1

Megalithism in the Llobregat River Basin

1.1. Introduction

This book examines the spatial distribution of megalithic constructions within the Llobregat river basin (Catalonia, Iberian Peninsula) during the period between 3200 and 1500 cal BCE. The primary focus of the study is the megalithic structures documented in this natural geographical unit during the specified timeframe, encompassing three architectural typologies: cists, simple chambers and Catalan galleries. The research addresses a historical-archaeological issue through a geographical lens, employing the methodology par excellence in this field, Geographic Information Systems (GIS).

The choice of the Llobregat river basin as the geographical focus stems from the scarcity of studies on spatial analysis, especially using GIS techniques, and megalithism in the northeast of the Iberian Peninsula.

As research in the northeast of the Iberian Peninsula has been demonstrating, the construction of a megalithic monument results from decisions made by communities seeking to fulfill social needs, particularly the treatment of their dead (see part 1.5: "Research state in the northeast of the Iberian Peninsula"). Similarly, the specific spatial location of these structures is determined by a set of decisions made by these same communities. Several factors influence this decision-making process, including geographical elements such as slope positioning, inclination, topographic prominence index, altitude, elevation, orientation, visibility, proximity to livestock and transhumance routes, the presence of hydrographic networks and substrate composition. These variables can be analyzed and correlated using GIS technology. On the other hand, the work investment is estimated through calculations of both the internal volumetry of the funerary and associated spaces (chambers and corridors) and the volumetry of the mound structures, which serve to consolidate the monument and, in certain cases, enhance its visibility within the landscape.

Overall, the data generated by this study aims to elucidate the reasons behind the placement of these monuments in specific spatial contexts, proposing a new avenue of research based on the results. This approach seeks to establish the relationships between geographical space and social space surrounding the megalithic constructions in the northeast of the Iberian Peninsula, a region where sites from this period are scarce or even non-existent.

1.2. Working hypothesis and objectives

The archaeological record in the Llobregat river basin is extensive, ranging from archaeological remains from the Palaeolithic period like Abric Romaní (Middle Paleolithic) or Cova de les Toixoneres (Upper Middle Pleistocene) to Iberian settlements like El Cogulló (7th century BC - 1st century BC), Roman sites like Espelt (2nd century BC - 5th century AD), and a significant number of textile colonies from the 19th and 20th centuries.

The chronological period covered by this book ranges from 3200 to 1500 cal BCE, encompassing the Late Neolithic, Chalcolithic and Bronze Age. In this region and timeframe, megalithic constructions have a significant presence. Along the course of the Llobregat river, from its source at Fonts del Llobregat (Castellar de N'Hug) to its mouth in the Mediterranean Sea, there are documented 166 megalithic constructions. This initial set includes structures that do not correspond to the chronology and architectural typologies covered in this book, such as the Solsonià cists (Middle Neolithic).

Historically, the study of these megalithic constructions has focused on formal descriptions to define their possible typology, establish their chronology, determine their cultural affiliation and study the archaeological materials potentially recovered from their interiors. A brief overview of the history of research on the study of space in Catalan prehistory has revealed a lack of studies that address questions beyond those mentioned, such as geographical studies. In general, references to space, when made, tend to focus on specifying the location of megalithic constructions using their coordinates and providing a brief description of their immediate surroundings, without relating megalithic constructions to different geographical variables that could have been considered when deciding where to build the megaliths.

This book starts from the hypothesis that the spatial placement of megaliths responds to specific causes related to the concrete socio-economic conditions of the communities that built them. Megalithic constructions can be considered products in that they are material elements built to satisfy certain social needs, which in this case are of a funerary nature, but it is also necessary to evaluate if they respond to other factors. Thus, as products, all aspects related to a particular megalith, such as the choice of the specific point in the geographic space where it will be constructed or the work invested, are aspects that respond to and are defined by the specific socio-economic characteristics of the community. Therefore, the study of megaliths should allow us to understand the reasons for choices such as those mentioned and, therefore, expand our knowledge of the communities that made and used them.

Given the significant quantity and diversity of variables and data that need to be included in a study like the one

proposed, the use of powerful analysis techniques that allow their evaluation is essential. In this regard, this book primarily uses GIS (Geographic Information Systems) and 3D techniques, techniques which have been underutilized in the field of Catalan Prehistory and ensure the ability to generate and manage all the necessary information, as well as propose and evaluate a wide variety of working hypotheses related to the spatial placement of megaliths.

The geographical variables that will be addressed in this study, for each of the megalithic constructions included in it, are: the topographic prominence index, the slope on which the megalith is located and the terrain inclination, visibility, hydrographical network, livestock and transhumance paths, the lithology of the terrain where the megaliths are constructed, and the orientation of the entrance of the chamber or corridor of the constructions. However, these geographical variables are complemented with qualitative data such as architectural typology and relative chronology, as well as quantitative data such as the internal volume of the chamber and/or corridor and the volume of the mound structure. Density and randomness aspects are also analysed, which will establish the foundations of the study and the statistical treatment of the obtained data is developed for interpretation.

However, a brief discussion regarding the working hypothesis should be raised. Studies conducted during the 20th and 21st centuries on megalithism in the north-eastern Iberian Peninsula have been primarily intuitive, leading to the definition of what can be called a certain general logic of megalithic manifestations, where it is considered that megaliths generally occupy prominent places in the landscape and have a wide visual dominance over their surroundings, becoming markers in the territory. Starting from this premise, this work will address the analysis of geographical and architectural variables using powerful study tools, to see if there is a defined logic or pattern in relation to the criteria for the selection of the specific location of the megaliths in the area covered by this book.

However, is it possible that we are searching for a non-existent regularity? It would not be an exceptional case if this were to happen, as for example, in studies conducted on the topographical location and territorial situation of megaliths in the province of Huesca (Montes *et al*., 2020), no apparent logic of placement in the territory is determined. Therefore, are there really regular patterns regarding the placement of megaliths in a territory? Can we define generalized practices in this regard for megalithism? To answer these questions, a main objective and specific objectives have been defined for this book.

The main objective is to advance research on megalithism in the northeast of the Iberian Peninsula and address questions that have not been raised until now, such as seeking to understand the choice of spatial location of megaliths through the use of techniques like Geographic Information Systems (GIS). This main objective breaks down into different specific objectives:

To develop a topographical analysis of the megalithic constructions included in this study, analysing questions such as the topographic prominence index, which indicates the relationship between the location of megalithic constructions and their surroundings based on the relief; study the type of slope in terms of inclination where megaliths are located; evaluate the position on the slope.

