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Mind the Gap: Neolithic and Chalcolithic Enclosures of South Portugal

António Carlos Valera

Abstract

This paper examines the new data obtained during the last 15 years concerning ditched enclosures in Portugal, particularly the recent discoveries from the southern part of the country. Some of the problems raised by the recent proliferation of these sites in Western Iberia will be discussed. After describing their spatial distribution and chronological span, the dissimilarities with walled enclosures (and amongst ditched enclosures themselves) will be analysed. I shall dispute a homological reductionism and argue in favour of diversified social roles for these kinds of site. Particular attention will be given to size, landscape relationships (terrestrial and celestial), ditch filling processes and associated funerary practices. Finally it will be concluded that the diverse ditched enclosures of South Portugal must be read as an expression of Neolithic cosmogonies. The increasing size and complexity that can be observed in these monuments during the Chalcolithic is interpreted as a "singing of the swan" (the swan song) of those world views, and its abrupt decline, expressed by the apparently rapid disappearance of large ditched enclosures and ditched enclosure architecture as a result of that cosmogonic change.

Keywords: Neolithic, Chalcolithic, Ditched enclosures, Portugal, Cosmogonies

Filling the gap: the archaeological emergence of ditched enclosures

Being a European phenomenon, ditched enclosures were absent from the archaeological record of Portugal until the 1980s. In fact, by the end of that decade we knew of only one ditched enclosure, located in the hinterland of South Portugal: Santa Vitória in Campo Maior, Évora (Dias, 1996). By 1996 there were just five known in the region.

In the last decade and a half the archaeological record for ditched enclosures has changed dramatically. From 1997, with the discovery of the Perdigões set of ditched enclosures (Lago *et al*, 1998; Valera *et al,* 2000; Valera *et al*, 2007), to the present day, almost thirty new sites have been discovered as a result of infra-structure projects, but also in consequence of programmed research. They concentrate mainly in the South, in the middle Guadiana river basin, but some have also started to appear in the Lisbon Peninsula and in Central and North Portugal. The same has happened in Spain, bringing Iberia definitively into this phenomenon of European scale.

Today 34 ditched enclosures dating to the Neolithic and/or Chalcolithic are known in Portugal, spread all over the country, but with a particular concentration in the hinterland of Alentejo (Figure 1). Importantly, this "revolution" in the archaeological record has raised new questions and stimulated the development of new approaches to architecture, landscape and social practices of recent Prehistoric communities in Portuguese archaeology. Today, they are one of the most significant topics of research of Neolithic and Chalcolithic Western Iberia.

Time and space of ditched enclosures in Portugal

At the present time we have 23 radiocarbon dates from the ditch fills of only six sites, all from Alentejo's hinterland (South Portugal) but some sites have more than one ditch and they are not always contemporary. As a result, these 23 dates are, in fact, related to specific enclosures, particularly at Perdigões (where three ditches of the eleven concentric enclosures have already been dated) and Porto Torrão (where two ditches were dated from a total number yet to

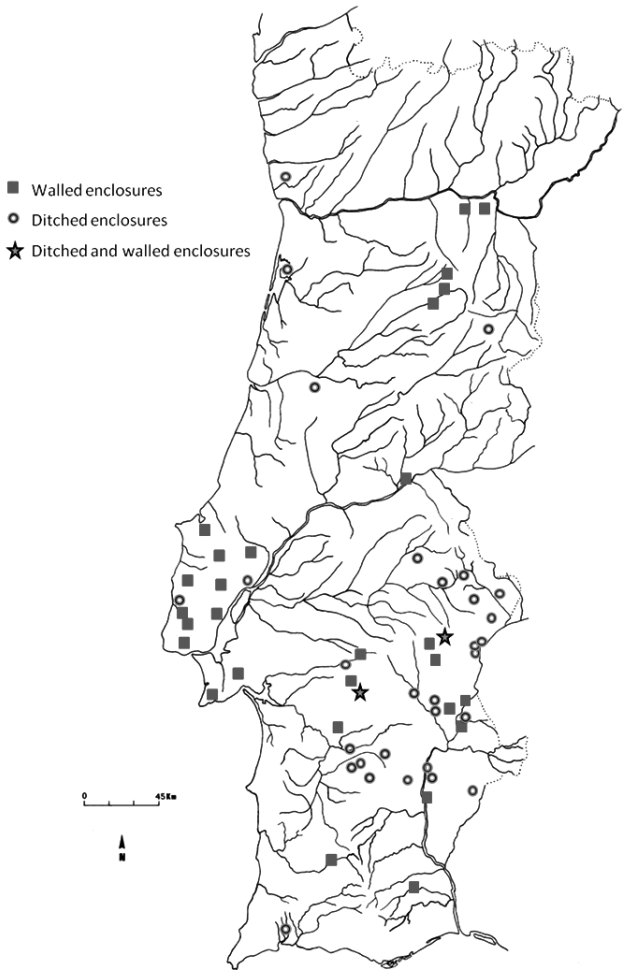


Figure 1: Neolithic and Chalcolithic ditched and walled enclosures in Portugal.

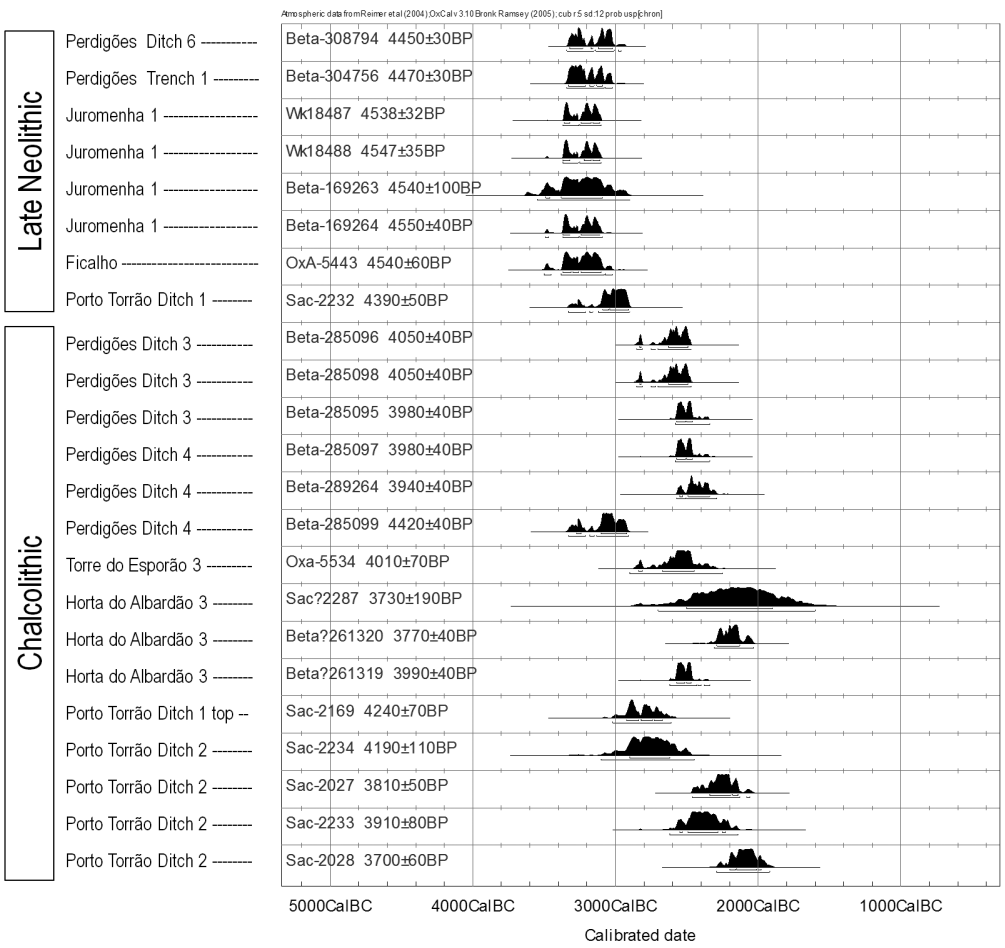


Figure 2: Radiocabon dates for the Neolithic and Chalcolithic ditched enclosures in Portugal.

be determined). This raises the problem of the dynamics and growth of some enclosures through time while others present a much more restricted chronology. This will be considered later.

The material culture and the absolute chronologies available demonstrate that the oldest ditched enclosures known in South Portugal belong to the Late Neolithic and are dated from the second half of the 4th millennium BC, and especially from the last 400 years of that millennium (Figure 2). These early sites comprise the inner ditches (ditch 6 and trench 1) of Perdigões, Juromenha 1 (in Évora district), Ficalho and ditch 1 of Porto Torrão (in Beja district). Similarly early enclosures without an absolute chronology, but with identical material culture, are known at Torrão, Moreiros 2 (Portalegre district), Malhada das Mimosas, Águas Frias and Ponte da Azambuja (all in Évora district).

In the 3rd millennium BC, during the Chalcolithic, the number of ditched enclosures seems to increase in South Portugal, although currently only four sites have radiocarbon dates: Perdigões, Porto Torrão, Torre do Esporão and Horta do Albardão 3. Based on relative chronologies, however, several others can be included: Santa Vitória, Outeiro Alto 2, Xancra, Monte do Olival, Luz 20, Monte da Ribeira, Salgada, Paraíso (all in Alentejo) and Alcalar (in Algarve). Most seem to be abandon during the millennium, after relatively short periods of use. In some cases (Perdigões and possibly Porto Torrão) the final occupation appears to extend to the first half of the 2nd millennium BC.

The great majority of these enclosures are concentrated in the middle Guadiana Basin or in the adjacent basins of Tagus (to the North) and Sado (to the West), in Alentejo´s hinterland. In the South, only in Algarve do we find a ditched enclosure (Alcalar) near the coast.

