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Michael Hübner & Sebastian Hübner

New evidence for a large prehistoric settlement in an annular geomorphological structure in Southwest Morocco

Keywords: Morocco, prehistoric settlement, Wavy Line pottery, modern destruction

Abstract:

In this paper, the results of two expeditions to a large prehistoric settlement (covering an area of about 20 km²) are summarized. The settlement is situated inside an annular geomorphological structure in Southwest Morocco. Five very unusual constructions are highlighted: a large stone-circle complex, a triangular shaped complex, an oval building, a large earth wall and a Cursus-like monument. Remarkable is the finding of incised Wavy Line pottery at the site. At current, this is the westernmost example of mesolithic Wavy Line decoration. Unfortunately the site is subject to massive destruction by local stone grinding mills.

Zusammenfassung:

Diese Arbeit beschreibt die Ergebnisse zweier Expeditionen zu einer großen prähistorischen Siedlung (auf einer Fläche von ca. 20 km²). Die Siedlung befindet sich in einer ringförmigen geomorphologischen Struktur im Südwesten Marokkos. Fünf sehr ungewöhnliche Konstruktionen werden hervorgehoben: ein großer Stein-Kreis-Komplex, ein dreieckiger Komplex, ein ovales Gebäude, ein großer Erdwall und ein Cursus-ähnliches Monument. Bemerkenswert ist der Fund von Wellenlinien-Keramik. Zurzeit ist dieses der westlichste Fund mesolithischen Wellenlinien-Dekors. Leider ist die Fundstätte einer massiven Zerstörung durch lokale Steinmühlen ausgesetzt.

Resumen:

El presente trabajo describe los resultados de dos expediciones a un extenso asentamiento prehistórico (en una superficie de aprox. 20 km²). Con una estructura geomorfológica circular, el asentamiento se encuentra en el suroeste de Marruecos. Se destacan cinco construcciones muy poco habituales: un gran complejo de círculos de piedra, un complejo triangular, una edificación oval, un gran terraplén y un monumento parecido a un cursus. Digno de atención es el hallazgo de cerámica con líneas onduladas. Actualmente es el más occidental de los hallazgos de adorno mesolítico con líneas onduladas. Lamentablemente, el yacimiento está expuesto a una masiva destrucción causada por los molinos de bola de la localidad.

In this article, the results of two expeditions to an ancient settlement in southwest Morocco are summarized. The expeditions took place from Sep-

tember 10th to 16th 2008, and from May 19th to 29th 2010. In the field, we came upon a great manifold of ruins with prehistoric features. Unfortunately, many of these monuments are currently being demolished by stone grinding mills. In publishing this article, the authors wish to emphasize the importance of the site and hope to encourage future scientific investigations.

The caldera-like annular geomorphological structure is located in South Morocco, 8 km east of Agadir in a landscape called Tagragra. It is situated between the shore of the Atlantic Ocean (distance: 13 km), the Souss River (distance: 5 km) and the western Atlas Mountains (distance: 2 km). All ruins and monuments found *in situ* are located either on a hill inside the annular geomorphological structure, or on the surrounding ring of hills. The geological origin of the structure appears to be an anticline. It has a diameter of ~ 3 km (~ 5 km including the surrounding ring of hills) and strongly resembles a crater, although no evidence of volcanism has been found in this particular area (Ambroggi, 1963). On the central hill several dried up springs are located. The surrounding hills are 100-255 m in height.



Figure 1: Panorama of the annular geomorphological structure

Inside the geomorphological structure and on the surrounding hills, hundreds of ancient stone constructions of different types are present. We found large numbers of ruined buildings, caverns, cisterns, paths, stone heaps and traces of agricultural landscaping. Next to these ruins, a multitude of stone tools were found. In addition, we discovered some rather unusual constructions: a large stone circle complex, a 6 km long earth wall, a cursus-like structure, stone floorings and a place with rock carvings. The dimension of the entire ensemble is rather town-sized than village-sized. This size and the presence of several unique stone monuments make the settlement very distinct from neighboring archaeological sites.