To analyse the possible visual control of megalithic constructions over their immediate surroundings. The goal is to relate the extent of the immediate space to the megalith with the actual visual control exercised by megalithic constructions over their surroundings.

To determine if there is intervisibility between megaliths, and if so, at what distance this intervisibility occurs and argue whether it can be considered a key factor in deciding the specific location of megaliths.

To evaluate whether megalithic constructions are associated with livestock and transhumance paths. Determine if there is a distance between megaliths and paths that can be considered relevant and could be a conditioning factor for the construction of a megalith.

Similarly to livestock and transhumance paths, to analyse whether megalithic constructions are in any way associated with the presence of a hydrographical network and determine if the distance involved is relevant and could constitute a possible conditioning factor for the construction of megaliths.

To analyse whether the orientation of the entrance of the chamber and/or corridor of megalithic constructions follows the same patterns as those established for the north-eastern Iberian Peninsula.

In relation to the terrain topography and taking into account the variability of relief in the Llobregat river basin, to conduct an analysis of the altimetric height at which megalithic constructions are located in order to determine and argue for the possible dominant position of megaliths on different types of terrain.

To determine the lithology on which megalithic constructions are built in order to establish possible patterns and determine if there is any preference in relation to the lithological context for choosing the location of megaliths.

To study the work investment required to build megaliths based on the study of both the constructed useful space and the monumental space, that is, based on the internal volumes of the chambers and corridors and the volumes of the mound structures.

To analyse the potential relationship between the architectural typology of megaliths and the results of all the geographical variables analysed to determine if

there is differentiated behaviour according to typologies. Additionally, carry out the same study with relative chronology.

To establish if there are possible groupings of megalithic constructions within the Llobregat river basin in order to study their spatial behaviour in a more delimited territory.

To apply the principle of randomness to determine if the spatial placement of megalithic constructions responds to purely geographical aspects or if other factors, such as social aspects, may also be involved.

To analyse the data through statistical tests and carry out the cross-referencing of all the data, seeking correlations between different variables, both at a global level and within groupings, to try to define patterns of spatial placement in relation to geographical variables. The expected result is to determine the determining factors, both geographical and social, that conditioned the choice of the specific location of megalithic constructions in the Llobregat river basin.

1.3. Geographic characterization of the study area

The Llobregat river basin is located in the northeast of the Iberian Peninsula (figs. 1.1 and 1.2). The Llobregat river and its tributaries and streams form one of the main basins in Catalonia, covering an area of 4,984.3 square kilometers. The Llobregat river originates at the Fonts del Llobregat (Castellar de n'Hug, Berguedà region) at an elevation of 1,295 meters above sea level and flows into the Mediterranean Sea near Prat de Llobregat (Baix Llobregat region), where it forms a large delta, after covering a distance of 157 kilometers.

The Llobregat river can be considered as a geographical unit in the form of a corridor that articulates its entire basin. It is characterized by a wide variety of landscapes that make up the occupied territory, the diverse relief it presents in the vicinity, a stable continental climate with notable differences between the north and south of the basin and a large number of tributaries that flow into it, each with different courses and flows. Among these, it is important to highlight the Anoia river, the Calders stream and the Cardener river, as these three have the longest course, highest flow and are more abundant. As we will see later, they play a central role in the study of megalithic constructions in the Llobregat river basin. The presence of these megalithic constructions underscores the importance of this river and its basin for human activity, dating back to the Neolithic period.

In the area of its source, Fonts del Llobregat, the Llobregat river appears as a small stream or torrent with little flow, collecting water from the Pyrenees, especially during the thaw period. The flow gradually increases as the river flows southward, reaching its maximum flow in the area of its mouth, where it forms the delta of the Llobregat River.

Figure 1.1: Map of the situation of the Llobregat river basin within the context of the Iberian Peninsula. Source: PNOA

Figure 1.2: Delimitation of the Llobregat river basin in the north-east of the peninsula. Source: Cartographic base of the ICGC and edited by Elisabet López.

Along its course, the Llobregat River crosses the Pre-Pyrenees, characterized by the most rugged relief, where altitudes of over 2000 meters can be found. This terrain consists of gorges, alpine meadows and forests. Further south, the river enters the Catalan Central Depression, where the relief gradually softens and there are forested areas and plateaus. It is precisely in this stretch of its course where the Llobregat river receives the waters of two of its main tributaries: the Calders stream on the eastern bank and the Cardener river on the western bank, significantly contributing to the increase in width and flow of the Llobregat.

Later, the Llobregat crosses the Coastal Mountain Range through a gorge at the eastern end of the Montserrat massif and opens towards the Vallès-Penedès depression. In this section, it will receive the waters of its other main tributary, the Anoia river. Subsequently, the river passes through the final gorge and enters the coastal plain, forming a large delta. Here, the landscape is entirely gentle, currently characterized by significant agricultural and horticultural

activity. It is important to note that in its final stretch, the river has been diverted to allow for the construction of the port and airport facilities of Barcelona. Therefore, it's important to consider that in prehistoric times, the final course of the river had a different path than it does now.

1.4. Typological characterization

On a typological level, the megalithic constructions found in the Llobregat river basin correspond to single chambers, cists and some Catalan galleries. Single chambers and cists differ in their dimensions and the type of closure for the funerary space.

Single chambers are the most common architectural typology in the northeast of the Iberian Peninsula. Single chambers consist of a square or rectangular chamber that constitutes the funerary space and is typically constructed with four slabs (although there are often more). The covering slab is so heavy that it cannot be lifted or moved to deposit the bodies of the deceased or their skeletal remains. Therefore, this is done through access from one of the sides of the structure, often closed by a lowered slab (Cura, 1976). In many cases, the lowered slab has disappeared, probably because it is a more fragile element, so single chambers often give the impression of being open structures on one side.

Two types of single chambers are distinguished: rectangular single chambers (fig. 1.3) and subcircular or polygonal single chambers. Rectangular single chambers typically have four or more lateral slabs and a large covering slab, making this the most common type of single chamber in Catalonia. Subcircular or polygonal single chambers are formed by several slabs, which are generally widely spaced and a very large covering slab.

Single chambers can vary in size, ranging from 1 to 3 meters in length and can reach a height of up to 2 meters. They can be entirely above ground constructions or may be sunk into the tumulus, forming large boxes.

Cists constitute a very common type of megalithic structure in the interior of Catalonia (fig. 1.4). Generally, they are smaller in size than single chambers, with funerary spaces that are typically square or rectangular and usually about 1 meter in length. They are often closed by a small covering slab that could be moved to carry out each burial (Cura, 1973, 1976; Esteve, 1965, 1979; Maluquer, 1964, 1965; Tarrús *et al.*, 1987).

