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Exploration of the Site of Sphinx (SBK.W-60), Jebel Sabaloka (West Bank): Findings of the 2014 Field Campaign

Introduction

In the autumn of 2014, the Czech interdisciplinary expedition directed by the Czech Institute of Egyptology (Faculty of Arts, Charles University in Prague) resumed its fieldwork at Jebel Sabaloka (West Bank) explored for remains of prehistoric occupation since 2011. The attention of the mission focused on the site of Sphinx (SBK.W-60), one of this region's most significant Early Khartoum/Mesolithic settlements located on a granite outcrop in an embayment in the north-western slope of the *jebel* (Fig. 1A, B).¹

¹ The field campaign lasted from 15th October till 4th November 2014. The research team consisted of: Aleš Bajer (geologist), Murtada Bushara (inspector), Kristýna Kuncová (student of archaeobotany), Lenka Lisá (geologist, micromorphologist), Jon-Paul McCool (geoarchaeologist), Jan Novák (archaeobotanist – wood, charcoal), Jan Pacina (surveyor, GIS specialist), Adéla Pokorná (archaeobotanist – macro-remains), Petr Pokorný (palaeoecologist, biologist), Lenka Suková (research director, archaeologist), Ladislav Varadzin (field director, archaeologist), and four students-trainees – Safaa Ahmed Mohamed and Reemah Abdelrahim Kabashi (National Corporation for Antiquities and Museums of the Sudan) and Hanaa Mohamed Hafiz and Huyam Mohamed Alamin from the University of Bahri in Khartoum. The drivers and the cook of the expedition were Osman Abdalla, Salih Mohamed Salih, and Mahmoud Almahi Altayeb of Tumbus Tourism Co. Ltd.

