

Megaliths and Geology

Megálitos e Geologia

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Funerary megalithism in the south of Beira Interior: architectures, spoils and cultural sequences

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Abstract: In this study, we present the main results obtained during the archaeological survey of a vast area in the south of Beira Interior, in the region of the International Tagus river, followed by the excavation of the most representative and best preserved funerary megalithic monuments. It was possible to identify several types of monuments and to relate these with the artefact findings, and then to develop a model to explain the architectonic succession of funerary megalithic monuments in the region. It was also possible to observe some constructive particularities in some of these monuments, herein summarized.

Keywords: International Tagus river; megalithic tombs; cultural sequence.

Megalitismo funerário do sul da Beira Interior: arquiteturas, espólios e sequências culturais

Resumo: Neste trabalho apresentam-se os principais resultados obtidos no âmbito da prospecção sistemática de uma vasta região do sul da Beira Interior, região do Tejo Internacional, seguida da escavação dos monumentos megalíticos funerários mais representativos e em melhor estado de conservação. Desta forma, foi possível identificar diversos tipos arquitectónicos, relacionando-os com os respectivos espólios, fundamentando um modelo para a sucessão arquitectónica regional do megalitismo funerário. Foi igualmente possível a observação de particularidades arquitectónicas ou estruturais em alguns destes monumentos, as quais serão também sumariamente apresentados.

Palavras-chave: Tejo internacional; megálitos funerários; sequência cultural.

1. History of investigations

Until recently, the south of Beira Interior, in the region of the Internacional Tagus river, as far as the richness of its megalithic archaeological heritage was concerned, has remained largely unknown. In fact, considering the pioneer explorations carried out by Francisco Tavares de Proença Júnior in the Urgueira dolmen, in Vila Velha de Ródão, as well as in other megalithic monuments, of which he would only report existence (Proença Júnior, 1910); all those explorations did not have the follow-up they deserved. Félix Alves Pereira only occasionally became interested in the subject. To him is owed the exploration of the Anta Grande de Medelim, which he published in 1934 (Pereira, 1934). Georg and Vera Leisner, in their inventory of the Portuguese dolmens (Leisner & Leisner, 1956), mark only three, west of Rosmaninhal, and another one, near the extinct village of Alares; a panorama that has not changed in Vera Leisner's recently published posthumous works (Leisner, 1998).

In the second half of the century, only three other monuments were excavated, by O. da Veiga Ferreira and D. Fernando de Almeida. Especially relevant was the excavation of the important dolmen of Granja de S. Pedro, Idanha-a-Velha (Almeida & Ferreira, 1958, 1959, 1971).

Nevertheless, it was highly likely that yet a large number of dolmens had been left unidentified in the region, according to the approximately 90 dolmens surveyed by the Leisner in the neighboring region of Proença-a-Nova (Kalb, 1990). There was no reason why that situation should not be the case also in the adjacent region.

2. Recent works

Systematic prospecting work carried out on the ground since the 1970s to the present time by the Alto Tejo Studies Association has fully confirmed the above assumption. Thus, in an area naturally limited to the South by the International Tagus river, at East by the Erges river and at West by the Aravil river, more than ninety dolmens have been recognized so far, which remained totally unpublished. About sixty-five are in the region of Rosmaninhal, while about twenty-five are in the region of Malpica do Tejo/Monforte da Beira. The vast majority are in good conservation conditions. This was partly due to the low population density of the region and the type of land use. In fact, the holm oaks (*montado*) dominates the region, often with centuries-old specimens. The extensive cereal cultivation practices, especially of wheat, which was important until the early 1960s, are still carried out by traditional, non-mechanized methods, which also explains the good conservation conditions of these monuments.

Systematic archaeological cartography of the region that had already been carried out should also be pursued by excavations, which ought to be planned in the medium/long term, allowing for the acquisition of full knowledge about the most important monuments, along with other actions, in view of characterizing the housing component of these communities.

For now, only reference to the funerary component will be made here. This is by far the bestknown aspect, as it is likely that the builders of these megaliths have had an itinerant economy, essentially based on silvo-pastoral activities.

This paper will also not address the nonfuneral megalithic heritage, which integrates several menhirs and cromlechs already known in the region, nor the artistic component, represented by several rock panels, often found in the proximity of the megalithic monuments. These elements obviously make part of the same and indivisible reality, which will merit an integrated study.

3. Geo-environmental aspects. Implantation of monuments

The area of distribution of the remarkable megalithic structures, which has gradually been defined, corresponds, from the geological point of view, to a substrate consisting of outcrops of the pre-Ordovician greywacke/shist complex, integrated in the Rosmaninhal Formation, with turbiditic characteristics (Oliveira, 1992). These rocks are, in turn, covered by detrital deposits, essentially arkosic conglomerates, of more or less reddish color depending on the degree of oxidation they present, and preserved on the top of the platforms cut by erosion. Their age was fixed in the Eocene or the Oligocene (Oliveira, 1992). Finally, we can observe, mainly on the slopes and adjacent low zones, deposits constituted by vast mantles of quartz and quartzite gravels, resulting from the dismantling of the Paleozoic reliefs, and whose age can be set in the transition from Pliocene to Quaternary: these are the *rañas*, typical from semi-arid climate, and formed by torrential discharges, which periodically impacted the region at that time.