Cists can be divided based on the shape of their mound structures into: cists without mound structure, cists with a circular mound structure, cists with a rectangular mound structure and multiple cists within a single mound structure.

Since the early works of Bosch Gimpera and Pericot (1915-1920, 1950), rectangular megalithic constructions with similar width for the chamber and the corridor have been referred to as Catalan galleries. It is very difficult to distinguish between these two parts of the megalith. However, these researchers did not take into account, when defining Catalan galleries, that in the true covered galleries found in Brittany, Denmark or the Paris basin, the chamber and the corridor have the same height throughout their length, a feature not present in the galleries of south-eastern France and Catalonia, where the height of the corridor is always lower than that of the chamber. This confusion persisted until Guilaine's studies (1963) brought it to light.

In the case of Catalan galleries, two subtypes have been distinguished in research: large Catalan galleries and small Catalan galleries.

Large Catalan galleries (fig. 1.5) are rectangular constructions, which can be either tall or low. In the case of tall ones, they can reach up to 10 meters in length and a height of 2.5 meters. In the case of low ones, their

Figure 1.3: Simple rectangular chamber of Cal Marquet de Gravalosa (Castellfollit del Boix, Bages). Source: Elisabet López.

Figure 1.4: Cist of Bressol de la Mare de Déu (Espunyola, Berguedà). Source: Elisabet López.

Figure 1.5: Catalan gallery of Les Maioles (Rubió, Anoia). Source: Elisabet López.

length can reach up to 13 meters, with a height of up to 1.5 meters (Tarrús *et al.*, 1984). The mound structure is typically circular and is built with earth and stones, often having several containment rings made of small vertical slabs embedded in the ground around the outer limit of the mound structure.

In the case of small Catalan galleries, a distinction is made between tall and low ones as well. Tall ones show a significant height difference between the burial chamber and the corridor, whereas in the case of low ones, this difference is not as pronounced. Generally, their length ranges from 3 to 5 meters, while their height varies between 1.5 and 2 meters. Catalan galleries are relatively numerous in Catalonia, particularly prominent in the Eastern Pyrenees. In Catalan galleries, there may be a slab separating the spaces of the burial chamber from the corridor. Regarding the mound structures, they are usually circular, made of stone and earth and similar to the large galleries, they may have containment rings around the outer limit of the mound structure (Tarrús *et a*l., 1987).

The chronology of the different architectural types, including the megaliths studied in this book, has been and is a subject of discussion.

Bosch Gimpera (1915-1920) places Catalan megalithism in general in the Eneolithic era, meaning it would be architectures associated with early metallurgical manifestations. Later, he proposes that megalithism in Catalonia would have developed between 2500 – 2100 BC for the Eneolithic and from 2100 to 1600 BC for the Bronze Age. Pericot (1950) suggests that megalithism developed between 2500 – 1000 BC, coinciding its end with the arrival of Indo-European peoples who introduced the funerary practice of cremation. Tarradell (1962), in turn, proposes a chronological framework between 2000 – 1500 BC. Maluquer de Motes (1948) links the beginning of the megalithic phenomenon with the bell-shaped pottery and places its end around 1000 BC. Subsequently, in various works (Cura 1973, 1975, 1976; Cura and Castells 1977), specific chronologies are proposed for the different architectural types, as follows:

a. Catalan galleries would have a construction and usage chronology between 2500 – 2100 BC, defined by the presence of ceramics with hatched triangles similar to the Treilles group.
b. The simple chambers, related to the so-called Pyrenean bell-shaped pottery, would be situated between the Chalcolithic and the Early Bronze Age, between 2100 – 1500 BC.
c. Regarding the megalithic cists, a chronology is proposed between 2800 - 1100, between the Late Neolithic and the Middle Bronze Age.

In the case of both the simple chambers and the megalithic cists, the proposed chronology is based on the presence of Pyrenean bell-shaped pottery and materials from the Bronze Age in these types of megaliths.

Finally, there would be a late stage, between 1500 – 650 BC, during which, in any case, there is a certain reuse of megalithic constructions.

1.5. History of research in the northeast of the Iberian Peninsula

Research on megalithism in the north-eastern region of the Iberian Peninsula has been an important line of study about the communities that inhabited this area during recent Prehistory since the late 19th century. This research is of a traditional nature, primarily focused on defining the architectural typology of megaliths, often based on definitions established in the early decades of the 20th century (Pericot, 1925). It also aims to determine their possible chronological and cultural affiliations, and in cases where available, it includes the study of anthropological remains and archaeological materials (ornaments, pottery, lithic tools, among others) found within the funerary spaces. However, a rigorous examination of the spatial aspects of megalithic constructions and all their architectural and structural characteristics has generally received very little attention in research.

A brief history of research on the relationship between megalithic constructions and their spatial context reveals that, from the early studies on megalithism in the north-eastern Iberian Peninsula (Macau, 1934) until the 1970s, references to this question were either non-existent or minimal. They were limited to providing a superficial description of the megalith's location and often included directions on how to reach them. For example, Pericot's study of Catalan megalithic tombs and the Pyrenean culture (1950) referred to space in terms of the general distribution of megalithic constructions across the Iberian Peninsula and the large concentrations of megaliths documented in Catalonia. Pericot noted that megalithism in Catalonia appeared relatively isolated within the Iberian Peninsula, as megalithic constructions did not extend westward or southward from Catalonia, with a complete absence of megaliths until reaching Andalusia. Pericot speculated whether this absence was due to a lack of research and excavations. However, later, after numerous additional investigations had been conducted, he concluded that the presence and absence of megaliths in different parts of the Iberian Peninsula should be explained by other factors. Pericot marked the boundary of megalithism in the north-eastern Iberian Peninsula at the mouth of the Llobregat River and, to the west, in the Segre and Noguera Pallaresa river areas. Within this region, megalithic constructions seemed to be located in very specific zones: Alt Empordà, Les Gavarres, the Vic plain, Vallès, Pla de Bages, Solsona, Alt Urgell and Pallars. In his final reflections, Pericot considered whether these zones were definitive or if there might have been other megalithic constructions in the lowland Catalan areas that had been destroyed over time.

Subsequently, Tarradell (1962) classified the major megalithic zones in Catalonia, paying little attention to the characteristics of their spatial context.

