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Rocha, Leonor

The menhirs of Alto da Cruz (Mora, Portugal). New data, new readings.

aus / from

Madrider Mitteilungen, 62 (2021) 18-33

DOI: https://doi.org/10.34780/at0y-nf6a
ABSTRACT
The Menhirs of Alto da Cruz (Mora, Portugal). New Data, New Readings
Leonor Rocha

Alto da Cruz (Mora, Portugal) is a distinctive site within the known frame of reference of menhirs in Portugal. The group of menhirs was identified by L. Rocha and P. Alvim, in August 2011, and archaeological work was carried out in 2012, allowing researchers to confirm its cruciform plan. It presents several exceptional characteristics that justify new lines of questioning on the diversity of open megalithic monuments in the Alentejo and their chrono-cultural relationship with funerary megalithism. In this paper, the functionality of the Alto da Cruz menhir group is presented and discussed.

KEYWORDS
Early Neolithic, Middle Neolithic, menhirs, cross-shaped arrangement, archaeological excavation
1 Introduction

The first menhir of the Alto da Cruz complex (municipality of Mora, district of Évora, Alentejo, Portugal) was identified by Leonor Rocha in 2002, during the relocation of megalithic graves conducted by Manuel Heleno1. The second set, the Alto da Cruz megalithic cruciform2, was identified by Leonor Rocha (LR) and Pedro Alvim (PA) in August 2011, as part of work related to two new research projects on funerary megalithism coordinated by LR, and the research project directed by PA on the menhirs of the Western Alentejo (Fig. 1). It is located 300 m east of the first menhir and is made up of six further fallen menhirs, forming a cross.

Before the intervention, several indications suggested the possibility that the standing stones were lying in situ, on their original foundation structures. The exceptional characteristics that this set of menhirs presented from the outset and the results obtained in the intervention justify new lines of questioning about the diversity of megalithic monuments in the Alentejo and their chrono-cultural relation with funerary megalithism.

The Alentejo region has the highest concentration of megalithic monuments (funerary and non-funerary) of the Iberian Peninsula and, within this, there are also some significant differences in relation to the megalithic typologies and architectures. Menhirs (isolated or in groups) are not evenly distributed in this region (Fig. 2) and the dolmens vary considerably in terms of dimensions and plans. In general, the differences recorded within the two groups are of a geographical order, with greater standardization on the eastern border and greater variability on the western side, especially in the areas of the Tagus and Sado rivers (Mora and Montemor-o-Novo), where the large clusters of Mesolithic sites in Portugal are found.

Regarding funerary monuments, we highlight the fact that monuments of smaller dimensions and with greater variability in architectural layout (monuments of small dimensions with or without corridor and others, of medium and large dimen-

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1 Rocha 2005.
Concerning menhirs, the situation is similar, with the difference mentioned above that they are less dispersed and more concentrated. In the specific case of the municipality of Mora, an area that has been intensively studied since the end of the 20th century, we have monuments of all types, isolated menhirs, one alignment, megalithic enclosures and the exceptional case of Alto da Cruz. But, in general terms, the menhirs in the Mora area are smaller than those in Évora and Reguengos de Monsaraz. In fact, Mora possesses some unique features in regional and even in peninsular terms: a) the smallest megalithic enclosure (height of the menhirs and plan) known in the Iberian...
Peninsula (Vale d’el Rei); b) the only alignment of menhirs known in the Iberian Peninsula (Monte da Têra); c) the only enclosure of menhirs with a cross plan (Alto da Cruz) – all the others identified have a horseshoe plan or, as in the case of a enclosure in Reguengos de Monsaraz, a quadrangular plan (Xarez). The results of the works conducted on these issues since the middle of the 20th century amount to an extensive bibliography³.

2 Location and Description of the Alto da Cruz Menhirs

The monument is located in the municipality of Mora, in the Alentejo region of south Portugal (Fig. 1). At the local level, the Alto da Cruz menhirs are located next to the triangulation stations called «Alto da Cruz», in the homestead of Santa Cruz. This set consists of six menhirs positioned very close to each other and to another menhir, which is aligned with the set, about 300 m away (Fig. 3).

