: grey.

Measurements: L 4 cm; W. 3 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of the rim and decorated with circles.



Inv. N.: WMS23.C.G1.18_O49

Locus: 4.

Object: fragment of stone vessel.

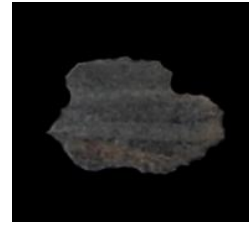
Material: stone.

Color: grey.

Measurements: 1.1 cm; W. 1.5 cm.

Dating: not definable.

Description: fragment of stone vessel with geometric decorations formed by horizontal lines.

**Inv. N.: WMS23.C.G1.18_O53**

Locus: 4.

Object: fragment of stone vessel.

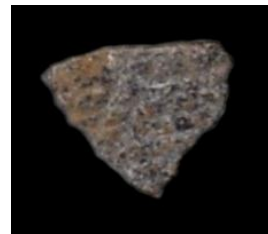
Material: stone.

Color: grey.

Measurements: L. 1.8 cm; W. 2 cm.

Dating: not definable.

Description: fragment of a stone vessel having part of the rim and geometric decorations formed by horizontal lines.

**Inv. N.: WMS23.C.G1.18_O58**

Locus: 4.

Type of object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.8cm; W. 0.5 cm.

Dating: not definable.

Description: fragment of a stone vessel having part of the rim and geometric decorations formed by horizontal lines.

**Inv. N.: WMS24.C.G1.18_O3**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4 cm; W. 8 cm.

Dating: Wadi Suq period.

Description: fragment of stone vessel with part of the bottom.



Inv. N.: WMS24.C.G1.18_O4

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4.5 cm; W. 3.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the bottom and the rim. It has geometrical decorations formed by horizontal lines and triangular motifs on the central part made by oblique lines.

**Inv. N.: WMS24.C.G1.18_O5**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4 cm; W. 5 cm.

Dating: Iron Age period.

Description: lid of stone with geometrical decorations formed by straight lines on the holder and zig-zag lines above of the rest of the lid.

**Inv. N.: WMS24.C.G1.18_O8**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4 cm; W. 5 cm.

Dating: Iron Age period.

Description: fragment of stone vessel. It has geometrical decorations formed by horizontal and vertical lines with semi-circular shaped between the vertical lines themselves. On the upper part, there are acute angle shapes.



Inv. N.: WMS24.C.G1.18_O10

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 8 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the base. It has geometrical decorations formed by irregular horizontal lines and vertical lines above the base.



Inv. N.: WMS24.C.G1.18_O11

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5 cm; W. 4.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the bottom and the rim. It has geometrical decorations formed by horizontal lines under the rim, circle-dots inserted into a register, zig-zag lines around triangular motifs; inside those ones there are oblique lines.



Inv. N.: WMS24.C.G1.18_O12

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4 cm; W. 6 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by horizontal lines on the upper and the lower part, always under the rim.



Inv. N.: WMS24.C.G1.18_O13

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 4.5 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel with part of the base. It has geometrical decorations formed by horizontal lines, and circle-dots on the central part, inserted into a register; horizontal lines above the bottom and oblique lines on the rest of the fragment.

**Inv. N.: WMS24.C.G1.18_O14**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 2.5 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decorations formed horizontal and oblique lines.

**Inv. N.: WMS24.C.G1.18_O15**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 1.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by intersect horizontal and oblique lines, simple horizontal lines and circle-dots, under the rim.



Inv. N.: WMS24.C.G1.18_O16

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2 cm; W. 2 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by intersect horizontal and vertical lines that create a triangular motif and circle-dots and another horizontal lines, under the rim.



Inv. N.: WMS24.C.G1.18_O17

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.5 cm; W. 3 cm.

Dating: not definable.

Description: fragment of stone a vessel with part of the rim. It has geometrical decorations formed by intersect horizontal and vertical lines, under the rim. On the lower part there are circle-dots.



Inv. N.: WMS24.C.G1.18_O18

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 4 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the base. It has geometrical decorations formed by horizontal lines on the lower part and zig-zag lines on the upper part.



Inv. N.: WMS24.C.G1.18_O19

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.5 cm; W. 6.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the base. It has geometrical decorations formed by horizontal lines.



Inv. N.: WMS24.C.G1.18_O20

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 6.5 cm.

Dating: Iron Age period.

Description: lid of stone. It has geometrical decorations formed by horizontal, vertical lines and circle-dots on the holder. It has also circle-dots on the rest of the lid. The lid belonged to a rectangular stone vessel.



Inv. N.: WMS24.C.G1.18_O27

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 1.5 cm; W. 1 cm.

Dating: Iron Age period.

