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## **Tethering/ Trapping Stones from the area around Shaqadud Cave in the Butana Sahel (Sudan)**

**Hamad Mohamed Hamdeen.  
Altayeb Abdallah.**

### **Abstract:**

During archaeological survey in March 2018 at area around Shaqadud cave in eastern Sahel of Butana in Sudan, fourteen tethering/trapping stones were reported for the first time in eastern Sudan. These stones present a good indicator about the palaeoenvironment and paleoeconomy in Shaqadud cave and the cultural relationship between Shaqadud cave and other tethering stone areas in western Sahara and Northern Sudan.

**Key words:** Sudan, Butana Sahel, Shaqadud cave, Tethering\trapping stones, Palaeo environment



## حجارة شرك الصيد/ التقييد من المنطقة حول كهف شق الدود في سهل البطانة (السودان)

حمد محمد حمدان.

الطيب عبد الله.

### ملخص:

خلال المسح الأثاري لمنطقة حول كهف شق الدود في السهل الشرقي للبطانة في وسط شرق السودان في مارس عام ٢٠١٨م تم اكتشاف أربعة عشر حجر صيد لأول مرة في هذا الإقليم، عرضت هذه الحجارة مؤشر جيداً للبيئة القديمة والاقتصاد القديم في منطقة كهف شق الدود وكذلك أيضاً أبرزت وجود بعض العلاقات الثقافية بين منطقة كهف شق الدود والمناطق الأخرى التي تم اكتشاف هذه الحجارة بها في الصحراء الكبرى بشمال إفريقيا.

**كلمات مفتاحية:** السودان، سهل البطانة، كهف شق الدود، حجارة شرك الصيد\التقييد ، البيئة القديمة.



## 1- Introduction:

Tethering or trapping stones can be considered as one part of a trap or fetter. Such devices then consist of the stone itself and a rope. Stones and rope vary in weight and length. The stone is usually elongated and a groove runs all around it in its central part. The grooves vary considerably in width and depth. Some stones also bear bilateral notches instead of grooves. The grooves and notches characterize such stones and distinguish them from others. Indeed, these man-made grooves and notches transform the stones from natural objects to purposeful artifacts. One end of the rope is tied to the stone along the groove or is secured by the notches that are both intended to fasten the rope to the stone and prevent it from slipping off. The other end of the rope is tied into a loop in the form of a slipknot. The slipknot instantly tightens if the rope is pulled<sup>1</sup>. According to Pachurtethering stones are on average about 30-45 cm long and weigh about 20 kg. However, some are even over 100 kg in weight, with lengths exceeding 1.10–1.30 m. The often used term ‘grooved stone’ is accurate for purely descriptive purposes, the term ‘tethering stone’ has however, been deliberately chosen because such stones were used to hold a rope restraining either domesticated or wild animals<sup>2</sup>.

Gallinaro & Di Lerina<sup>3</sup> mentioned *”the first scholarly accounts of these artifacts quote an oral Arab legend recorded at the end of the 19<sup>th</sup> Century in Algeria and later shared throughout the Central Sahara . According to this legend, these objects were used by a mythical figure known as Ben Barour as tools to mark the principal caravan routes*

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<sup>1</sup>El Mahi, A. T. 2007. Tethering stones in Al Madaibi, Oman: traps and palaeoclimatic indicators. *Adumatu*, vol. 16, 37-62.

<sup>2</sup>Pachur, H. 1991. Tethering stones as palaeoenvironmental indicators. *Sahara* No 4, pp 13- 33.

<sup>3</sup>Gallinaro, M. & Di Lernia, S. 2018. Trapping or tethering stones (TS): A multifunctional device in the Pastoral Neolithic of the Sahara. *PLOS ONE* 13 (1): e0191765. <https://doi.org/10.1371/journal.pone.0191765>



*crossing the Saharan desert: the stones were said to be tied to a rope and dragged by a camel. Since then, such characteristic stones have frequently been recorded either as scattered artifacts or as representations in rock art scenes in different areas of the Sahara, from Algeria to Egypt*<sup>4,5,6,7,8</sup>.