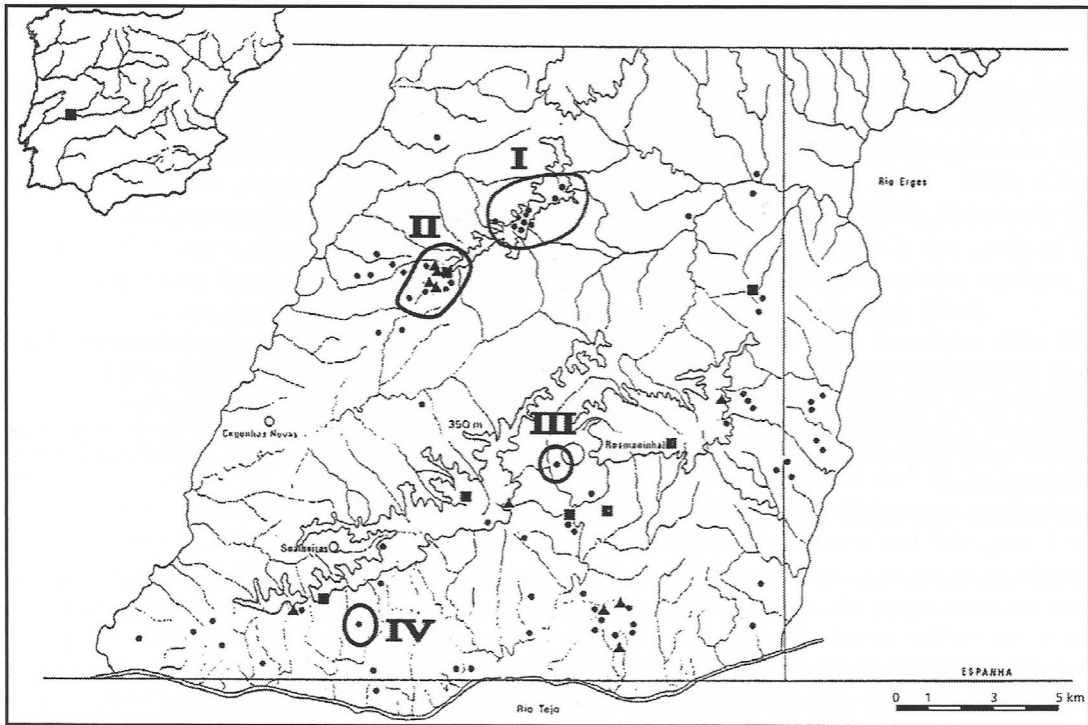


Figure 1 – Geographical location of the *nuclei* of monuments studied in the region of the International Tagus river. Circles: megalithic monuments and *tumuli*; squares: habitational remnants (large elements of handheld millstones); triangles: menhirs, enclosures and engraved rocks. The closed lines indicate the megalith *nuclei* investigated: I - Amieiro, with five excavated monuments (Amieiro 1, 2, 3, 5 and 8). II - Couto da Espanhola, with 2 monuments excavated. III - Dolmen of Cabeço da Forca. IV - Dolmen of Poço do Chibo.

The nine dolmens explored (Fig. 1) are distributed according to two main patterns. In some cases, they are concentrated on the top of platforms that constitute the major axes of the landscape compartmentalization, forming true megalithic necropolis, from which vast areas can be seen. Some of the monuments from two of these platforms have been exploited to this day. One is the Couto da Espanhola platform, at an altitude of around 300 meters and a NE-SW general orientation. In this platform, seven dolmens were mapped, of which two were better preserved, and showed greater architectural differences. The other is the Amieiro platform, at a slightly higher elevation (360-370 meters) and with an identical orientation. In this platform, eight dolmens were identified, of which three were explored, according to their state of conservation and the diversity of their architectures. In some cases, the distance between these monuments is less than 100 meters, so that they can be seen from each other, constituting *nuclei* within the necropolis that they integrate. Still, in general, the distance between the monuments is higher, in the range of 200 to 250 m, although from any of these places one can generally recognize the location of the nearest one. In other cases, monuments occur more or less isolated in the landscape. This is the case of the Poço do Chibo dolmen, which is implanted in a lower zone.

4. Architectural aspects and funerary rituals

The results obtained from the excavations that have been carried out since 1993 in the International Tagus region, have already given rise to several contributions, among which one can highlight the study

published in 2003 (Cardoso, Caninas & Henriques, 2003). Based on the nine megalithic monuments excavated, we can be summarized the information as follows:

1 – The landscape would have been punctuated, in a very evident and intentional way, by megalithic graves. Such evidence is confirmed by the existence of a coating in all funerary mounds (*tumuli*, in Portuguese, *mamoas*) without exception, made of blocks of milky quartz, a characteristic which, in fact, greatly facilitates their current identification on the ground. This was not just a simple coating: the armor of quartz blocks, tightly fitted together, extended in depth, and really gave the mounds the status of *cairns*. Therefore, there was a clear intention of giving visibility to all these sepulchers, instead of dissimulating them in the landscape. Even monuments that were implanted in low zones, such as the Poço do Chibo dolmen, where nothing would make one suppose they existed, presented the *mamoá* coated in this way (Fig. 2).



Figure 2 – Cairn of the dolmen of Poço do Chibo, constituted by large blocks of milky quartz coming from a nearby quartz vein. Photo by J. L. Cardoso.