Description: fragment of stone vessel. It is probably part of the spout.



Inv. N.: WMS24.C.G1.18_O38

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4 cm; W. 4 cm.

Dating: Wadi Suq period.

Description: fragment of stone vessel with part of the bottom. It has geometrical decorations formed by irregular horizontal, vertical and oblique lines, in addition to circle-dots, inserted into a register.



Inv. N.: WMS24.C.G1.18_O39

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2 cm; W. 3.5 cm.

Dating: Iron Age period.

Description: fragment of stone a vessel. It has geometrical decorations formed by vertical lines.

**Inv. N.: WMS24.C.G1.18_O45**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 6.5 cm; W. 8 cm.

Dating: Iron Age period.

Description: fragment of stone vessel with part of the rim. It has geometrical decorations formed by horizontal lines on the upper part and the central part; in the lower part there are triangular covered by zig-zag lines. In the upper part there are rhomboidal motifs applied by zig-zag lines.

**Inv. N.: WMS24.C.G1.18_O49**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 1.5 cm; W. 2 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines.



Inv. N.: WMS24.C.G1.18_O50

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey

Measurements: L. 4 cm; W. 2 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by horizontal lines, zig-zag lines and circle-dots on the central part, inserted into a register.

**Inv. N.: WMS24.C.G1.18_O52**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 6 cm; W. 4 cm.

Dating: not definable.

Description: fragment of stone vessel.

**Inv. N.: WMS24.C.G1.18_O53**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 2 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decorations formed by oblique lines.

**Inv. N.: WMS24.C.G1.18_O54**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 2.5 cm; W. 2.5 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines, triangular motifs under the rim.



Inv. N.: WMS23.C.G1.11_O3

Locus: 7.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 4 cm; W. 2.5 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decoration formed by vertical lines.

**Inv. N.: WMS23.C.G1.11_O4**

Locus: 7.

Object: fragment of stone vessel.

Material: stone.

Color: brown.

Measurements: L. 3.7 cm; W. 2.6 cm.

Dating: not definable.

Description: fragment of a stone vessel. It has a straight line.

**Inv. N.: WMS23.C.G1.11_O5**

Locus: 7.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 1 cm; W. 2.5 cm.

Dating: not definable.

Description: fragment of stone vessel.

**Inv. N.: WMS23.C.G1.13_O1**

Locus: 9.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.5 cm; W. 4 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by vertical and horizontal lines; on the central part, there are acute angle shapes.



Inv. N.: WMS23.C.G1.14_O1

Locus: 9.

Object: fragment of stone vessel.

Material: stone.

Dating: not definable.

Description: fragment of stone vessel.

Inv. N.: WMS23.C.G1.15_O1

Locus: 10.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.2 cm; W. 3 cm.

Dating: Iron Age period.

Description: fragment of stone vessel with part of the rim. It has geometrical decorations formed by horizontal and vertical lines under the rim.

**Inv. N.: WMS23.C.G1.15_O2**

Locus: 10.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 4 cm; W. 3.5 cm

Dating: Wadi Suq period.

Description: fragment of a stone vase with part of rim. It has geometrical decorations formed by horizontal lines and circle-dots under the rim.

**Inv. N.: WMS23.C.G1.15_O3**

Locus: 10.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5.5 cm; W. 4 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines and oblique lines that form triangular shapes, under the rim. There are also circle-dots.



Inv. N.: WMS23.C.G1.15_O4

Locus: 10.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.3 cm; W. 4.2 cm.

Dating: Wadi Suq period.

Description: fragment of stone vessel with part of rim. It has geometrical formed by circle-dots, in addition to horizontal and oblique lines that create triangular shapes lines. The circle-dots are inserted into the triangular-shaped composition.



Inv. N.: WMS23.C.G1.15_O5

Locus: 10.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 1.5 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of the base. It has geometrical decoration formed by a circle-dot.



Inv. N.: WMS23.C.G1.15_O6

Locus: 10.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3 cm; W. 1.5 cm.

Dating: not definable.

Description: fragment of stone vessel with part of rim. It has geometrical decorations formed by horizontal lines under the rim.



Inv. N.: WMS23.C.G2.2_O1

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: gray.

Measurements: L. 6 cm; W. 3 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by horizontal and vertical lines under the rim.



Inv. N.: WMS23.C.G2.2_O2

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 3 cm; W.3.5 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel with part of the rim. It has geometrical decorations formed by horizontal and circle-dots, under the rim.



Inv. N.: WMS23.C.G2.2_O3

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.5 cm; W. 4 cm.

Dating: Iron Age period.

Description: fragment of a stone vessel. It has geometrical decorations formed by vertical and horizontal lines.



Inv. N.: WMS23.C.G2.2_O5

Locus: --

Object: fragment of stone vessel.