The sites’ Hayford-Gauss Datum Lisboa coordinates are:
Menhir 1 to 6 (cruciform): M = 201266 / P = 207882 / Z = 193
Menhir 7: M = 200947 / P = 207850 / Z = 186

The site is situated near the contact zone of the Hesperian Massif with the Tagus Tertiary basin (3 km to the north and 1 km to the northeast); the basement rocks consist of an extensive area of granites (porphyry), from coarse to medium grain, punctuated by narrow and elongated outcrops of pegmatites. The surface rocky (granites) where the cruciform is found is precisely crossed by one of these outcrops of pegmatites⁴.


⁴ Carvalhosa – Leandro 1998.
The characteristic pedological coverage of this area has very little agricultural capacity and is recognized by rural workers as having a very short season, quickly turning into mud under rain and extremely compact soon after, which is why it was so hardened during the archaeological works, carried out in dry season.

3 Alto da Cruz: Archaeological Data

3.1 Specific objectives

The first objective of the intervention was to understand the original structure of the monument and clarify whether the menhirs were in situ (Fig. 4) or displaced,
with the cross arrangement being a purely fortuitous fact. This question could only be addressed by identifying their foundation structures.

Secondly, we sought to identify traces of other (negative) structures that could possibly be related to the use of the monument, which we presumed to have been ceremonial in character while not excluding the possibility that it could have also had a funerary purpose.

Our third objective was to collect organic archaeological materials that could be subjected to radiometric dating and/or collect non-organic archaeological materials that could be subjected to a chrono-cultural analysis. With these objectives in mind, we also intended to recover the remains of the stone monument.

3.2 The intervention

The archaeological excavation and recording work followed, whenever possible, the methodological assumptions proposed by Edward C. Harris. These included the removal of deposits by context, following the reverse sequence to their deposition or formation, graphic and photographic records of all identified units, and the registration of artifacts according to the stratigraphic units that contained them.

The six menhirs of the cruciform were designated as Sector 1, and menhir 7 was designated as Sector 2 (Fig. 3). During the excavation, it was necessary to move the menhirs to proceed with the excavation of the subsoil on which they had fallen. These operations were carried out manually by means of wooden fence posts, with the exception of menhirs 3 and 7, which, due to their weight, had to be moved by mechanical means and manually adjusted with wooden posts (Fig. 5).
3.2.1 Sector 1

Before the excavation work started, a 6 m × 12 m grid was implanted around the cruciform (Fig. 2), aligned with the direction indicated by the menhirs 1, 2, 5 and 6 (the largest arm of the cross) that are oriented on an axis 7° to the northeast.

Due to the fact that, in this sector, all the menhirs had fallen over, in a horizontal position and deeply buried in the ground, without any indication of where their respective foundation structures could be found, it was necessary to carry out surveys around each of them. The grid of Sector 1 was laid out in order to allow the gradual opening of 1 m × 1 m squares in order to completely expose the menhirs from the sediments that surrounded them (Fig. 6) and look for traces of their original foundations.

Prior to the intervention, it was expected that the support structures of the menhirs (pits and/or support crowns) would be relatively well preserved, mainly due to the fact that the menhirs had fallen in a geometric configuration (a cross) that could be close to the original arrangement of the monument (Fig. 4). Furthermore, the position of the menhirs deeply buried in the ground (with the exception of menhir 4) indicated that they had not been displaced after they had fallen.

However, the pedological characteristics of this area, as observed during the excavation, were responsible for erasing any traces of the implantation pits of almost all the menhirs. In fact, these clayey and skeletal soils (the geological substrate was at a depth of between 10 and 30 cm from the surface), with a «very short season», become extremely plastic under the effect of rain, and allowed the menhirs to sink deeper into the soil, under their own weight, compressing and homogenizing the sediments in the foundation structures, as observed, for example, at menhir 3.

Although, during the excavation, progress was made with meticulous attention to differences between sediments that could attest to the existence of different stratigraphic units, it was not possible to identify the socket fills of menhirs 1, 2, 3, 4 and 5. Only at menhirs 1, 3 and 6 was it possible to identify stones that would have served...
as supports placed in the sockets to guarantee the vertical stability of the monoliths (Fig. 7). Menhir 2 probably did not require an elaborate support, given that its base is flattened (Fig. 8).