2 – The presence of a relatively scarce number of dolmens in the two platforms hitherto studied in more detail configures the preference given to them, as real necropolises, over hundreds of years. However, the construction of new monuments would have been an exceptional act in the daily lives of the agropastoral communities that were established here in the 4th and 3rd millennium BC. If, at present, their number seems to be excessive, this is because the time factor is often ignored, as well as the remarkable population potentially installed here, in the course of hundreds of years. In fact, the presence of this noteworthy population is further justifiable given the excellent conditions for a pastoral economy, involving the mobility of these people.

3 – It is important to discuss and value the differences in architecture and artifacts found in monuments that are sometimes a few hundred meters distant from each other, as in the case of the dolmens (*antas*) 6 and 2 of Couto da Espanhola, both fully explored. Thus, while the small dolmen 6 has a plant devoid of a corridor, having been built after an originally closed monument (Fig. 3); dolmen 2 corresponds, in

its turn, to a large polygonal chamber monument, with a very long corridor (Fig. 4). Such architectural differences can be reconciled with the differences pointed out in terms of the spoils there found. In dolmen 6, considering the lithic spoils, and in addition the polished stone artefacts, there were only scarce geometrics and *lamellae*.

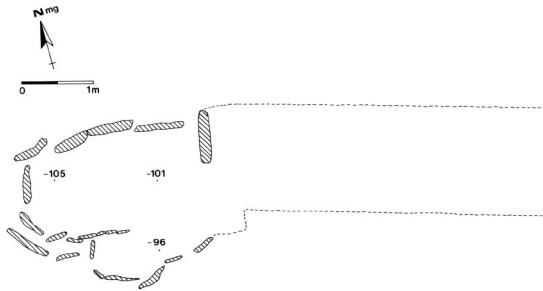


Figure 3 – Plant and general view of the dolmen 6 of Couto da Espanhola, of small dimensions, evidencing two phases of construction, with the transformation of a closed monument into an open structure, during the Middle Neolithic. Photo by J. L. Cardoso.

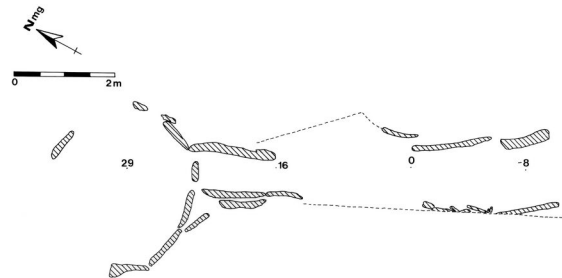


Figure 4 – Plant and general view of dolmen 2 of Couto da Espanhola, evidencing a large monument with a polygonal chamber and a long corridor. Photo by J. L. Cardoso.

In this monument, ceramic specimens were entirely absent, very likely because of symbolic precepts (Cardoso, Caninas & Henriques, 1995), as it has been observed in other contexts of the Middle Neolithic, such as the cave of Lugar do Canto, Alcanena (Cardoso & Carvalho, 2008). On the contrary, in dolmen 2, the lithic industry is abundant, evidencing a remarkable set of arrowheads from different typologies (Fig. 5), thus corresponding to the phase of occupation from the Late Neolithic or even from the Chalcolithic (Cardoso, Caninas & Henriques, 1997a).

This reality seems to indicate that the beginning of regional megalithism occurred in the Middle Neolithic period, which can be placed between 4000 and 3500/3400 BC (Cardoso, 2015), and is represented by dolmen 6 of Couto da Espanhola. It also indicates that the construction of megalithic monuments became more common in the following centuries, extending until the end of the Chalcolithic, with the construction of the first individual graves, also known in the region.

4 – In these terms, it is necessary to discuss the issue of the polymorphism evidenced by the monuments. It is interesting to note that there are monuments of small dimensions and apparently archaic typology, with a horseshoe-shaped plan and devoid of corridor, such as the dolmen 8 of Amieiro (Fig. 6). This monument provided, along with geometrics, a single *lamella*, compatible with the Neolithic chronology attributed to dolmen 2 of Couto da Espanhola (Middle Neolithic), but also produced a concave-base arrowhead, recovered from inside the chamber, with a deeply reentrant base, clearly Chalcolithic (Fig. 8).