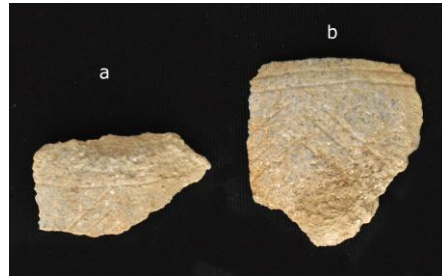
Material: stone.

Color: grey.

Measurements: a) L. 4 cm; W. 1.5 cm. b) L. 4 cm; W. 3 cm.

Dating: Iron Age period.

Description: two fragments of a stone vessel; the fragments have part of the rim. The one on the left has geometrical decorations formed by horizontal, oblique line and a circle-dot. The one on the right has horizontal and oblique lines.



Inv. N.: WMS23.C.G2.6_O1

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5 cm; W. 3.5 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel with part of rim. It has geometrical decorations formed by horizontal lines and two-concentric circles with central dots, under the rim.



Inv. N.: WMS23.C.G2.8_O1

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5 cm; W. 4.2 cm.

Dating: Iron Age period.

Description: fragment of a stone vase with part of rim. It has geometrical decorations formed by horizontal, vertical and zig-zag lines, under the rim.



Inv.N.:WMS23.C.G2.9_O2

Locus: 1.

Object: fragment of stone vessel.

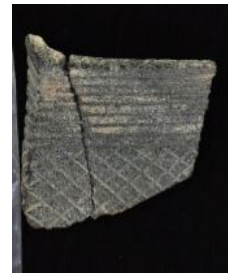
Material: stone.

Color: dark grey.

Measurements: L.2.8 cm; W.5 cm.

Dating: not definable.

Description: fragment of a rectangular stone vessel with part of the rim. It has geometrical decorations formed by horizontal and intersect oblique lines under the rim.



Inv. N.: WMS23.C.G2.9_O5

Locus: 1.

Object: fragment of stone vessel.

Material: stone.

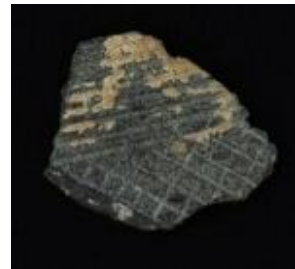
Color: dark grey.

Measurements: L. 3 cm; W. 1.5 cm.

Dating: not definable.

Description: fragment of a stone vessel with part of the rim.

It has geometrical decorations formed by horizontal and intersect oblique lines, under the rim.



Inv. N.:WMS23.C.G2.9_O11

Locus: 1.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2.5 cm; W. 1 cm.

Dating: Iron Age period.

Description: fragment of a spout of a stone vessel. It has geometrical decorations formed by horizontal lines.



Inv. N.: WMS23.C.G2.29_O1

Locus: 1.

Type of object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6 cm; W. 2 cm.

Dating: not definable.

Description: fragment of a semicircular stone vessel.

**Inv. N.: WMS23.C.G2.29_O2**

Locus: 1.

Object: fragment of millstone.

Material: stone.

Color: grey.

Measurements: L. 5 cm; W. 4.5 cm.

Dating: not definable.

Description: fragment of millstone.

**Inv. N.: WMS23.C.G2.18_O1**

Locus: 3.

Object: lid of a stone vessel.

Material: stone.

Color: grey.

Measurements: L. 6.3 cm; W. 6.5 cm.

Dating: Iron Age period.

Description: stone lid with the holder. It has geometrical decorations formed by circle-dots on all the surface with oblique lines. On the holder, there are oblique lines and a circle-dot in the middle of it. The lid belonged to a globular stone vessel.

**Inv. N.: WMS23.C.G2.15_O3**

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 2 cm; W. 3 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel. It has geometrical decorations formed by oblique and horizontal lines. It has also two-concentric circles with central dots, inserted into two registers.



Inv. N.: WMS23.C.G2.28_O1

Locus: 4.

Object: lid of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5.5 cm;
W. 4.5 cm.

Dating: Iron Age period.

Description: stone lid

with the holder. It has geometrical decorations formed by two-concentric circles with central dots on all the surface and on the holder. This lid belonged to a globular stone vessel.



Inv. N.: WMS23.C.G2.28_O2

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5 cm; W. 4.5 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel. It has geometrical decorations formed horizontal lines and two-concentric circles with central dots inserted into two registers.



Inv. N.: WMS23.C.G2.28_O4

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 3 cm; W. 0.5 cm.

Dating: not definable.

Description: fragment of stone vessel.



Inv. N: WMS23.C.G2.28_O7

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 2.5 cm.

Dating: Wadi Suq period.