The greatest concentration is in the inland South but in the last few years ditched enclosures have also started to appear in Central and North Portugal. Although few and scattered, they have a wider distribution not just in the hinterland (like that near Sabugal) but also in coastal areas and the Lisbon peninsula such as Gonçalvinhos (Sousa, 2010), Forca (Valera and Rebuge, 2008) and Angra do Castro in Aveiro (Almeida, in press). The most interesting example is still being excavated near Coimbra (Central Portugal). At Sra. da Alegria, located in the transitional area between the coastal plain and the high Central Mountains, there is a sequence of ditched and probably palisade enclosures dating from the Early/Middle to the Late Neolithic. The

earliest ones cut earlier Early Neolithic occupation areas (with "cardial" decorated pottery) and are associated with sub rectangular houses. Although they have not been dated yet, the stratigraphy and associated materials suggest a chronology from the Early Neolithic/Middle Neolithic transition (late 5th/early 4th millennium BC). This is therefore the oldest ditched/palisade architecture presently known in western Iberia, following the examples of East and Northeast Spain, where ditched enclosures dating from the 6th and 5th millennium BC are known in the Valencia region (Bernabeu Auban *et al*, 2003; Köhler *et al*, 2008) and Navarra (Garcia Gazolaz and Sesma Sesma, 2007). According to the present data, therefore, we can anticipate a future increase in the number of ditched enclosures in Central/North Portugal (as is happening in Central Iberia) and perhaps earlier sites in the South.

Ditched enclosures are therefore a recent, but increasing, archaeological phenomenon adding to the well known walled enclosures. This raisesaan obvious question.

Are ditched and walled enclosures similar realities?

Ditched and walled enclosures share the same general space and if walled enclosures are clearly dominant in the Lisbon Peninsula, in Alentejo's hinterland the ditched enclosures prevail. In terms of chronologies, although both architectures were contemporaneous during the 3rd millennium BC, ditched and/or palisade enclosures appeared earlier, in the 4th millennium BC or even earlier (if we take into account the emerging data from Sra. da Alegria). Ditched enclosures therefore appear first and at the beginning of the 3rd millennium BC walled enclosures emerged, after which both types of architecture continued until the end of the millennium sharing the same general distribution.

They share the same areas but not the same sites. In fact, one interesting aspect is that walls and ditches appear side by side in only two cases (both in Alentejo – Salgadas and Monte da Ponte) but there is no evidence to suggest that they were contemporaneous. All the other Portuguese enclosures are delimited by ditches/palisades or by walls, but never by both (Figure 1). The same scenario seems to be the case in Spain and despite the large number of known enclosures, walls and ditches are both present in only two cases, Los Marroquiés Bajos and San Blás – the latter on the Spain/Portugal Guadiana border (Zafra *et al*, 2003; Hurtado, 2008).

The reality is that several dissimilarities between walled and ditched enclosures suggest that, in general, they might have served different purposes, although in some cases it is possible to argue for similar roles. In a recent paper (Valera, in press A) some of those differences were highlighted, such as the rarity of pits in walled enclosure and the association of ditched enclosures to tens, hundreds and sometimes thousands of them; the different sizes they can reach; the diversities in topographical location and landscape relations; the differences in design, architectonic dynamics and associated practices; the unequal importance of cosmological bonds and funerary practices. Based on those dissimilarities it was argued that these two types of enclosures could, in general terms, have played different social roles. Here, I would like to return to some of those specifics in order to debate the interpretation of ditched enclosures.

Topography, planning and design: the architecture of ditched enclosures

One of the interesting aspects of South Iberian ditched enclosures is that despite a superficial similarity of appearance, they often have quite different topographical locations and some individualities in their design.

In terms of topography ditched enclosures can occupy flat hill tops (like the small enclosures of Santa Vitória, Outeiro Alto 2, Cortes 1 or Torrão) or crests (like Moreiros 2 or Alcalar). Others are located in the middle of smooth slopes, usually facing east, like Xancra or Monte do Olival, while some others were located in natural amphitheaters, also facing east such as Perdigões or Paraíso. Finally, they can also occur in open smooth valleys, crossed by streams, such as Porto Torrão. There is therefore no consistent topographical pattern, although facing East seems to be important.

These differences in topography (that do not exist in walled enclosures which are always located in hill tops or cliff edges) seem to have a relation with the ways the ditched enclosures are meant to relate to significant features in the local landscapes. This can be argued for several ditched enclosures, but is particularly evident in the case of Perdigões.

It was the analysis of the plan of Perdigões that, for the first time in Iberia, tried to understand the specific architectonic designs of the enclosures in their relation to topography, including landscape and skyscape (Valera, 2008 A; 2010 A). Based on the information provided by an aerial image published in 1998 (Lago et al, 1998), later reinforced by geophysical survey (Márquez Romero *et. al*, 2011; Valera *et. al.*, in press B), it was argued that the location of the site, its architecture and spatial organization could have considerable cosmogonic significance.

Perdigões is located in a natural amphitheatre opened to East. For one standing in the middle of the enclosures, the visibility is restricted to the limits of the amphitheatre (coincident with the outermost ditch circuit), except to the East, where the distant horizon is marked by the hill of Monsaraz and the valley of the Guadiana river. Between Perdigões and that horizon is the valley of Ribeira do Álamo, where more than a hundred megalithic monuments and some menhirs are known. In fact, Perdigões stands at the "back" (only few monuments are further West) of the famous megalithic group of Reguengos de Monsaraz and it was built in a locale and with such an orientation as to face this megalithic landscape (Figure 3).

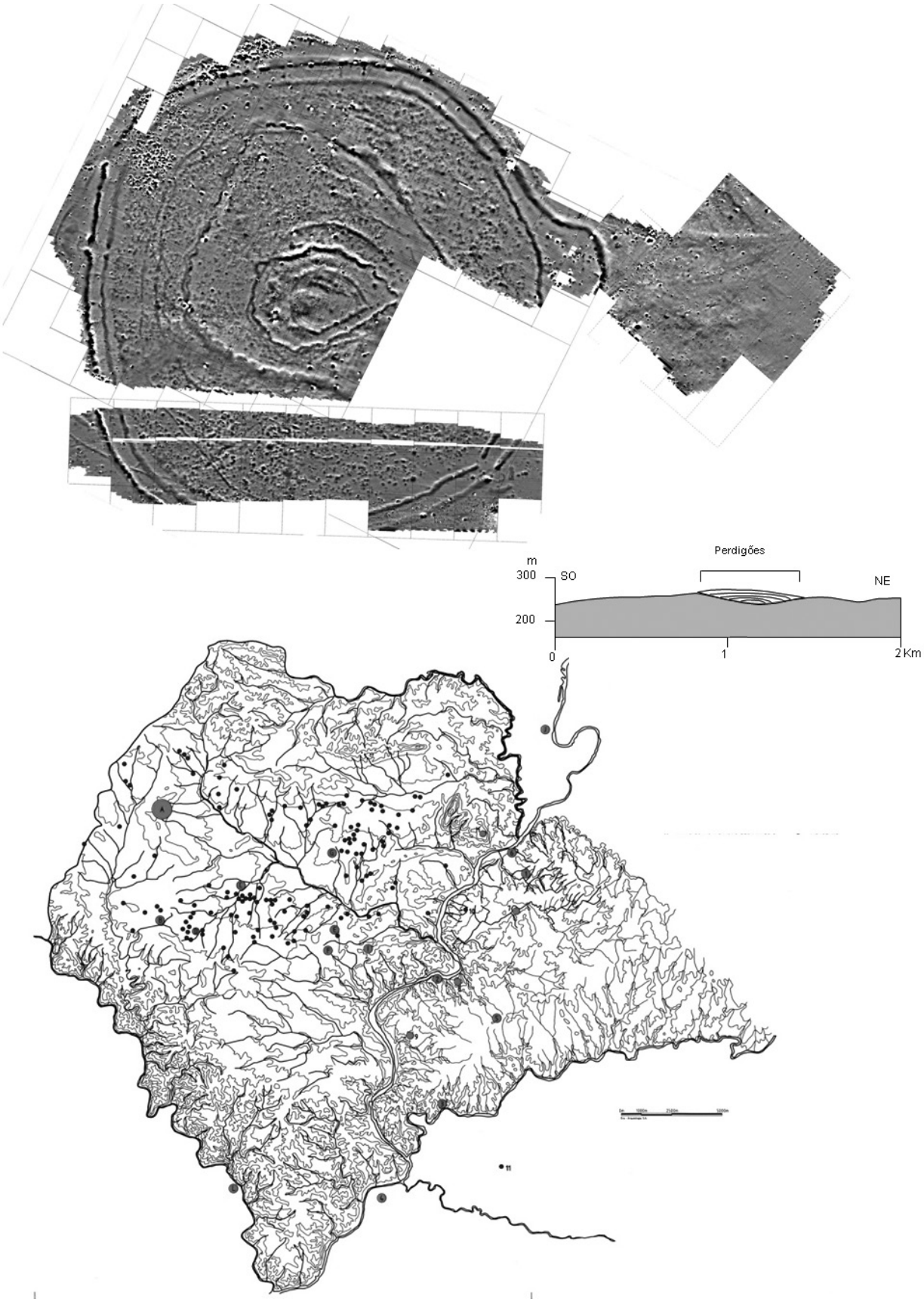


Figure 3: Geophysical image (by Helmut Becker) and topographical profile of Perdigões (above); location of Perdigões in the Ribeira do Álamo settlement and megalithic network (below).

According to the available data, in the Late Neolithic at least one ditched enclosure (with earlier or contemporary palisades) was constructed in the centre of the amphitheatre and a cromlech where it opens and meets the valley bottom. Later, in Chalcolithic times, the site grew larger and incorporated a necropolis in a semi circular area defined by the double ditches of the outside enclosure. This necropolis was again located in the Eastern side, where the topography opens to the valley and near the earlier cromlech.