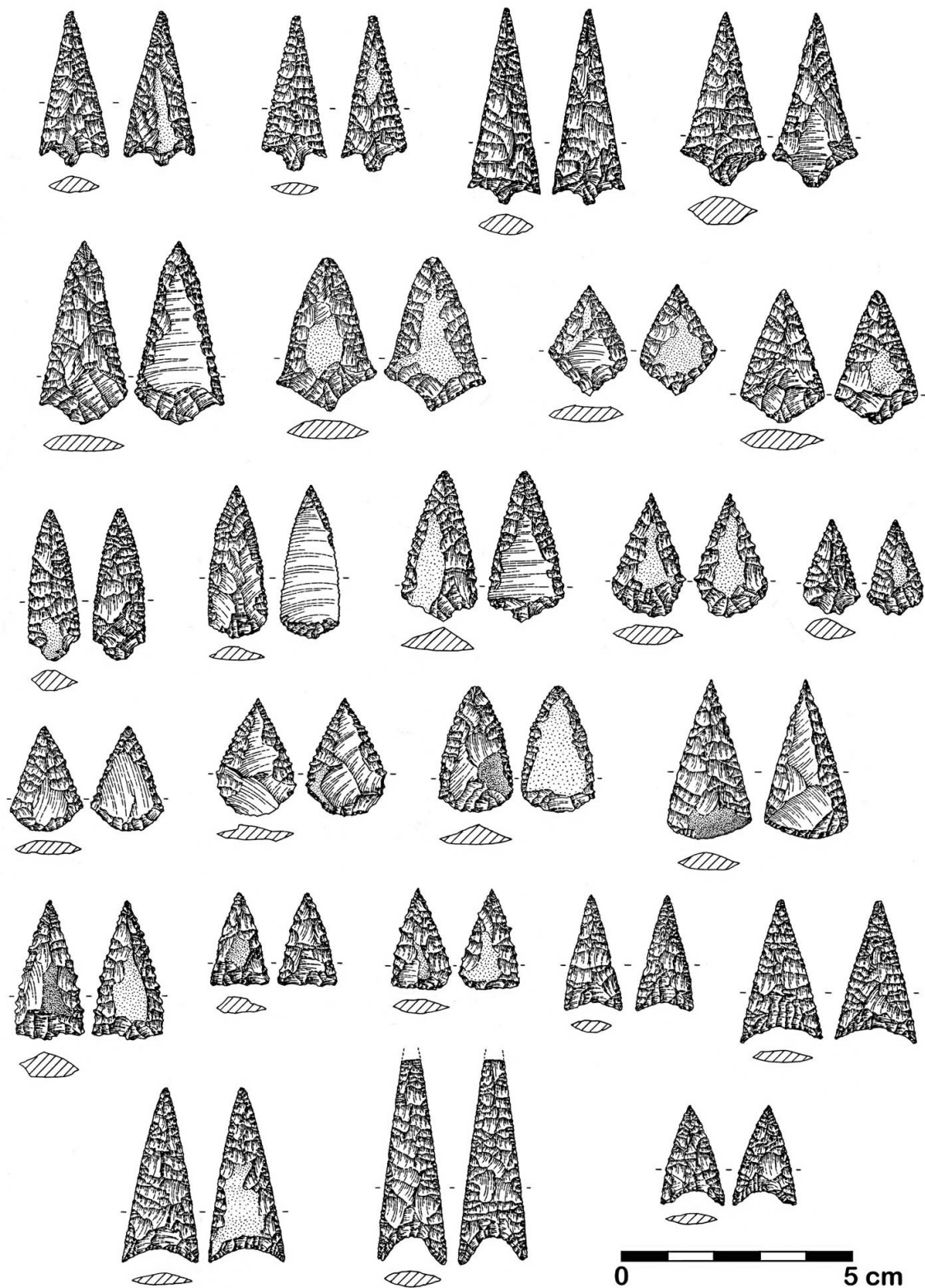


Figure 5 – Arrow points of flint from dolmen 2 of Couto da Espanhola. Drawings of B. L. Ferreira.

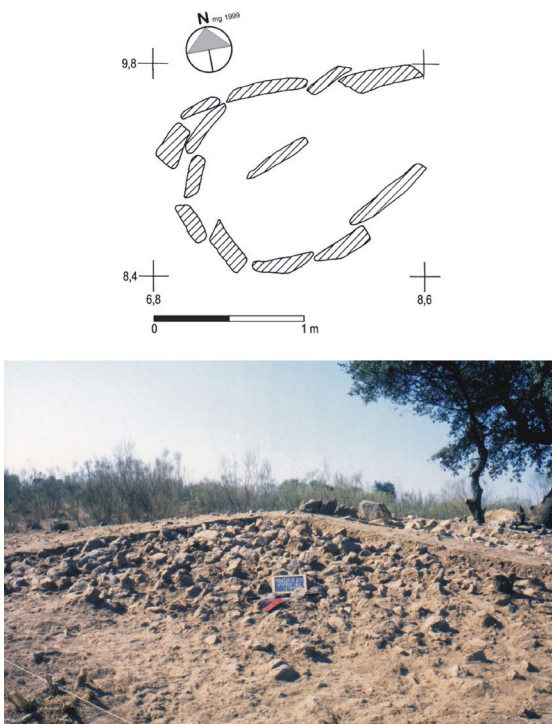


Figure 6 - Plant and general view of dolmen 8 of Amieiro, evidencing the *cairn*, very well preserved, consisting of blocks of milky quartz, originating from an existing quartz vein about 10 m away. Photo by J. L. Cardoso.