For the most part, the buildings were found in the central area of the annular structure. In some aspects, their construction patterns are reminiscent of prehistoric architecture found in Europe (e.g. in the British Isles, Ireland or Sardinia). Basic features of the ruined buildings are: (1) Foundation walls were accurately manufactured and are very solid (diameter: 120-260 cm); (2) Foundation walls are covered by large amounts of debris; (3) Both large and

small stones are present; (4) Oval, circular and triangular ground plans are present; (5) Few rectangular ground plans are present (some of these seem to be recent, but may have been built on top of earlier walls); (6) Absence of regularly worked stones; (7) Predominantly white, reddish and black stones used; (8) Stones are weather-beaten, deeply eroded and covered by large lichens; (9) The walls are overgrown by centuries-old Argan trees; (10) All buildings are in a very bad state of preservation.

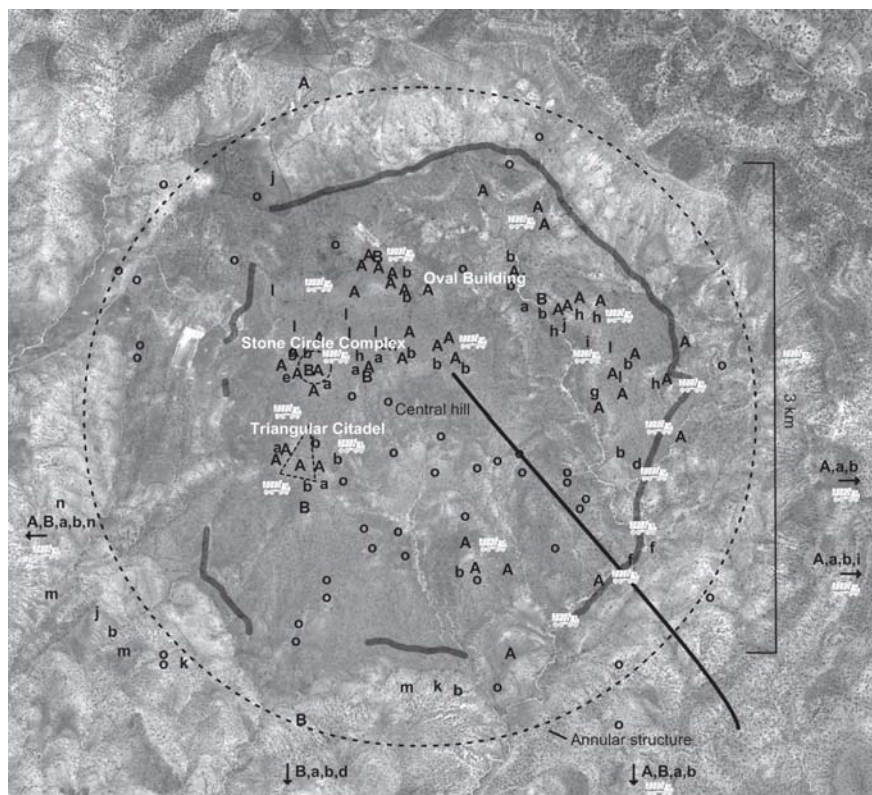


Figure 2: Schematic sketch of the annular geomorphological structure including artifact finds. (A) Circular or oval structure; (B) Ruined buildings; (a) Neolithic style ceramics; (b) Neolithic stone tools; (c) Stone axe; (d) Microliths; (e) Menhir; (f) Plaster containing mica; (g) Rock carvings; (h) Caverns and jug-like cisterns; (i) Tub-like cisterns; (j) Stone heaps; (k) Stone terraces; (l) Field of widespread building blocks/rubble; (m) Stone flooring; (n) Kiln; (o) Unexplored items; (Thick line) Earth wall; (Thin line) Straight path/cursus; (White truck) Stone evacuation; Satellite image: Google Earth.