In north-eastern Africa tethering stone were reported in many sites. Outside of Africa, tethering stones have also been reported. In the Mushash Hudruj region in southeastern Jordan, a possible prehistoric animal trap was found in one of the small wadis before it joined the main Wadi Hudruj<sup>9</sup>. This animal trap contains a large grooved stone, which is interpreted as tethering stone. It was found alongside a wall crossing the wadi. The other end of the rope was tied to create a slipknot. In Oman, many tethering stones were reported and dated to the 7<sup>th</sup> Millennium BC<sup>10</sup>.

## 2- Shaqadud Cave:

The cave of Shaqadud is located in a tiny box canyon at the southern end of an irregular elongated sandstone outcrop that lies some 50 km east of the Nile valley and ca.12 km from the monuments of Naq'a in the western part of the Butana(cf. Map1). Between this outcrop and the Nile valley, a wide shallow wadi system drains to the north, that is separated from the Nile by low undulating and gravel-covered hills which are cut by small wadis with

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<sup>4</sup>Colomb, D. 1860. Notice sur les oasis du Sahara et les routes qui y conduisent. Revue algérienne et coloniale, juil. sept, et oct.

<sup>5</sup>Soleillet, P. 1877. L'Afrique Occidentale: Algerie, Mzab, Tidikelt. Paris: Challamel. pp. 245-246.

<sup>6</sup>Duclos, P. Haardt, G. M. Audouin- Dubreuil, L. Citroen, L. 1923. La première traversée du Sahara en automobile De Touggourt à Tombouctou par l'Atlantide». Paris.

<sup>7</sup>Morel, J. 1952. Enquête sur les <sup>3</sup>Pierres de Ben Barour.<sup>o</sup> Bull Liaison Saharienne, 3(10).

<sup>8</sup>Morel, J. 1982. Les pierres a gorge du Sahara. Inventaire provisoire et essai d'interpretation. Journal des Africanistes 52(1-2) p 68-94.

<sup>9</sup>Tarawneh, M. B. Al- Salameen, Z. M and Abudanah, F. Q. 2012. Results of A pilot Survey Study in The Region of Mushash Hudruj, South Eastern Jordan. *Mediterranean Archaeology and Archaeometry*, Vol. 12, No 2, 133-143.

<sup>10</sup>El Mahi, A. T.2007. op.cit, p 37-62.



thin lines of Acacia trees along their sides<sup>11,12</sup>. Shaqadud was discovered by the Butana-Expedition of the Humboldt-University of Berlin during its survey of Meroitic sites in 1961<sup>13</sup>. It was described as a Khartoum Neolithic site of considerable size and complexity and was viewed as potentially important because of its location far away from the Nile valley. Although there are a good number of archaeological sites within a few kilometers of the Shaqadud inset<sup>14</sup>, there are only five in its immediate surrounding area, defined as the inset itself and 100 m or so back from its rim<sup>15</sup>.

In the box canyon and its immediate surroundings, four different sites are known. Set into the back of the box canyon is a wide cave (S I-A). Directly in front of the cave is a small basin mainly with old pond sediments and colluvial fill. This basin is surrounded in the north by midden deposits that rise 2 m above its present floor (Fig. 1). Apart from a rather recent erosional cut through both the basin and the midden, the basin itself is isolated by surrounding cliff faces and the midden. The area (SI-B) is large, ca. 15.000 m<sup>3</sup>, its depth decreases from over 3 m to less than 20 cm at the mouth of the canyon where the effects of erosion and deflation become more pronounced. There is a thin scatter of artifacts include ceramic and lithic tools, forming a large apron in front of the box canyon, but there human occupation along the base of the sandstone outcrop appears limited to within the canyon. On

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<sup>11</sup>Mohammed- Ali, A. & Marks, A. E. 1984. The Prehistory of Shaqadud in the western Butana, Sudan: A Preliminary Report. *Norwegian Archaeological Review* 17:52--59.

