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PALILIA 33



Michael Kunst | Daniel Steiniger (eds.)

SETTLEMENT STRUCTURES AND METALLURGY

The Relations between Italy and the Iberian
Peninsula in the Early Chalcolithic

Papers of an International Conference Held in Rome,
Museo Nazionale Romano – Palazzo Massimo,
6–7 October 2011

For some considerable time right up to the present, almost all specialists have been dealing at various different regional levels with the topics of the conference published here. The expansion of the source material in the last decades has led to a comprehensive understanding of early metallurgy and its role in social, economic and settlement-structure terms. Despite this far-reaching progress, concrete questions are emerging more and more clearly that can only be answered at international and interdisciplinary levels. It is precisely this international communication that the conference on which the present volume is based has attempted to set in motion so as to address these complex questions. This publication pulls together and sets out the state of research on the topic at the beginning of the 21st century for the entire Central and Western Mediterranean regions.

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Michael Kunst | Daniel Steiniger (eds.)
SETTLEMENT STRUCTURES
AND METALLURGY

Palilia 33

DEUTSCHES ARCHÄOLOGISCHES INSTITUT

PALILIA 33

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Ortwin Dally und Norbert Zimmermann

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Vorwort

von *Henner von Hesberg* und *Dirce Marzoli*

Ein offener Dialog, eine einsichtige Darstellung der jeweiligen Arbeitsweisen und die Bereitschaft, den anderen Forschern in die Archive Zugang und in die Ergebnisse eigener Arbeiten Einblick zu gewähren, sind Voraussetzungen eines fruchtbaren Austauschs. Sie führen zu einer vertieften Kenntnis der jeweiligen Erforschung einer archäologischen Epoche, ihrer lokalen Besonderheiten und überregionalen Verbindungen. Ausdruck einer solchen Art von Austausch, der selbst in Zeiten problemloser Kommunikation nicht immer selbstverständlich ist, bilden diese Tagung sowie deren jetzt vorliegende Publikation. Sie erfolgt bedauerlicherweise mit großer Verspätung, aber ihre grundlegende Botschaft ist nicht überholt: nur gemeinsam und länderübergreifend lässt sich das Thema angehen.

Der hier behandelten Kupferzeit Südwesteuropas widmen sich methodisch innovative und interdisziplinär angelegte Projekte, zu denen Ausgrabungen von Siedlungen, Nekropolen, Bergbauarealen ebenso zählen wie Material- und Umweltstudien. Immer komplexer werden dabei auch Einblicke in Gesellschaftsstrukturen, Wirtschaftsweisen, Handelswege und Technologien, zunehmend deutlicher lassen sich zudem die Wege der Übertragung von Fertigkeiten und Produktionsformen nachzeichnen. Einige Ergebnisse liegen schon in internationalen Referenzwerken vor, gleichwohl werden sie im Kontext der Tagung ergänzt und vertieft und um die Forschungsergebnisse aus nicht immer leicht zugänglichen lokalen Publikationen erweitert, welche zudem häufiger lediglich Vorberichte darstellen. Abgesehen davon aber bieten die Beiträge neue Resultate und Interpretationsansätze.

Gerade auf den Gebieten der Siedlungsarchäologie und ihrer Verbindung mit der Montanarchäologie und der Archäometallurgie sind nämlich sowohl auf der Pyrenäen- wie auch auf der Apenninhalbinsel in den letzten Jahrzehnten bahnbrechende Ergebnisse erzielt worden, die nach weiterem Austausch über die Beziehungen zwischen Italien und Südwesteuropa im Chalkolithikum verlangen. Für diese Thematik haben die beiden Abteilungen des Deutschen Archäologischen Instituts – Rom und Madrid –, deren Aktivitäten diesem geographischen Raum vorwiegend gelten, als Veranstalter der Tagung und als Herausgeber der Publikation ein Forum geboten. Mit der Veröffentlichung der Tagung suchen sie der Diskussion im Bereich der Kupferzeitforschung weitere Impulse zu geben.