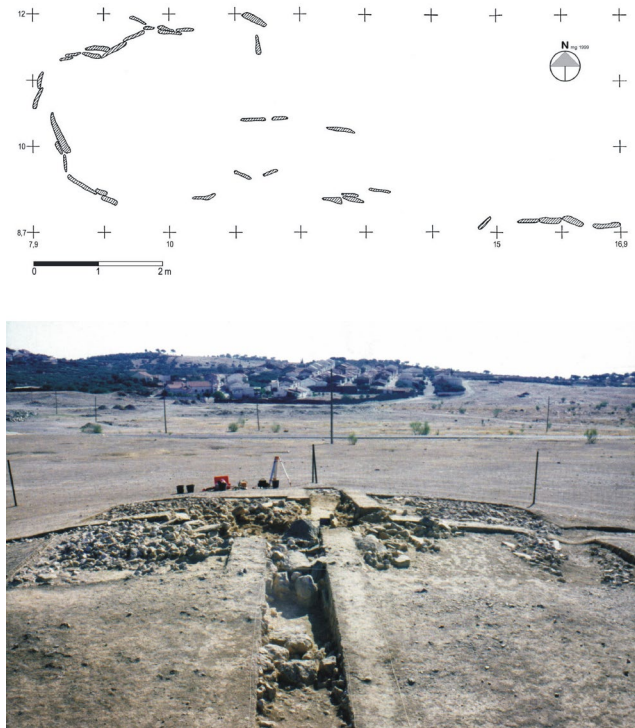


Figure 7 - Plant and general view of the Cabeço da Forca dolmen. The plant shows the *alveoli* of the slabs, almost all of them removed for various re-uses, leaving only the small wedges that served to fix them. Photo by J. L. Cardoso.

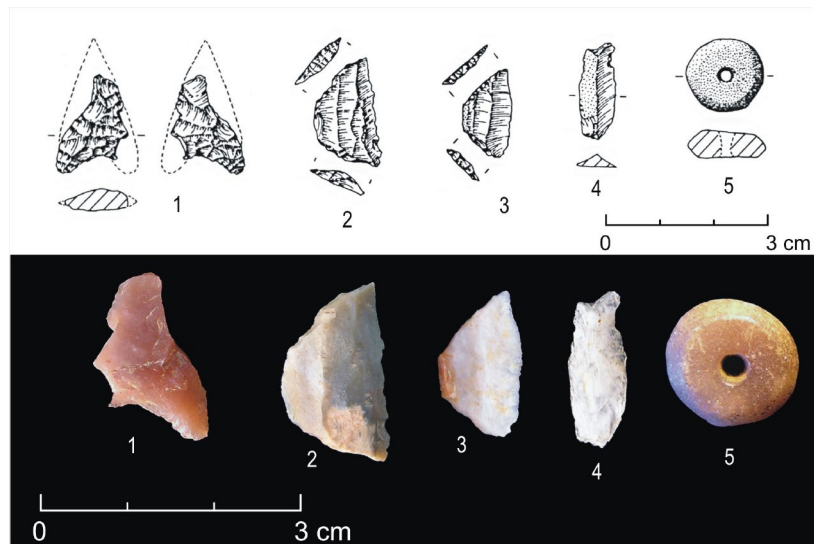


Figure 8 - Spoils from dolmen 8 of Amieiro. 1 - Chalcolithic arrow tip with thermal fractures in pink flint, collected at about 0.60 m depth in the chamber; 3 and 4 - Quartz lamella and chalcedony crescent, collected in the chamber at about 1.0 m depth; 3 - Grayish brown flint crescent, collected on the surface of the *cairn*; 5 - bead with cylindrical perforation, of rosy siliceous rock, collected at the surface of the *cairn*. Drawings by B. L. Ferreira. Photos by J. L. Cardoso.

This reality points to two alternatives.

The first alternative corresponds to the eventual survival of the small graves in the late period of megalithism, a subject recently discussed in an exemplary way for another geographical area, Central Alentejo (Mataloto, Andrade & Pereira, 2016/2017).

The second alternative refers to the reuse of the monument, centuries after its first funeral occupation. Given the smallness of the chamber, it would only be possible to perform one burial at a time. Belonging to the eventual more modern burial, one flatbottomed vase has been found, provided with a ribbon wing that departs from the edge. This hypothesis was confirmed in other nearby monuments, such as dolmen 2 of Amieiro, where a copper dagger with riveted handle, from the Bronze Age, was found. Another example is dolmen 5 of Amieiro, which also corresponds to a small horseshoe-shaped monument devoid of corridor. Nevertheless its apparently archaic architecture, this monument produced two arrowheads, a flint blade and an engraved schist plaque of remarkable dimensions, indicating the Late Neolithic, with no element of the spoils suggesting the Middle Neolithic. In this case, there is a clearer possibility that this small megalith had been built during the Late Neolithic.

The possibility that some of the great monuments with an “evolved” plant predate the Late Neolithic is also supported by the material evidence. This is the case of the Cabeço da Forca dolmen. Despite its considerable size, its polygonal chamber and long corridor (Fig. 7), and the abundant collection of polished tools collected, this dolmen did not contain any elements of the most evolved phase of the Neolithic period, as arrow points and could thus be integrated in the Middle Neolithic period. This would relegate the origins of the megalithic polymorphism to the beginning of the phenomenon itself, at least in the region under study.

A single monument of Chalcolithic typology was recognized. This is the dolmen 3 of Amieiro, whose chamber consists of nine narrow orthostats (Fig. 9). There follows a corridor, sealed by a transversally placed slab separating it from an open-air *atrium*, delimited on either side by orthostats of diminishing heights, and accompanying the pendant of the *tumulus* (Fig. 10). On the whole, the architecture of this monument evokes that of the country’s southern *tholoi*, which are unknown in the region. The scarce material recovered, is from the Chalcolithic, corresponding to a lanceolate Palmela point, of evolved typology.