In the studies by Cura (1970, 1976, 1980, 1982, and 1985), Ferran (1970) and Vilardell (1982), which delved into various aspects of megalithism in Catalonia, the treatment of space remained minimal, typically limited to a general description of the Catalan megalithic areas being studied, with only a superficial description of the immediate surroundings of each megalithic construction. In these works, a reclassification of the typology of the architectures in the major megalithic zones of Catalonia was proposed. They noted a clear difference in size between the large coastal constructions and the smaller constructions in the interior territory. In Castany's studies (1987), following a similar line of research, minimal inferences were made regarding geographical traits. However, it was suggested that the river route of the Segre through the regions of Alt Urgell and Cerdanya during the Middle Bronze Age facilitated cultural contacts across the Pyrenees and the arrival of new populations with different cultural and anthropological characteristics. This fusion, cultural, social and economic change will be linked to the bronze industry.

In the transition from the 1970s to the 1980s, there began to be research on megalithism in the north-eastern Iberian Peninsula where the role of space started to gain more significance. Cura (1980) re-evaluated his previous proposals and treated the geographical factor as one that had been previously ignored or undervalued compared to others, such as chronology. He emphasized that geography shapes form the character and condition the economy, suggesting that, during a later stage of the Neolithic when subsistence production was fully established, geography played a role in specialization and cultural diversification observed in the north-eastern Iberian Peninsula. In his later investigations in the regions of Bages, Berguedà and Solsonès, he proposed that the geographical factor was one of the reasons why the populations in these areas, who were culturally and economically poor peasant farmers and herders, had indigenous roots (Castany *et al.,* 1986). This isolation was later broken by the influx of populations through the Segre river routes, connecting the northern Pyrenees with the Llobregat river and the Mediterranean. In another work, Cura (1987) introduced the concept of spatial archaeology, where the geographical variable had two aspects. On one hand, he addressed geography itself by highlighting that several megaliths were located near springs and streams. On the other hand, he inferred aspects of the economic and social system of the megalith builders. He postulated that the megalith builders, who had been traditionally attributed with a herder character in relation to the spaces where megaliths were located, may have had a mixed economy of peasant farmers and herders instead.

It was not until the late 1980s and from then on, that research on megalithism began to address, to varying degrees, space and various geographical variables related to the choice of megalithic construction locations. For example, Tarrús, Castells, Chinchilla and Vilardell (1987) noted that all cultural phenomena during the Recent Prehistory in Catalonia were entirely influenced by geography, creating transitional zones on the coast and isolated zones in the interior. The pre-coastal mountain ranges directed the flow of cultural currents from north to south, just as the Pyrenees conditioned a north-south flow in the easternmost region. On the other hand, the Transversal Mountain Range divided what they called "New Catalonia" and "Old Catalonia." They pointed out that the 300 known megalithic constructions in Catalonia at that time were located in the "Old Catalonia" mountain ranges, encompassing the region from the coast to Vilafranca del Penedès, passing through the west of Tàrrega and reaching the confluence of the Segre and Noguera Pallaresa rivers. South of this line, there were no megaliths until reaching the province of Almeria. Their proposal regarding the spatial distribution of megaliths was that "Old Catalonia" was inhabited by herders who preferred the mountains and plateaus and were the builders of megaliths, while "New Catalonia" and Valencia were inhabited by peasant farmers who preferred the plains. Typologically, they also made a geographical distinction, situating Catalan galleries primarily in the Alt and Baix Empordà regions, with some in Vallès Oriental, Osona and Solsonès regions. Corridor tombs were found in the Alt Empordà region, while simple chambers were located in interior areas, making them the most common type of dolmen throughout the Pyrenees, although they shared territory with cists.

In contrast, the work by Vilardell (1987) placed megalithic constructions in the gorges on both sides of the Flamisell River until it flows into the Noguera Pallaresa (in the Alt Pallars region). He emphasized that most megalithic constructions were situated in high and dominant locations, on ridges or visible slopes, making them visible to each other.

According to Tarrús (1987), the Alt Empordà region experienced a milder and more humid climate since the Neolithic, which would explain the presence of numerous watercourses near which megaliths were constructed.

Subsequently, in a synthesis of megalithism within the Girona regions, Tarrús (1988) referenced the geographical location of megalithic constructions to establish a connection between the constructions in the Finestres mountain range and those in Osona. The study suggested that there was a clear relationship between the megaliths in both areas, as the Finestres mountain range could have served as an entry route from the Empordà coast, where the oldest megaliths are located, to the interior plateaus of Catalonia, specifically Osona, following routes used for transhumance.

Bosch and Tarrús (1989), in their study of the cist with mound structure at Creu del Principi (Alta Garrotxa), discussed its specific location and its relationship with other megaliths in that area. They addressed issues such as the density and distances between constructions, altitudes, geology, vegetation, climate, farmhouses, and even referenced certain activities during the Middle Ages and transhumance practices in that area.

Genís Ribé (1993), in his undergraduate thesis on space and territory between the Early Neolithic and Middle Neolithic, focused on territorial and spatial aspects. He argued that each social group articulates its social, economic, political, and ideological practices in a specific way, and this articulation becomes evident in the territory, where the organization of these social practices is reflected. Territory, according to him, represents the physical space that has been socialized and cultured in which all human society relationships develop (excerpted from Ruiz and Burillo, 1988). Thus, understanding human societies at any point in history requires understanding the territory in which they exist.

It was not until 1993 that Vilardell and Cura, in their study of late megalithic tombs in the Catalan Pyrenees and the Segre river valley, proposed that during the second half of the 3rd millennium, a set of influences reached Catalonia, crossing the territory but not taking root. Instead, these influences had a superficial effect that did not unify the territory. The scarcity of these influences was attributed to Catalonia's geographical position. Within this general framework, megalithic constructions were included. Their study of megalithic constructions focused on the Lleida region. According to them, studies conducted from the perspective of the New Archaeology regarding the possible interrelationship between megalithic constructions were incomplete. They made an interesting distinction between the northern and southern sectors of their study area, relating the typology of megaliths to various geographical variables such as topography, vegetation, altitude, hydrographical network, aspects of visibility, and the relationship with historical land use and the position of farmhouses. The analysis allowed the creation of territorial models based on these variables, taking into account factors like mobility and circulation.

Tarrús *et al.* 1996, in their book "Dolmens and Menhirs: 111 Megalithic Monuments of Alt Empordà and Vallespir Oriental," presented spatial distribution percentages based on the typology of megalithic constructions and subsequently addressed aspects such as location, orientation, and architecture of each construction, always starting from their typology. Finally, they made considerations emphasizing the positions of megaliths at the lower part of mountains or in internal valleys, relating these constructions to settlement.