<sup>12</sup>Marks, A. & Mohammed-Ali, A. S. (1991). The Late Prehistory of the Eastern Sahel the Mesolithic and Neolithic of Shaqadud, Sudan. Southern Methodist University Press. Dallas.

<sup>13</sup>Otto, K. H. 1963. Shaqadud: A new Khartoum Neolithic site outside the Nile Valley. *Kush* XI, pp 108-116.

<sup>14</sup>Elamin, Y. M & Khabir, A.M. 1987. Neolithic pottery from Survey sites around Shaqadud Cave- Western Butana, Sudan. *Archaeologie du Nil Moyen* 2, pp 175-184.

<sup>15</sup>Marks, A. 1991. Shaqadud and the 1981\83 excavation. In: Marks and Mohamed-Ali (ed.), The Late Prehistory of the Eastern Sahel the Mesolithic and Neolithic of Shaqadud, Sudan. Southern Methodist University Press. Dallas.



the flat surface 9 m above the cave, there is a 9,000 m<sup>3</sup> area of *in situ* artifact distribution (S I-C), while another one (S21) lies at a short distance to the east of the western rim of the box canyon. The temporal and functional relationships between them are, however, only partly defined. Such an intensity of prehistoric evidence in one single location appears unusual in the Butana and may reflect the advantageous spatial association of good quality sandstone for grinding stones and quartz and quartzite for chipped-stone tools, a sheltered setting, and -most importantly- a source of predictable surface water. Based on radiocarbon dates and ceramics for cross-dating, it now seems certain that the Shaqadud site experienced a number of occupational phases between ca. 8,000 and 3,600 BP<sup>16</sup>.

Geologically, the Shaqadud area is a part of the vast Butana plain. its topography is generally flat, although studded with isolated or grouped hills of the Nubian Sandstone formation. Petrographic counting has shown that 90% of the pebbles weathered from the Nubian Sandstone are quartz and quartzite. The beds of the formation in this area are horizontal or very slightly dipping, but they are discontinuous and lenticular with variable thickness, ranging from tens of centimeters to some tens of meters<sup>17</sup>. This formation is usually associated with conglomerated sandstones, sandy mudstones and mudstones. Quantitatively, little can be said about the groundwater in the Nubian Sandstone formation as such, but the water level in the area varies between 90 to 120m (300–400 ft) below the surface<sup>18</sup>.

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<sup>16</sup>Mohammed- Ali, A. & Marks, A. E. 1984, op. cit, pp 52—59.

<sup>17</sup>Magid. S. A. 1991. The Shaqadud area today. In: Marks and Mohammed-Ali (ed.), The Late Prehistory of the Eastern Sahel the Mesolithic and Neolithic of Shaqadud, Sudan. Southern Methodist University Press. Dallas, pp 23-32.

<sup>18</sup>Whiteman 1971. The Geology of the Sudan Republic. Oxford ; Clarendon Press.



Peters<sup>19</sup> analysis the animal remains were found at site of Shaqadud, the mammals that were documented for Shaqadud are living in southern Sudan today like African Elephant (*Loxodonta africana*) Giraffe (*Giraffa camelopardalis*). Aardvark (*Orycteropus afer*) and cane Rat (*Thryonomys* sp., probably *T. gregoriana*)..etc, mostly within and south of the thorn savannah and scrub *sensu*<sup>20</sup>. This vegetational belt is characterized by an average annual rainfall of 280-450 mm on sandy soils and 400-800 mm on clay soils. The presence of cane rat, probably savannah cane rat, a species that is apparently confined to humid savannahs in Sudan today, suggests a wetter thorn savannah and scrubland at Shaqadud in prehistory. Therefore, in the 8<sup>th</sup> Millennium BP, Shaqadud with its predominantly sandy soil<sup>21</sup> may have received annual precipitation of approximately 450–500 mm. Both species still occurred in the northern part of the thorn savannah and scrubland in the 1950ies<sup>22</sup>. Antelopes such as the common duiker, oribi, greater kudu, and roan antelope were presumably not present in the Shaqadud area during the late 4<sup>th</sup> Millennium BP. We may therefore assume an average precipitation of 350 mm during that period, provided that the deterioration was not caused by man and his flocks. The suggested annual precipitation quantities illustrate that, between the 8<sup>th</sup> and 4<sup>th</sup> Millennia BP, the environment shifted from a rather humid grass savannah with scattered trees and shrubs toward a dry savannah, the latter