Description: fragment of stone vessel with part of the rim.

It has geometrical decorations formed by horizontal lines and two-concentric circles with central dots.



Inv. N.: WMS23.C.G2.28_O9

Locus: 4.

Type of object: lid of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5 cm; W. 4 cm.

Dating: Iron Age period.

Description: Stone lid with the holder. It has geometrical decorations formed by oblique lines and two-concentric circles with central dots on all the surface. On the holder, there are acute angle shapes and oblique lines on the holder. This lid belonged to a globular stone vessel.



Inv. N.: WMS23.C.G2.28_O10

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: dark grey.

Measurements: L. 1.8 cm; W. 3 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines and two-concentric circles with central dots inserted into two registers.



Inv. N.: WMS23.C.G2.28_O11

Locus: 4.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 5.5 cm; W. 6 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines and two-concentric circles with central dots inserted into two registers.



Inv. N.: WMS23.C.G2.34_O1

Locus: 5.

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 3.5 cm; W. 3 cm.

Dating: Wadi Suq period.

Description: fragment of a stone vessel. It has geometrical decorations formed by horizontal lines and two-concentric circles with central dots.

**Inv. N.: WMS23.C.G3.1_O1**

Locus: --

Object: fragment of stone vessel.

Material: stone.

Color: grey.

Measurements: L. 9 cm; W. 7 cm.

Dating: Wadi Suq period.

Description: fragment of stone vessel with the base. It has geometrical decorations formed by horizontal lines and circle-dots. It has two lugs from, probably, four around the body.



Bronzes

Inv. N.: WMN23.A.WS1.S1_O2

Locus: --

Object: metal.

Material: bronze.

Color: green.

Measurements: L. 2.6 cm; W. 2 cm; Thk. 0.5 cm.

Dating: not definable.

Description: a piece of bronze in triangular shape.



Inv. N.: WMS23.C.G1.3_O16

Locus: 4.

Object: not definable.

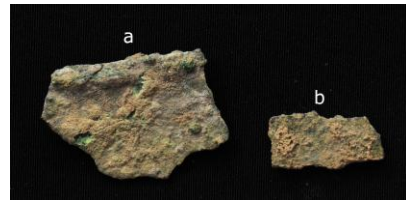
Material: bronze.

Color: brown.

Measurements: a) L. 2.3 cm; W. 1.5 cm. b) L. 2 cm; W. 0.7 cm

Dating: not definable.

Description: two fragments of bronze, probably, belong to a vessel. The (a) has a rim.



Inv. N.: WMS23.C.G1.3_O19

Locus: 4.

Object: not definable.

Material: bronze.

Color: brown.

Measurements: L. 1 cm; W. 1 cm.

Dating: not definable.

Description: flat fragment of bronze.



Inv. N.: WMS23.C.G1.3_O20

Locus: 4.

Object: not definable.

Material: bronze.

Color: green and brown.

Measurements: L. 2 cm; W. 1.3 cm.

Dating: not definable.

Description: fragment of bronze curved. It was probably a ring.



Inv. N.: WMS23.C.G1.3_O30

Locus: 4.

Object: not definable.

Material: bronze.

Color: brown.

Measurements: a) L. 0.9 cm; W.

0.8 cm. b) L. 1.3 cm; W. 0.3 cm.

c) L. 1.5 cm; W. 0.3 cm. d) L. 1.2

cm; W. 1 cm. e) L. 1 cm; W. 1

cm. f) L. 1 cm; W. 0.8 cm. g) L. 1

cm; W. 0.8 cm. h) L. 0.5 cm; W.

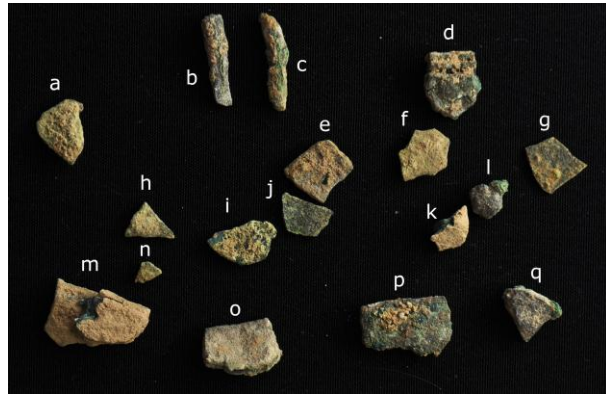
0.4 cm. i) L. 0.8 cm; W. 0.6 cm. j)

L. 0.7 cm; W. 0.6 cm. k) L. 0.6 cm; W. 0.5 cm. l) L. 0.5 cm; W. 0.4 cm. m) L. 1.6 cm; W. 0.9 cm.

n) L. 0.3 cm; W. 0.2 cm. o) L. 1.2 cm; W. 0.7 cm. p) L. 1.3 cm; W. 1 cm. q) L. 0.8 cm; W. 0.6 cm.