This connection with the East and to the rising sun reinforced by the orientation of the eastern gates of the outside double ditches towards the sun's winter and summer solstices and the western gates to the corresponding sunsets. The inner enclosures that have gates detectable in the geophysical image are also orientated towards the m solstice sunrise. This suggests that the location chosen for the siting of the enclosure, cromlech, necropolis and the general architectural designs of the enclosures took into account both the local megalithic landscape and astronomically significant events, revealing the progressive construction of a meaningful cosmogonic landscape in that valley.

This line of inquiry developed into a research project entitled "Enclosure plans and Neolithic cosmogonies: a landscape, archaeoastronomic and geophysical approach" (Valera and Becker, 2010; Valera and Becker, in press;) that aimed to obtained integral plans of ditched enclosures through geophysical prospection and, together with other largely excavated sites, analyse them according to the criteria described above.

The results revealed an intentional tendency towards the observance of astronomic phenomena in the location and design of some ditched enclosures. This is clear in three enclosure that share a specific pattern of sinuous ditches (see below). The inner enclosure of Santa Vitória has its single entrance aligned towards the summer solstice. At Outeiro Alto 2 the entrance through the only ditch is facing the winter solstice; the three concentric ditches of Xancra have their gates perfectly aligned to the winter solstice or to the near moon standstill (Figure 4). Whilst Santa Vitória and Outeiro Alto 2 are located on the flat tops of small hills with a 360º visibility over the local landscape, Xancra has a topographical position similar to Perdigões and to some regional cromlechs (such as Almendres or Vale Maria do Meio). It is located in the middle of a smooth east-facing slope. The same topographical location occurs at the enclosure of Monte do Olival 1 or at Paraíso.

Although information is still limited due to the fact that these enclosures have only recently been briefly surveyed (with the exception of Santa Vitória and Perdigões), the observed recurrences suggest that, in several cases, their architecture and location in the landscape respond to symbolic needs and incorporate specific cosmogonies, which are central to understanding their social roles.

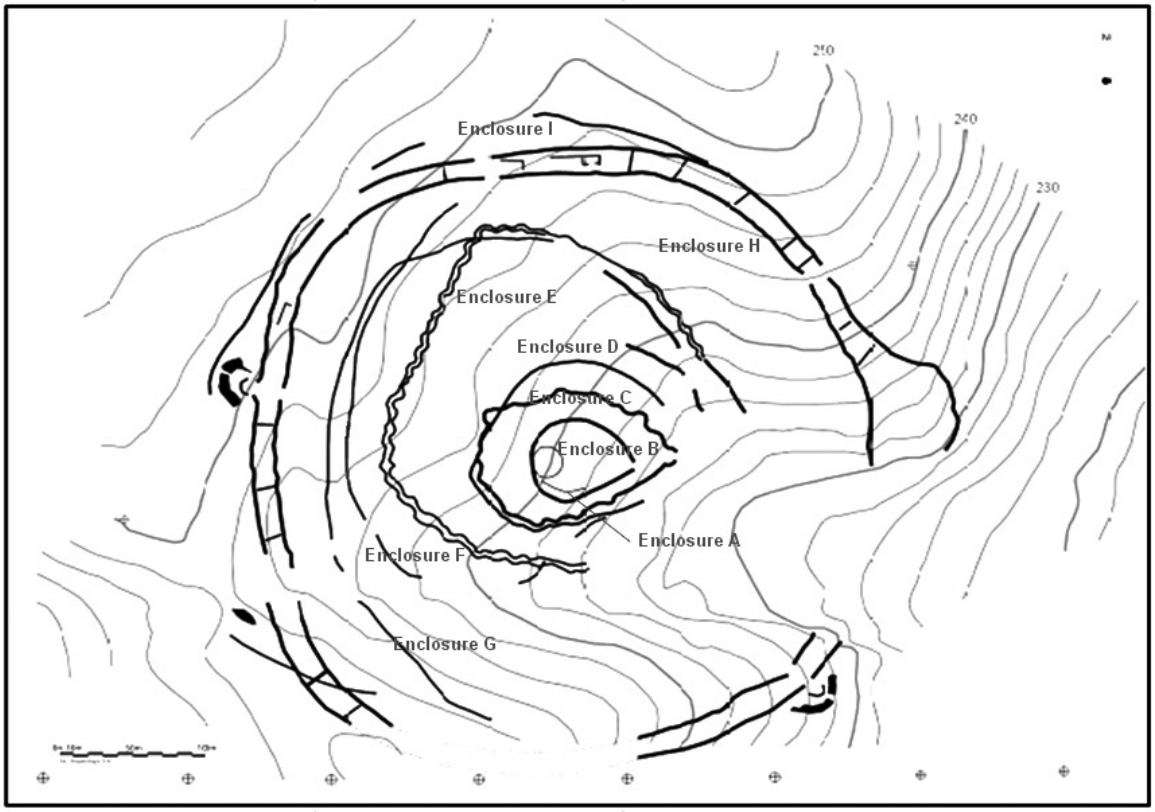
Architecture is a social practice that, through the organization and construction of space, built scenarios that express the way in which the world is perceived and we can hardly look to large architectural projects or building projects as meaningless, ideologically neutral and simply functional (functionalism is itself an ideology). Architecture expresses world views at several scales (landscapes, villages, houses) and all can act as metaphors for the cosmos or for certain aspects of the cosmogonies and "world order" that, through dwelling, are maintained and perpetuated.

This same line of inquiry can also be used to address the "strange" design that characterizes some ditches. In fact, a significant number of Portuguese ditched enclosures exhibit a specific kind of groundplan designated by a "sinuous ditch" (Figure 4). For some time this was only known in Santa Vitória (Dias, 1996), the first ditched enclosure to be discovered and excavated in Portugal, but in the recent years it has become increasingly recognised at other sites to the extent that they are present in almost 50% of the ditched enclosures of South Portugal, with a particular concentration in the Guadiana basin (although they are also present in the Algarve and in South Spain). On the contrary, the phenomenon is relatively rare in the rest of Europe, suggesting that this kind of design is particular to Iberia and, in some cases, a specific to South Portugal.

Traditional interpretations considered these sites as simple fortified settlements envisaging associated earth banks or palisades, even when no empirical evidence for these was present. It was considered that the design copied the bastions of walled enclosures (Dias, 1996). This was due to the similarity of the plans and because at the time the walled enclosures were considered to be the oldest. Subsequently, when it became clear that some 'wavy' enclosures were earlier, the design was naturally seen as an anticipation of walls with bastions (Mataloto and Costeira, 2008).

The form of the enclosures can generally be defined as a wavy in outline, for the whole or part of a ditch's perimeter and there are different types (Valera, in press b). There may be single ditch enclosures or examples with multiple ditches. These latter sites generally have the ditches arranged concentrically and may also appear alongside simple linear ditches. The available data indicates that they started to be built in the Neolithic during the second half of the 4th millennium BC (Juromenha 1, Malhada das Mimosas, Águas Frias) and continued into the Chalcolithic (Xancra, Santa Vitória, Outeiro Alto 2, Perdigões E, Alto do Outeiro), lasting until the second half of the 3rd millennium BC (Horta do Albardão).

Some plans comprise a regular pattern of semi circular lobes (such as Monte do Olival 1, Santa Vitória, Outeiro Alto 2 e Xancra, the last three with clear astronomically orientated gates – Figure 4), while others have a more wavy or irregular outline (such Perdigões C and E, Águas



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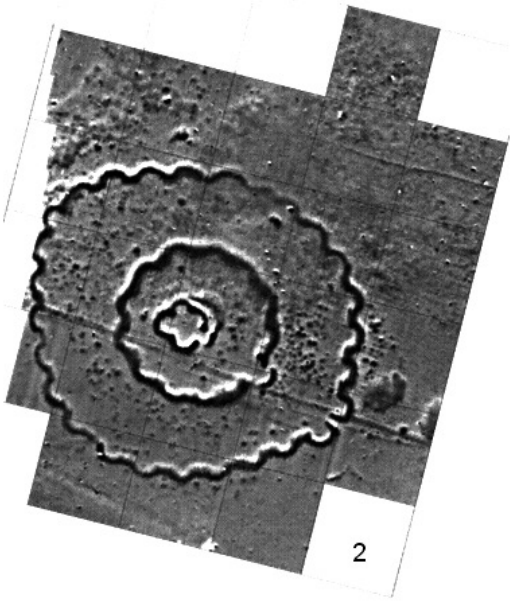

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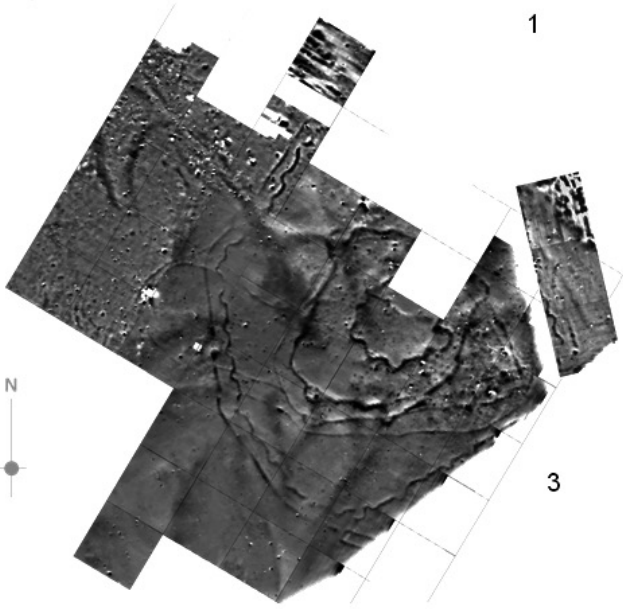

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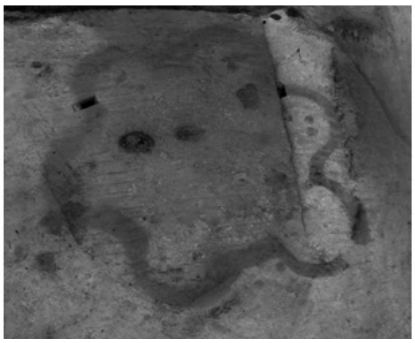

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Figure 4: Sequence of enclosures at Perdigões (1). Geophysical image of Xancra by Helmut Becker (2). Geophysical image of Moreiros 2 by Helmut Becker (3). Aerial photograph of Santa Vitória (Miguel Lago) (4). Aerial photograph of Outeiro Alto 2 (Paulo Marques) (5).