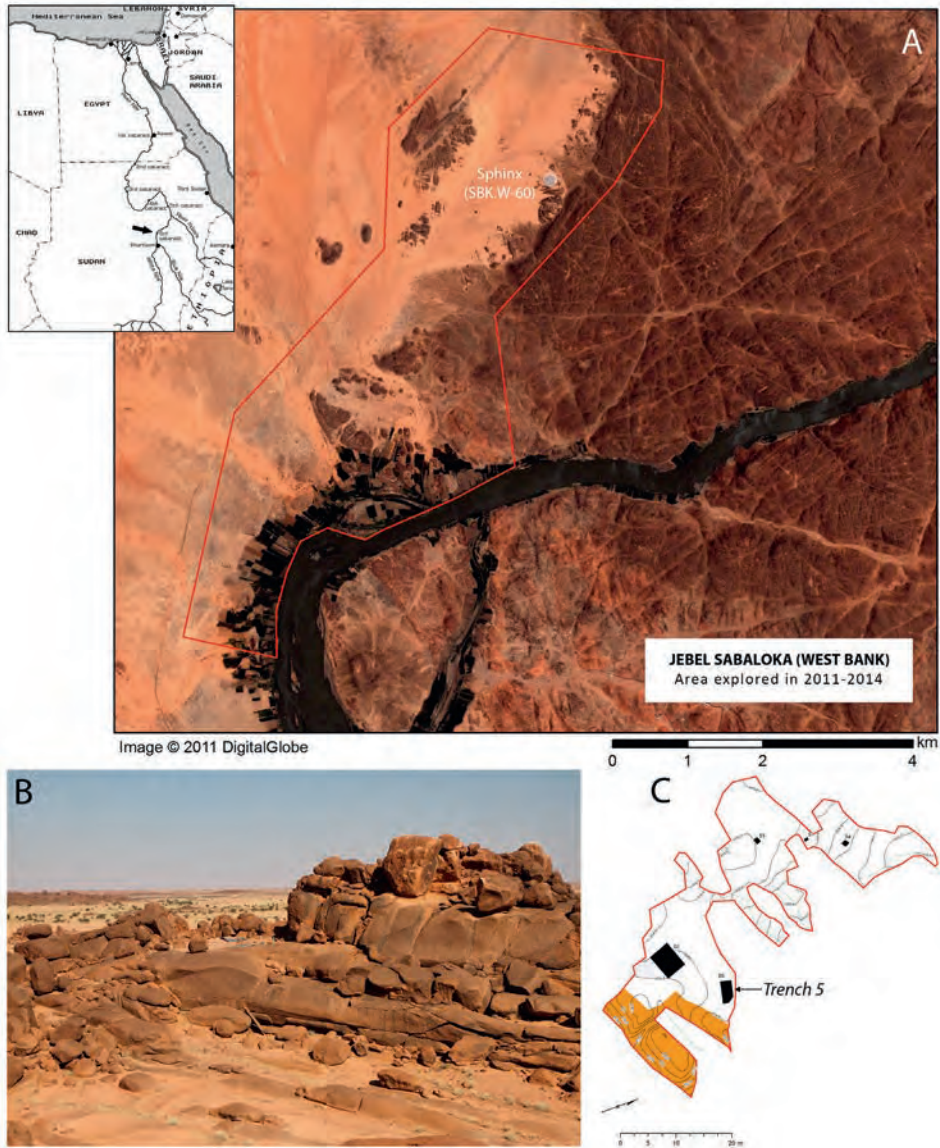


Fig. 1. A – Site of Sphinx (SBK.W-60) at Jebel Sabaloka (background: Google Earth 2011; map adapted from Adams 1977); B – Southern part of the settlement platform at Sphinx, from southeast (photo L. Varadzin, 2014); C – Contour plan of the settlement platform with the location of trenches excavated between 2011 and 2014; Trench 5 is indicated by an arrow (author J. Pacina, 2014)

Four main aims were set for the 2014 field campaign based on the previous research at the site of Sphinx (see Suková and Varadzin 2012; Suková *et al.* 2014) and with regard to the generally known problems of exploration and the state of preservation of prehistoric deposits in central Sudan (already Arkell 1949: 4; most recently e.g. Salvatori 2012). They were: 1) to identify settlement layers and contingent sunken settlement features and to determine the stratigraphic relations between those and the burials in the southern part of the settlement platform, AMS ^{14}C dated tentatively to the 8th millennium cal. BC (Suková *et al.* 2014; Varadzinová Suková *et al.* 2015); 2) to investigate the post-depositional processes that have affected the original stratigraphic image and the depositional history of the site; 3) to elaborate the methods and procedures for exploration of this and other prehistoric sites in the geomorphologically and geologically rather specific area of Jebel Sabaloka (Almond and Ahmed 1993); 4) to verify the extent of the burial ground in the southern part of the site; and 5) to collect further evidence for the understanding of the former human occupation of the site.

This paper is based on the poster communication presented at the 2015 Dymaczewo conference. It provides a brief overview of the source empirical observations and findings of the 2014 field campaign that contribute to the topical discussion on the character of prehistoric deposits in central Sudan and on the possibilities and limits of their archaeological exploration (for more detailed overview and discussion, see Varadzinová Suková *et al.* 2015).

1. Methods

To attain the aims set for the 2014 field campaign, Trench 5 of 7.5 m² was excavated by the north-eastern edge of the southern part of the settlement platform, i.e. on the opposite side of the supposed burial ground as compared with Trench 2 where 24 burials had been uncovered in 2012 (Fig. 1C; see Suková and Varadzin 2012). The excavation took 18 working days of 8–10 hours each and engaged two archaeologists and four trainees aided in the course of exploration by three geologists (sedimentologists, micromorphologists), four archaeobotanists, and one surveyor. The trench – originally of 6 m², later extended to 7.5 m² – consisted of seven squares (SQ) of 1 × 1 m (A–G) and one sector of 0.5 m² (H). During excavation – both in squares and later across the whole trench (Fig. 2A, B) –, colour, texture, and compactness of deposits (regularly highlighted by a water sprinkler; Fig. 2C–E) were used to differentiate stratigraphic units (SUs). The traditional



Fig. 2. A – Trench 5 at an early stage of excavation, with Squares B, D and F excavated down to MU2 within the differentiated SUs; B – Trench 5 during excavation, with Squares A–F excavated down to MU3 within the differentiated SUs; note the varied colours that appear to represent individual deposits or features; C – MU3 in the differentiated SUs in Square D after excavation; D – MU3 within the differentiated SUs in Square D, moistened with water; E – MU3 within the differentiated SUs in Square D, partially dried (all photos: L. Varadzin, 2014)