Dating: not definable.

Description: seventeen fragments of bronze. Two of them are nails (b and c). Three of them include a part of the rim of a vessel (d, m and o).



Inv. N.: WMS23.C.G1.3_O32

Locus: 4.

Object: not definable.

Material: bronze.

Color: dark brown.

Measurements: L. 2 cm; W. 1.7 cm.

Dating: not definable.

Description: fragment of bronze includes a part of the rim of a vessel.

Under the rim, there is engraved line.



Inv. N.: WMS23.C.G1.3_O36

Locus: 4.

Object: not definable.

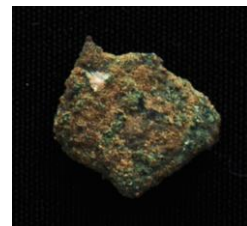
Material: bronze.

Color: brown.

Measurements: L. 0.8 cm; W. 0.9 cm.

Dating: not definable.

Description: flat thick fragment of bronze.



Inv. N.: WMS23.C.G1.3_O57

Locus: 4.

Object: nail.

Material: bronze.

Color: green and grey.

Measurements: L. 0.3 cm; W. 2.3 cm.

Dating: not definable.

Description: fragment of a nail from bronze.



Inv. N.: WMS23.C.G1.3_O65

Locus: 4.

Object: vessel.

Material: bronze.

Color: dark brown.

Measurements: L. 2.5 cm; W. 2.5 cm.

Dating: not definable.

Description: fragment of bronze has a rim.



Inv. N.: WMS23.C.G1.3_O68

Locus: 4.

Object: ring?

Material: bronze.

Color: brown.

Measurements: L. 1.8 cm; W. 0.3 cm.

Dating: not definable.

Description: fragment of bronze, probably, a part of a ring or earring.



Inv. N.: WMS23.C.G1.3_O73

Locus: 4.

Object: not definable.

Material: bronze.

Color: dark brown.

Measurements: a) L. 1.8 cm; W. 0.9 cm.

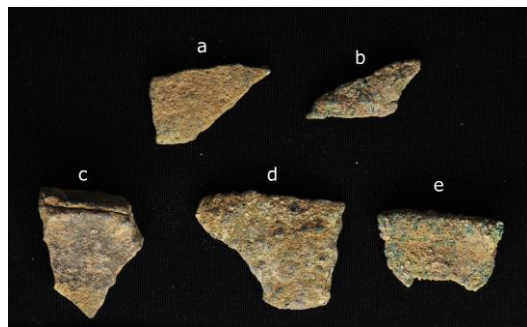
b) L. 1.2 cm; W. 0.6 cm. c) L. 1.5 cm; W.

2 cm. d) L. 2.5 cm; W. 2 cm. e) L. 2 cm;

W. 1.5 cm.

Dating: not definable.

Description: five fragments of bronze. Two fragments has part of rim (fragments c and d).



Inv. N.: WMS23.C.G1.3_O79

Locus: 4.

Object: not definable.

Material: bronze.

Color: brown.

Measurements: a) L. 1.2 cm; W. 0.3 cm. b) L. 1.2 cm; W. 0.5 cm.

Dating: not definable.

Description: two fragments of bronze. The upper fragment (a) is a part of a nail.



Inv. N.: WMS23.C.G1.3_O86

Locus: 4.

Object: not definable.

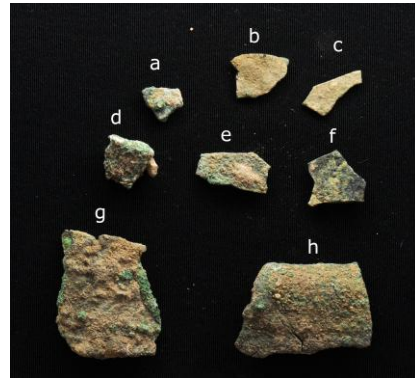
Material: bronze.

Color: brown and green.

Measurements: a) L. 0.4 cm; W. 0.4 cm. b) L. 1 cm; W. 1 cm. c) L. 1 cm; W. 1 cm. d) L. 0.5 cm; W. 0.4 cm. e) L. 1.5 cm; W. 0.5 cm. f) L. 1 cm; W. 1 cm. g) L. 2.5 cm; W. 1.8 cm. h) L. 2.6 cm; W. 2 cm.

Dating: not definable.

Description: eight fragments of bronze.



Inv. N.: WMS23.C.G1.3_O94

Locus: 4.

Object: nail and other.

