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The Camel Site First field season, 2018 report

Guillaume Charloux, Maria Guagnin, Abdallah al-Sharekh, Ahmed al-Qaeed.

Acknowledgments

The directors of the archaeological project wish to thank His Royal Highness Prince Sultan bin Salman for allowing us to study the extraordinary Camel Site in the Jawf Province.

Although short, the 2018 pilot mission was particularly rich and yielded many new scientific results, notably thanks to the support of Jamal Omar, vice-president of the Saudi Commission for Tourism and National Heritage, as well as the efficiency of the director for the Archaeology Dr. Abdullah al-Zahrani and his assistants especially Saud M. bin Rqeeb. We thank them all sincerely.

The reception at Sakakah was particularly warm and it is now a pleasure to address our many thanks to the regional service of the SCTH of Jawf province as well.

Members of the project

Rock Art Study and Prehistoric Archaeology:
Dr Maria Guagnin, University of Oxford & Freie Universität Berlin

Prehistory: Dr. Abdallah al-Sharekh, King Saud University, Riyadh

SCTH Site manager: Ahmed al-Qaeed, Saudi Commission for Tourism and National Heritage, Dûmat al-Jandal

Archaeology and survey: Dr Guillaume Charloux CNRS, UMR 8167 Orient et Méditerranée, Paris

Study of stone cutting techniques: Franck Burgos CNRS, UMR 8167

Stone Restoration: Fulbert Dubois, freelance

3D Visualization: Pascal Morra CNRS, archeovision, Pessac

Patina analysis: Prof. Meinrat Andreae & team, Max Planck Institute for Chemistry, Mainz

Heritage management: Dr Pascal Flohr, EAMENA, University of Oxford

SCTH inspection and restoration: Bader F. al-Shammari and Khalifah T. al Rowailik

2018 Activities

The pilot season at the Camel Site was held from October 20 to 30, 2018, including two days in Riyadh. It had two research axes:

A first survey of rock-art in the sector, highlighting the archaeological potential of the site.

This first scientific axis allowed the discovery of new reliefs (in particular panels 20 and 30) and several rock-art panels (mainly engravings) around the core area (panels 17-29). A team of specialists working on varnish/patina of sandstone also participated to our

project this year, with the hope of dating the rock reliefs and engravings.

The realization of a global overview on the conservation and preservation of the heritage, with the establishment of a protocol for future protection and restoration.

This second axis involved a detailed assessment of the carved panels by a restorer and the evaluation of tool marks by a stonecutter. This will form the basis for a site rescue plan, in conjunction with a specialist in the protection of endangered sites. Some 3D models were created to preserve a current state of the sculptures, but a lot of works remains still to be done.

It appears that the Camel Site, of exceptional archaeological and historical value since it is a unique rock-art site with low and high-relief in Arabia, is in great danger of destruction and must absolutely be protected. The sculptures must be consolidated, and some urgently need to be moved and restored. The site requires urgent action as it is in a very bad state of conservation. We therefore recommend for the Saudi Commission to acquire the site as soon as possible, in order to protect it from further destruction.

We kindly request the support of HRH Prince Sultan bin Salman for the protection and safeguarding of the site, as a necessary step for the preparation of an application for UNESCO World Heritage status.

Rock Art Survey

The few days spent on the site have substantially enhanced and increased the data collected during our initial two short visits in 2016 and 2017.

Due to changing light conditions throughout the day, several panels had escaped our initial examination. In addition, we undertook a complete recording of rock engravings and not only rock reliefs. As a result, we have now identified 30 panels (for their location, see the figures on the left page):

1. Camel on block in front of site
2. Camel and young equid
3. Equid on block about to fall from top of site
4. Unfinished camel legs
5. Hind legs and belly of camel
6. Front legs of camel with additional sculpture on side (only legs visible)
7. Hump of camel
8. Large boulder with camel head and unidentified animal
9. Large panel including more recent carvings of humans with large hands and feet and human figures with guns
10. Legs of two camels between spur B and C
11. Large camel high up on the cliff