Die Tagung wurde zwar von den beiden Abteilungen organisiert, aber sie versteht sich als Projekt von Prähistorikerinnen und Prähistorikern aus vielen europäischen Ländern mit dem gemeinsamen Ziel, einen Beitrag zur Kenntnis der westlichen Hemisphäre der europäischen Kupferzeit zu leisten und Anstöße zu weiteren Zusammenarbeiten zu geben. Dabei ging es darum, die sehr unterschiedliche Situation der iberischen mit jener der Apenninhalbinsel zu vergleichen und zu prüfen, ob hier nur der Erkenntnisstand voneinander abweicht oder wir grundsätzlich zwei unterschiedliche Ausprägungen in einem historischen Horizont vor uns haben.

Die Veranstaltung dieser Tagung gewinnt über die fachwissenschaftliche Bedeutung auch eine forschungspolitische. Die Prähistorische Archäologie, die in den Abteilungen des Deutschen Archäologischen Instituts anfangs nur sporadisch und seit den sechziger Jahren in zunehmendem Maße an Bedeutung erlangte, präsentiert sich hier mit einem eigenen Projekt, dessen Anfänge bis in die Zeit der 1954 gegründeten Madrider Abteilung zurückreichen. Zu den Mitarbeitern der ersten Stunde zählte ein Prähistoriker, zu dessen Schwerpunkten die Kupferzeit gehörte: Edward Sangmeister. Ab 1959 war Hermanfrid Schubart als Prähistoriker an der Madrider Abteilung tätig, die er von 1980 bis 1994 leitete. Ihre Forschungen auf diesem Gebiet, vor allem die von ihnen gemeinsam geleitete Ausgrabung in Zambujal bei Torres Vedras in Portugal sind bis heute wichtige Referenzen für die Kupferzeitforschung geblieben. Ihre Namen und der mit ihnen verbundene Grabungsplatz wurden zum Synonym für den Erfolg internationaler Zusammenarbeit, aus der immer weitere Netzwerke hervorgingen. 1994 übernahm Michael Kunst als Referent die prähistorische Forschung der Madrider Abteilung und führte vor allem auch die Grabungen in Zambujal fort.

Das seit 1829 aktive Instituto di Corrispondenza Archeologica war am Anfang ganz den wissenschaftlichen Zielen Johann Joachim Winckelmanns verpflichtet, die in vieler Hinsicht aus einer philologischen Tradition hervorgegangen waren. Deswegen blieben die Zeiträume ohne Schriftzeugnisse zunächst außerhalb der Überlegungen. Erst später, unter dem Einfluss der Entwicklungen in den skandinavischen und angelsächsischen Ländern, kamen einzelne Aspekte der Prähistorie hinzu, konnten aber nie größere Bedeutung erlangen. Immerhin hat Wolfgang Helbig mit seiner 1879 erschienenen

Schrift über „Die Italiker in der Poebene“ sich in diese Bereiche der archäologischen Wissenschaft vorgewagt und damit auch Luigi Pigorini beeinflusst, der seinerseits oft in den Adunanzien des Instituts in jenen Jahren vortrug. Ein gegenseitiger Austausch war vorhanden, aber die Prähistorie in Italien ging bald eigene Wege und das Germanico blieb in der Folgezeit auf die klassische Antike konzentriert, wenn man einmal von der Zeit des Nationalsozialismus absieht, in der aber stärker die Zeit der Völkerwanderung und damit als Wissenschaft die Frühgeschichte an Bedeutung gewann. Spätere Studien von Seiten der Prähistorie, die innerhalb der Abteilung Rom des DAI entstanden, widmeten sich meist der Eisenzeit und ergänzten somit methodisch die Versuche der Klassischen Archäologie, die Frühphasen der späteren Kulturen Italiens zu erschließen. Zu nennen sind hier etwa die 1959 und 1962 erschienenen Werke Hermann Müller-Karpes zu den Anfängen Roms. Später hat Kerstin Hoffmann als Forschungsstipendiatin der Abteilung im Rahmen des von der Gerda-Henkel-Stiftung geförderten Projekts zu den einheimischen Kulturen in Italien sehr intensiv den internen Dialog gefördert. Aber erst mit Daniel Steininger 2006 startete dann ein eigenständiges Projekt, das mit den traditionellen Forschungsfeldern der Abteilung Rom nichts mehr zu tun hatte und ganz im Chalkolithikum angesiedelt war.