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<sup>19</sup>Peters, J. 1991. The Fauna Remains from Shaqadud. In Marks, A and Mohamed-Ali, A (ed.), The Late Prehistory of the Eastern Sahel the Mesolithic and Neolithic of Shaqadud, Sudan. Southern Methodist University Press. Dallas, pp 197-235.

<sup>20</sup>Wickens, G. E. 1975. Changes in the Climate and Vegetation of the Sudan since 20,000 B.P. *Boissiera* 24:43-65.

<sup>21</sup>Andrew, G. 1948. Geology of Sudan. In *Agricultural of the Sudan*(Edit). Tothil, D. Oxford University Press, pp84-128.

<sup>22</sup>Mackenzie, P. Z. 1954. Catalogue of the Mammals of the Sudan Occurring in the Natural Orders Artiodactyla and Perissodactyla. Khartoum: Sudan Museum (Natural History), Publication 4.



being somewhat comparable in fauna to the Sahelian savannah near Fete-Ole, Senegal<sup>23</sup>.

Two faunal stages at Shaqadud cave can be recognized: an older one with typical hunting and gathering practices (including both the Khartoum Mesolithic and Neolithic occupations), and a younger one dated to the 4<sup>th</sup> Millennium BP with a mixed economy combining hunting and gathering with pastoralism (cattle, small livestock). The faunal sequence furthermore suggests a shift of the environment from a rather humid (450–500 mm precipitation) to a dry savannah (350 mm) between approximately  $\pm 7,400$  and about  $\pm 3,600$  BP<sup>24</sup>.

### 3- Tethering stones from Shaqadud cave:

An archaeological survey was undertaken in March 2018<sup>25</sup> in the area north and south of the Shaqadud cave, with a survey area of 3km from north to south, on the edges of the sandstone hills, with a focus on the edge of the khors and small water drainages. 14 tethering stones could be documented, one in the northern part of the cave and the rest in the southern part (cf. Map 1). Based on the survey sample, two techniques can be identified that were used to produce the tethering stones: 1) pecking, 2) pecking and incising all middle part of the stone for making a groove, (Fig.2). The tethering stones have different shapes: ovals, triangles, rectangles as well as flat and irregular shapes were

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<sup>23</sup>Delany, M.J & Happold, D.C.D. 1979. Ecology of African Mammals. London.

<sup>24</sup>Peters, J. 1991, op.cit, pp 197-235.

<sup>25</sup>The survey was done in March 2018 by Czech- British mission. The team included: Lenka Varadzinová (Czech Institute of Egyptology, Charles University, Prague), Ladislav Varadzin (Institute of Archaeology, Czech Academy of Sciences, Prague) and Dorian Fuller (University College London). Hamad Mohamed Hamdeen and Altayeb Abdallah (Department of Archaeology, University of El Neelien), Magdi Mohamed Ahmed (Inspector of National Corporation for Antiquities and Museums).



documented. Sandstone and ferruginous sandstone were used as raw materials (cf.Tab.2).

| T.S. No  | Length(in cm) | Width(in cm) | Weight (in Kg) | Type of rock         |
|----------|---------------|--------------|----------------|----------------------|
| S-T.S-01 | 26            | 13           | 7              | Sandstone            |
| S-T.S-02 | 37            | 22           | 16             | Sandstone            |
| S-T.S-03 | 44            | 27           | 19             | Sandstone            |
| S-T.S-04 | 35            | 18           | 11             | FerruginousSandstone |
| S-T.S-05 | 32            | 20           | 10             | Sandstone            |
| S-T.S-06 | 32            | 20           | 18             | FerruginousSandstone |
| S-T.S-07 | 41            | 20           | 22             | FerruginousSandstone |
| S-T.S-08 | 24            | 15           | 9              | Sandstone            |
| S-T.S-09 | 27            | 15           | 14             | Sandstone            |
| S-T.S-10 | 35            | 21           | 10             | Sandstone            |
| S-T.S-11 | 35            | 19           | 8              | Sandstone            |
| S-T.S-12 | 34            | 20           | 12             | FerruginousSandstone |
| S-T.S-13 | 43            | 22           | 24             | Sandstone            |
| S-T.S-14 | 31            | 20           | 13             | FerruginousSandstone |

