

" A preliminary report on the forth Season of the Wâdi Iram Epigraphical, Geographical and Archaeological Survey "

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PRELIMINARY REPORT ON THE FOURTH SEASON OF THE WADI IRAM EPIGRAPHICAL, GEOGRAPHICAL AND ARCHAEOLOGICAL SURVEY

Saba Farès-Drapeau and Fawzi Zayadine with the collaboration of Frédéric Abbes

Introduction

The fourth season of the Wādī Iram (وادي اورم), modern Wādī Ramm) survey was conducted between October 14th and November 24th, 1999. In addition to the main authors of this article, the team consisted of Patrick Leblanc, surveyor of AFAN/France, Jean-Baptiste Rigot, Geographer of GREMMO/Lyon, Hussein Abu al-Hassan, Epigraphist, Khaled Eskoubi, Epigraphist, Awad al-Zahrāni, Archaeologist and 'Abd al-Aziz al-Nafisa, from Saudi Arabia. Permission to carry out the survey was kindly granted by Dr. Fawwaz Al-Khraysheh, Director-General of the Department of Antiquities of Jordan, to whom we would like to extend our sincere gratitude for providing the project with some necessary equipment.

As in previous seasons, the project was financed by the French Institute of Archaeology for the Near East (IFAPO), Fernand Courby Institute (Lyon), the French Embassy in Riyadh (Saudi Arabia), and the Royal Society for the Conservation of the Nature (RSCN) in 'Ammān.

The Survey lasted for over 45 days and covered an area extending from the Ramm village (رمّ) to Wādī Ṣābiṭ (وادي صابط) (map 1/50.000, n 3048), southwest of Wādī Ramm (Fig. 1). However, we returned to Wādī Umm Saḥm (وادي أم سحم), an area already surveyed in 1996 and 1997. In fact, this season was the first phase in a long term project which will focus on the understanding of the environment and patterns of the occupation of space in southern Jordan.

To fulfill this objective, the project started out with 15 days of topographical mapping to record the ancient dams and epigraphical stations previously surveyed in earlier seasons. After the completion of this phase of work, we began the epigraphical, archaeological and geographical survey by concentrating this year on Wādī Ṣābit, southwest of Wādī Ramm.

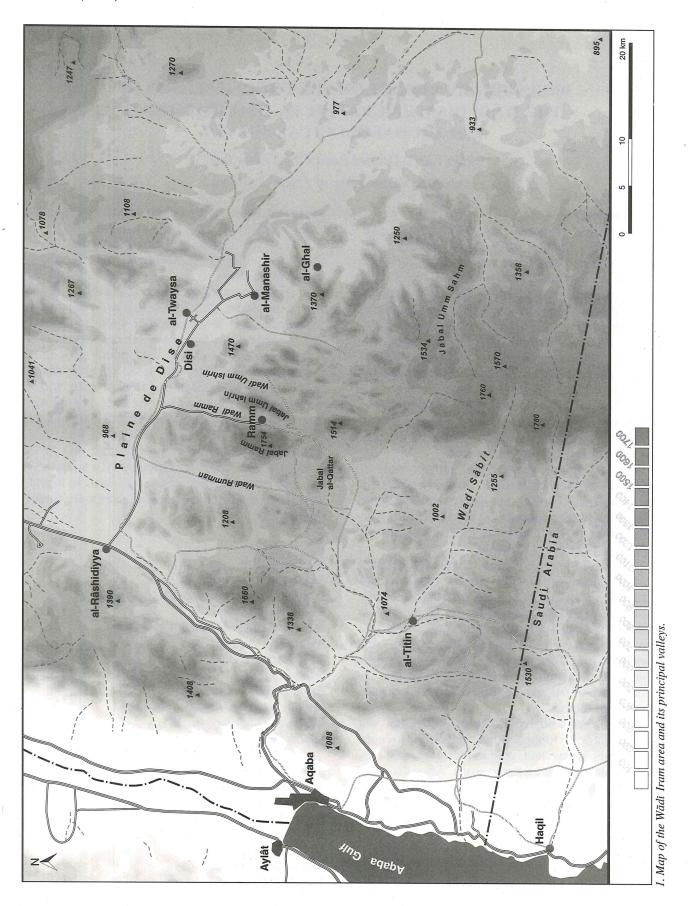
One of the most important objectives of this survey is to focus on the relationship between the Arabian tribes of this area, including the Nabataeans and the Arabs of the Ḥijāz (Dedan and Madā'in Sālih).