Darin kommt ein umfassender Wandel in den Methoden und der Organisation von Forschung innerhalb des Deutschen Archäologischen Instituts zum Ausdruck, der jüngst zu vielen Veränderungen geführt hat, etwa in der sogenannten Bildung von Clustern, also die Abteilungen übergreifenden Forschungsverbünden. Damit die unterschiedlichen Abteilungen des Instituts in den verschiedenen Kulturregionen Europas und der ganzen Welt untereinander weiterhin einen fruchtbaren Austausch pflegen können, zugleich aber auch für ihre Partner an den diversen Universitäten und übrigen Forschungsstätten anschlussfähig bleiben, muss die Konzentration auf einzelne archäologische Disziplinen zu-

gunsten einer breiteren Fächerung erweitert werden. Dadurch ist es möglich, verschiedene historische Horizonte und Epochen etwa im Bereich des Mittelmeeres, aber auch darüber hinaus, in ihren Gemeinsamkeiten und Unterschieden in den Blick zu bekommen. Zugleich profitieren die Disziplinen voneinander durch ihre methodische Vielfalt.

In einer solchen engen Verschränkung kann die Arbeit des Instituts eine wirkungsvolle Ergänzung zu dem Studien- und Forschungsbetrieb der Universitäten bilden, in denen bei aller Interdisziplinarität durch die Studienerfordernisse und Fächerdefinitionen die Grenzen stärker bewahrt werden müssen.

Die Tagung mit ihrer Thematik stellt einen weiteren Schritt in diese Richtung dar und bezeugt zugleich Öffnung und neue Verbindungen, die dadurch möglich sind. Ihr Konzept haben Daniel Steininger und Michael Kunst gemeinsam entworfen. Beide beschäftigen sich vorrangig mit der Kupferzeit und beide stammen von der Universität Freiburg, wo der eine 2007 und der andere 1982 promoviert hat, womit sie wiederum in der mittelbaren Tradition Sangmeisters stehen.

Ihnen gilt unser besonderer Dank. Danken möchten wir auch Patrizia Petitti und Christian Strahm für die Mitarbeit zur Vorbereitung der Tagung im wissenschaftlichen Komitee sowie allen jenen Kolleginnen und Kollegen, die durch Vortrag, Diskussion und schriftlichen Bericht zum Erfolg des Unternehmens beigetragen haben. Auch an alle anderen, die sich an der Betreuung der Tagung und an der Redaktion beteiligt haben, richtet sich unser Dank. Für die finanzielle Förderung gilt der Fritz Thyssen Stiftung unser besonderer Dank. Hervorheben möchten wir schließlich die Gastfreundschaft von Rita Paris und Anna Maria Moretti, die für die Tagung am 6. und 7. Oktober 2011 ihren schönen Vortragsaal im Palazzo Massimo in Rom zur Verfügung stellten.