We believe that the absence of clear boundaries between the socket fills and the surrounding sediments is due to the homogenization of the soils, owing to their plasticity and mobility under conditions of heavy rainfall.

Along these lines, it should be mentioned that lime fragments were found in squares BC/9–10, between 5 to 15 cm deep, although there was no indication of a pit that could justify the presence of modern traces at such a depth. These finds must be attributed to bioturbation and the plasticity of soils.

These lime nodules are likely to trace back to the painting of the geodetic landmark, which is 3 m to the west of the monument's center, on September 15, 1997 (which seems to have been the last time, taking into account the existing degradation on the surface of the geodetic landmark), as stated in the Portuguese Geographic Institute.

Measurements and description of the menhirs:

**Menhir 1**: L 1.50 m; mesial section 0.36 m × 0.71 m. Volume = ~ 0.20 m³; Weight = ~ 550 kg.
The face of the menhir that was in contact with the ground appears to have engravings, which are very eroded in the distal part owing to an erosive recess. It was not possible to detect any traces of its implantation pit (alveolus), or its filling, but four stones associated with its proximal end were identified as remnants of the menhir support structure. Note that the proximal end of the menhir is narrower than the distal end, and for that reason the menhir would have needed supports for better stabilization.

**Menhir 2**: L 1.16 m; mesial section 0.75 m × 0.50 m. Volume = ~ 0.26 m³; Weight = ~ 700 kg.
During the excavation, several deep and wide cupules were exposed at one end of the menhir (east), suggesting that this was its distal end. The opposite end (west) is flattened. The face in contact with the ground showed two cupules arranged along the longitudinal axis of the menhir (Fig. 7).
It was not possible to identify its support pit or limestone; however, the flattened end would have been sufficient to set the menhir in the ground, though probably not very deep, and thus, it was not necessary to insert supports for stabilization.

**Menhir 3:** L 1.92 m; mesial section 1.06 m × 0.80 m. Volume = ~ 0.92 m³; Weight = ~ 2500 kg

It was not possible to identify evidence of the menhir support pit. However, several medium-sized and large stones (around ten) were exposed under the layer where the menhir rested, which would have formed the stone crown of the socket (Fig. 9).

The thickest end of the menhir is flat and slightly inclined in relation to the perpendicular of its longitudinal axis; the fact that this end is associated with the support crown indicated that it is its base.

**Menhir 4:** L 1.23 m; mesial section 0.75 m × 0.50 m. Volume = ~ 0.28 m³; Weight = ~ 800 kg

This was the only menhir that was not found buried. The excavation of its underlying layers did not allow for the identification of any evidence of its support structure for this menhir, which is why it was not placed vertically. At the end of the excavation it was restored to its position from before the intervention.

The end that was facing northeast is flattened, indicating that, like menhirs 3 and 4, it must have been its base. It has several cupules on the thinner (distal) end and on the face that was exposed.

**Menhir 5:** L 0.46 m; mesial section 0.96 m × 0.50 m. Volume = ~ 0.39 m³; Weight = ~ 1100 kg

The excavation of the layers underlying menhir 5 did not allow for the identification of any trace of its support structure (implantation pit or heel stones). After the excavation, the menhir was returned to its previous position.

On its exposed side there is a large dimple, surrounded by smaller ones; there are nine of these in the inner circle and another thirteen along an outer circle. On the same side there are also six cupules scattered with two pairs of twinned cupules. After being freed from the sediments that surrounded it, it was possible to identify, at the north end, three or four shallow cupules, indicating that this would have been the distal end.

**Menhir 6:** L 1.54 m; mesial section 0.72 m × 0.45 m. Volume = ~ 0.33 m³; Weight = ~ 900 kg

In the layers underlying this menhir, it was possible to identify the remains of its implantation pit (UE3) and support crown formed by stones (some still in situ).

By removing the sediments surrounding the menhir, it was possible to identify, at the distal end, three large and deep cupules (one of which appears to be the result of the connection of two cupules).
3.2.2 Sector 2

Menhir 7 was found tilted, with the top exposed and the base driven into the ground. Given the evidence of where its foundation was, a 2 m × 2 m grid was laid out, oriented according to the longitudinal axis of the menhir and centered at its base to allow for the excavation of the sediments that surrounded its base and find its support structure. In this sector, the soils were found to be identical to that of Sector 1, although it was possible to detect a pocket of land surrounding the base of the menhir and which may be the result of an perturbation in Roman times since three coins from the Imperial period were collected there.