Frias or Moreiros 2). The regularities of the first are far from random. Outeiro Alto 2 and Santa Vitória (inner ditch), share the same general plan and size, with six lobes and gates respectively aligned on the winter and summer solstice. Xancra has a numeric sequence of lobes (4, 12, 27) that is quite close to solar calendar numbers, or lunar calendar number if the entrances are taken into account (Valera and Becker, 2011 and in press).

No precise functional interpretation can be read into this design. There is no gain in defensive strategy and yet there is a considerable amount of work in the construction of these wavy ditches when compared to straight ones. Rather than protect and simply enclose, the reasons for these designs must lie elsewhere, in other dimensions of architecture. They seem to relate to earlier projects that respect the circle and principles of concentricity common to the ditched enclosure architecture of the period, but they appear to introduce a sort of movement suggested through wavy lines, reinforcing the bond between the building and living nature characterized by meandering paths. In other words, these architectural designs seem to be impregnated with ideology and to respond to certain cosmogonies:

> *It is not the right angle that attracts me neither the straight line, hard, inflexible, created by man. What attracts me is the free and sensual curved line, the curve that I found in the mountains of my country, in the sinuous path of its rivers, in the waves of the sea, in a woman's body. From curves is made the Universe – the infinite curved universe of Einstein (Oscar Niemeyer – my translation).*

In fact, if the architectural design incorporates meanings, perspectives of the world and of its perceived organization, we should expect that many of the "world's shapes" and certain dimensions of the human way of experience may be represented in these enclosures. The sinuous ditches have been stressed as an important element in the construction and experience of the monumentalized Neolithic landscape (as suggested, for instance, for the connection between Durrington Walls and Stonehenge). In Portugal, the wavy line is also present in another dimension of the human symbolic behaviour, namely the rock and megalithic art or in pottery decoration. Are there bridges between these deferent dimensions of human representation that allow us to treat them in an integrated way?

Meaning is a difficult thing to deal with in Prehistory, but it becomes harder when, through our approach, we separate what is a transversal expression of a certain social environment and cosmogonical perception. Ideas, beliefs, perspectives of reality, meanings that conform and motivate action, can be expressed in quite diversified ways and in different dimensions of the social life and of the human achievements. The designs of the architectural elements of ditched enclosures are, in this respect, a written text in the landscape. But the encoded meaning is also expressed by the contextual specifics of those sites (what they enclose), their landscape relationships and by the historical dynamics that they reveal.

Dynamics of growth: a new scale for Portuguese (an Iberian) prehistoric sites

One of the main facets of ditched enclosures is that some of them grew to become large sites enclosing several hundred hectares and with almost two thousand years of occupation, while others stay quite small and existed for short periods of time.

The approach to size and growth dynamics of ditched enclosures, however, deals with two general problems. Firstly there are few sites where we have an image of the general plan and secondly for those that have such an image and have several ditches, we have little information about their chronological sequences.

At the moment, and for all 34 ditched enclosures recorded in Portugal, there are available plans that allow an estimation of the areas of Xancra, Monte do Olival 1, Perdigões, Moreiros 2, Luz 20 (through geophysical prospection – Figures 3 and 4) and Santa Vitória and Outeiro Alto 2 (through archaeological excavation – Figure 4). For the rest we only have a general idea of their sizes by the distribution surface materials or by partial and restricted archaeological surveys.

Figure 5 examines the known areas of those ditched enclosures with total or almost total plans (all from Alentejo), associated to the available absolute or relative chronologies. The majority of enclosures (59%) are small areas, corresponding to less than one ha. We can observe that Outeiro Alto 2 and the inner enclosures of Monte do Olival 1, Xancra and Santa Vitória are extraordinary small (and all present a similar plan), with areas that oscillate between 0,02 and 0,06ha. The only three enclosures in this corpus that can be assigned to the Late Neolithic (Perdigões B and Moreiros A and B) are included in this group of less than a hectare, but they are not the smallest. This seems to suggest that the Late Neolithic enclosures were relatively small, but also reveals that small enclosures were still present in the first half of the 3rd millennium. In fact, only the third enclosure of Xancra (which according to the homogeneity of the general plan of the site can be considered contemporaneous with the inner smaller ones) and the larger enclosures of Moreiros 2 and Perdigões have more than 1ha. There is a cluster between 1 and 2ha (Xancra C; Moreiros 2 C and Ca; Perdigões D), another between 2 and 5ha (Moreiros 2 D and E; Perdigões E and F) and a third over 13ha, corresponding to Perdigões H. Therefore, only at two sites do we have enclosures that have areas larger than 2ha, but the larger enclosure circuit at Perdigões reaches more than 16ha and through surface traces and rapid surveys we know that Alcalar and especially Porto Torrão must have been larger, the latter probably reaching areas in excess of 100ha, as is known for some of the South Spanish ditched enclosures.

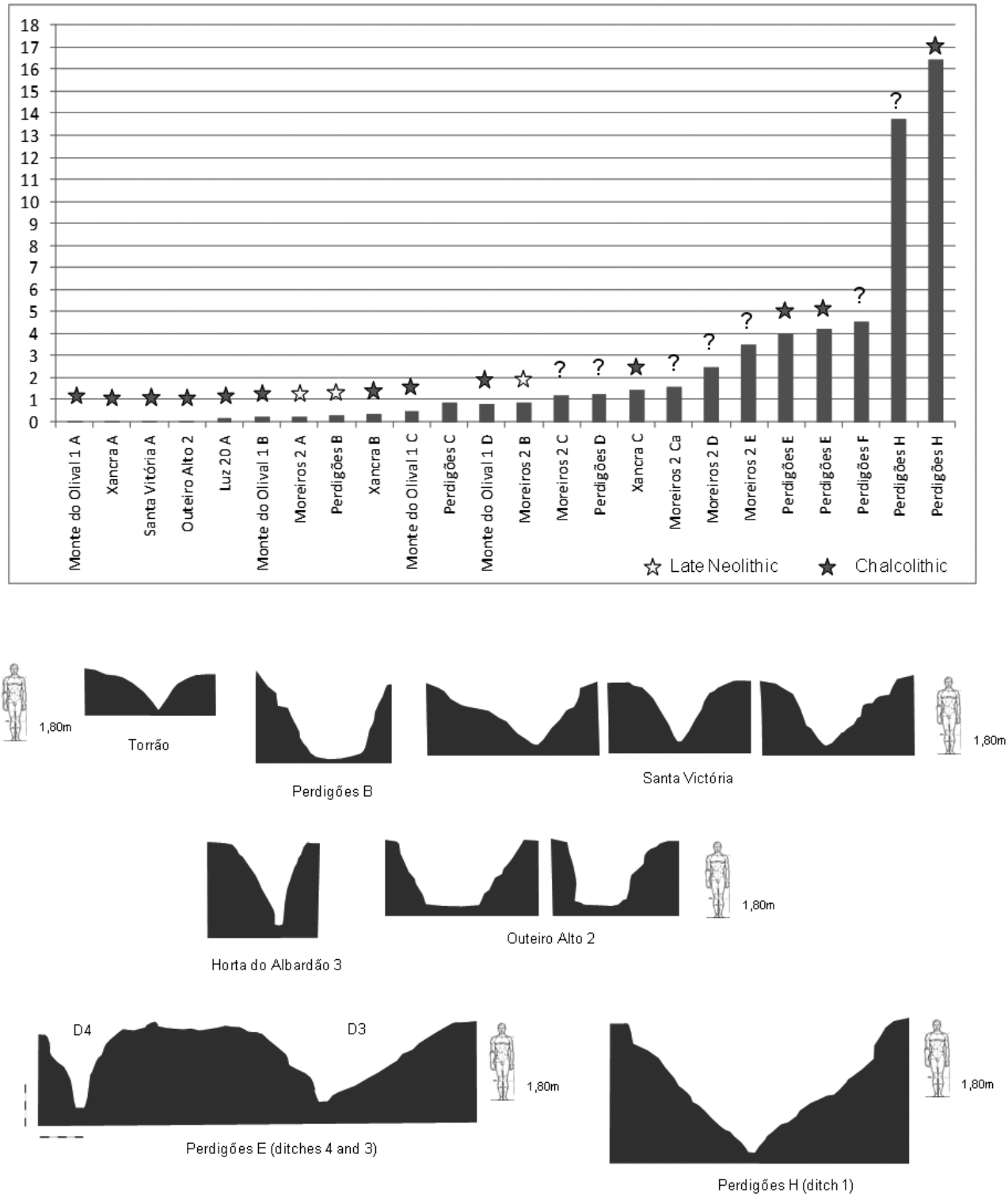

Figure 5: The calculated areas for some Portuguese ditched enclosures (above); ditch sections of some Portuguese enclosures (below).

From the available data it appears that during the 3rd millennium BC some ditched sites grew larger, with the construction of new ditches, usually concentric to the earlier ones which, although totally or partially filled, would still have been perceptible. The best evidence of this expansion comes, again, from Perdigões, where at least 11 roughly concentric ditches define 9 enclosures (Figure 4).