12. Thick legs of an equid and young?
13. Camel engraving in adjacent field
14. Hismaic inscription and camels
15. Lithics cluster
16. Lithics cluster
17. Cliff behind Panel 8 with small Ibex engraving
18. Hump on block in bulldozer rubble
19. Piece of leg on block in the bulldozer rubble
20. A: small camel and unidentified shape;
B: small equid and two pairs of legs
21. Pecked symbols in bulldozed rubble between Panels 10 and 11
22. Wasum and circular symbols around the corner from Panel 12
23. Animal shape on cliff on same spur as Panel 13
24. Number of small stylised ibex
25. Newly surveyed outcrop, large boulder in front with incised camels on the back.
26. Boulder behind 25 with crudely pecked cattle
27. Cliff behind 25 with Thamudic inscription and faded engravings on upright surface
28. Small boulder downslope from 26 with unidentified symbols
29. Sandals on top of cliff – spur next to 25-28 (ca 50m south)

30. Newly discovered camel relief opposite Panel 9 (in very bad condition and only visible in optimal light conditions)

The preliminary results of this survey show a very dense concentration of sculptures in spurs A, B, C, while simpler rock engravings are predominantly found off-site (with a few exceptions: panels 9, 17, 20, 22). The dromedaries engraved and not carved are thus positioned at a distance from the 3 core spurs. We also found high concentrations of lithics around the three spurs of the Camel Site, with concentrations dropping sharply with increasing distance to the site.

These observations highlight the importance of the Camel site and its very specific emblematic and probably symbolic role.

A reassessment of the initially proposed chronology of the site is in progress. It is possible that the site is Prehistoric rather than historic, as previously supposed (Charloux et al. 2018).

Restoration Study and Stone cutting

Restorer Fulbert Dubois and stonecutter Franck Burgos conducted a first joint assessment of the camel and equid sculptures at the site, both in terms of conservation and restoration.

It is clear that the first stage of protection requires the rapid acquisition of the site by the authorities, without which any

consolidation operation would be useless, since the sculptures are in danger of imminent destruction from vandalism, bulldozing, and agricultural irrigation.

The second stage concerns a thorough evaluation of the erosion process and of the very poor state of conservation of the sculptures, for various reasons:

The natural destruction of facades is largely due to the very friable nature of yellow-orange sandstone, which shows both large vertical fractures and horizontal bedding at the site. The sandstone is further weakened by intense wind erosion. Once the harder outer skin of the rock has been pierced, the internal sandstone quickly erodes, leaving only an outer shell that is prone to collapse. The carved blocks eventually fall down the slope and either break up over time or collapse under their own weight. Particularly the rare rainy episodes have an extremely detrimental effect on the site as the sandstone becomes extremely soft and powdery when wet and is therefore in danger of dissolution. During this process small fissures appear, weakening the sculptures further. The patina of the sculptures is generally in poor condition, because the intense wind erosion removes the surface of the soft sandstone and detaches patina fragments in small pieces. These processes are accentuated by an intense and natural salinization of the local sandstone, which particularly affects the fallen blocks. The junction zones between the blocks and the earth are indeed highly humidified, which

further accelerates the decomposition of the sandstone. Therefore, it is urgent to move any fallen blocks onto masonry platforms to avoid the rise of humidity and salts.

In addition to the erosion and natural deterioration of the sandstone we observed multiple anthropogenic disturbances, such as deliberate vandalism on the sculptures or deterioration of surfaces through graffiti (engravings of names) or unintentional but very extensive destruction following the use of bulldozers in the area.

Following this short assessment, the two specialists will establish a conservation protocol for each panel, which must be put into action urgently. Measures will include the consolidation and subsequent movement of blocks to positions where they can be better protected, but also the search for fragments and the reconstruction of reliefs in situ. Protection measures must include the building of structures to prevent further damage from wind erosion and water. Adequate protection of this unique site will require considerable logistic and financial support.

Stone cutter Franck Burgos also studied the tool marks produced during the carving of the animals. Although marks are very eroded and have disappeared in many places, he was able to identify the techniques and tools used at the site. He noted an absence of metal tools. All reliefs at the Camel Site were produced using simple lithic tools: picks and scapers

were used for the removal of large amounts of stone volume, while composite flint tools with organic handles were used for more precise sculpting and engraving.