In his PhD, Tarrús (1999) addressed the possible relationship between the location of habitats, the megalith territory and human communities in the far north-western part of Catalonia. Regarding the megalith territory, he used the location of megalithic constructions to propose possible patterns for the placement of contemporary habitats in that area. According to him, the distribution of constructions was random because there were areas with a very high density of megaliths and others where their presence was virtually absent. As is customary in research on megalithism in Catalonia, Tarrús related geographical location to aspects such as typology, architecture and chronology. It is worth noting, however, that he emphasized a logical relationship between the geographical location of megaliths and their typology.

Silvia Gili's PhD (1995), titled "Territorialities in Mallorcan Recent Prehistory," focused on territorial and spatial aspects. She argued that each social group articulates its social, economic, political and ideological practices in a specific way, and this articulation becomes evident in the territory, where the organization of these social practices is reflected. Territory, according to her, represents the physical space that has been socialized and cultured in which all human society relationships are developed. Thus, understanding human societies at any point in history requires understanding the territory in which they exist. Her analysis of the distribution of settlements and funerary sites in Mallorca Recent Prehistory revealed no relationship between the studied sites and the three main geographical variables on the island: distance to water resources, distance to the coast and distance to copper deposits. She also highlighted a duality in settlement strategies, with groups settling either in areas suitable for dry farming or in mountainous regions more suitable for herding and exploiting forest resources.

Another interesting case in the study of space is the megalithic tomb Les Maioles (Rubió, Anoia) (Clop *et al.,* 2000), where space was treated more extensively. In addition to providing a detailed description of the geographical features of the area, vegetation and climate, the study linked the construction's location to its surroundings. The study described the dominance of the construction on the terrain and its visibility. Furthermore, it was noted that the construction was situated in a natural passage area between the Òdena basin and the plateaus of Calaf. It's worth noting that a medieval track passed right next to the megalith.

In later works following his PhD, Tarrús (2003) proposed a delimitation of the major megalithic areas in Catalonia, emphasizing that his study referred to megaliths from Rosselló to the Alt Camp region and from Cap de Creus to Pallars Sobirà.

In the section on megalithic landscapes, habitats and territory in this work, Tarrús explores the hypothesis that pastoral communities living in mountainous and transhumant areas placed dolmens with engravings at the highest peripheral points, encircling the flat and cultivable lands, while positioning menhirs at high altitudes near dolmens, marking the territorial boundaries of the groups and indicating their meeting points. Nevertheless, there are no specific references to the exact locations of these constructions or the basic characteristics of the immediate geographic environment.

In a study on megalithic monuments on the right side of the Cardener river (Carreras *et al.,* 2004), a discussion section includes an insight into spatial aspects, referring to the altitudes at which the constructions are located and

their placement in the landscape. The authors highlight that despite being a current administrative division not applicable to prehistory, all megalithic constructions are precisely located along the dividing line between the regions of Bages and Anoia, with most megaliths situated on the high edges of the Cardener, Saló-Coaner and Rajadell rivers basin, in cultivable areas. These elevated margins correspond to transverse ridges (oriented from east to west) separating river basins and vertical ridges (oriented from north to south) defining the inner plains.

Despite the scarcity of works applying GIS to megalithic constructions studies we have Josep Barberà i Farràs 2010: Geographic models, GIS and archaeology. The case study of the prehistoric settlement in the Ripoll river basin (Vallès, 5500-550ane) (Yubero *et al.,* 2010). In the study of the prehistoric settlement of the Ripoll river, the objectives are closely linked to space since they study settlement patterns along the river basin during prehistory, and on the other hand, based on the idea that accessibility natural and water resources are fundamental when choosing a place for the habitat, these patterns are put in relation with the Ripoll river understood as a water resource.

Other studies that stand out are the potential flow of river networks using GIS and its application to the recent prehistory of the Penedès (Esteve, 2006); the study of the Iberian and Roman settlement in the coastal Laietana between the Besòs river and the Teià stream (Ruestes *et al.,* 2006) and the GIS study of the Llobregat river and its relationship with the territory in Roman times (Morral , 2008).

1.6. Llobregat river basin megalithic constructions

Once the issue to be addressed was defined and the study area was delimited, the first step was to conduct a systematic bibliographic review that would provide us with an initial list of known megalithic constructions in the Llobregat river basin.

Overall, the initial list was compiled based on the following works: Batista (1961), Batista *et al.,* (1979-80), Bosch Gimpera (1923), Bosch Gimpera *et al.,* (1989), Carreras *et al.,* (2004), Castany (1987, 1991), Castells (1986), Castells *et al.,* (1986), Cazurro (1912), Clop (1995, 2000) Clop *et al.,* (2002), Cura (1976, 1980, 1985, 1987, 1987-89, 1991), Cura *et al.,* (1970, 1975, 1977, 1982, 1993, 1994), Cruells *et al.,* (1992), Esteva (1964), Fàbrega (1998, 2006), Faura *et al.,* (1995, 2002), Fíguls (1991), Font Cot (2005, 2010), Guitart (1986), Macau (1934), Maluquer de Motes (1945, 1949), Mañé (2003), Molist *et al.,* (2000), Pericot (1925, 1950), Serra Vilaró (1927), Tarradell (1962), Tarrús (1987, 1988, 1991, 1999, 2002, 2003), Tarrús *et al.,* (1987, 1996) Vidal (1984), Vilardell (1981, 1987) and Vilardell *et al*., (1993, 1996).

In addition to bibliographic sources, consulting web pages has allowed for obtaining precise data on the situation in space for some of the megalithic sites, as often the information provided by other sources is insufficient or inaccurate, especially regarding coordinates. The consulted web sources were: the catalogue of archaeological heritage of Catalonia, the Foundation of the rural world (2010, 2012), the Geological and Cartographic Institute of Catalonia, and the blog Dolmens and Menhirs Pilar.

The bibliographic review has finally resulted in having a list of 166 known megalithic constructions in the Llobregat river basin. This list underwent a refinement process to define the set of megalithic constructions that, due to their qualitative and quantitative characteristics, allow for the effective development of the work as outlined in this book.

The refinement criteria are essentially related to the spatial positioning of the megalithic constructions. In the initial set of 166 megaliths, it was impossible to determine the coordinates for 27 of the constructions, reducing the count to 139 megaliths.

The second list of 139 megalithic constructions with assigned coordinates was input into GIS software, overlapping with the layer of the perimeter of the Llobregat river basin. The overlap of both layers allowed for excluding all megalithic constructions located outside the basin, resulting in 104 megaliths.