5 – Regardless of their respective typology, these structures invariably show orthostats of local origin or, at most, available only a few hundred meters away. However, the size of the schist or greywacke slabs, rarely exceeding one meter in length, is always significantly smaller from the dimensions of those that characterize the granite slabs of the dolmens from other geographic areas. With such dimensions, it was not possible to construct large dolmens, such as those in the granitic regions of Beira Alta and Alto Alentejo. This explains the small height not only of the chambers, but also of the corridors of these monuments, which in most cases would have had only a ritual function. It would be an impractical task to crawl through these long and narrow spaces, sometimes more than 8 meters in length, as it is the case of the corridor of dolmen 2 of Couto da Espanhola, whenever a new burial in the chamber was intended; even more considering the additional difficulty of having to carry along the bodies to be buried. For the most part, the same observation applies to dolmen 2 of Amieiro (Fig. 11).

Thus, in order to carry out subsequent burials, it would be necessary to directly access the chambers of the dolmens, by partial or complete removal of their respective cover. This operation was greatly facilitated by the absence of large roof slabs, for which no trace was found. The covering of the chambers of these monuments would thus be secured with timber and branches, on which the elements of the *mamoas* would be settled and that were easy to remove.

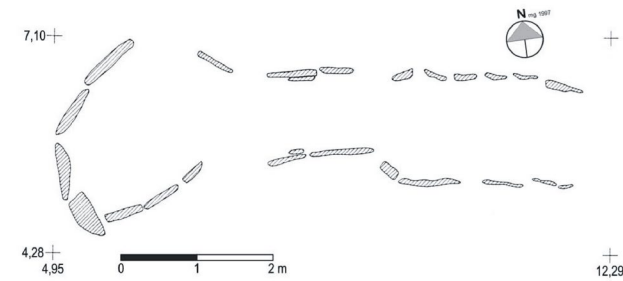


Figure 9 – Plant of Amieiro 3 and its implantation in the landscape, corresponding to a large platform formed by coarse tertiary deposits. Photo by J. L. Cardoso.



Figure 10 – Frontal view of the *atrium* (originally open-air) of Amieiro 3, sealed with two large slabs placed transversely and separating it from the corridor under the monument's *tumulus*. Photo by J. L. Cardoso.

What has been said so far does not invalidate, however, that in some cases the corridor could be functional. In dolmen 3 of Amieiro, the presence of two large imbricated slabs was recognized, sealing the dolmen, and separating it from the outside of the monument, where, as mentioned above, a small entrance *atrium* could be found, laterally delimited by orthostats of decreasing height. This is, however, an odd situation.

It should be noted that the modest dimensions of orthostats limited only the height of the monuments, but not their horizontal development. This is proved by the existence of the two great dolmens already mentioned, the dolmen 2 of Couto da Espanhola and the dolmen of Cabeço da Forca.

In addition to schist and greywacke orthostats, large quartz blocks were exceptionally used, taken from near veins, sometimes of large dimensions, observed at the ground in the vicinity of some monuments, like Poço do Chibo. These blocks make up part of the constructive apparatus of this monument of diminutive dimensions, having a maximum length of about 4 meters and a corridor with a little more than 2 meters in length. This monument, with a sub-circular chamber and comparatively long corridor, definitively embodies the independence between the architectural typology and the raw material used in the construction of such structures (Fig. 12).

6 - The orientation of four out of the five excavated sepulchers with a corridor (Couto da Espanhola 2, Cabeço da Forca, Amieiro 2 and Amieiro 3) varies between 100 and 110 degrees; the only exception is the dolmen 2 of Couto da Espanhola, oriented to Southeast (135 degrees). This pattern coincides perfectly with that observed for the dolmens of Reguengos de Monsaraz, as reported by Leisner, whose

results were inventoried by V. Gonçalves (1992: 40). Of the 69 dolmens recorded, 35 had exactly the same orientation, immediately followed by the dolmens oriented to the Southeast (10 cases). The preference for the corridors' orientation to this quadrant relates to the azimuths of the sunrise, from which comes the Light and the Life, daily reaffirmed (Gonçalves, 1992: 51).

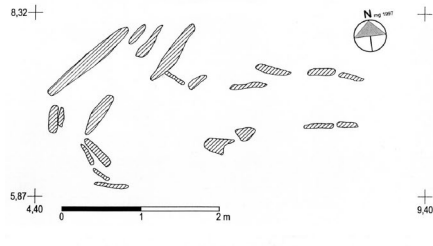


Figure 11 - Plant and general view of Amieiro 2. Note the small width of the corridor, impracticable for effective use as a way of accessing the chamber of the monument, for the purpose of performing burials. Photo by J. L. Cardoso.

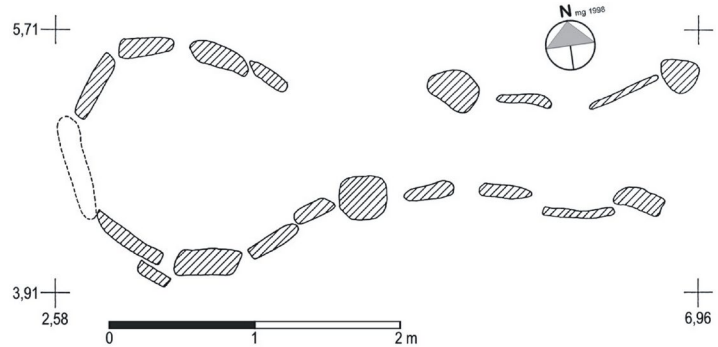


Figure 12 - Plant of the Poço do Chibo dolmen, of small dimensions, and general view of the monument; notice the large blocks of quartz used in its construction. Photo by J. L. Cardoso.