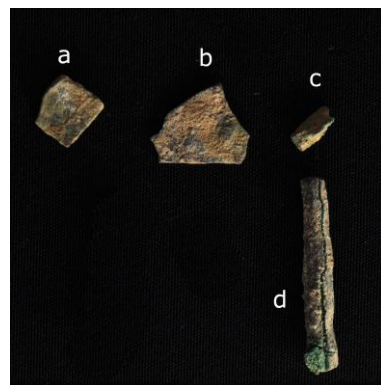
Material: bronze.

Color: green and brown.

Measurements: a) L. 0.5 cm; W. 0.5 cm. b) L. 1 cm; W. 0.8 cm. c) L. 0.3 cm; W. 0.1 cm. d) L. 2.5 cm; W. 0.3 cm.

Dating: not definable.

Description: four fragments of bronze. Fragments (c) and (d) are parts of nails, probably the same one. Fragments (a) and (b) are flat.



Inv. N.: WMS23.C.G1.3_O114

Locus: 4.

Object: nail and others.

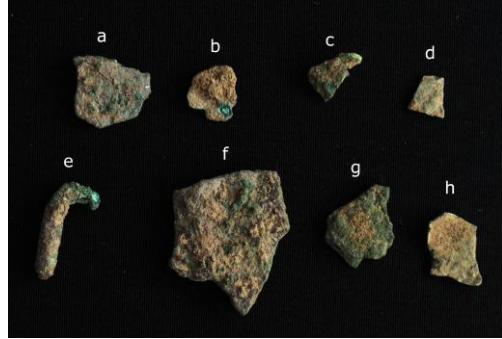
Material: bronze.

Color: brown.

Measurements: a) L. 1.2 cm; W. 1.1 cm. b) L. 0.5 cm; W. 0.5 cm. c) L. 0.8 cm; W. 0.5 cm. d) L. 0.5 cm; W. 0.5 cm. e) L. 1.5 cm; W. 0.2 cm. f) L. 2 cm; W. 2 cm. g) L. 1 cm; W. 1 cm. h) L. 1 cm; W. 0.8 cm.

Dating: not definable.

Description: eight fragments of bronze. Fragment (e) is a nail. Fragment (f) is a part of a rim of a vessel. The other fragments are flat.



Inv. N.: WMS23.C.G1.4_O1

Locus: 4.

Object: not definable.

Material: bronze.

Color: brown.

Measurements: L. 0.8 cm; W. 0.6 cm.

Dating: not definable.

Description: a flat fragment of bronze.



Inv. N.: WMS23.C.G1.18_O19

Locus: 4.

Object: not definable.

Material: bronze.

Color: brown.

Measurements: a) L. 0.6 cm; W. 0.7 cm. b) L. 0.6 cm; W. 0.5 cm. c) L. 0.5 cm; W. 0.5 cm. d) L. 0.5 cm; W. 0.4 cm. e) L. 1 cm; W. 0.7 cm. f) L. 1.2 cm; W. 1 cm. g) L. 1.3 cm; W. 0.8 cm.

Dating: not definable.

Description: seven fragments of bronze. All the fragments are flat with various sizes and thicknesses, the thickest is fragments (e).



Inv. N.: WMS23.C.G1.18_O28

Locus: 4.

Object: not definable.

Material: bronze.

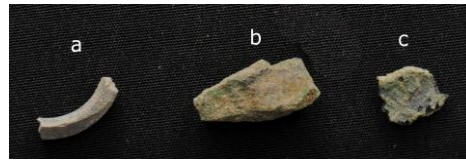
Color: brown.

Measurements: a) L. 1 cm; W. 0.7 cm. b) L.

1.5 cm; W. 0.5 cm. c) L. 0.6 cm; W. 0.5 cm.

Dating: not definable.

Description: three fragments of bronze. Two of them are flat.

**Inv. N.: WMS23.C.G1.18_O50**

Locus: 4.

Object: not definable.

Material: bronze.

Color: green and brown.

Measurements: a) L. 2.3 cm; W. 1.2 cm. b) L.

1.5 cm; W. 1.1 cm.

Dating: not definable.

Description: two fragments of bronze.

**Inv. N.: WMS23.C.G1.18_O52**

Locus: 4.

Object: not definable.

Material: bronze.

Color: brown.

Measurements: L. 2 cm; W. 1.7 cm.

Dating: not definable.

Description: fragment of bronze.

**Inv. N.: WMS23.C.G1.12_O3**

Locus: 8.

Object: not definable.

Material: bronze.

Color: brown and green.

Measurements: a) L. 0.5 cm; W. 0.2 cm. b) L.