The ancient history of the Arabian tribes is still insufficiently documented, and only when a corpus of the inscriptions is properly published can we draw a fair picture of the political and religious history of the Arabs. That is why this study is a multidisciplinary and a cross-border project with the collaboration of the Saudi Arabian colleagues.

This season the survey was mainly concerned with Wādī Ṣābiṭ. This wadi is elliptical in shape, extending for over 25km and is 6km at its widest extension. At its two outlets, the track is very narrow: to the east, it joins with Wādī as-Salādiḥ (السلادح) and in the west with Wādī at-Tatin (التتن وادي). The area between Wādī Ramm and Wādī Ṣābiṭ was explored, then we prepared a topographical map of the al-Kharaza (النيسة) dams in the ad-Dīsa (الديسة) area. The following sites were finally explored:

Wādī Ṣābiṭ
Huḍayb ar-Rīḥ الحقنة
Al-Ḥuqna الحقنة
Mughur al-Biṭāna مغر البطانة
Maqraḥ al-Biṭāna مقرح البطانة
Asfal Ṣābiṭ مقرح البطانة
Al-Buzūrī البزوري
البخان
Nabhān نبهان
Umm al-Bārid أم البارد
وسط وادي صابط
Jabal adh-Dha'dhā'
جبل الذعذاع
Sharayf Ḥayyān

Between Wādī Ramm/Ṣābiṭ
Abu al-Ḥayyān أبو الحيّان
Aṭ-Ṭufayḥa الطفيحة
هراب عنتر
هراب عنتر
هراب عنتر
ملابية
المبيرة على المحارك
الحارك Al-Ḥārik الحارك
مطاب الهش
الذكرة Adh-Dhukra



Between Wādī Ramm/W. Umm Saḥm Umm Qurayshiʿ أم قريشع Umm Ṭūr أم طور ابو حماط ابو حماط Umm Ṣunayna أم سنينة Al-Muqalwaza المقاوزة

Ad-Dīsa Abū aḍ-Dibā' ابو الضباع Al-Kharaza الخرزة

Wādī as-Salādiḥ Silāḥ al-Abrār سيلاح الأبرار

Umm Saḥm Al-Minbaṭḥa النبطحة أم زرب An-Nuqu' النقع Al-Wuthayda الوثيدة

Others Al-Barra البرّه Wādī Muzayrīb وادي مزيريب

These groups of sites provided rich epigraphical and archaeological material that needs extensive time to exploit. Nevertheless, we summarize, hereafter, a few aspects of the collected evidence.

The 1999 Survey Results

In the 1999 season, a total of 132 epigraphical and archaeological sites were visited, the most significant of which being inscription nests, water catchment facilities and dams. In a dry area like the Ramm region where rainfall does not exceed 800mm per annum, the local population resorted to genuine systems of water harvesting.

I. Water Catchment Facilities

The hydraulic systems incorporate of the usage of natural fractures in the sandstone cliffs to build reservoirs at their footing. One of the methods employed consists in the utilization of a deep cut into the sandstone outcrop all the way to a naturally formed depression which can serve as a water reservoir, once a retaining wall has been built at its extreme end. This was a common method of collecting water as could be observed at al-Ḥārik (site no. 26, Fig. 2). Two North Arabian and one Nabataean graffiti have been registered on the rock surface, inside collecting-basins.

The large rainwater-collecting reservoir of al-Bārid is of special interest, because it witnessed a long period of use spanning thousands of years, from the Prehistoric to the Islamic Abbasid periods (10th century AD). This long period of use is attested to by rock carvings (Fig. 3), flints and Abbasid inscriptions.