7 - In the funerary contexts investigated, the ritual deposition of objects would be usual. This was only evidenced in one situation corresponding to two axes, deposited side by side, but necessarily without handle, and placed against the left side wall of the corridor of the dolmen 2 of Amieiro, in a space intentionally compartmentalized by a slab placed perpendicular to one of the lateral supports (Fig. 13).

8 - Two slabs of shale placed on the floor of the monuments, one recognized in the chamber of dolmen 2 of Couto da Espanhola (Fig. 14), and another in the corridor of the dolmen 3 of Amieiro, would act as beds on which the corpses would have been deposited, probably lying on their side with arms and legs flexed, given the dimensions of those elements. This possibility, with parallels in other similar monuments from our territory, is reinforced, in the case of the first dolmen, by the concentration of remains that have been collected on the said slab.



Figure 13 – Two axes ritually placed side by side, along the left side of the corridor of Amieiro 2, in a space delimited by a small slab placed transversally. Photo by J. L. Cardoso.



Figure 14 – Large schist slab placed horizontally on the chamber of the Couto da Espanhola dolmen, used as basement for a funerary deposition. Photo by J. L. Cardoso



Figure 15 – Fire structure built in the chamber of Amieiro 3. Photo by J. L. Cardoso.

9 – Rituals of fire were identified in dolmen 3 of Amieiro. It is a small pavement made of small blocks, essentially of quartz, with an elliptical contour, built at the bottom of the monument's chamber, and functioning as the basement for a fireplace (Fig. 15). Santos Rocha, when studying dolmen monuments in the region of Figueira da Foz, noticed the practice of fire in their interior. Other examples could also be pointed out. In fact, fire would play a double role. Besides its role as a symbolic element, purifying and regenerating the souls of the deceased, it would also have a much more practical function, eliminating the pestilent air necessarily existing in the unventilated space of the interior of a collective sepulcher. This would have been an indispensable action, possibly involving the burning of aromatic plants, whenever there was the need to carry out a new deposition.

This fireplace could also be related to rituals of partial cremation of the corpses, as it was observed by Jorge Oliveira (Oliveira, 1997), in a megalithic monument of the Serra de S. Mamede, Portalegre, to cite only a geographically close example.

10 – One of the narrower monuments – the dolmen 8 of Amieiro – had a smooth stele of greywacke, standing vertically in the interior of the chamber and in the direction of its length. This stele was similar to the supports that define the monument, though of lower height (Fig. 16). Such a stele would not, therefore, serve to support the cover, an unnecessary structure having in mind the small span of the chamber ceiling. It could, however, be useful in separating the mortuary space, with a purpose that presently elude us.

11 – After the construction of dolmen 5 of Amieiro, a cystoid grave, of subrectangular tendency, was built in the periphery of the pre-existent *tumulus*. As usual, this *tumulus* corresponds to a *cairn* of blocks of quartz strongly fitted together (Fig. 17).

This grave contained only a fragment of a decorated schist plaque and a bell-beaker fragment with pseudoexcised decoration. This finding seems to be of great interest, since it defines the immediate stage after the construction of the last megalithic collective graves, when burials were already being made in individual graves, only now documented in the region (Amieiro 5b). However, the memory of the graves of the “ancestors” led to this grave being built on the periphery of the dolmen, located in the central area of the *mamoá* (Amieiro 5a). On the other hand, the occurrence of a bellbeaker fragment with pseudo-excised decoration – the first finding of this nature in the region – evokes the affinities with the Iberian Meseta, where such decorative patterns are characteristic of the Ciempozuelos’ Group .



Figure 16 – View of the small chamber of Amieiro 8, containing a stele of greywacke. Photo by J. L. Cardoso.

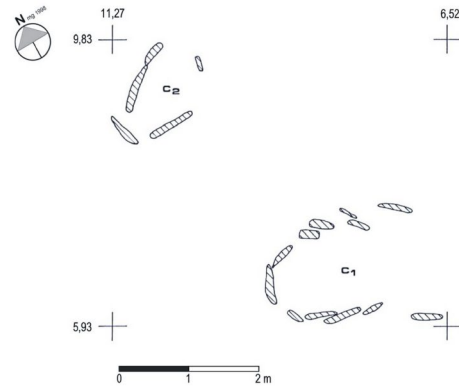


Figure 17 – Plant of the Amieiro dolmen 5, and general view of the monument in the foreground, showing the respective *cairn*, where, in the background, the cist of the Late Chalcolithic (Montelavar Horizon), can be seen, built in the periphery of the *cairn*. Photo by J. L. Cardoso.

5. Raw materials: the origins and circulation of the respective artifacts

The recovered pieces were made essentially of two raw materials: amphibolithic schists for the production of polished stone artifacts; and flint, which takes on importance for being the almost exclusive material used in the production of chipped stone artifacts. While the first rock could be obtained both in the Alto Alentejo and in Beira Alta, flint would have its preferential origin in the Portuguese Estremadura, its occurrence in this region being explained in view of its commercialization along the Tagus valley and its tributaries on the right bank. Thus, the region would receive inflows from various geographical areas,

with which it would have maintained economic links, made possible by the existing natural circulation routes: one route, from the coast to the interior, through the Tagus valley, penetrating into the Iberian Meseta, from where in turn, the bell-beaker fragment of Ciempozuelos style had been brought; and another route, north-south oriented, flowing in both directions, thus explaining the occurrence of the typical Alentejo shale plate, collected in dolmen 5a from Amieiro (Fig. 18).