Condition assessment and site management

Author: Pascal Flohr

The carved panels themselves are mainly affected by natural factors, most notably by wind erosion and the effects of salt, in turn caused by temperature and humidity differences. This is further exacerbated by the fact that layers of clay are embedded within the sandstone at the Camel Site. Erosion is further increased by sunlight. These natural factors cannot be stopped, but the panels can be protected by conservation measures such as consolidation and moving of the loose blocks (see conservation section).

Some of the panels are affected by deliberate damaging (e.g. by metal tools on panel 1) and graffiti. This is difficult to avoid completely, but site protection by the SCTH is an essential first step. In addition, a local caretaker/guard is useful, in combination with information to the local community about the importance of the panel (e.g. through information panels and education at schools).

The area around the rock spurs where the panels are located is an important part of the archaeological site too, as attested by the chipped stone scatter. Unfortunately

this area has been heavily damaged by agricultural landscaping through bulldozing, especially between spurs A and B. The area was flattened, and even heavy stone blocks, including panels 1 and 8, were moved around. Subsequently, ploughing took place, further dislocating any remaining artefacts, and trees were planted. Water tanks were placed and trenches dug for the irrigation system, and it was probably around this time that the dry sandstone walls on spur A were built. Agricultural and building equipment was dumped at the site, affecting the visual integrity. The area between spur B and C was less affected, although heavy stone blocks were moved here to form a wall/dam/bank, and more chipped stone is therefore still found in this area.

Google Earth imagery analysis shows that most of the bulldozing occurred before 2003, with some more between 2003 and 2009. Since then the fields appear largely abandoned, and as such the situation might be stable. However, it is still important that the site is protected to prevent any more bulldozing and agricultural or other development of the area. The bulldozing cannot be undone, but the dumped rubbish and agricultural equipment can be removed at least.

The wider area around the site has been affected by heavy landscaping through bulldozing, construction and excavation for agriculture, and flooding (mostly natural, but also as a result of irrigation). More bulldozing can be stopped by officially protecting the

site, while natural flooding can be prevented from entering the areas of remaining high scatter density by walls or banks.

A full report on the site's condition, future risks, and proposed site management to address these will be prepared by Pascal Flohr of the Endangered Archaeology in the Middle East and North Africa (EAMENA) project, University of Oxford.

3D Modelling

In order to archive the sculptures in the event of natural or anthropogenic destruction, we have begun systematic recording of the Camel site's panels in 3D.

3D modelling of the panels is achieved through the creation of a dense cloud of photographs, which is then turned into a 3D model using Photoscan software. 3D modeling work will be continuously built on and improved, particularly once lost fragments have been recovered, allowing a re-construction of reliefs.

The modeling will also aim to restore the supposed state of the site by virtually relocating some reliefs to their original location (panels 1 and 3) and by virtually reconstructing broken sculptures (such as the camel made up by panels 5-6-7).

The panels 8 and 10, which are among the most threatened blocks, have been fully

photographed and modeled in 3D in very high definition, in order to maintain their exact current state. The models are sufficiently detailed to allow zooming in on all the details, down to individual stone cutting tool marks. These two panels have been replaced in the original lower resolution 3D model of the site.

The next campaigns will be partly devoted to generating further photographs and 3D models of other panels. Given the amount of reliefs, this will require at least one additional season of fieldwork, not to mention the time and effort that needs to be spent processing and managing the resulting data following the end of each season.

Patina Examination

A team specialized on 'patina', led by Prof. Meinrat Andrae, working with the SGS, visited the Camel site on October 29th.

The aim of this project is to provide new insights into the dating of the camel and equid reliefs, using non-destructive, portable X-ray fluorescence (pXRF) on intact varnish on the sculptures and engraved petroglyphs, according to a new method recently developed on the sites of Shuwaymis and Jubbah (Macholdt et al. 2018, *The Holocene* 28/9: 1495–1511).