II. The Ancient Dams

Al-Kharaza I and II dams date to the Nabataean period (**Fig. 4a-4b**), judging from the stone cutting methods and a Nabataean inscription found on the left side, near the retaining wall of the al-Kharaza I dam (see *infra* for the inscriptions). This Nabataean inscription provides the date 41st year of Aretas IV (AD 32). The site is located 6km west of ad-Disa, and 35km northeast of Ramm village. The ca. 2.70m wide dam is situated in a narrow gorge and the retaining wall is 1.90m thick, with an average height of 3.30m.

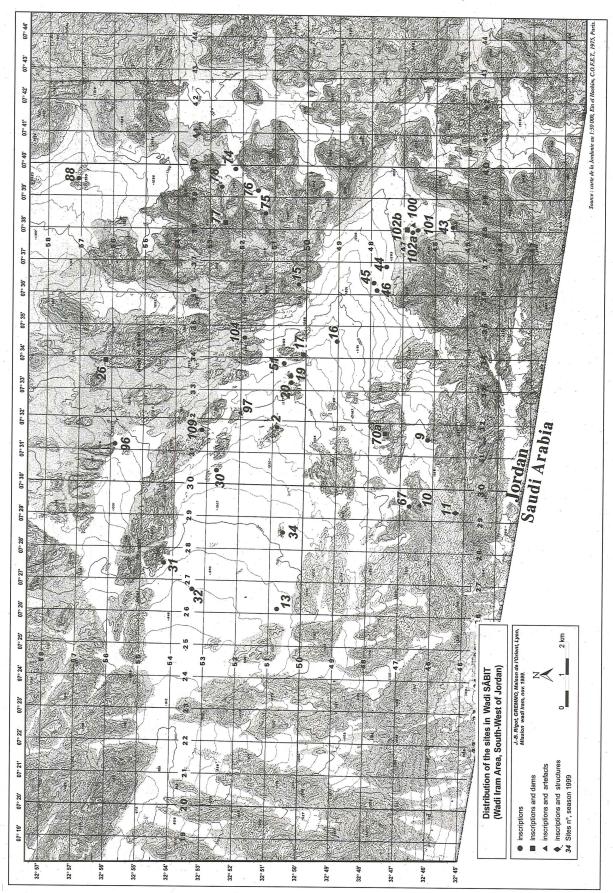
A Greek inscription incised on the left side of the dam, about one metre to the right of the Nabataean one reads: HAEOE and is a Greek translation of the name 'LH, recorded in the Nabataean text (Sartre 1993: 169). Most probably the proper name belongs to the owner of the dam, like most of similar Nabataean inscriptions (Sartre 1993: 169).

Inside the gorge, that is in the basin itself, there are notches on both sides of the rock face; they are the traces of blocks extracted from the rock which are still lying at the bottom of the gorge. The notches are symmetrical, the grooves on the left side being a little higher than those on the right. These grooves may suggest a kind of roofing for the basin.

On the left side, of the wall below the Nabataean inscription, there is a small basin, probably a watering trough for animals. Near the exit of the gorge, to the right, there is a rock-cut chamber with a cistern next to it, which is fed by rain water through the many channels cut into the rock (**Fig.** 5). A noticeable quantity of flint and other tools were observed at the exit of the gorge, near the chamber and the cistern.

The other two supposedly Nabataean water catchment facilities are located at Umm Daraj (at 2) and Umm Daraj/ al-Barra. The former consists of a large wide natural recess held by a semicircular retaining wall (Fig. 6), the entire basin being covered with sand. Channels cut into the rock face carry the water to the basin. Inscriptions incised on the inner rock faces of the basin have become, unfortunately, illegible through erosion. This site has not yet been completely studied during this season and the recording of its geographical and other physical features will be carried out during the next campaign.