Lastly, the individualized qualitative study of each megalithic construction regarding chronology, including only those megaliths dated between the Middle Neolithic and Bronze Age, and architectural typology—specifically cists, simple chambers, and Catalan galleries—constitutes the refinement that most reduced the sample count, placing the final number at 66 megalithic constructions.

The representativeness of the study in terms of case numbers can be observed from three perspectives:

1. Starting from the initial total with constructions of great chronological, typological and spatial variability, 66 constructions out of 166 constitute the study of 40.36%.
2. If we consider the 139 constructions with coordinates but still exhibiting significant variability, the representativeness of the sample increases to 48.2%.
3. Considering only those constructions entirely within the basin, despite having chronological and typological variability with a total of 104, the percentage increases to a 64.4% representativeness.

Overall, for the study presented in this book, we should consider the third perspective as a starting point, a sample with a good degree of representativeness in all three possibilities. The hypotheses and patterns that can be formulated based on this study must be able to respond to the social and spatial reality surrounding the megalithic constructions.

Figure 1.6 gathers information corresponding to the code assigned to each megalithic construction, the name, the documented materials linked to the structures and the relative chronology.

Figure 1.6: Information corresponding to the code assigned to each megalithic construction, the name, the documented materials linked to the structures and the relative chronology. Source: Elisabet López.

ID	Name	Material	Documented Chronology
code	text	description	relative chronology
0	Barraca Moixonaires	**Pottery**: an unshaped fragment of plain handcrafted pottery. **Lithic**: 1 flint arrowhead, 1.5cm long, showing signs of fire and 1 fragment of a white flint blade.	Final Neolithic to Initial Bronze based on typology. Recent Chalcolithic to Ancient Bronze.
1	Boixadors	No documented materials	Recent Chalcolithic to Ancient Bronze
2	Bressol de la Mare de Déu	**Pottery**: small ceramic assemblage. **Ornamentation**: some jewellery of marine origin. **Metal**: 1 copper pin.	Middle Bronze
3	Bullons	**Pottery**: handmade, reddish and coarse, notable for a handmade reddish-blackish earthenware vessel with a polished surface, convex base, and low slightly conical walls, featuring a small nub at the junction of the walls and the base. **Ornamentation**: 1 flattened, nearly quadrangular amber necklace bead and fragments of another. 1 marine shell and 4 dentalium shell fragments used as necklace pieces. **Anthropology**: very fragmented human remains, including some cranial and long bone fragments.	Ancient Bronze
4	Caixa del Moro de Castelló	**Pottery**: 4 small and smooth wall fragments. **Ornamentation**: 3 dentalium shell pieces and 7 scallop shell necklace beads. **Anthropology**: 3 skulls, mandibles, and dental pieces from 13 individuals.	Chalcolithic 1700
5	Cal Biel	No documented materials	Ancient Bronze
6	Cal Cisquet de Maçaners	**Pottery**: fragments of Bell Beaker pottery, ceramics with button appendages, ceramics with plastic decoration and incisions, ceramics with smooth surfaces and no ornamentation. **Lithic**: some flint. **Ornamentation**: some amber jewellery.	Middle Bronze
7	Cal Conill Gros	**Anthropology**: bones of a skeleton and a skull.	Recent Chalcolithic to Ancient Bronze between 2200-1700
8	Cal Marquet de Gravalosa	No documented materials	Middle Bronze
9	Cal Pallot	**Pottery**: 2 irregular fragments. **Ornamentation**: 1 dentalium shell, 1 perforated shell disc or pendant. **Anthropology**: 2 skeletons.	Chalcolithic
10	Cal Verdaguer	**Pottery**: 89 irregular fragments of smooth earthenware with reddish and blackish paste and very coarse temper, 1 rim fragment, and 1 nub handle. **Ornamentation**: 22 necklace pieces and a fragment of a button with a V-shaped perforation. **Anthropology**: numerous poorly preserved bones, 90 teeth (11 from a child).	Chalcolithic
11	Camprodon	**Pottery**: 2 smooth handmade vessels. **Anthropology**: 2 skulls, 4 mandibles, and some long bones.	Bronze
12	Can Cabot	**Pottery**: some ceramic fragments. **Lithic**: 1 flint flake. **Metal**: 1 fragment of a copper pin. **Anthropology**: some bones and 40 teeth.	Chalcolithic close by 1800. Middle bronze - Final Bronze. According to Molist from Initial Eneolithic to Final Bronze.

ID	Name	Material	Documented Chronology
code	text	description	relative chronology
13	Can Cuca	**Pottery**: 126 irregular fragments, including carinated rims, plate rims, straight rims, fragments of small carinated vessels, base fragments, rims with wide and flat lips, plate rims with rounded bevels, and 4 rim fragments from a handmade jug with a lobed or tetralobular mouth. **Ornamentation**: 5 dentalium shells, 4 discoidal shell beads, and an earring or open ring. **Anthropology**: poorly preserved posterior part of a cranial vault and a poorly preserved cranial vault of a youth.	Chalcolithic from 2200 to 2000
14	Can Miseries	No documented materials	Final Neolithic - Chalcolithic to Bronze
15	Can Parès	**Pottery**: 32 fragments of handmade pottery without decoration or form. **Lithic**: 1 unretouched flint fragment. **Anthropology**: 23 molar pieces, 39 dental pieces, 36 fragments of femur epiphyses, tibiae, scaphoids of the foot carpals, metacarpals, calcanei, and first phalanges; all very fragmented.	Chalcolithic - Initial Bronze
16	Castelltallat	**Pottery**: 2 fragments of Pyrenean Bell Beaker. **Metal**: 19 copper rings. **Ornamentation**: 4 shell necklace beads.	Final Neolithic - Chalcolithic according to typology
17	Clapers d'Altamís	No documented materials	Chalcolithic between 2200 and 1800 to Middle Bronze or Ancient near 1500.
18	Clot dels Morts	**Pottery**: carinated ceramics with button appendage handles, wheel-thrown and handmade ceramics, handmade ceramics with incised decoration, an incised Bell Beaker fragment, and irregular pieces with smooth surfaces and very thin walls. **Metal**: various copper pieces, bronze spirals and pendants, 2 pins, 1 barrel-shaped object, several copper sheets, and 1 bronze ring. **Ornamentation**: 5 blue glass beads decorated with concentric circles, 2 steatite beads, 5 limestone beads, 41 dentalium shells, 1 coral piece, 1 Cardium shell, 1 rustic Columbella shell, 1 chalcedony pendant, and 1 goethite nodule. **Anthropology**: teeth and long bones identifying 71 individuals (51 adults and 20 children) corresponding to successive burials.	Chalcolithic
19	Clusella	**Anthropology**: 7 dental pieces and 4 molars.	Final Neolithic to Middle Bronze based in typology. Recent chalcolithic to ancient bronze.
20	Coaner	**Pottery**: some fragments without decoration or form. **Metal**: 1 curved bronze fragment from a bracelet. **Ornamentation**: 15 discoidal shell necklace beads. **Anthropology**: few human remains.	Chalcolithic to Ancient Bronze 2000 to 1500.
21	Codonyet del Cint	**Pottery**: Fragments belonging to a decorated Bell Beaker vessel with bands of lines forming lozenges and others decorated with grooves and some with incisions. Some smooth pottery with some carinated shapes. **Anthropology**: 3 skulls.	Final Neolithic to Ancient Bronze. 2200 - 1800. Bronze (3rth megalithism)
22	Collet de Sú	**Pottery**: 111 ceramic fragments including pieces of brown paste and surfaces, Bell Beaker vessels, carinated cups with thin walls, undetermined pieces with horizontal lug, fragments decorated with incised motifs and knobs. **Lithic**: 2 flint axes. **Anthropology**: 12 skulls, some trepanned.	Final Neolithic to Middle Bronze by typology. Recent Chalcolithic to Ancient Bronze.