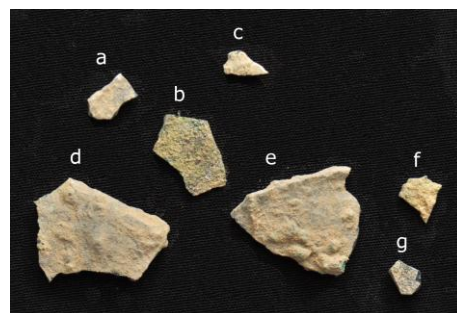
1.2 cm; W. 1.1 cm. c) L. 0.5 cm; W. 0.3 cm. d)

L. 2 cm; W. 2 cm. e) L. 2 cm; W. 1.8 cm. f) L.

0.3 cm; W. 0.2 cm. g) L. 0.2 cm; W. 0.2 cm.

Dating: not definable.

Description: seven flat fragments of bronze with different thicknesses.



Locus: 9.

Object: not definable.

Material: bronze.

Color: brown.

Measurements: L. 1 cm; W. 1 cm.

Dating: not definable.

Description: flat fragment of bronze.

Inv. N.: WMS23.C.G1.14_O1



Locus: --

Object: metal.

Material: metal.

Color: grey.

Measurements: L. 4.95 cm; Diam. 0.5 cm; W.

7 gr.

Dating: not definable.

Description: a piece of metal.

Inv. N.: WMS23.C.G2.1_O1



Tools and Weapons

Inv. N.: WMN23.A.WS1.1_O1

Locus: --

Object: bullet.

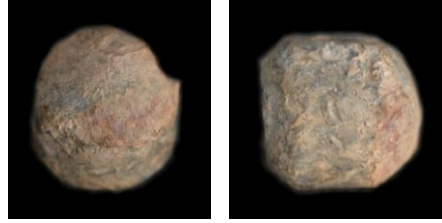
Material: lead.

Color: brown.

Measurements: L. 1.2 cm; Diam. 1.1 cm.

Dating: 19th century.

Description: bullet of wepon.



Inv. N.: WMW23.B.G1.1_O3

Locus: --

Object: chisel?

Material: stone.

Color: orange.

Measurements: L. 2.3 cm; W. 1.9 cm.

Dating: not definable.

Description: elaborated flint found on the surface south of the grave G1. It could be a fragment of chisel.



Inv. N.: WMW23.B.G1.8_O4

Locus: 1.

Object: axe.

Material: bronze.

Color: green.

Measurements: L. 24.6 cm;

W. max. 8.36 cm min. 3.8 cm;

Thk. 1.3 cm; W. 929 gr.

Dating: Early Bronze Age.

Description: bronze axe without hole or any place for handle.



Inv. N.: WMW23.B.G1.10_O1

Locus: 1.

Object: axe

Material: flint.

Color: white and brown.

Measurements: L. 13.3 cm; W. 6.3 cm; Thk. 1.2 cm; W. 133 gr.

Dating: Early Bronze Age.

Description: axe from flint. It is retouched on two edges.

**Inv. N.: WMS23.C.G1.8_O5**

Locus: 2.

Object: arrowhead.

Material: bronze.

Color: brown and green.

Measurements: L. 6.4 cm; W. 1.9 cm.

Stem: L. 3 cm; W. 0.7 cm.

Dating: Wadi Suq period - Iron Age.

Description: arrowhead its stem long almost as long its body. The body is flat, without a visible midrib.

**Inv. N.: WMS23.C.G1.3_O66**

Locus: 4.

Object: arrowhead.

Material: bronze.

Color: brown and green.

Measurements: L. 4.1 cm; W. 1 cm.

Stem: L. 2.1 cm; W. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: arrowhead covered by green rust. It has long stem, longer than the body. The body is flat, without a visible midrib.



Inv. N.: WMS23.C.G1.3_O85

Locus: 4.

Object: arrowhead.

Material: bronze.

Color: brown and green.

Measurements: L. 5 cm; W. 1.5 cm.

Stem: L. 0.6 cm; W. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: arrowhead has a long body and very short stem. The body is flat, without a visible midrib.

**Inv. N.: WMS24.C.G1.18_O6**

Locus: 4.

Object: arrows of bronze.

Material: bronze.

Color: grey.

Measurements: L. 6 cm; W. 1.7 cm. Stem:

L. 1.8 cm; W. 0.4 cm.

Dating: Wadi Suq period - Iron Age.

Description: arrowhead with flat body which does not have a visible midrib.

**Inv. N.: WMS23.C.G1.12_O2**

Locus: 8.

Object: arrows of bronze.

Material: bronze.

Color: grey.

Measurements: L. 5.7 cm; W. 1.6 cm.

Stem: L. 1.5 cm; W. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: arrowhead with a big body in comparison to its stem. The body is flat, without a visible midrib.