The latter site Umm Daraj/al-Barra is made up of several natural basins closed by a wall whose



2. Distribution of sites in Wādī Ṣābiṭ.

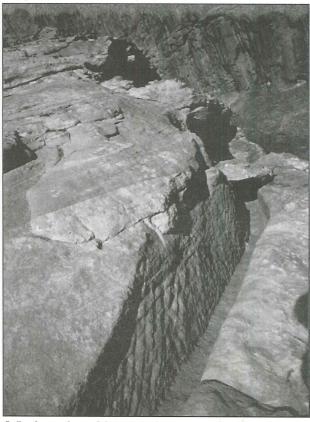


3. Rock carving at Umm al-Bārid.

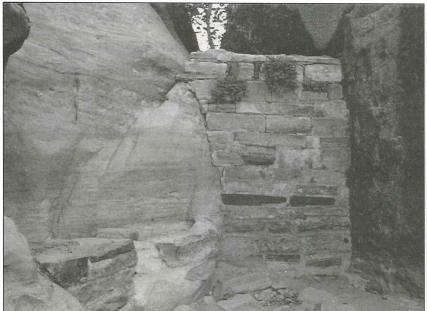
sandstone blocks show the same stone cutting techniques as that of al-Kharaza. Fifteen North Arabian graffiti and rock carvings of arms and animals were found along the rock face of the gorge. One of the graffiti is a dedication to the goddess LT/Lāt, the most revered ancient Arabian deity.

III. The Inscriptions and Rock-Art

Most of the discovered inscriptions are of North Arabian type (Thamudic). We also found three Nabataean graffiti, one of them being inscribed in



5. Rock-cut channel for rain water.



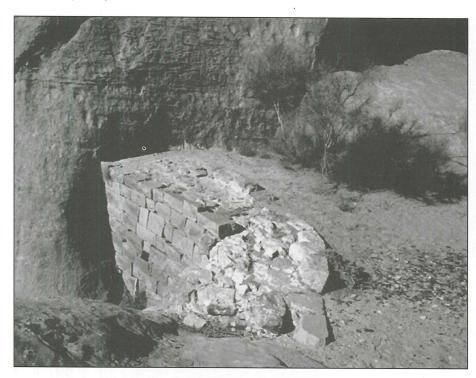




4b. Al-Kharaza II dam.

1. The characters of this inscription have a geometric form. The term Thamudic is a conventional label and refers, supposedly, to the tribe Thamūd. "The name *tmd* occurs but twice in the Thamudic texts, both times in Central Arabia, and only a half-dozen times in all the pre-Islamic inscriptions" (Harding 1971: 148). In Wādī Iram, the name "Ḥayy bin Tmd" was recorded in Wādī al-Kbāshī. M.C. Macdonald (2000: 44) suggested to call the North Arabian

inscriptions from South Jordan: "Hismaic". He describes Hismaic "as neither a h/hn nor an 'l-dialect, but as an apparently 'zero' dialect, as far as the definite article is concerned" (Macdonald 2000: 45). Since the Hismā extends in both Jordan and Saudi Arabia, Macdonald's proposal would be an accepted denomination. However, it needs to be confirmed by the similarity of language and script in both the Jordanian and Saudi Arabian Hismā.



6. Umm Daraj retaining dam.

red paint (Sarābīṭ al-Jurayriya سرابيط الجريرية). Islamic inscriptions were registered at Huḍayb ar-Rīḥ, Umm al-Bārid and al-Buzūrī. Some of these inscriptions are accompanied by raised hands or arms.

1. North Arabian Inscriptions

Around 350 North Arabian inscriptions were discovered by the team during this season. The texts are engraved on the rock in the North Arabian script, Thamudic E Type, common in this area. Different types of Thamudic inscriptions are known in the region and in some cases, the inscriptions are associated with hydraulic in-

stallations (sites no. 70a, 77 and 102b). Most of the inscriptions include theonymic lists. The inscriptions are distributed by group, referred to as "nest", each one includes up to three graffiti. However, some of them are isolated inscriptions. Here are some examples of the texts in group:

Al-Muwashama الوشهة: This is the name of a narrow valley on the modern Jordanian-Saudi Arabian border, which is reached by Wādī as-Salādiḥ. Twenty inscriptions are incised on the west side of a huge rock; between those inscriptions four arms are engraved (Fig. 7) but only the two arms in the



7. Al-Muwashama.

middle are genuine, the two on the left and right being forgeries. The texts do not follow any systematic direction, they are written from top to bottom, from left to right, etc. Even today, the arms and hands are apotropaic and symbolize the person and his veneration of the divine. Cook (1930: 45) summarized the symbols of the raised hand: "It is painted on walls as a charm... In Carthaginian inscriptions it is the hand of god that bestows blessing while the pair of hands on Palmyrene altars is taken to be a symbol of prayer". In the known representations, only the right hand is depicted, never the left. Examples are known in Yemen (Robin 1992: 143) and in the Hijāz. Most of the names are known from the Ḥismā (حسمى) area and in the Arabic onomasticon.

1. l'n'l (Fig. 8)

This graffito is engraved on top of the rock, from right to left. l is a preposition which bears several meanings in Semitic languages; in this context, l expresses the benefit: "for, in favour of". The theophoric name is composed with the deity 'l, the well known Canaanite god (Starcky 1960: 365-76; 1966: col. 985). 'ny' in Classical Arabic means: to be gentle, compassionate. In this case, the name 'n'l would mean: "EL is compassionate". This name was common in the Safaitic realm (Harding 1971: s.v.).

2. lrt' bn yzn'l (**Fig. 8**)

In favour of R', s. of Yzn'l. It is engraved just below the preceding graffito, at the level of the raised arms. The anthroponym rt' is known as a personal name and means in Arabic: "to live in abundance". This name occurs mainly in the South Arabian inscriptions (Minaean and Sabaean inscriptions; Harding 1971: s.v.). The name rt' appears in the compound personal names: rt'lh, 'mrt'. This last name 'mrt' is a very famous family name known in the Lihyanite inscriptions from al-'Ulā (JS II, nos. 245/2, 281, 288) and is known from the Minaean inscriptions of al-'Ulā as a personal name (JS II, s.v.). The theophoric yzn'l is a patronyme unknown in the North Arabian in-



8. Inscriptions no. 1 and 2.

scriptions. The name *zn* (root *wzn*) to judge, to weight, is known in the Safaitic and Thamudic inscriptions (Harding 1971: *s.v.*).

3. l- hrġt bn (....) (**Fig. 9**)

In favour of *Hrgt* son of [....]. This graffito is incised below no. 3, on the left side. It is slightly damaged. *hrgt*, a personal name, is attested in Safaitic (*WH* 914). This name *hrgt* is the feminine of *hrg*, well known in the Safaitic inscriptions (Harding 1971: *s.v.*). In Lihyanite, the name *Ḥrg* appears in the compound form of 'bd-ḥrg (JS II: lih 45/1; Abu al-Hassan 19/1). *zd-ḥrg* appears at Hegra/Madā'in Ṣāliḥ (*JS* II: lih 70/1). According to Caskel, '*ḥrg*' is a deity name, known only in the compound personal names (Caskel 1954: 38, 46). However, there is no evidence of this deity, except in the compound names. The personal masculine name Ḥarig and Ḥariga is known in Arabic according to Al-Kalbī (*Jamharat Ansāb*).

4. l-<u>ğt</u>

This name is carved on the right side of no. 6 in a vertical way. As noticed above, this name Ghawth or Ghayth is attested in North and Central Arabia (Gese *et al.* 1970: 379) and appears in the Thamudic inscriptions of Ḥā'il (van den Branden 1950: 239-240, Hu 813).

5. h-...r smk (Fig. 10)

This graffito is engraved on the left side of the



9. Inscription no. 3.



10. Inscription no. 5.

extreme left arm. The second and third letters are damaged by the arm. It reads from right. The personal name smk appears in the Lihyanite inscriptions ($JS\ II:\ 12/\ 1,2$), in the Thamudic inscriptions (Eut $561)^2$ and in Safaitic (Harding 1971: s.v.). Smk' is known as a personal name in the Nabataean inscriptions (Cantineau 1930: 124).