Some limestone and traces of the pit cut in the rocky substrate provide evidence for the foundation structure, located under the end of the menhir that was embedded in the soil.

Measurement and description of the menhir:
Menhir 7: L 2.30 m; mesial section 0.87 m × 0.47 m. Volume = ~ 0.46 m³; Weight = ~ 1250 kg
The traces of the menhir’s foundation consisted of some stones apparently displaced by the weight of the monolith and remains of the implantation pit in the geological substrate.
On the surface that was facing upwards were about fifty dimples, of different dimensions, some of which were interconnected (Fig. 8).

4 Material Culture

The material culture of prehistoric date recovered in Sector 1 is quite uncharacteristic. We discovered only one fragment of handmade ceramics on the surface, immediately under menhir 4 after it had been moved. On the other hand, numerous flakes of several types of local quartz were collected throughout the area excavated in Sector 1.
A preliminary observation of this assemblage suggests that it is an atypical occurrence among the megalithic structures of the area. The possibility that these materials date to the period prior to the construction of the megalithic cruciform cannot be excluded. However, it should be noted that this ensemble bears some similarities with the lithic materials, mostly in quartz, recovered in the excavation of the Vale d’El Rei megalithic enclosure, also in the municipality of Mora six.

In Sector 2, three coins of imperial Roman date were recovered, probably from the second century AD. These may be votive deposits, since they were located at the base of the menhir. In the same sector were also found some fragments of wheel-made ceramics, possibly also Roman. This type of reuse has been identified at other menhirs and megalithic sites investigated in the Alentejo.

5 Discussion

The excavation of the Alto da Cruz group of menhirs enabled us to confirm, as we previously anticipated, that the monoliths had fallen on their original foundation structures (Fig. 10). Although in two cases (menhirs 4 and 5) it was not possible to identify their foundation structures, we do not think they were displaced after they had fallen. The fact that the support structures of these two examples have not been preserved can be attributed to erosive factors, bioturbation, plasticity of the soils and, probably, to the fact that the respective structures were relatively insignificant (e.g. shallow pits, without heel stones).

One of the most significant aspects of this intervention is the discovery and characterization of a new typology, evident in a megalithic structure consisting of six menhirs (a double alignment forming a cross, associated with a menhir 300 m away).

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This contrasts with the material so far known from the Alentejo, which consists of isolated menhirs, pairs of menhirs, and megalithic enclosures.

This megalithic complex provides evidence of the variability of the architecture of menhirs in the Alentejo, and some insights into the expression of local character, since there are no other parallels in the region.

On the other hand, the systematic use of cupules should also be emphasized (in five of the seven menhirs). Although this type of rock art is known from other isolated menhirs and megalithic enclosures, in none of the other known cases are there such wide and deep cupules.

Although future research work will be necessary to confirm this possibility, it is worth mentioning that the probable engravings on Menhir 1 may well be unique among the other menhirs and megaliths in the Brotas/Mora region (in terms of its complexity, with crossed lines, circles and possible serpentine lines). Regarding the monument’s chronology, the data observed and the materials collected do not allow a conclusive attribution. Based on research carried out in recent decades, menhirs and related architectural forms in the Central Alentejo can be associated with the Early Neolithic epipalatial/Middle Neolithic, especially when we take the material culture found at megalithic enclosures into account (Almendres and Portela de Mogos, in Évora, and Fontainhas, in Mora).

At Alto da Cruz, the near total absence of pottery and the lithics that were recovered suggest, in a way, that it represents an early phase from the Neolithic sequence, possibly the Early Neolithic.

On the other hand, the central position of the monument in relation to the megalithic graves that surround it, from the simplest types (small closed chamber) to the most complex ones (large corridor dolmen), suggests that the group of menhirs in the Alto da Cruz is one of the oldest megalithic monuments in the area, if not the one at the beginning of the megalithic sequence in the Brotas area.