As we have already seen, the inner enclosures of Perdigões A and B are characterized by a possible palisade and ditch (ditch 6) that have been dated to the Late Neolithic from the second half of the 4th millennium BC (Figure 1). In the central area of the site, a double ditched enclosure (Perdigões E) is defined by ditches 3 and 4. Ditch 3 has dates from the first half of the 3rd millennium BC for the lower half of the fill and a date from middle 3rd millennium

BC for the upper half. Ditch 4, dug just two and half meters inside ditch 3, was dated from top to bottom to the middle 3rd millennium (an older date – Beta 285099 – from the top deposits is from old bone), which suggest that it was built when ditch 3 was already half full. This is consistent with a significant change in the filling process in the middle fills (Valera, 2008 B) and with the faunal taphonomic evidence (Costa, 2011). Finally, the larger double ditched enclosure (Perdigões H) is defined by ditches 1 and 2. Only ditch 1 was surveyed, but the results of the dating programs (one by radiocarbon made by Málaga University and another by optical stimulated luminescence made by the Portuguese Nuclear Technological Institute) are not yet published. Nevertheless, the filling materials of the bottom date to the Chalcolithic and the OSL preliminary dating suggests that the ditch was still partially open in the first half of the 2nd millennium BC, corresponding already to the Bronze Age. This is consistent with artefacts and other preliminary OSL results for a late stone structure in the centre of the enclosure.

What the actual chronology available for Perdigões suggests is that the site started with a small Late Neolithic enclosure in the centre of the natural amphitheatre formed by the slope (possibly contemporaneous with the cromlech situated to the East, where the slope meets the plane of the Ribeira do Álamo valley) and then grew progressively larger throughout the 3rd millennium and was still partially in use in the Bronze Age. Of course we still don't know the chronologies (absolute or relative) of all the other ditches present at Perdigões, and the fact that two pit graves from the Late Neolithic were detected near ditch 4, associated with the cromlech to the East, makes us exercise caution in estimating the size of the areas occupied during Neolithic times. The general plan, however, suggests expansion during the 3rd millennium BC.

Unfortunately, we do not have enough information about the largest enclosures of South Portugal to start to understand their spatial and architectural developments through time. Porto Torrão seems to have covered more than 100ha and to have had several ditches, with at least one dating from the Late Neolithic and others from the Chalcolithic (Figure 2), but no general plans are available. A similar situation is found at Alcalar (Algarve). But what is now clear is that some ditched enclosure in South Iberia (Perdigões, Porto Torrão and Alcalar in Portugal; Pijotilla, San Blás, Valencina de la Concépcion and Marroquiés Bajos in Spain) reach large dimensions during the 3rd millennium BC. They also enclose a density and complexity of occupation never seen before and that is unusual in the European enclosures of the Neolithic and Chalcolithic. Why did some of these enclosures continue to be occupied for such long periods of time and grow to such sizes and complexity whilst others didn't? Are all ditched enclosures to be interpreted in a similar way? What can internal arrangements tell us?

What is inside? Ritualized social practices of deposition?

Traditionally, these ditches are interpreted in terms of defensive structures (usually associated with banks and palisades) or as drainage structures, associated with domestic settlements (villages). But the evidence does not always support this claim.

There are significant differences noticeable in the size and especially the ditches of these enclosures. These differences are not just in the form of the perimeters (as described above) but also in their deepness and width (Figure 5). Ditches can vary from less than 1m deep and 1.5m wide as at Torrão, to ditches of 1m-2m deep and 2m to 4m wide (Santa Vitória, Outeiro Alto 2, Perdigões ditches 6, 3 and 4), and even to ditches that are more than 3m deep and 6 or 7m wideth (Perdigões ditch 1 and Porto Torrão ditches 1 and 2). Unpublished sites such as Porto Torrão may have even larger ditches. The differences can be remarkable and the available statistics for Perdigões serve to demonstrate this. When the length of the perimeter is combined with the estimated volume of rock removed from the surveyed ditches we have totals of 745m^3 for the Late Neolithic ditch 6, 1838m^3 and 2416m^3 from ditches 4 and 3 and 14232m^3 from ditch 1. All ditches date to the Chalcolithic. Enclosures such as Santa Vitória A and Outeiro Alto 2 produce values of 127m^3 and 303m^3, while Torrão would not have exceeded 100m^3. This implies quite different social investments in the building of these structures and other inherent implications. It seems that throughout the 3rd millennium the ditches of some sites were getting larger and deeper, while in other contemporary sites they kept the dimensions smaller and similar to the earliest enclosures. Was there a different functionality expressed by ditch size? Small ditches, like the ones of Torrão, Ponte da Azambuja, Alto do Outeiro, Cortes 1 and others are not real barriers and there is no evidence for the existence of associated banks. On the other hand, ditches upwards of 9m wide and 3 to 6m deep (Perdigões or Porto Torrão) are far too big for the same general function (especially when we consider the effort needed in their construction). In fact, there are ditches too small to be considered defensive, while others are disproportionately large to fulfill this need. One interesting point, though, is that the largest ditches are related to the largest enclosures.

Another problem with the defensive or drainage theories is the fact that the ditches are filled, not with the original weathered bedrock that had used to build an accomanying bank, or by strata clearly related to water circulation and accumulation, but mostly with anthropogenic layers. At Perdigões, for example, the lower levels of the ditches reveled structured deposits of stones usually associated with large amounts of pottery and faunal remains. Only in some of the upper layers do we find evidence of fills resulting either from natural processes or unstructured human origin. In some cases, again, like Perdigões, or Santa Vitória or Porto Torrão there is evidence for pits, hearths or stone structures within the ditch fills (Figure

6). Other sites (e.g. Alcalar) have important deposits of articulated animal remains or human bone (such as at Porto Torrão and Perdigões E). Nothing inside the ditch fills suggests the existence of deposits derived from an associated bank: there is no evidence for the bedrock that was extracted during their initial construction. Some ditches seem to suggest rapid filling processes related to human activity, while others have phases of slow silting. At Perdigões ditch 3, the faunal remains reveal that the silting process was slow enough to enable soil formation (Costa, 2011). Basically, ditches of various sizes seem to have been constructed, the resulting excavated bedrock seems to have vanished and the ditches subsequently filled over time but mainly through human action.

The erosion theory, then, is far from satisfactory and it cannot explain the disappearance of tons of bedrock and, of course, for everything else that was inside these enclosures. Neither does topography since at sites like Perdigões, Porto Torrão, Paraíso, Xancra, Monte do Olival 1, sitting in natural hollows, the erosion would have been towards the inside, and the inside would have been protected.

The majority of excavated and published sites enclose only negative features. At Santa Vitória, Outeiro Alto 2, Alto do Outeiro, Ponte da Azambuja, Horta do Albardão 3 only pits or ditches survive. In the large enclosures, such as Perdigões or Alcalar, small walls, possibly of huts, made

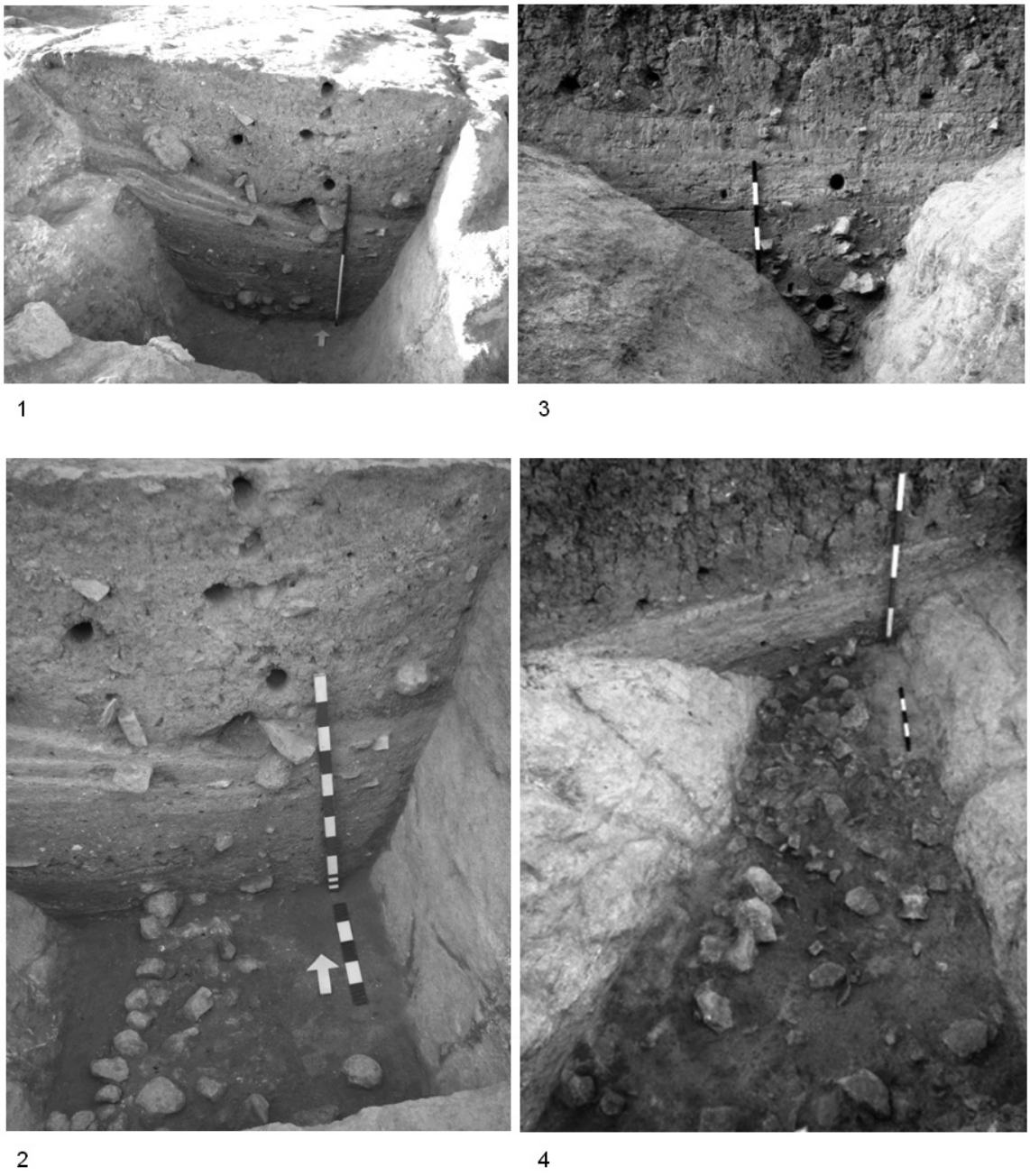

Figure 6: Section of Ditch 6 at Perdigões (1). Stone structure in the bottom of Ditch 6 at Perdigões (2). Section of Ditch 3 at Perdigões (3). Structured deposit of stones, pottery and faunal remains in Ditch 3 at Perdigões (4).

of stone or clay were recorded, suggesting that during the Chalcolithic these large sites could have enclosed standing structures. Evidence such as this is scarce, however, and in Perdigões they were certainly affected by deep ploughing. They are exceptions to the general rule that a significant number of ditched enclosures (contrary to what can be observed in walled enclosures or in open sites) enclosed no standing structures.