6. h'trsmn s'd 'l'y w'dd (**Fig. 11**)

O 'Atarsamin make happy '1'y and 'dd. The first nine letters are attached without space. Only the proper names are spaced. This graffito of one line is incised horizontally. h is attested in Thamudic as an interjection for the vocative (van den Branden 1950). 'trsmn is a South Arabian deity which was listed by Esarhaddon (680-669) among the images he returned to Adummatu (modern al-Jauf) after they were captured by his father Sennacherib (ANET 1950: 291). s'd is difficult to read: s is similar to a b and the word can be interpreted as b'd, "in favour of". However, the small incision over the letter brings a confusion and s is more plausible. In this case, the meaning s'd in the factitive case: to make happy is the most probable, although it is not attested in the Thamudic inscriptions. 'l'y is a compound personal name: 'l in Arabic: "to be ill". But in the Safaitic inscriptions it appears as a personal name (Harding 1971: s.v.). 'y "weak, incapable" is also known as a personal name in the Safaitic inscriptions (Harding 1971: s.v.). 'dd is also attested in the Safaitic inscriptions.

7. l-y'l bn 'my (Fig. 12)

The personal names y'l and 'my are both well



11. Inscription no. 6.



12. Inscription no. 7.

known in the Lihyanite and Safaitic onomasticon. *y'l* appears in Lihyanite *JS* 281 and in Safaitic C678, 1658. 'my is known in Lihyanite *JS II*: 17 and in Safaitic *WH* 2039, R 3610/4.

Graffiti nos. 8-11 are of the type known at Tabūk (northwestern Saudi Arabia): The *hamza* presents a rectangular form rather than a hamp with 'V' shaped appendices at each extremity. The *mīm* is horizontal, instead of the vertical stand.

2. Nabataean Inscriptions from the Survey

Umm Muzayrīb: The most significant bi-scriptual inscriptions were found by Mrs. Saba Farès-Drapeau at Sahl Muzayrib (سيهل مـزيريب), a tributary of Wadi Sahl aṣ-Ṣuwwan (وادى سهل الصوان), to the southeast of ad-Disa. A huge rectangular rock is engraved with several Nabataean inscriptions together with North Arabian graffiti of the so-called Thamudic type. The personal names NGYT BR QDM, Nagyat son of Qedem are incised in both Nabataean and North Arabian scripts (Figs. 13, 14). It is noteworthy that in the Nabataean language, the first name is followed by br, son, while in the North Arabian version, the first name is directly followed by the father's personal name, according to the South Arabian usage. The personal name QDM appears in the Thamudic inscriptions and is very common in the Safaitic onomasticon (Harding 1971: s.v.). NGYT is known in Safaitic, in the South Arabian inscriptions (Harding 1971) and in the Nabataean personal names (Ryckmans 1934,



13. Nabataean inscriptions from Umm Muzayrīb.

^{2.} From the Hā'il region, see Van den Branden 1950: 219, Eut. 561.





14. Nabataean and South Arabian inscriptions.

t. II: s.v.; Tairan 1992: 178; Negev 1991: s.v.).

Another inscription on the same rock reads: slm w'lw br tym'ltw btb "Peace, Wailu, son of Taymallat in good". It is of interest that the waw of Allatw is incised in the South Arabian script (Fig. 13).

Wādī Ṣābiṭ: A graffito of Huḍayb ar-Rīḥ in Wādī Ṣābiṭ reads:

šlm hlfw br bhšw: Peace to Khalafw son of Bahsw (Fig. 15).

The first personal name hlfw / hlpw is the own-



15. Nabataean inscription at Wādī Ṣābiṭ/Abū Ḥamāṭ.

er of a tomb at Hegra/Madā'in Ṣāliḥ of the Hegra type, dated AD 31/32, under Aretas IV (Healy 1993: 226-231; *JS I*: 199-201, fig. 162).