ID	Name	Material	Documented Chronology
code	text	description	relative chronology
23	Coma de Fontelles	No documented materials	Chalcolithic - Initial Bronze. IV and III mil·lenni.
24	Comallagosa	No documented materials	Ancient Bronze 1800-1500
25	Cornet II o Pregonès	**Lithic**: 1 finely retouched white flint arrowhead shaped like a bay laurel leaf, and a fragment of a flint knife. **Metal**: 2 fragments of a Metal ring (alloy of copper, tin, and lead). **Ornamentation**: a small drilled bone disc, another shell disc, a sea snail of the genus Murex, undetermined flakes, and a pierced peduncle fragment.	Without information
26	Cortès del Pi	No documented materials	Chalcolithic 2200 - 1800
27	Creu dels Albats	**Lithic**: a flint scraper-shaped blade. **Ornamentation**: 1 necklace of circular and triangular scallop shell beads.	Chalcolithic
28	Criac	**Pottery**: several fragments of very coarse pottery. **Anthropology**: human bones from 9 or 10 individuals.	Ancient and middle Bronze
29	Cuspinar	**Pottery**: 4 fragments from the rim of a vessel with smoothed walls and carinated profile, 1 rim of a bowl with a small nub handle, 1 with triangular punctuated incisions, and 1 with cord decoration and nail impressions; the rest are undetermined fragments. **Lithic**: 22 unretouched flint flakes. **Metal**s: 1 copper fragment. **Ornamentation**: 7 steatite necklace pieces, 1 biconical scallop shell, 1 cylindrical scallop shell, 7 bone pieces, 1 perforated human tooth, and 5 prismatic buttons with triangular section perforated in V shape. **Anthropology**: At least 8 adult burials and 1 infant burial.	Bronze
30	El Mercadal	No documented materials	Chalcolithic to ancient and middle Bronze
31	Els Plans de Ferran	**Pottery**: 1 fragment of a straight and pointed rim belonging to a vessel with thick walls and gray colour, 1 fragment of a rounded rim of an everted wall vessel with traces of gray brunswickite and reddish paste with mica and quartz temper, 1 fragment of a pointed rim of an everted wall vessel with smooth surfaces and dark gray colour with mica and quartz temper, 1 fragment of a rounded rim of an everted wall vessel with traces of brunswickite inside and outside, dark gray colour, and mica temper, 1 fragment of a flattened rim of a slightly everted straight-walled vessel, gray paste with quartz temper, 1 fragment of a rounded rim of a very small vessel with slightly everted wall, dark gray paste with quartz temper, 7 carinated fragments, 32 undetermined fragments, undecorated, and 3 fragments of a larger vessel without form or decoration, heavily worn ochre surface and blackish paste with quartz temper. **Metal**: 1 circular bronze ring made with a mold and 1 unsoldered circular bronze ring with flattened tips touching each other. **Ornamentation**: 1 shell button in the shape of a truncated pyramid with a V-shaped perforation. **Anthropology**: some remains and a skull.	Without information
32	Esmoladores	No documented materials	Chalcolithic. Recent Chalcolithic to Ancient Bronze.

ID	Name	Material	Documented Chronology
code	text	description	relative chronology
33	Fossa del Gegant	**Pottery**: 1 smooth hemispherical bowl, 1 fragment of Pyrenean Bell Beaker, and several fragments, some with rims, of small smooth vessels. **Lithic**: a fragment of a flint knife and a cobble with longitudinally or slightly curved striations. **Ornamentation**: an amber necklace bead. **Anthropology**: 69 human teeth.	Chalcolithic
34	Gavatx	**Pottery**: Undecorated ceramic remains and 1 fragment of a rim with cord decoration and finger impressions. **Lithic**: 1 flint knife fragment. **Ornamentation**: 1 decorated palette and a bracelet. **Anthropology**: Human remains from at least 14 individuals.	Chalcolithic
35	L'Espina	**Pottery**: 1 handmade spherical-shaped pottery pot with a knob as a means of grip, and other undetermined ceramic fragments. **Metal**: 1 copper arrowhead, 14mm in length. **Ornamentation**: necklace beads made of shell, perforated in scallop shape, prismatic bone buttons perforated in V shape, a square-based bone button with triangular section perforated in V shape. Bone Industry: 1 bone awl, 25 cm in length, and fragments of bone rings. **Anthropology**: remains of 2 or 3 human mandibles retaining dental pieces, some phalanges, and undetermined bones.	Final Neolithic to Inicial Bronze according to typology. Recent Chalcolithic to Ancient Bronze.
36	La Creu de l'Espelta	No documented materials	Chalcolithic to Initial Bronze based on descriptions.
37	La Grossa	No documented materials	Without information
38	La Tosa	No documented materials	Without information
39	La Vena	**Anthropology**: human teeth and bones.	Final Neolithic to Initial Bronze according to typology. Recent Chalcolithic to Ancient Bronze.
40	Les Comes	No documented materials	Final Neolithic to Initial Bronze according to typology.
41	Les Maioles	**Pottery**: Highlights include a complete globular cup, a low carinated vessel, and 12 fragments with shapes or decorations attributed to the Early Bronze Age. **Lithic**: 2 nodules, 3 cores, 1 blade, 6 axes, 1 indeterminate fragment, 1 triangular arrowhead with a peduncle, featuring bifacial retouch on the body and peduncle, and invasive retouch on the peduncle. **Metal**: 1 square-sectioned double-pointed awl. **Ornamentation**: Necklace beads, 1 barrel-shaped, 10 discoidal with concentric perforation, and 6 made of dentalium shells. **Anthropology**: 620 remains from a multiple burial, of 7 or 8 individuals, part of a ritual of successive primary burials; one individual maintains anatomical connection.	Initial Bronze
42	Les Planes	No documented materials	Chalcolithic
43	Mas Clamí	**Pottery**: 1 carinated vessel with button appendage handle, 1 fragment belonging to the handle part of a vessel, 1 fragment from the upper part of a reddish vessel, several fragments of reddish and blackish pottery, 3 fragments of a small-sized vessel, and 1 fragment from the rim of a Bell Beaker type vessel. **Ornamentation**: Various necklace beads and 1 pendant carved from a Cardium shell. **Anthropology**: At least 8 burials.	Chalcolithic