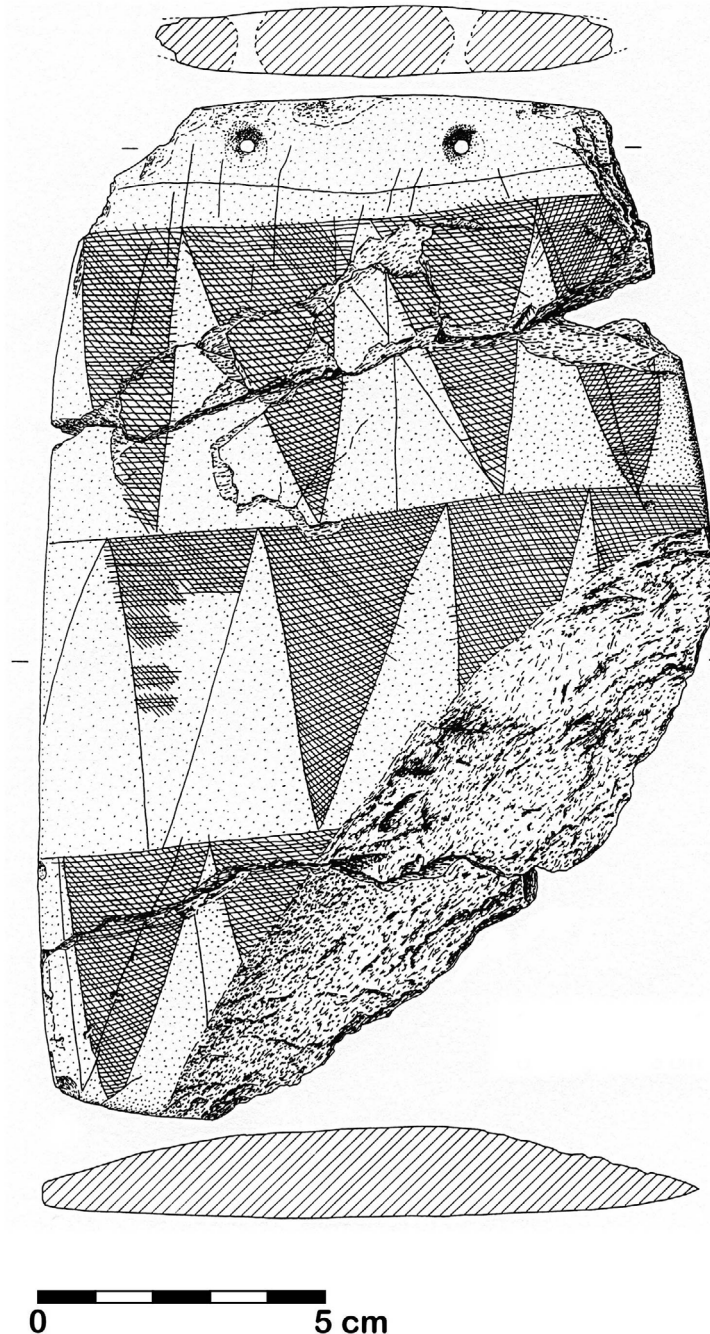


Fig. 18 – Engraved schist plaque of Amieiro 5. Drawing by B. L. Ferreira.

6. Towards the establishment of a sequence in regional megalithism

The origin of megalithism in the region can be placed in the Middle Neolithic, and corresponds to the construction of monuments, either closed or open, either small or large, either devoid of corridors or, on the contrary, showing long corridors. These are followed in the Late Neolithic by monuments that would continue to embody the same architectural duality, although the spoils are now different. In fact, the construction during the Final Neolithic period of small monuments identical to those previously built in the Middle Neolithic period seems to be a reality, along with their reuse in the course of the Chalcolithic, or even in more modern times.

It should therefore be stressed that this was not a simple, linear evolution, from the simple to the complex, and from the small to the large – far from it. Monuments of different typologies would have coexisted and would have been built during a period of about 1000 years.

There is, in fact, a monument of large dimensions, comparable to that of the dolmen 2 of Couto da Espanhola, the dolmen of Cabeço da Forca, where, contrary to what was observed of the former dolmen, no single arrowhead was collected, nor any ceramic production was found, but where a small geometric was identified. This suggests that the construction of large monuments in the region, such as that in the Lisbon area, based on the dates obtained (ca. 3500-3400 BC, see Boaventura, 2009) could still ascend to the transition of the Middle to the Late Neolithic. If this is to be so, the funerary polymorphism would be observed in the region from the very beginning of the megalithic phenomenon.

Finally, in the course of the Chalcolithic period, the last dolmens are built, represented by the Amieiro 3, which is closely related to the architecture of the Chalcolithic *tholoi* of southern Portugal. The cycle would be closed in the Late Chalcolithic (Montelavar Horizon) with the construction of the first individual graves, represented in the region by the cist that was built on the outskirts of the Amieiro dolmen 5 and containing a fragment of a bell-beaker vessel with pseudo-excised decoration.

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