The patronym bahšw is not common in the Nabataean onomasticon. In Arabic bhs means "a man with a cheerful face" (Al-Mu'jam al-Wasīt, 1985).

To the right of the graffito, the figure of an ibex is carved with a tribal *wasm* below it.

Al-Kharaza: The Nabataean inscription is incised on the left side of the dam (supra and Fig. 16). It was first deciphered by J.T. Milik (1958: 250-251), according to a copy of Harding (Kirkbride and Harding 1947: 19):

l-šb' br'lh 'tyd šnt 'rb'n whd l-hrtt mlk nbṭw rhm 'mh

"Belonging to Seba' son of 'Eleh (this dam) was prepared the year forty one of Aretas, king of the Nabataeans lover of his people".

The personal name Sb'u is attested to in Edom only (Negev 1991: s.v.). But the name Sb'u occurs in the Sinai and the Negeb. The name 'lh is known in the North Arabian inscriptions (Negev 1991: 12,88, 87,27).

The Greek name $H\Lambda EO\Sigma$ is the transcription of the Arabian name, and could be the father of Sb'.

'tyd is the perfect passive of 'td, to fit up, to prepare. Similar forms are common in Nabataean: dkyr, may be remembered etc. (Cantineau 1930: 74).

The year forty one of Aretas IV corresponds to AD 32. A graffito on the plaster revetment of the temple of Lāt, at the foot of Jabal Ramm was deciphered year 41 by Savignac (1935: 268). The author assumed that the date should be calculated according to the era of the Provincia Arabia, corresponding to AD 147. But this dating is untenable. Year 41 of Aretas IV is most probably the date of the remodeling of the temple by Aretas IV. A North Arabian inscription on a block excavated in the Lāt temple records that the earlier temple was built by Gawth, son of Awslah, son of Thakam who built the sanctuary of Lāt of the (tribe) 'Ād



16. Nabataean inscription from al-Kharaza I.

(Zayadine and Farès-Drapeau 1998: 255-258).3

Above this inscription, Harding copied another graffito 105cm long, the average height of the letters being 8cm:

dkyr twds br 'lh šlm: May be remembered Teudus in peace. This graffito belongs to another son of 'Eleh. Milik (1958: 251) assumes that the father and his two sons were proud of building a solid dam to irrigate this arid desert of ad-Disa.

III. Remarkable Structures

Several structures were recorded during this season, some of them having a circular form (**Fig. 17**),⁴ while others are of square shape. The circles (30 to 15m in diameter) are built with large blocks. The rectangular structures consist of stone alignments bound together with a monolith in the center (**Fig. 18a, 18b**). The structures could be sanctuaries of nomads as it is the case in the Sinai and in Saudi Arabia (*JS I*: 95-96). Our programme in this season was limited to the recording of the sites but we will devote the next season to the cleaning and drawing of these open air sanctuaries to obtain eventual evidence for their dating.

IV. The Lithic Artefacts

The lithic assemblage comes from the first surface collection. Several thousand artefacts have been collected. The collection consists of small stone tools (microliths): flakes, blades and core fragments (Fig. 19). All prehistoric periods are represented from the Lower Paleolithic to the Late Neolithic (with one arrow head possibly from the



17. Circular structure from Ruways Salīm.

3. The tribal name 'd is most probably 'Ād, because the medial alif is dropped, as it is the case in the Dedanite, Lihyanite, Thamudic and in the Classical Arabic of the Qur'ān: e.g.: hrūn (غيمت) for Hārūn (surat 10:73) or qymt (قيمت) for Qyāmat (10:92 etc.). 'rm is the name of the valley in the Nabataean inscriptions and is vocalized Iram, as late as the thirteenth century AD (Yāqūt al-Ḥamawī 1956: 55). It is justified to link 'Ād and Thamūd of surat 89: 6 and "Iram of the high peaks" with the modern Wādī Ramm, famous for

Chalcolithic period), but their proportional representation varies a great deal.