The traditional argument used to explain this observation is, as said above, erosion but this has been challenged in recent years (Márquez Romero, 2003; Márquez Romero and Jiménez, 2008) in an Iberian context, where it has been argued that the structure of deposition inside the pits and ditches and the total absence of evidence for significant erosion either inside or outside the enclosures makes this theory unviable. Instead they claim that these sites should be integrated into the wider European tradition of placing structured deposits in negative contexts.

Indeed, inside the smaller South Portugal Late Neolithic and Chalcolithic ditched enclosures there are only negative features (pits and graves). But it is also important to notice that during the Chalcolithic (in the middle/3rd quarter of the 3rd millennium BC according to the dated contexts of the central sector at Perdigões) there is internal evidence for a positive stone structure suggesting that during the later phases of the sites that attain large proportions the conditions of use may have been different from those of the earlier moments. It is also in these larger enclosures, and especially during the 3rd millennium BC, that funerary practices seem to gain particular importance.

Enclosures and funerary practices

A specific connection between some ditched enclosures and funerary contexts has been recently been noted (Valera, in press*;* Valera and Godinho, 2009; 2010). The relationship can be seen in two ways: in the dialog that enclosures establish with megalithic landscapes and in the incorporation of funerary contexts and practices inside the enclosures. This is especially evident in the large enclosures of South Portugal, such as Perdigões, Alcalar and Porto Torrão, and in the large enclosures of South Spain (Pijotilla, San Bás, Valencina or Marroquiés).

Alcalar (Móran and Parrerira, 2009) is famous for its areas of clustered megalithic cemeteries, with orthostatic dolmens, hypogea and tholos monuments from the Late Neolithic and Chalcolithic. These cemeteries surround the Chalcolithic enclosures (Late Neolithic ditches have not yet been recorded at the site, but they are to be expected) and each have been considered as the necropolis of a "macro village". The excavated areas inside the enclosures and of their negative structures are, however, quite restricted and it would be dangerous to produce a definitive model based on such limited data. Nevertheless, a pit grave was recorded in the surveyed area, suggesting that funerary practices can have an important internal expression, just like in the other large South Iberian enclosures.

A similar connection with surrounding clusters of Chalcolithic hypogea and tholoi can be seen at Porto Torrão (Valera, 2010 B; Valera et al*.,* in press c), where the known monuments do not reach the scale of Alcalar, but they are much more numerous and seem to concentrate in larger areas (Figure 7). But, even with a large number of surrounding graves, funerary contexts are also well represented inside the enclosures, with pit graves (Nuno Neto, personal information) and burial deposits within the ditches (Filipa Rodrigues, personal information) located in the albeit relatively restricted areas excavated in advance of development.

Again, it is in the Perdigões enclosure that these connections are more evident due to the fact that the surrounding megalithic monuments have been the focus of research since the mid 20thC and, since 1998, the site has been the focus of a permanent research program.

Perdigões, as we have seen, stands in an amphitheater open to the East, facing towards the valley of Ribeira do Álamo, where more than a hundred megalithic dolmens are known. Very few funerary monuments are located 'behind' the enclosure or outside of the corridor of visibityt established between the site and the valley. Considering the topography, location, the design of the enclosures, the astronomic orientation of the entrances, the presence of a cromlech and the specific viewshed, we can argue that Perdigões is clearly part of a "megalithic landscape", intended as a cosmological organization of space where funerary practices played an important role. The Perdigões enclosures simply cannot be understood outside that meaningful landscape.

At the enclosure itself, however, the funerary practices comprise a relevant and diversified activity throughout the lifetime of the site. From the Late Neolithic there are pit graves with primary deposits. During the Chalcolithic scattered human bones were deposited in the ditches, a necropolis of tholos monuments with secondary deposits was constructed and framed within a semi circular area formed by the outside ditches (further monuments have also been identified by geophysical survey, between this necropolis and the cromlech) and deposits of cremated remains were made in pits or in open areas (Valera et al., 2000 and 2007; Valera and Godinho, 2009; Valera and Silva, 2010). Archaeometric studies (Dias *et al*, 2008) suggest that the tholoi might have received secondary depositions of human remains provenance from the surrounding territory. In fact, the dimension and diversity of funerary practices at Perdigões, associated with the highlighted characteristics regarding location and architecture, suggest that the site was a space of social aggregation for ritualized practices during a significant period of time, and that sepulchro-ritual activities comprised some of the main activities taking place, participating in the construction of the meaning of the place and in the role of the place in the construction of the symbolic organization of the local landscape.

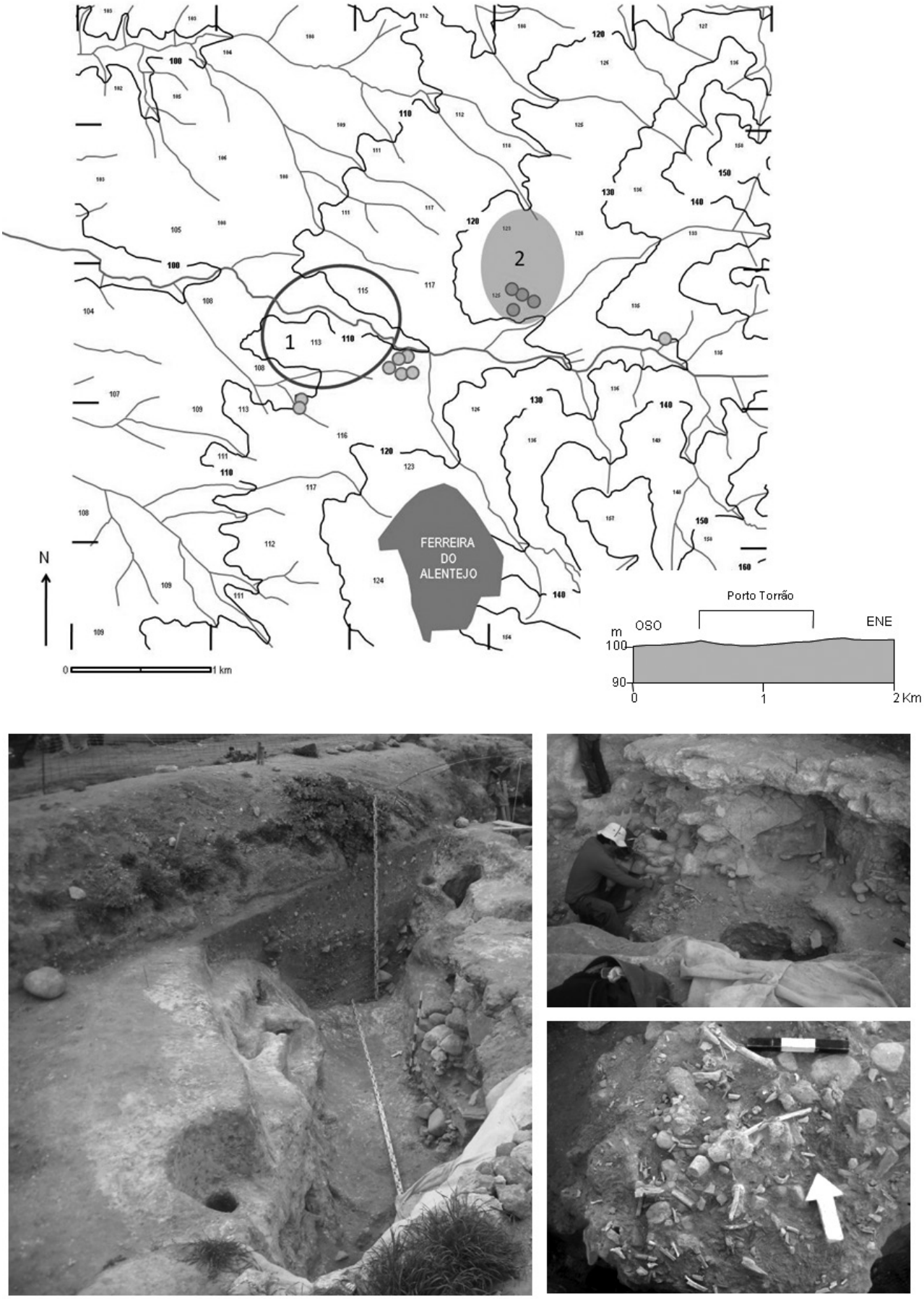

Figure 7: Porto Torrão. Estimated area of the enclosure (1) and peripheral graves (hypogea and tholoi), with the concentrated area at Carrascal 2 (2). Bottom left, a ditch used as an access corridor to several lateral hypogea. Bottom right (lower) a deposit of cremated human bones at Carrascal 2.

If this relationship between funerary practices, architecture and landscape is particularly evident in the large enclosures, especially during the 3rd millennium BC, it is not restricted to them. Very few small enclosures have been extensively surveyed, so there is currently insufficient empirical evidence on which to base any analysis of these kind of connections. Nevertheless, some older research interventions and some recent evidence from emergency archaeology are quite suggestive.