Henner von Hesberg, Rom, und Dirce Marzoli, Madrid, Januar 2013

The Chalcolithic of the Iberian Peninsula

Investigation without Cultures? Fortifications, Complexity, Social Evolution and the State. Some Notes on the History and the Current State of Research¹

by Michael Kunst²

Beginnings of Late Prehistoric Studies in Portugal and Spain

Prehistoric research has a relatively long history on the Iberian Peninsula, especially concerning that of megalithic tombs, which caught the interest of researchers long before the 19th century. In 1733, Martinho de Mendonça de Pina e Proença (1693–1743) published his dissertation on megalithic graves (in Portuguese: *antas*) in Volume 14 of the *Memórias da Academia Real de História*. One year later, the same academy published the first inventory of megalithic tombs in Europe by Padre Affonso da Madre de Deus Guerreiro (born in 1676), which gave an account of 315 megalithic tombs³. In Spain, the first scientific publication of the largest megalithic tomb, known as *Cueva de Menga de Antequera*⁴, appears to have been written by the architect Rafael Mitjana y Ardison, who considered this building a Celtic temple⁵. It is possible that there are other works on prehistoric monuments, particularly megaliths, which are lost to modern scholars. Already King Felipe II (1527–1598) of Spain ordered the elaboration of an inventory of ancient monuments and antiquities, published as *Relaciones Topográficas de los Pueblos de España*⁶. Prehistoric research became a subject of greater interest in the

middle of the 19th century, although its research history – as we have seen – goes back to the Middle Ages, or possibly even to Antiquity⁷. After the development of the Darwinian theory of evolution⁸, prehistoric archaeology became increasingly important; even to the point of making direct analogies between the development of tool types and the development of biological species⁹. In this context, geology also played an important role.

The origins of geology, especially that of stratigraphy – one of the most important foundations of prehistoric archaeology – go back to the Danish natural scientist and physician Niels Stensen (Latin: Nicolaus Steno(nis); 1638–1686), who, while working as a professor of anatomy at the University of Padua from 1666 to 1677, published his main work on stratigraphy in Florence in 1669¹⁰. It is not merely by chance that he developed this work in Italy; important preliminary work had already been done there by several Italian scholars¹¹. This also explains why the *International Congress of Prehistory and Anthropology (Congrès International d'Anthropologie et d'Archéologie Préhistoriques)*, the precursor of today's conferences of the UISPP¹² was created in 1865 at the suggestion of Gabriel de

1 At our meeting in October 2011 in Rome I gave my lecture in Spanish under the title *Breve historia de la investigación sobre el Calcolítico en la Península Ibérica*, because most Italians understand Spanish, but as there were also scholars from England, France and Germany I decided to publish this article in English in order to reach a broader scientific community. As investigation of the Chalcolithic on the Iberian Peninsula has created hundreds of publications during the last 150 years, it is not possible to quote all important contributions that appeared in that timespan in an article like this. A complete bibliographical list for the published map of fortified settlements below would alone have filled several pages. This will be made up for in the forthcoming monograph on the new excavations at Zambujal.