Table 2: Measurements and rock types of the tethering stones from around Shaqadud cave

#### 4- Discussion:

In this study, tethering stones from the area around Shaqadud cave are reported for the first time for the Butana in Eastern Sudan. Geologically, the raw materials of the tethering stones documented around the Shaqadud cave are consistent with the local geology. The Sandstone



formation has a characteristic chocolate brown color, and it is capped in some places with dark-brown to blackish-brown ferruginous crusts<sup>26</sup>.

With regard to the function of the tethering stones, different ideas have been put forward by various scholars. Pachur suggested that the stones functioned as a fetter for grazing animals, especially cattle. The animal was still able to move around, but was prevented from running away too far<sup>27</sup>.

Gabriel<sup>28</sup> interprets tethering stones as anchor-points for fastening ropes. However, the exact function- particularly considering the other end of the rope - is still a matter of debate. Where they used to brace tents in the wind, to affix traps, to prevent captured animals from escaping or to tether domestic animals to keep them near campsites or huts<sup>29,30, 31, 32</sup>.

Ziegert reported 40 tethering stones in the Libyan desert and he suggested that the function of these stones lies in the context of hut building. Evidence of the use of such stones in settlements was reported for Maadi, situated on the eastern bank of the Nile south Cairo, where a tethering stone with the rope still attached was found<sup>33, 34</sup>.

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<sup>26</sup>Whiteman 1971. The Geology of the Sudan Republic. Oxford ; Clarendon Press.

<sup>27</sup>Pachur, H. 1982. Das Abflusssystem des Djebel Dalmar eine Singularitat? *Wurzburger Geogr.Arb.*, 56: 93-110.

<sup>28</sup>Gabriel, B .2012. Tethering Stones and Stone Sites (Steinplatze) at the Fourth Nile Cataract. In Wotzka, H (edit) Proceeding of the Third international conference on the Archaeology of the Fourth Cataract, University of Cologne 13-14 July,2016. Heinrich Barth Institut. pp:83-90.

<sup>29</sup>Gabriel, B. 1986. Die ostliche Libysche Wüste im Jungquartar. Berlin Geor. Studien, Bd. 19, p 129.

<sup>30</sup>Lutz, R. & Lutz, G. 1993. From picture to hieroglyphic inscription. The trapping stone and its function in the Messak Sattafet (Fezzan, Libya). *Sahara* 5: 71-78.

<sup>31</sup>Le Quellec, J. 1990. Pierres de Ben Barur et 'Radnetzen' au Fezzan (Libye). *L'Anthropologie* 94:1.; 115-126.

<sup>32</sup>Morel, J. 1982. Op.cit, p 68-94.

<sup>33</sup>Ziegert, H. 1978. Die altsteinzeitlichen Kulturen in der Sahara. In: Sahara, 10.000 Jahre zwischen Weide und Wüste. Handbuch zu einer Ausstellung des Rautenstrauch. Koln: Joest Museums für Volkerkunde, p.35-47.



Based on rock art pictures of bulls attached to tethering stones from Wadi Tilizahern in southwestern Massak Settafet, Jelinek has discussed the function of these devices from one of them, showed the bull has short curved horns and its leg is caught in a trap, therefore, the picture seems to show a trapped wild animal. Evidently, the assumption that this is a wild animal is entirely based on the function ascribed to the stone<sup>35</sup>.