At Torrão (Lago and Albergaria, 2001), there is a small ditched enclosure located on the top of a small hill. Just at the SW limit of the ditch there was a cromlech also formed by small menhirs and, 100 meters way in the same direction, a proto-megalithic grave. The grave, the cromlech and the enclosure seem to be conected in the construction of a meaning for this local place.

Outeiro Alto 2 (Valera and Filipe, 2010) presents us with another interesting situation, since no direclyt related funerary contexts are known, but the site links through time two different funerary uses of the same place (Figure 9). It is a single sinuous-ditched enclosure with the entrance orientated to the winter solstice and has been dated to the Chalcolithic It is located on a flat hilltop. On the same hilltop we have two clustered necropolis areas, one dating from the Late Neolithic and other from the Bronze Age. The Late Neolithic area comprises three hypogea and a pit grave surrounding what seems to be a small timber circle (the first to have identified in Iberia). Close by, another group of hypogea and pit graves date from the Bronze Age. No chronological relation exists between these three nuclei (Neolithic graves, Chalcolithic enclosures and Bronze Age graves), but it is most significant that this symbolic use of a hill continued for a period of almost 2000 years. The necropolis and enclosure united to construct and express the continuity of use of a sacred and symbolic space through different cultural periods in which the earlier activity is a condition and attraction to the later, not just in a physical way, but also in a meaningful one. This has already been observed at several other megalithic areas in Portugal).

Just 5km northwest of Outeiro Alto, survey of the hilltop of Cortes (Valera et al. in press a) revealed a very small circular enclosure with a menhir in the centre. Nearby a large number of pits and a hypogeum dating from the Chalcolithic with fragments of a broken menhir were recorded. The emergency excavations were limited, but once more we have a spatial relationship between an enclosure, funerary contexts and evidence for a cromlech (just like at Perdigões and Torrão), suggesting that those different elements participated in the structuring of a specific symbolic and ritualized space.

Although information is wanting for most of the ditched enclosures in South Portugal, there is a picture emerging that suggests that there was a strong connection between these kinds of site, burials and related funerary practices and other ritual constructions (such as menhirs and cromlechs) in the creation of localized highly symbolic places in wider cosmogonic landscapes.

Filling the gap. Perspectives in dispute

Reaching this point it is now time to ask how the Iberian gap in the distribution of ditched enclosures has been filled. In other words, how is the emerging data being interpreted? The answer is that ditched enclosures are the centre of a conjectural dispute, based on different questions and different theoretical approaches.

In Portugal (as in general in Iberia) the traditional view of enclosure architecture (walled enclosures) can be summarised in two words: fortified settlements. Although some debates focussed on problems such as planning and sequences of construction, usually in the context of diffusion versus localism, little attention was paid to the nature of the designs of the enclosures and their relationships with landscape. When ditched enclosures started to appear in the archaeological record, they were naturally read within the same matrix. Historical Culturalism, Functionalism and Historical Materialism are the dominant theoretical frameworks in Iberia and diffusion, resource exploitation, product circulation and the emergence of social inequality are still the major research topics in Recent Prehistory. So, if the "truth" is to be provisionally established by the consensus of the majority of the scholars, in Iberia ditch enclosures would be (provisionally) unquestionably interpreted as domestic fortified settlements. The largest ones would provide evidence for a pristine form of state and of core – periphery dependencies or centres of territorial hierarchical settlement networks controlled by local elites. Perdigões, Porto Torrão and Alcalar would be seen as examples of "macro-villages" or political centres (the Portuguese equivalents of the Spanish Pijotilla, San Blás, Valencina or Marroquiés) and the smaller ditched enclosures (and walled) as sedentary fortified settlements integrated in (and protecting) these territorial units, ruled from one of those centres.

It has already been pointed out that in this theoretical framework those aggregation models are based on redistributive or classicist social relations (Valera, 2009). The motivation is usually the agrarian intensification and demographical growth, but a special role is reserved to control the labour force (based on coercion or persuasion), regarded as crucial to an increase in surplus in technologically primitive societies, and the control of circulation and distribution of critical resources and products considered central to reinforce dependency and increase inequality. The size of the settlements, their monumentality, their location, strategies relating to resource availability and differences in the amount of prestige goods (such as metals or products with a large circulation) are all indicators of the system. These indicators are regarded as revealing ranked or classicist social organization and the larger sites (the so called "macro-villages") are interpreted as political and economic centres that rule large territories protected by smaller fortified settlements and supported

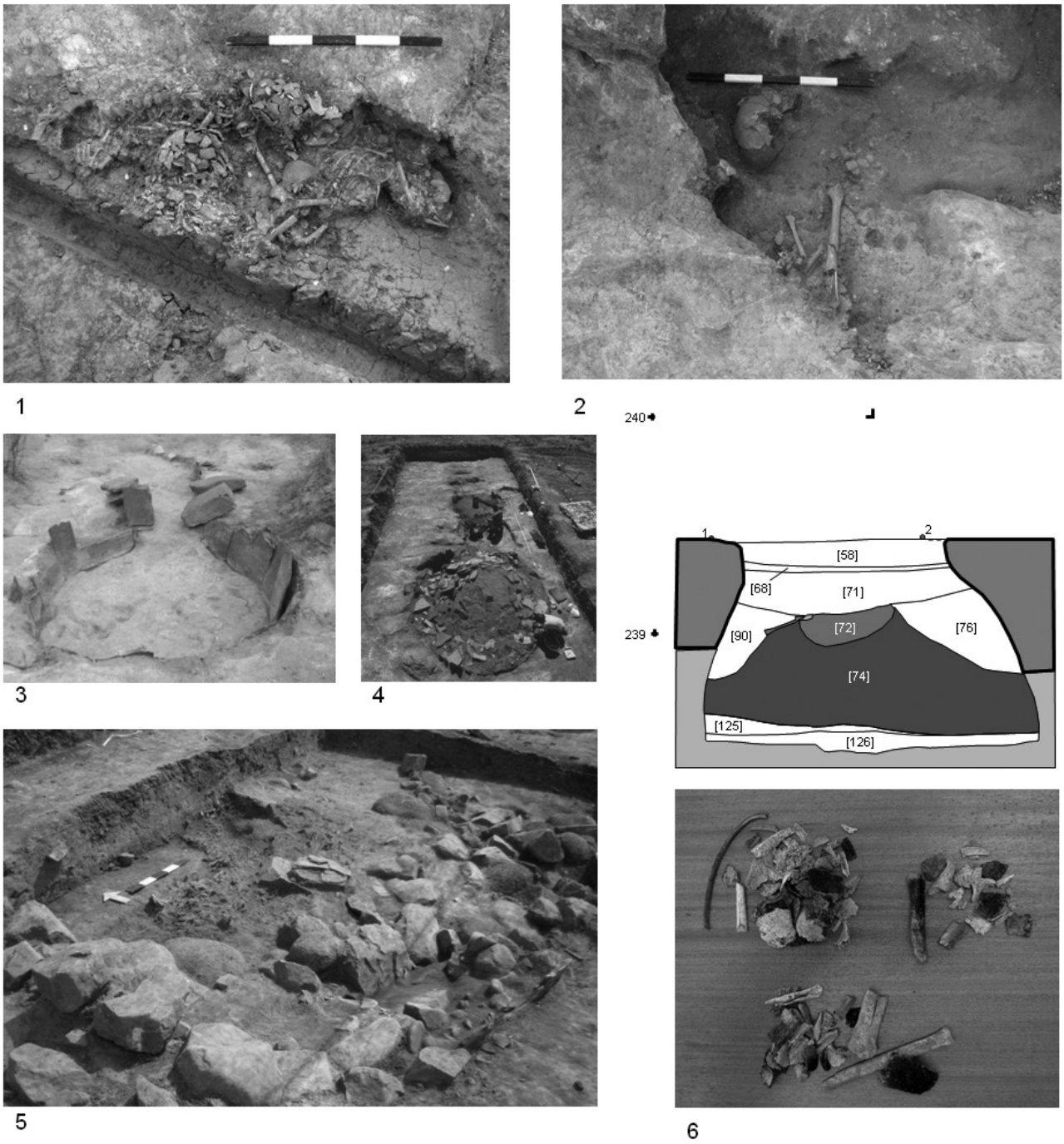

Figure 8: Perdigões enclosure. Late Neolithic pit graves (1 and 2). Tholoi type tombs from the Eastern necropolis area (3 and 4). Stone structure with open deposits of cremated human remains (5). Pit with a conical deposit of cremated human remains (6).

by agrarian intensification, control of extraction areas or commercial routes. Monumental architecture, reflecting a large labour mobilization, is considered to express social asymmetry.

In Iberian terms, the standard interpretation outlined above has been criticised over the last decade by Málaga university (Márquez and Jiménez, 2010), suggesting that there are specific and contextual recurrences that might support other interpretations. They advocated a European scale approach focussing on the general phenomenon of structured deposition in pits and ditches. The rarity or absence of archaeological material and structures other than negative features is highlighted as an argument in favour of these practices. Nevertheless, this approach still did not pay sufficient attention to the nature of the architectural designs and topography. The theoretical discourse was concentrated on the function attributed to the negative features.