2 German Archaeological Institute, Madrid Branch, Spain; now retired.

3 Cartalhac 1886, 147–149; Leisner – Leisner 1959, p. XIV; Mitjana 1847, 8; Rhoné 1868, 181 f.

4 The first known reference is from a license granted by the archbishop of Málaga in 1530.

5 Mitjana 1847, 7–17.

6 Sasse 2017, 216. 303.

7 Sasse 2017, 83–135.

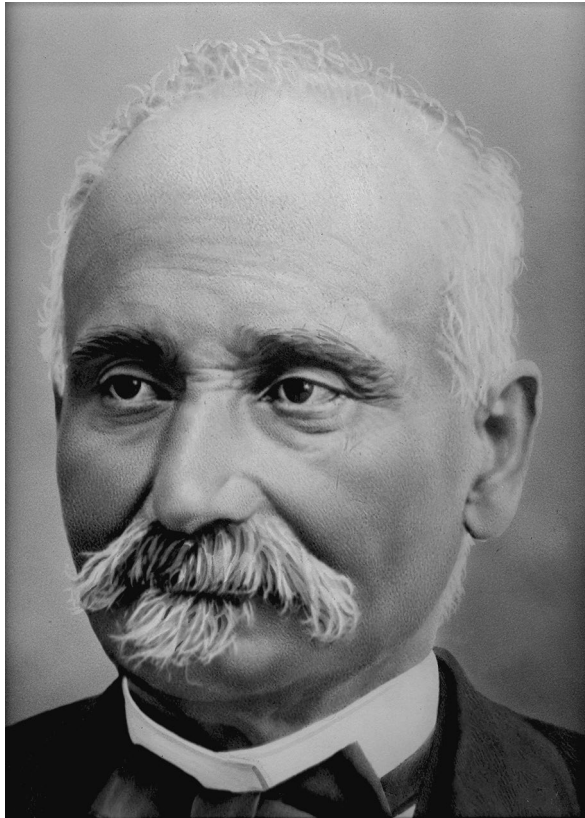
8 Kunst 1982, 3–7; Kunst 2016, 263–266.

9 For example Montelius 1900, 237; Montelius 1903, 20; Åberg 1929, 508. For a detailed analysis of this problem see Kunst 1982 and 2016.

10 Steno 1699.

11 Sasse 2017, 144–153; Sasse 2018, 7.

12 Union Internationale des Sciences Préhistoriques et Protohistoriques.



1 Carlos Ribeiro, probably in 1844

Mortillet during the first meeting of the Italian Society of Natural Sciences (*Società Italiana di Scienze Naturali*¹³) in La Spezia¹⁴. The first important prehistoric archaeologists in Spain and Portugal were also geologists: Antonio Machado y Nuñez (1815–1896), who originally studied medicine and later became head of the Department of Natural Sciences at the University of Seville¹⁵; Juan Vilanova y Piera (1821–1893)¹⁶ from Valencia, Spain, became professor ordinarius of geology and paleontology in 1852

at the *Universidad Central de Madrid*¹⁷ and the *Museo de Ciencias Naturales*, which had been incorporated into the Faculty of Philosophy of that university¹⁸; the Portuguesees Carlos Ribeiro (1813–1882) (fig. 1), first officer of the Portuguese army¹⁹ and then geologist, Francisco António Pereira da Costa (1809–1889) and Joaquim Felipe Nery da Encarnação Delgado (1835–1908), all three from the Geological Committee of the Kingdom (*Comissão Geológica do Reino*), an institution founded in 1857 and the precursor of the later *Serviços Geológicos de Portugal*, and the modern *Museu Geológico*.

The first meeting of the aforementioned congress was held on August 23–25, 1866, in Neuchâtel, Switzerland, under the name of *Congrès International Paléoethnologique*²⁰. This assembly never took place in Germany or Austria²¹. Perhaps we can even see an Italian or Central European influence in the naming of this first meeting in Switzerland; a country in which cultural, ethnic and geographic (or anthropogeographic) questions dominated prehistoric research, while largely neglecting the natural sciences and geology—fields that were of primary importance for prehistoric research in Southwestern Europe at this time. However, it might be interesting to note that the first professor to hold a chair position in prehistory in Germany, Gero Merhart von Bernegg (1886–1959), had a PhD in geology²². Thus, we may conclude that the geological roots of prehistoric archaeology are common throughout Europe, whereas anthropogeography, founded by Carl Ritter (1779–1859) and Friedrich Ratzel (1844–1904), had more of an impact on Central Europe, Italy and Eastern Europe, which is reflected in the naming of associations like the Anthropological Society of Berlin (*Berliner Anthropologische Gesellschaft*) in 1869; renamed one year later as German Society for Anthropology, Ethnology and Prehistory (*Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte*)²³. We also see this influence in the term ‘culture’.

13 This organization (<http://www.scienzeitaliane.it/sisn/index.jsp>) declares on its homepage that it was founded in 1865 under the name *Società Geologica residente in Milano*, and that the name *Società Italiana di Scienze Naturali* was adopted in 1860.