Gallinaro & Di Lernia suggest a new approach to the study of these artefacts based on a large dataset (837 items) recorded in the Messak Plateau in Southwestern Libya the results of shown this tethering stone maybe used for prolonged periods and had a multifunctional use base on the integrated approaches, landscape, and archaeological contexts<sup>36</sup>.

Hamdeen<sup>37</sup> mentioned there is a close similarity between the tethering stones and net sinkers that was discovered in the Khartoum hospital site and described by Arkell<sup>38</sup>, these sinkers were used as weights for fishing-nets with a short sausage-shaped made from sandstone with rounded ends. Their essential characteristic is a groove around their waist, this groove varies in depth from 1 to 3 mm and in length from 5 to 28 mm. The idea of sinkers depends on the weight of the stone, the groove and the rope. This it's the same idea was used in the tethering stones base stone, groove and rope, and this a good indicator that prehistoric people developed this tool and trap technique for use in hunting and fishing in

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<sup>34</sup> Ritzkana, J. & Seeher, J. 1989. Maadi III. The Non-Lithic small finds and the structural remains of the predynastic Settlement. *Archaeologische Veroffent.* Mainz: Verlag Ph.v Zabbern, Bd. Pp 80, 141, Platz 32.

<sup>35</sup> Jelinek, J. 1985. Tilizahren, the Key site of Fezzanese Rock Art. *Anthropologie.* Anthropos Institute (Brno), Moravian Museum, XXIII/2: 25-192 and XXXIII/3:223-288.

<sup>36</sup> Gallinaro, M. & Di Lernia, S. 2018. Trapping or tethering stones (TS): A multifunctional device in the Pastoral Neolithic of the Sahara. *PLOS ONE* 13 (1): e0191765. <https://doi.org/10.1371/journal.pone.0191765>.

<sup>37</sup> Hamdeen, H. M. 2015. Reconstruction Palaeoenvironment of El Ga'ab Depression through Animals Remains: A Case Study of Early and Middle Holocene. MA thesis In Archaeology, Department of Archaeology, University of Khartoum. Unpublished.

<sup>38</sup> Arkell, A. J. 1949. Early Khartoum. London.



central and north Sudan, Wendorf<sup>39</sup> who mentions that the economy of Abkan people depended on fishing with stone traps.

The landscape and geological situation of these stones on the edge of wadis and khors in the Shaqadud area presented indicator maybe these stones were used as a hunting tools in this area and distributed in the water sources for hunting animals when they come to drink water. The variation in length, width and shape of these stones may reflect to the animal diversity in the Shaqadud area during the Early, Middle and late Holocene.

Tethering stones was used by some scholars as indicators for the palaeo-environment. Pachur<sup>40</sup> suggested that tethering stones may have been used for palaeo-climatic reason indicator, most of the animals “a larger grazing animals” related with tethering stones in the rock arts or in the sites inducted these animals were brought into the area, assuming that their drinking water was drawn for them from wells or waterholes during the Early, middle and late Holocene. The Palaeoenvironment in the area of Shaqadud was characterized savannah, woodland, open grassland and forest, and shown that fauna like striped hyena, African elephant, warthog, giraffe, greater kudu, roan antelope and other Ethiopian faunas was attractive to this area between seventh to the second millennium B.C.

The technique of using tethering stones as one of the hunting methods appears during the Early Holocene period. It is not used for killing animals but for disabling their movement to arrest or trap the animal alive. This may have played a major role in animal trade between ancient Sudan and others civilizations like the Egyptian and the Roman empires with the export of live animals like elephants, giraffes, gazelles and lions amongst

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<sup>39</sup>Wendorf, F. (ed.). 1968. The Prehistory of Nubia. Vol 2. Southern Methodist University Press. Dallas.

<sup>40</sup>Pachur, H. 1991. op. cit, pp 13- 33.



other 'exotic' animals. It possible that this trade began in the Old Kingdom, lasting to the Christian and Islamic periods<sup>41</sup>.