Considering both approaches, I assume the structural role of ideology (in its ontological and cosmological dimensions) as the main framework in which to understand the emergence and development of the ditched enclosures

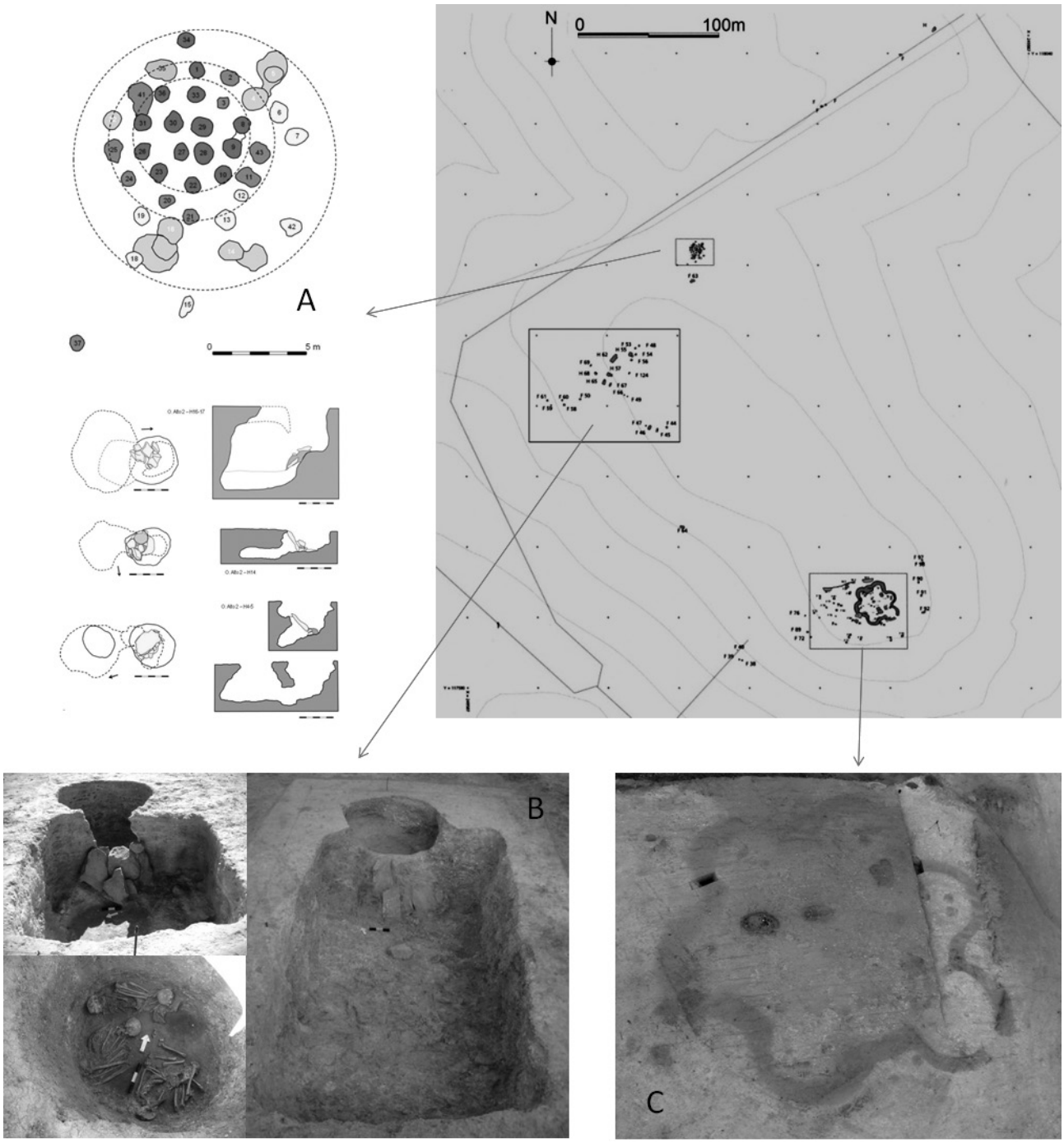

Figure 9: Outeiro Alto 2. A series of Late Neolithic hypogea surrounding a possible timber circle (A). Bronze Age hypogea and pit grave (B). Chalcolithic ditched enclosure (C).

of the 4th and 3rd millennia BC. To be clear in my statement, I am arguing that ditched enclosures emerged as an expression of Neolithic cosmogonies and that they also disappeared with them.

In South Portugal, ditched enclosures are very different monuments from walled enclosures. They differ in chronology, in location, in design, in architecture, in enclosed contexts and associated practices and also in the sizes that they can reach.

We must take into consideration several facts.

1. That ditched enclosures appear before walled sites.
2. That they tend to share a more patterned design.
3. That they emerge simultaneously with the floruit of megalithic passage graves (if not with the emergence of megalithism, as Sra. da Alegria seems to suggest).
4. That they seem to share the same general landscape semantics and be related to the same general celestial phenomena.
5. That they have strong spatial relationships with megalithic monuments (funerary or not).

6. That they integrate and diversify funerary practices connected with megalithic monuments and landscapes.
7. That they incorporate, as one of their most specific characteristics, the absence or rarity of lasting positive structures and the proliferation of negative structures associated with ritualized structured deposition.

With these facts in mind, we get a quite different picture from the one that we have for the 3rd millennium walled enclosures. The architectural designs of ditched enclosures are full of cosmogonic meaning. We have an extraordinary diversity of plans, all framed by the general tendency towards circularity and concentricity and by reverence to East. The topographical locations and relations established with landscapes reflect what we may call a megalithic landscape organization and cosmogony, structured on dichotomies associated with the sun's rising and setting in the East and West. In fact, the architecture, the location and the dialogue established with the landscape noted at several ditched enclosures where their plans are known, clearly relates them to the ideology expressed by megalithism in a way that is not visible in the walled enclosures.

The majority of ditched enclosures demonstrate the importance of cosmology to the way prehistoric communities spatially organized themselves and to the way they developed their architecture to emphasise their cosmogonies and to gain control of their world. The architecture and landscape organization seem to present themselves as forms of mapping the cosmos. Through them phenomena and associated stories are communicated, lived and remembered, encrypted in buildings, territories and natural elements. In a way, they highlight the inadequacy of sacred / profane dichotomies traditionally used in the approach to these communities.

In this context, the theory that ditched enclosures were essentially community meeting places for social aggregation, identity management, reproduction of the social status and preservation of cosmological order, where a diversified set of ritualized practices were performed in negative structures, seems more attractive.

The enclosure at Perdigões can serve as a paradigm for this thesis, as it clearly utilises the form of the local landscape in the design of the enclosures and in the way that they embrace funerary practices. The location of a necropolis between the entrances that were orientated towards the solstices and by that way is incorporated into the complex is an important statement. At Perdigões, as in other Iberian large enclosures (Costa Caramé et al., 2010), the notion of a necropolis as a well bounded and specific area of burial during the Chalcolithic is starting to be questioned, and is being replaced by a scene of generalized and diversified funerary practices. This is not coherent with the notion of a "macro-village" with its specific and separate graveyard area.

Funerary activity can hardly be approached in isolation from other social practices because its symbolic and social roles lie behind the simple ritualized disposal of the dead. It is part of a series of relationships with other performed ritualized practices that together participate in the construction of the site over time. As I suggested elsewhere, this is not a resurrection of the ritual/functional or meaningless argument. As Whittle suggested (Whittle, 1998 a and b), the discourse should move away from the need to strictly categorize a place or a practice as ritual or domestic, and aim to establish the degree of rituality and the meaning of the actions that give sense to a place. The ensemble of those actions and meanings would gradually construct the significance of each enclosure.

But this building of meaning over time also raises an important question. Why did some enclosures grow to became incredibly large and complex by the end of the 3rd millennium and others did not? Can we assume the same general "function" throughout the life time of those long-lived sites?

These questions are difficult to answer at the present moment, where we still have little information about the dynamics of the large ditched enclosures. But if we dare to answer, even hypothetically, once again we have to turn to Perdigões or to the "several" Perdigões that we can already detach from the conglomerated image.

What is evident is that the symbolic dimension expressed by location, by the orientation of the architectural design, by the relationship with the megalithic landscape, and by the presence of funerary contexts, was there at the very beginning in the Late Neolithic (second half of the 4th millennium BC). During the 3rd millennium the site grew, but seems to have maintained the same general logic, and the later enclosure is also perfectly adapted to the topography of the chosen location, developing a concentric relationship to the older enclosures and maintaining, through the orientation of the entrances and the framing of the necropolis, the existing visual dialog with the megalithic landscape of the valley and with the astronomically significant events related to the rising and setting of the sun. Funerary practices diversified and seem to have spread inside the enclosure, suggesting that the site became a large funerary chamber open to East as was usual in megaliths. What Perdigões seems to tell us is that the site grew, but kept the same general logic, and the small evidences that we have for some stone structures built outside negative structures during the Chalcolithic or the Bronze Age are not enough to question this general hypothesis. In fact, some of the stone structures are themselves clearly related to funerary contexts.

What apparently happens at Perdigões is that in the 3rd millennium BC, specifically in the second half the millennium, the ideological fundamentals behind the site were being emphasised, but mixed with some new elements (such as cremation rites or the manipulation of new transregional symbolic objects). How do we interpret

this exuberance that seems to characterize Perdigões in the later centuries of its life?

Once again answering this question is dangerous. The end of these large enclosures throughout Iberia seems to have been abrupt at the end of the Chalcolithic / beginning of the Bronze Age and ditched enclosures cease to be constructed. The general character of the collapse means that it cannot be attributed to localized events yet there is no evidence for a large scale catastrophe. The reasons must lie in changes that were occurring in the deep structure of society: a change in cosmogonies that had been developing at least since the middle of the 3rd millennium BC and that can be seen as the death of the world views of the Neolithic and emergence of new Bronze Age cosmogonies, individuality expressed in death by such devices as orthogonal architecture, new icons and symbolisms, the affirmation of an hierarchic society, and the emergence of the warrior image.

It is suggested here that ditched enclosures were deeply linked to Neolithic cosmologies, that they built them at the same time that they were expressing their world views, and that the disappearance of this architecture is coincident with the fall of those ways of perceiving and experience the world. This change that marks the end of Neolithic ideology also marks, naturally, the end of ditched enclosures architectures. They simply lost their reason to be, and like the cathedrals of late medieval times, the exuberance presented by some enclosures in the late 3rd millennium BC can be read as the "singing of the swan".

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