Until now we have not found any mention of a town or village within this particular region in late-antique, medieval and recent literature including

many maps; The settlement might have been mentioned in ancient sources e.g. in Ptolemy's *Geographike Hyphegesis Town of the Gaetuli Autololes/Autolata* or Diodorus Siculus' *Town of Menê* (gr. Mene = Moon, which may correspond to the circular geomorphology of the structure); Possibly, the settlement has been abandoned within a short time in antiquity. A reason for this could be the destruction by an earthquake or the drying out of water sources (wells and springs).

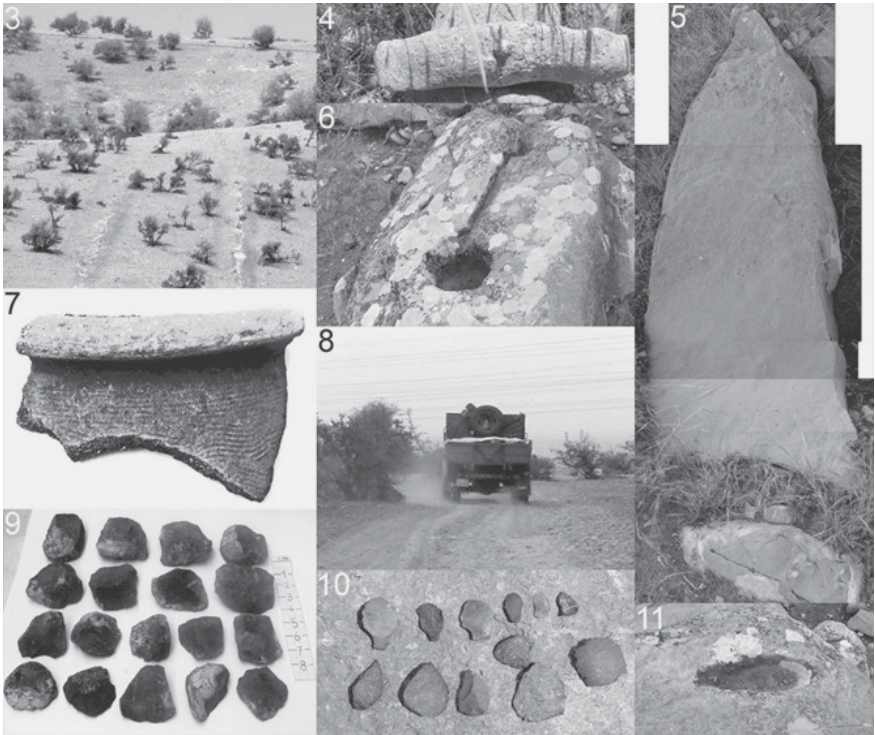
The following evidence suggests that the settlement has prehistoric origins: (1) Findings of a great manifold of prehistoric stone tools inside and next to the ruins; (2) Findings of mesolithic and neolithic-style ceramics inside the ruins and in their immediate vicinity; (3) Absence of wood and metal findings; (4) Oval, circular and curvy ground plans of buildings; (5) Extremely eroded building stones despite semiarid climate; (6) Large size of lichens despite semiarid climate (most building blocks are completely covered and single lichens measure up to 38 cm in diameter); (7) Presence of very unusual and monumental stone constructions at the site (see below).

Examples of monuments found *in situ*: (I) A large triangular shaped foundation wall located in the southwest of the central hill. In 2008, remains of the southern wall (thickness ~260 cm) were still present. In May 2010, the whole wall was dismantled. The triangular construction still can be seen on Google-Earth (30°26'1.59"N; 9°27'28.38"W). Inside the triangle, a multitude of ruins, stone tools and ceramic fragments were found. (II) A remarkable stone circle complex was once located in the very center of the central area. The complex has also been destroyed by stone grinding mills, but it still can be seen on Google-Earth (30°26'19.35 N; 9°27'27.09 W). The circular structure had a diameter of about 50 m and the entire complex measured 130 m x 110 m. Inside the structure, several caverns and stone heaps are situated. In 2008, we were able to photograph some of the last large stone plates of the central circular structure still present at that time. In May 2010, none of these plates were leftover. (III) Peripheral to this circular structure several megaliths which form a small circle containing a 3 m long menhir were found. These megaliths are surrounded by a rectangular shaped 130 cm thick wall. The menhir is tapering towards the top and probably once stood perpendicularly (fig. 5). We assume that the small stone circle construction was arranged next to a spring (today almost dried up). (IV) A well preserved oval building situated in the northeast of the central area. Once, it was a freestanding house measuring 30 m x 18 m. Its foundation walls are 160 cm thick and up to 150 cm in height. They were formed from massive reddish, white and small black blocks. (V) At least in part, the central hill is surrounded by a large earth wall. Its remains are about