stratigraphic method was combined with excavation of the individual SUs by a series of thin horizontal cuts (mechanical units – MUs), with the MUs always subordinated to the respective SUs (i.e. they always respected their extent). The SUs and MUs in each horizontal section were documented in detail prosaically and by means of drawings and a series of photographs (e.g. Fig. 2C–E). When recording finds, a special attention was paid to the vertical and inclined position of stones and artefacts which may indicate, inter alia, the presence of sunken features (cf. Fig. 2C–E). All finds were localised precisely according to their SQ/SU/MU. All excavated deposits were dry-sieved using a 4-mm mesh to obtain artefacts and ecofacts. Ca. 30 % of the fine fraction (under 4 mm in size) was floated or sampled for archaeobotanical remains (macro-remains, charcoal, pollen, phytoliths). Where necessary, direct samples were collected from carefully selected spots for further archaeobotanical analyses (see Sereno *et al.* 2008) as well as for geoarchaeological study. Kite Aerial Photography and terrestrial photogrammetry were used with the aim to produce 3D models of the entire site and the trench and to obtain orthophotographs of selected find situations (e.g. Fig. 4B; see Pacina 2015).

2. Archaeological findings

In the course of excavation of Trench 5, altogether 18 types of deposits were differentiated based on the differences in colour, texture, and/or compactness, and were designated tentatively as stratigraphic units (SU1–SU18; Fig. 2B; 3A, B). Some of these were further subdivided based on finer differences into between two (e.g. SU9A–SU9B) and five (e.g. SU11A–SU11E) subunits.

The excavated trench was found to contain eleven burials (B.25–B.31 and B.33–B.36)² that concentrated in the western and southern part of the trench (Fig. 4A–C). The deceased were laid in a more or less contracted position, head oriented to east or northeast. Some graves interfered with one another, implying separate (successive) events of interment (Fig. 4B). The skulls of B.33–B.36 found in the south-western section of Trench 5, on the other hand, indicated interment of four individuals into one and the same burial pit at one and the same time (Fig. 4A). However, this will have to be verified by further exploration at the place where we assume to find the post-cranial parts of the skeletons (see Varadzinová and Varadzin 2017). No grave goods were found to accompany the deceased, with

² Another human burial (B.32) was found by the southern edge of the southern part of the settlement platform where it had been exposed in an erosion line enlarged during heavy rain storms in 2013 and 2014. It was only recorded, but not investigated during the 2014 field campaign.