Inv. N.: WMS23.C.G1.12_O5

Locus: 8.

Object: arrows of bronze.

Material: bronze.

Color: grey.

Measurements: L. 5.2 cm; W.1.6 cm.

Stem: L. 1.2 cm; w. 0.4 cm.

Dating: Iron Age.

Description: arrowhead with a clear midrib in the both sides of the body.

**Inv. N.: WMS23.C.G1.17_O2**

Locus: 9.

Object: arrows of bronze.

Material: bronze.

Color: grey.

Measurements: L. 4.2 cm; W. 1.2 cm.

Stem: L. 1.5 cm; W. 0.5 cm.

Dating: Wadi Suq period - Iron Age.

Description: arrowhead with flat body which does not have a visible midrib.



Ground Stones

Inv. N.: WMN23.A.WS1.S1_O3

Locus: --

Object: millstone.

Material: basalt.

Color: black.

Measurements: L. 10.7 cm; W. 7.2 cm.

Dating: not definable.

Description: fragment of basalt with soft flat surface which could be used as millstone.

**Inv. N.: WMN23.A.WS1.S1_O4**

Locus: --

Object: millstone.

Material: basalt.

Color: black.

Measurements: L. 19.3 cm; W. 8.4 cm.

Dating: not definable.

Description: fragment of basalt with soft flat surface which could be used as millstone.

**Inv. N.: WMN23.A.WS1.S1_O5**

Locus: --

Object: millstone.

Material: basalt.

Color: dark brown.

Measurements: L. 13 cm; W. 8.8 cm.

Dating: not definable.

Description: fragment of basalt with soft flat surface which could be used as millstone.

**Inv. N.: WMN23.A.WS1.2_O1**

Locus: --

Object: muller.

Material: stone.

Color: grey.

Measurements: L. 11.7 cm; W. 4.3 cm.

Dating: not definable.

Description: long piece of stone with soft flat surface which could be used as muller.



Inv. N.: WMS23.C.G1.3_O93

Locus: 4.

Object: pestle?

Material: stone.

Color: brown.

Measurements: L. 2.7 cm; W. 1.1 cm.

Dating: not definable.

Description: fragment of pestle (?).

**Inv. N.:WMS23.C.G2.9_O1**

Locus: 1.

Object: pestle?

Material: stone.

Color: grey.

Measurements: L. 7.9 cm; W. 1.5 cm.

Dating: not definable.

Description: two elongated stone which could formed a pestle with the size written up.

**Inv. N.: WMS23.C.G2.19_O1**

Locus: 5.

Object: muller?

Material: basalt.

Color: grey.

Measurements: L. 17.6 cm; W. 3.6 cm; W. 819 gr.

Dating: not definable.

Description: a basalt stone could be a muller.



Miscellaneous

Inv. N.: WMN23.A.WS1.3_O1

Locus:

Object: fragment of a handle?.

Material: pottery.

Color: light brown.

Measurements: L. 2.5 cm; W. 3 cm.

Dating: not definable.

Description: fragment of a handle of pottery; on its surface there are incised vertical lines.



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Atlante del Vicino Oriente antico



During 2022 and 2023, our field activities focused on Wadi al-Ma'awil, a very large wadi close to the Muslimāt village in between Nakhal and Afi oasis, where in 2022 we discovered a completely unexplored and multifaceted ecotope. We selected a 10 x 10 Km squared area encompassing this ecotope after ground truthing because of the high intensity of the archaeological features and because it featured three adaptive conditions: the presence of large widyān with central terraces, the presence of an anthropized oasis and the presence of a possible ancient settlement pattern in which the anthropic features (settlements, graves, pathways) were almost close together and intervisible. This volume studies the landscape of the site and classifies, studies, and describes all the finds during the excavations and survey campaigns of 2022 and 2023.

Ahmed Fatima Kzzo, researcher at Sapienza University of Rome and field director in MASPAG. Previously, the director of the Prevention of Illicit Trafficking of Cultural Property project at the American Center of Research and a lecturer at Potsdam University.

Alessandro Di Ludovico, Dr in archaeology of West Asia, works at Museo Barracco (Rome). He has taken part in field campaigns in Syria, the Levant, and Oman. His main research interests deal with quantitative methods applied to archaeology and art history, and with perception and communication phenomena in antiquity.

Marco Ramazzotti, teaches Archaeology and Art History of Ancient Western Asia and Eastern Mediterranean at Sapienza University. In the Department of Sciences of Antiquity, he directs the Laboratory of Analytical Archeology and Adaptive Artificial Systems, the Atlas of the Ancient Near East, the Sapienza Archaeological Mission in the Arabian Peninsula and the Gulf, and chairs the Course in Sciences of Sustainable Tourism.

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