5 m wide and up to 2 m in height. We estimate that its length exceeds 6 km. Remarkably, we found pieces of a reddish plaster containing mica next to this wall. (VI) A place with rock carvings exists inside the annular structure (fig. 6). One of the rock carvings resembles a footprint-petrosomatoglyph (fig. 11). (VII) Long straight paths, sometimes running in parallel, exist in the area. They strongly resemble a neolithic *Cursus* monument (fig. 3).

For legal reasons, we did not make any excavations in the area. Nevertheless, we were able to photograph many fragments of pottery, bones and pre-historic stone tools. Selected findings were sent to the *Institut National des Sciences de l'Archéologie et du Patrimoine* in Rabat for further investigation.

Excerpt of findings: (I) The most remarkable finding was a fragmentary earthenware pot containing flint tools (fig. 7, 9). At current, this pot is the westernmost example of incised *Wavy Line* pottery. The distinctive *Wavy*



(3) Straight path/cursus; (4) Stone axe found in central area; (5) Broken menhir (3m); (6) Stone carving; (7) Incised Wavy Line decoration on earthenware pot. The pot contained Silex tools (fig. 9); (8) Stone evacuation; (9) Silex tools found in broken earthenware pot; (10) Microliths found in a *Kökkenmøddinger*; (11) Footprint-petrosomatoglyph.

Line pottery was first identified at Khartoum in 1944 and dates back to early Holocene populations of North Africa. According to Edwards (2007) incised *Wavy Line* pottery is found across much of Sudanic and Saharan Africa (see also Sutton (1977)) and is some of the oldest pottery in the world, with radiocarbon dates as early as 8000 BC. According to Abbas and Khabir (2003), ceramics characterized by wavy line and dotted wavy line decoration, formed a cornerstone for identifying Mesolithic-Neolithic components along the Central Nile and across the Sahara-Sahel Belt. Moreover, they [...] suggested a level of cultural uniformity for the Nilo-Sahara-Sahel Belt from the eighth to the fourth millennia BC. (II) A stone axe was found in the central area (fig. 4) (III) Several K kkenm ddingers were found in- and outside the annular structure as well as in nearby caves. They contain great numbers of flints, stone tools, microliths, sea- and snail-shells (fig. 10). None of the K kkenm ddingers, however, was situated inside or next to pre-historic ruins.

Unfortunately, the entire site is subject to massive destruction. The authors spotted fresh excavations (probably illicit) and two large hydrotechnical constructions that date back to the 1960s. Moreover, the area is used as quarry by the local building industry which every day is carrying away hundreds of large stones (fig. 8). In May 2010, quarrying activity was concentrated in the Northeast of the central area where the oval building is situated. The authors calculated that every day 10-15 lorries full of stones are carried away from the site.

We wish to express our conviction that the settlement is worth protection from further destruction. Moroccan and international authorities should adopt efficient protective measures to stop stone evacuation from the site asap. An important step could be to include the site on the *List of World Heritage in Danger* (in accordance with Art.11 §4 of the Convention). Fortunately we were able to show a small part of the ensemble to Moroccan authorities in May 2010. These authorities expressed their interest in running a university based joint Moroccan/International investigation of the site. We would be glad to contribute to such a cooperation by establishing a contact. Email: info@asalas.org

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