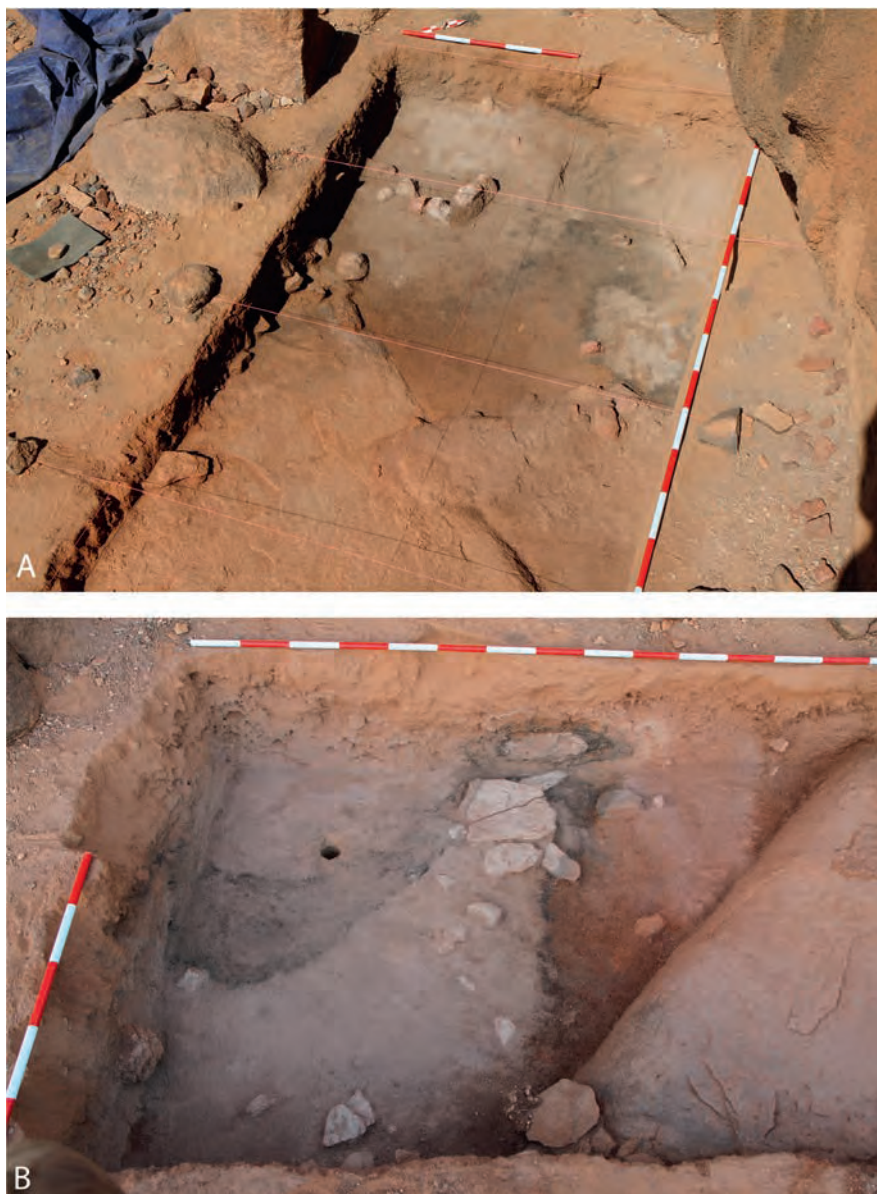


Fig. 3. A – Trench 5 during excavation, view from east; note feature F.1/14 in the west (top left) corner of the trench and the varied colours mostly representing pseudo-layers or pseudo-features; B – North-western part of Trench 5 at another stage of excavation; note the trunk-like formation across the trench which had come into existence through precipitation of manganese oxides (both photos: L. Varadzin, 2014)