The process started by a general assessment of all rock reliefs of the Camel Site, and the choice of some suitable areas. These areas are

defined according to the quality of the patina and the depth of preservation of the upper dark surface, as well as according to environmental conditions, in particular the lack of erosion, or the availability of the panel.

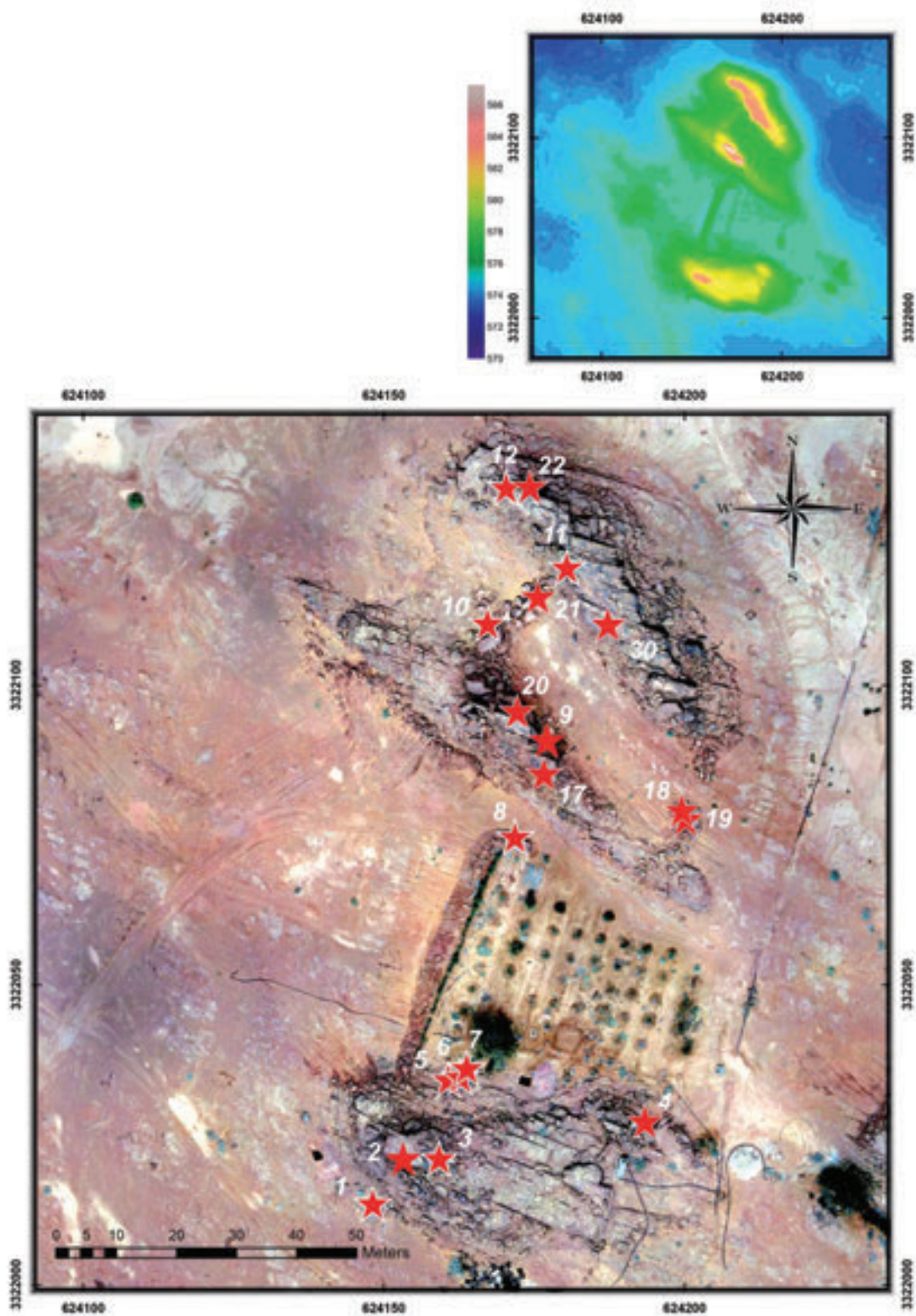
For this reason, panels 1 and 2 were chosen, and compared with Thamudic inscriptions found on Panels 14 and 28.