ID	Name	Material	Documented Chronology
code	text	description	relative chronology
44	Mas de la Cabana	No documented materials	Final Neolithic to Middle Bronze. Recent Chalcolithic to Ancient Bronze.
45	Mas del Trompa	No documented materials	Without information
46	Pla de la Fossa	**Pottery**: 81 undetermined fragments of coarse pottery belonging to 5 different vessels; 2 more wheel-thrown vessels. **Lithic**: Flint firestone. **Metal**: 1 modern iron nail. **Ornamentation**: 1 dentalium shell, 1 scallop shell bead with biconical perforation. **Anthropology**: 12 dental pieces belonging to 8 adult individuals.	Chalcolithic near 2000. Bronze.
47	Pla de la Llosa	No documented materials	Without information
48	Pla de Trullas	**Pottery**: 45 undetermined and smooth handmade pottery fragments, 1 fragment with incised motifs of parallel lines, and a rim. **Anthropology**: Some human teeth and 1 fragment of a mandible.	Final Neolithic to Middle Bronze
49	Puig Rodó	**Pottery**: Residual remains of an incised Bell Beaker vessel. **Metal**: Object made of bronze alloy, 1 flat laurel leaf-shaped point with a bronze peduncle, a small metal plate shaped like a laurel leaf, and a metal bracelet. **Ornamentation**: 2 small bone discs from a necklace. **Anthropology**: Human remains including 4 skulls and other postcranial skeletal bones.	Chalcolithic to Ancient Bronze according to documented materials.
50	Roca Sereny	**Pottery**: Several undetermined fragments. **Lithic**: 1 small flint blade. **Ornamentation**: 2 bone buttons with V-shaped perforation. **Anthropology**: Bones from at least 6 individuals, one maintaining anatomical connection.	Chalcolithic to Ancient Bronze. Final Neolithic - Chalcolithic to Ancient Bronze.
51	Salvans Vell	No documented materials	Middle Neolithic - Recent Chalcolithic
52	Samuntà	No documented materials	Neolithic to Chalcolithic
53	Sant Salvador	**Pottery**: Undetermined fragments of handmade pottery. **Lithic**: White flint axes and fragments of flint blades. **Ornamentation**: Three necklace pieces (dentalium shell, a gray stone, and a disc made of shell).	Final Neolithic to Middle Bronze. Chalcolithic near 2200
54	Santa Magdalena	**Ornamentation**: 2 scallop shell necklace pieces. **Anthropology**: Some adult teeth.	Chalcolithic to Ancient Bronze
55	Serragallarda	No documented materials	Recent Chalcolithic - Ancient Bronze. Final 3rth millennium - initial 2nd millennium. Initial Chalcolithic according to typology between 2200 - 1800
56	Serrat de les Pipes I	**Pottery**: 2 bowls, 1 vessel with sinuous profile, and 1 fragment decorated with grooves. **Lithic**: 1 flint axe. **Metal**: Bronze needles and 1 copper needle. **Ornamentation**: 1 spherical bead made of goethite, 11 circular beads in Cardium shell, a Columbella shell, and bone buttons with V-shaped perforation. **Anthropology**: 44 dental pieces and some small bones belonging to 8 individuals (2 infants and 6 adults).	Ancient Bronze. Chalcolithic to Final Bronze

ID	Name	Material	Documented Chronology
code	text	description	relative chronology
57	Serrat de les Pipes II	**Pottery**: 7 handmade ceramic fragments from 3 small vessels. **Lithic**: 1 white flint blade. **Anthropology**: 15 dental pieces and other skeletal fragments corresponding to 5 adult individuals.	Chalcolithic to Ancient Bronze
58	Tomba del General	**Pottery**: A rim fragment of a regional Bell Beaker vessel, of Pyrenean type, with incised decoration, and 1 undetermined fragment of pottery with fingernail decoration. **Anthropology**: 69 dental pieces.	Chalcolithic to Middle Bronze
59	Tomba del Moro del Serrat de les Moles	**Pottery**: 2 handmade fragments (one with handle attachment). **Lithic**: 1 flint knife, 16 cm long, and a triangular flint arrowhead with a peduncle. **Ornamentation**: 8 dentalium shells, 2 discoidal shell necklace beads, and one made of stone. **Anthropology**: Very fragmented remains.	Recent Chalcolithic
60	Torre d'en Dac	**Pottery**: Fragments of Pyrenean Bell Beaker vessels, incised pottery decorated with cords, and fragments of smooth carinated vessels. **Metal**: 2 bronze rings. **Ornamentation**: 1 fragment of a Cardium shell pendant.	Chalcolithic 2000-1800 to middle Bronze near 1500
61	Tossal del Moro de Joval	No documented materials	Without information
62	Umbertes	**Pottery**: 1 fragment of pottery with incised dotted decoration, 1 perpendicular incised fragment, and carinated fragments. **Lithic**: Piece of white flint with bilateral retouch and 1 flint flake. **Ornamentation**: 1 polished scallop shell with a hole, 4 steatite necklace pieces, and 1 dentalium shell fragment. **Anthropology**: Very fragmented remains.	Final Neolithic - Chalcolithic to Ancient Bronze
63	Vilaclara	No documented materials	Final Neolithic - Chalcolithic to Ancient Bronze
64	Vilanova	**Pottery**: 5 coarse fragments of reddish paste without decoration or form, and a rim of a bowl with blackish paste with abundant temper.	Without information
65	Vinya d'en Carner	No documented materials	Without information