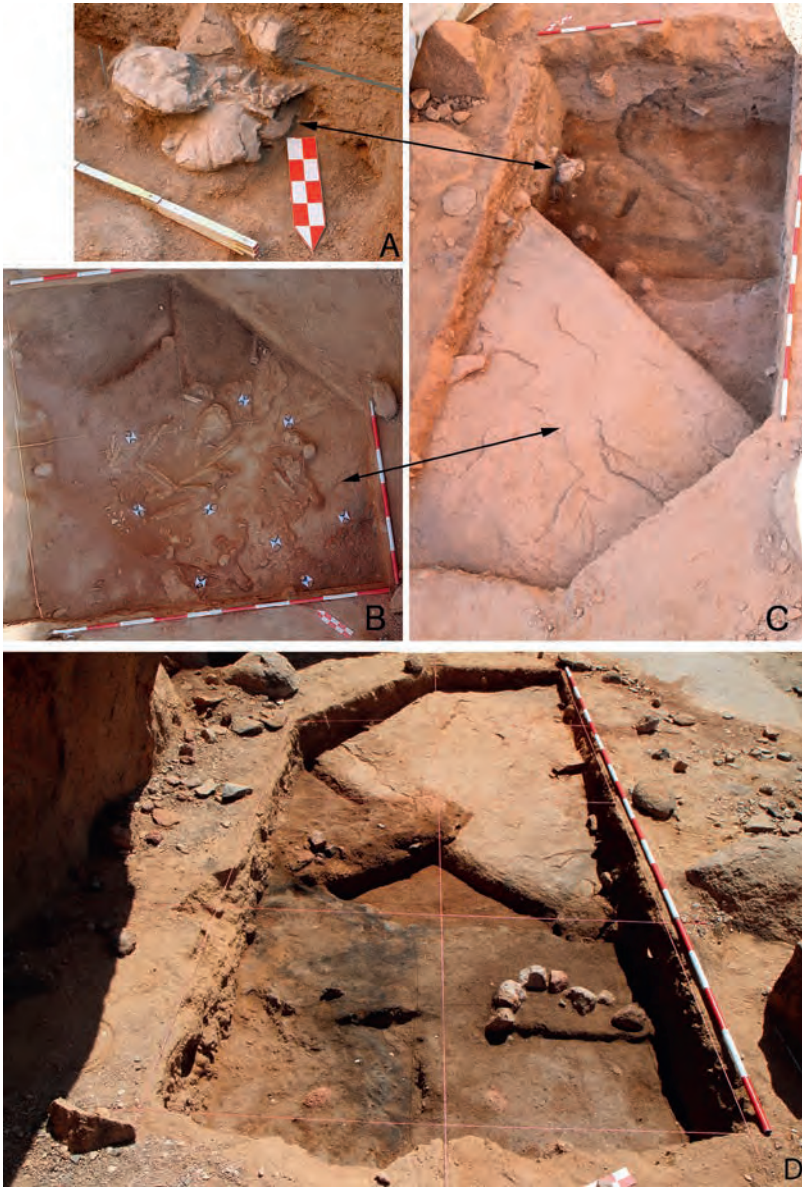


Fig. 4. Jebel Sabaloka (West Bank), site of Sphinx (SBK.W-60): A – Skulls of burials B.33–B.35 in the south-western profile of Trench 5; B – Burials B.25–B.29 uncovered on the large granite boulder ca. 15–35 cm below the present-day surface; C – Trench 5 after excavation, view from southeast; D – Feature F.1/14 during excavation (photos: A, C, D – L. Varadzin, 2014; orthophoto: B – J. Pacina, 2014)

a possible exception of three shells of Nile bivalves collected from behind the head of B.33 at the bottom of the supposed quadruple burial (cf. Arkell 1949; Caneva 1983; Haaland and Magid 1995; Honegger 2014). The new burials constitute further evidence in support of the hypothesis on the existence of a large burial ground in the southern part of the site (see Suková *et al.* 2014). Interestingly, in the course of excavation it became evident that – with one exception (SU7) – practically none of the SUs corresponded to the supposed grave-pits of the explored burials.

In the south-western part of Trench 5, feature F.1/14, obviously of anthropic origin, was uncovered in a depth of ca. 40 cm below the present day surface. It was formed of medium-sized granite stones arranged in a semi-circle with a diameter of ca. 50 cm. Again, outlines of none of the 18 types of deposits (SUs) overlapped with this feature (Fig. 4D).

Several hundreds of pottery fragments datable to the Mesolithic period only (Incised Wavy Line, Dotted Wavy Line, Rocker Stamp), thousands of pieces of lithics from the same period, nearly one hundred upper and lower grinders (mostly broken), other finds including bone industry, pigment, mica, ostrich eggshell fragments and beads, mammal and fish bones, molluscs, and varied botanical remains were obtained through direct collection or dry-sieving of the excavated deposits.

In our field laboratory starch grains and phytoliths were detected on the working surfaces of grinders. This finding is of particular significance for addressing the issue of representation of vegetal component in the diet of the late prehistoric populations in the Middle Nile – one of the key issues of the Sudanese prehistory (cf. e.g. Haaland 1995; critically Usai 2014; also Buckley *et al.* 2014).

3. Observations on post-depositional processes

So far, no evidence of re-occupation of the site during post-Mesolithic times has been brought to light through the hitherto excavation in the southern (as well as in the central and northern) part of the settlement platform. However, while later anthropic disturbances (*sensu* e.g. Caneva 1983; Salvatori 2012 – tumuli or other graves created at prehistoric sites) appear to have avoided the Mesolithic deposits at Sphinx, the following observations attest that the site has not escaped post-depositional alterations through a number of non-cultural processes:

- 1) The surface of the site is covered by a more or less consolidated layer consisting of weathered granite and a large amount of artefacts datable to the Mesolithic period;
- 2) Nearly continuous bands of horizontal weathering lines were detected on the boulders delimiting the settlement platform at a height ranging

from 30 to 90 cm above the present-day terrain (Fig. 5A, B); 3) There are sunken features – feature F.1/14 and eleven burials in Trench 5 – whose fills could not be differentiated in most cases from the deposits into which they had been laid; 4) A massive mobilisation of leachable elements like Ca, Fe or Mn had taken place in the area of Trench 5 in the past, bringing about the presence of precipitated calcium carbonate unevenly distributed throughout the trench, total decalcification of shells of molluscs in some positions within the trench, and marked precipitation of manganese oxides forming a bizarre trunk-like feature running across the trench (Fig. 3B; 6); 5) The study of morphology, structure, and chemical properties of each of the 18 differentiated types of deposits in the course of excavation proved beyond doubt that most of them are the result of post-depositional, especially geochemical processes and, therefore, cannot reflect the real stratigraphic development; 6) Last but not least, traces of extensive and, at the same time, intensive post-depositional bioturbation by rodents and insects were detected during excavation of Trench 5.

4. Interpretation

Several interdependent (but still separable) N-transformations (Schiffer 1987) appear to have altered the site in the past.

Severe wind and water erosion has lowered the level of the Early and Middle Holocene terrain by 30–90 cm – this is indicated by the bands of weathered lines detected on the boulders – and brought along the accumulation of coarse fraction (including the varied artefacts and ecofacts) on the surface of the site.