By far the most numerous identifiable material comes from the Kebarian Geometric and the Natufian cultures (14000-10000 BP). These are held to be the two periods which ushered into the Neolithic. Not only typical types of these periods have been found, like the geometric microliths (for the Kebarian culture) and sickle blade fragments (Natufian), but also cores, micro-blades as well as debitage and chipping tools which attest to the two latter periods tool making on the find spot. The PPNA and B periods are little represented, only a few typical PPNB (Pre-Pottery Neolithic B) blades and one arrow head (Byblos Point?) have been found. The rest of the assemblage consists of one bifacial (Lower Paleolithic) blade, Levallois flakes (Middle Paleolithic), blades (Upper Paleolithic) and one arrow head which could possibly belong to Late (end of) Neolithic or Early Chalcolithic. But the scanty finds cannot represent actual sites in contrast to the well represented Kebarian and Natufian assemblages.

Most of the material still needs to be studied. The classification is a long process as the study is not based only on typological criteria (which in any case are often lacking in accuracy) but instead is concentrating on the procedure and methods of flaking (making the stone-tools) which can be gleaned from the 'negatives' on the tools.

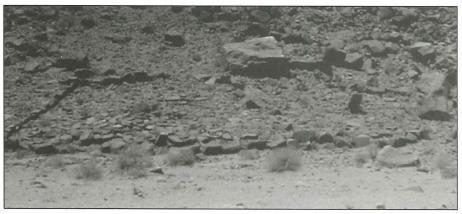
General Conclusion

The water catchment processes and their well designed feeding systems indicate an early dense spatial occupation of the area. The geographical map shows a regional distribution of sites (see **Figs. 1, 2**). These hydraulic systems were essential for the age-old inhabitants of the region.

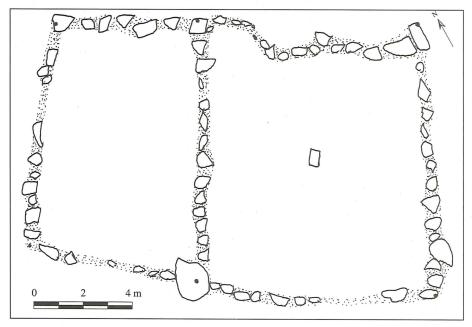
The collected material was included in a Geographical Information System (GIS). This database and the cartography of the sites show the intensive occupation of some areas. This system will help to locate the inscriptions and the reasons for the settlement at some sites. Since time will be needed to complete this study, the 2001 season will be devoted to assembling the material from areas already visited in the aim to publish the first five sea-

its high mountains (1854m asl, Jabal Umm ad-Dāmya). Without taking into consideration the Nabataean inscriptions and the Arab Geographer, Macdonald (2000: n. 141) addressed virulent criticism against the authors.

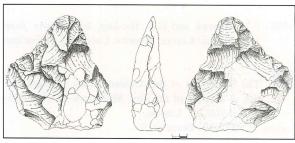
4. This type of structure is well known in the Sinai, see Anti 1999: figures pp. 34, 58, 84, 90. The author dates the geoglyphs associated with those structures from the period BAC (4500-3400 BC) (1999: 89).



18a. The rectangular structure at 'Ayn Abū Nukhayla.



18b. Plan of the rectangular structure at 'Ayn Abū Nukhayla.



19. Flint tool.

sons in 2002.

Unfortunately, the Thamudic inscriptions we recorded provide no precise datable information, since they register mainly personal and tribal names. However the theophoric names 'Abd-'obodat and 'Abdḥaritat refer, most probably to Obodas I (93-85 BC) and to his son Aretas III (84-61 BC) who was responsible for the foundation of

Auara/ al-Ḥumayma (Zayadine 2001: 368). On the other hand, it is noteworthy that the personal and tribal names such as šb', qdm, `my, hfw, `d and mzn are common in Wādī Iram and in central Arabia. Moreover, some personal names in South Arabia are compound with the Edomite god Qos or rt'. This fact suggests direct contacts and probably ethnic affiliation between the south Arabian and the Wādī Ramm tribes.

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