The data currently still awaits further analysis and statistical processing, but initial results appear to confirm our new dating proposal.



أ. خريطة موقع الجمل في منطقة الجوف.
a. Location map of the Camel site in Al Juf Province

مصدر الخريطة: جيوم شارلو، رومولو لوريتو، (٢٠١٢م) دومة الجندل، ص ١٨
Map By Guillaume Charlaux and Romulo Lorito



أ. خريطة قلب موقع الجمل وقمم المنحوتات.
Map of the core area of the Camel Site with the main rock reliefs



أ. خريطة موقع الجمل وموقع الفنون الصخرية.
a. Map of the buffer zone of the Camel Site with the location of rock-art panels



ب. تصوير تفاصيل نحت جمل عربي وآثار أدوات النحت.
b. Photography of details and tool marks of the dromedary on Panel 13



أ. مختصون يدرسون آثار عوامل التعرية على الحجارة الرملية بموقع الجمل.
a. Study of erosion process of the sandstone at the camel site by the specialists.



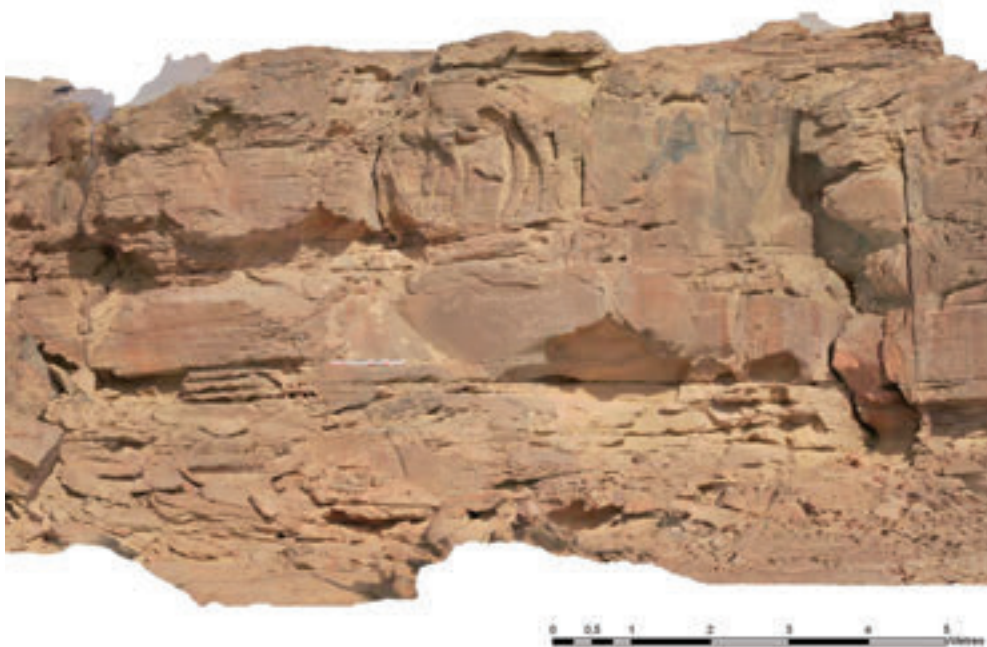
ب. آثار الرياح على النحت وتناكله.
b. Wind erosion behind a carved rock panel



أ. نحت الجمل وتضرره من الكتابة والنحت عليه.
a. Eroded camel carving with graffiti and damage through pecking.



ب. تضرر موقع الجمل بالآليات الثقيلة والجرافات والحرث.
b. The bulldozed area between spur a and b, with ploughing, and panel 8 moved by the bulldozer



أ . نموذج ثلاثي الأبعاد لنحت الجميل رقم (١)
a. 3d modelization of the camel on panel 1 (2017 image).



أ . فحص طبقة التقادم على النحت رقم ٢ .
b. Patina examination on panel 2.