Homogenisation of the deposits preserved underneath the consolidated surface layer caused by pedogenesis (bioturbation, illuviation, etc.; see Holliday 2004) has obliterated the interfaces of anthropogenic layers and sunken features – including eleven burials and feature F.1/14 in Trench 5 – to such an extent that traditional archaeological methods involving observation by naked eye, touch, and/or pressure are insufficient for their detection.

Severe geochemical processes involving massive transfer of certain solutions (carbonates, manganese and iron oxides, etc.) have caused the disappearance of possible *layers of ash* (i.e. potassium carbonate), on the one hand, and the appearance of *pseudo-features* and *pseudo-layers* easy to be confused (at least in the initial phase of excavation) with original anthropogenic deposits, on the other hand (see Fig. 3A, B; 6). For this reason, the different colour and/or compactness of deposits does not always represent original anthropogenic contexts (for a more detailed discussion of the varied post-depositional processes, see Varadinová Suková *et al.* 2015).



Fig. 5. A – Weathering lines (or grades) on the rock separating the southern and central parts of the settlement platform at Sphinx (photo L. Varadzin, 2015); B – Survey of the weathering lines/grades in the southern part of the settlement platform (photo: L. Varadzin, 2014)

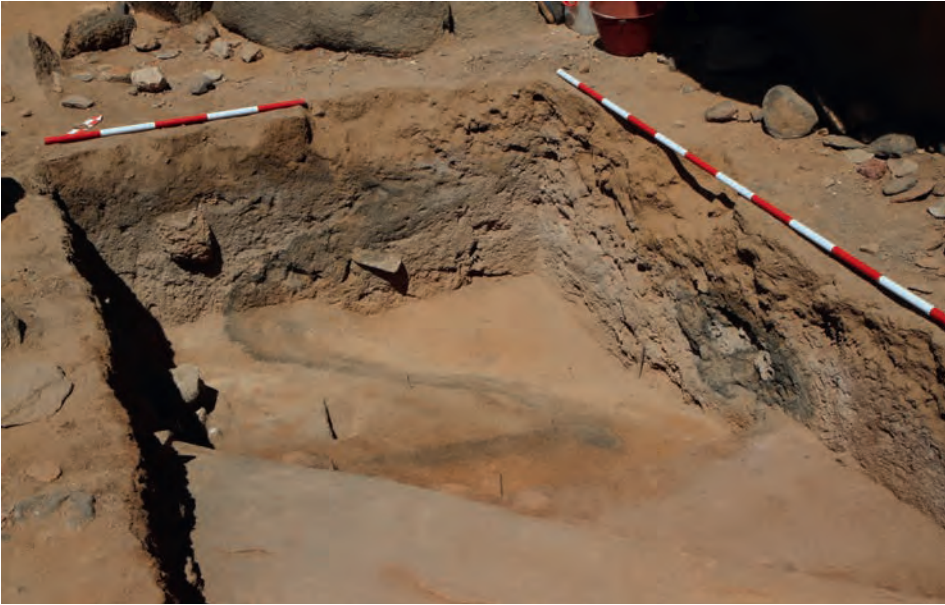


Fig. 6. Base of Trench 5, view from south; note the trunk-like feature formed by precipitation of manganese oxides which penetrate beneath the surface of the intact eluvium (photo: L. Varadzin, 2014)

5. Implications

In addition to a number of important archaeological finds, the exploration of Trench 5 at the site of Sphinx at Jebel Sabaloka in 2014 brought to light several findings and observations of methodological significance. It proved true that at least at Jebel Sabaloka conventional stratigraphic excavation method involving observation by naked eye and touch is not sufficient for exploration of original prehistoric deposits. For this reason, it is indispensable to co-opt the traditional method of stratigraphic excavation by other, parallel procedures (various adjustments of excavation by mechanical units).

The observations deriving from exploration of one trench at one site in the peculiar environment of Jebel Sabaloka, presented in this brief paper (for more detailed overview and extended discussion, see Varadzinová Suková *et al.* 2015), cannot be schematically generalised, in their specific form, for other prehistoric sites in central Sudan. Nevertheless, they no doubt contribute to the recently re-opened discussion on the character of cultural deposits of prehistoric date in central Sudan and on the possibilities and limits of their archaeological exploration.

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