Another question which will have to be analyzed at some point in the future is the presence of Roman materials with Menhir 7 (Sector 2), which is located next to an old road (which may date as far back as the Roman period). In fact, this type of reuse (ritual?) has been identified at other menhirs and megalithic sites (isolated menhirs, pairs of menhirs and megalithic enclosures) investigated in the Alentejo, such as Fontainhas, Mora, Portela de Mogos, Évora, S. Sebastião, Montemor-o-Novo and Caeira, Arraiolos.

This reuse of a megalithic structure in the late Roman period, in an area far away from the center of the Empire (Rome), makes us consider the possibility of a return to ancient religious rituals, involving stone worship, during the fall of the Roman Empire. This is a very interesting question and is currently being analyzed within the scope of a new project that is underway.

Acknowledgements

Eng. Luís Vieira Lopes, owner of Herdade de Santa Cruz, for having granted us authorization for archaeological intervention in the Alto da Cruz menhirs. Eng. Joaquim Fernandes for all the support he gave to the team and to the archaeological investigation.

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8 Gomes 1994; Gomes 2002; Calado 2004; Calado et al. 2007.
10 Calado et al. 2007.
12 Calado 2004.
carried out in the parish of Brotas. To the Municipality of Mora for the financial and logistical support and especially to the technicians António Luís Carlos and José Caeiro for their collaboration in the re-erection of the menhirs. To the researchers Patrícia Moita, José Mirão and António Candeias, from the HERCULES Laboratory / University of Évora, for their scientific support in clarifying the geology of the area. To Tiago Calado and Daniela Anselmo, for the revision of the translation of this text.
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Los menhires de Alto da Cruz (Mora, Portugal). Nuevos datos, nuevas lecturas
Leonor Rocha

Alto da Cruz (Mora, Portugal) es un yacimiento peculiar en el marco de referencia conocido de los menhires en Portugal. El grupo de menhires fue identificado por L. Rocha y P. Alvim, en agosto de 2011, y el trabajo arqueológico se llevó a cabo en 2012, lo que permitió a los investigadores confirmar su planta cruciforme. Presenta varias características excepcionales que justifican nuevas líneas de debate, en lo que respecta a la diversidad de los monumentos megalíticos abiertos en el Alentejo y sus relaciones cronoculturales con el megalitismo funerario.

En este trabajo se presenta y analiza la funcionalidad de este grupo de menhires del Alto da Cruz (Mora, Portugal).

PALABRAS CLAVE
Neolítico Antiguo, Neolítico Medio, menhires, agrupación en forma de cruz, excavación arqueológica

ZUSAMMENFASSUNG
Die Menhire von Alto da Cruz (Mora, Portugal). Neue Daten, neue Interpretationen
Leonor Rocha


Im vorliegenden Artikel wird die Funktion der Menhirgruppe von Alto da Cruz (Mora, Portugal) präsentiert und diskutiert.

SCHLAGWORTE
Frühneolithikum, Mittelneolithikum, Menhire, kreuzförmige Anordnung, archäologische Ausgrabung
SOURCES OF ILLUSTRATIONS
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METADATA
Title/Title: The Menhirs of Alto da Cruz (Mora, Portugal). New Data, New Readings
Band/Issue: MM 62, 2021
Bitte zitieren Sie diesen Beitrag folgenderweise/Please cite the article as follows: L. Rocha, The Menhirs of Alto da Cruz (Mora, Portugal). New Data, New Readings, MM 62, 2021, § 1–37, https://doi.org/10.34780/at0y-nf6a
Copyright: Alle Rechte vorbehalten/All rights reserved.
Online veröffentlicht am/Online published on: 31.01.2022
DOI: https://doi.org/10.34780/at0y-nf6a
URN: https://nbn-resolving.org/urn:nbn:de:0048-at0y-nf6a.2
Schlagworte/Keywords/Palabras clave:
Frühneolithikum, Mittelneolithikum, Menhire, kreuzförmige Anordnung, Ausgrabung/Early Neolithic, Middle Neolithic, Menhirs, cross-shaped arrangement, excavation/Neolítico Antiguo, Neolítico Medio, menhires, agrupación en forma de cruz, excavación
Bibliographischer Datensatz/Bibliographic reference: https://zenon.dainst.org/Record/002047875