Depending on the physical characteristics and behavior of some animals that were documented at Shaqadud – like the striped hyena (*Hyaena hyaena*), African elephant (*Loxodonta Africana*), warthog (*Phacochoerus aethiopicus*), giraffe (*Giraffe Camelopardalis*), common bush duiker (*Sylvicapra grimmia*), greater kudu (*Tragelaphus strepsiceros*), roan antelope (*Hippotragus equinus*) and other savanna fauna- it is more or less easy to hunt these animals making a trap with tethering stones and slipknots for impeding their movement. After their successful capture, these animals can be killed.

The archaeological survey of tethering stones in the area around Shaqadud cave presents new evidence for these characteristic types of stones in the Butana and eastern Sudan, which can be understood as potential indicator for functional and cultural relationships between Shaqadud area and other tethering stones areas.

## 5- Acknowledgment:

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<sup>41</sup> Hamdeen, H.M. 2017. Palaeoenvironment and Cultural Adaptations During Late Prehistoric Periods in Sudanese Desert West Nile: Between El Mahas Region and El Golied Plain. PhD thesis Department of Archaeology, University of Khartoum. Unpublished.

Institute of Egyptology, Charles University, Prague), Ladislav Varadzin (Institute of Archaeology, Czech Academy of Sciences, Prague) and Dorian Fuller (University College London) and Magdi Mohamed Ahmed (Inspector of National Corporation for Antiquities and Museums). Specially thanks to Salih Mohamed Salih and Mohamed Musa (drivers), Aladdin Ahmed Altayeb (cook) for being joint with them in the field work in the area of Shaqadud.

## **6- Figures:**

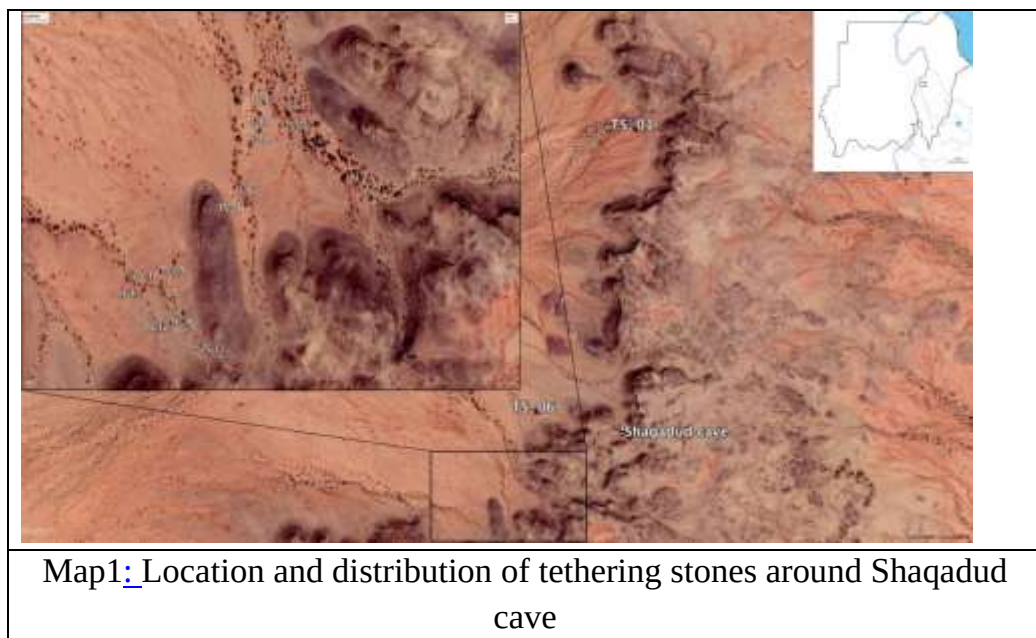




Fig. 1: General view of the Shaqadud cave inside the box  
 canyon(photo by H. M. Hamdeen)



S-T.S-01



S-T.S-02



|                                                                                   |                                                                                    |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|  |  |
| S-T.S-09                                                                          | S-T.S-05                                                                           |
|  |  |
| S-T.S-13 view from the west                                                       | S-T.S-09 view from the west                                                        |

Fig. 2: Tethering stones from around Shaqadud cave (photos by H.M.Hamdeen)

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