14 Guidi 2010, 14; Junghans 1987, 52.

15 For biographical information, see Maier 1999, 100 and the references mentioned there. For this article, Machado does not play a very important role, because his main interests are the Paleolithic and evolution theory, but he has also published some Neolithic finds.

16 Pelayo – Gozalo 2012.

17 Pelayo – Gozalo 2012, 9.

18 Pelayo – Gozalo 2012, 7.

19 1840 first lieutenant, 1851 captain, 1866 major, 1872 lieutenant colonel, 1875 colonel and shortly before his death dismissed as general; for biographical information see Enciclopédia 1945.

20 Mortillet 1866.

21 Kossack 1999, 25.

22 Kossack 1977.

23 Kossack 1999, 25.

The Term *Culture*

In 1952, Alfred Louis Kroeber and Clyde Kluckhohn wrote: "...but few intellectuals will challenge the statement that the idea of culture, in the technical anthropological sense, is one of the key notions of contemporary American thought. In explanatory importance and in generality of applications it is comparable to such categories as gravity in physics, disease in medicine, evolution in biology"²⁴. In Central Europe, like in America (though perhaps more significantly because of its much longer tradition²⁵), the term culture assumed an extraordinary importance²⁶, which, in my opinion, is an overestimation and leads to misinterpretations in certain cases. We will see below that the archaeology of the Iberian Peninsula, especially for the Chalcolithic, gets along - with some exceptions²⁷ - without a concept of culture.

First, we should distinguish between a holistic and a partitive concept of culture, terms introduced by Walter Willard Taylor: "First and most basic is that, as it is now commonly used, the word culture designates two concepts: (1) a concept which is holistic and used to distinguish phenomena that are 'cultural' from those that are 'natural', i.e., organic and inorganic: biological, geological, chemical, etc.; and (2) a concept which is on a secondary level of abstraction, which is partitive, which denotes a segment of the holistic concept, i.e., a culture"²⁸. Based on Taylor's ideas, Hans-Peter Wotzka developed the following modification: "The holistic concept includes an abstract view of the nature of culture *per se*. It responds to the question 'what is culture?' Partitive concepts of culture, however, are related to historic-specific, space- and time-dependent, empiric observable individual cultures"²⁹.

The development of the term 'culture' in prehistoric archaeology is the object of many publications³⁰, which cannot, however, be discussed here in detail.

In Germany, it was Johann Joachim Winckelmann (1717–1768) who introduced this concept into archaeology in 1764 under the influence of the notion of geographic determinism³¹, just as Johann Gottfried Herder (1744–1803)³². In 18th-century Germany, the holistic and partitive concepts of culture received a special development by the librarian and Germanist Johann Christoph Adelung (1732–1806), who defined it as a certain "betterment or refinement of a person's or nation's whole intellectuality and animal spirits"³³. In 1782, he integrated his ideas in a book³⁴; thus developing the "German concept of culture"³⁵. Creators of this German concept of culture were originally Herder³⁶ and the philosopher Immanuel Kant (1724–1804)³⁷. They distinguished culture from civilization, and Rolf Hachmann believes that Kant was probably the first to define this antagonism as: "We are cultivated to a great extent by the arts and the sciences. And we are civilized to a troublesome degree in all forms of social courteousness and decency"³⁸. This normative concept of culture and its differentiation from 'civilization' created several misunderstandings, especially when translated into English³⁹ and other languages, and it caused and created this idea that a hierarchy of precious and poorer societies existed with or without "culture". However, Adelung, Kant and Herder were not the inventors of this normative concept, which had existed since Antiquity and can be traced in the distinction between the Hellenes and the barbarians in the works of Herodotus (490/480–ca. 424 BC) and Thucydides (ca. 454 or earlier–399/396 BC)⁴⁰.

Barbara Sasse, in contrast, observed that Kant had, already in 1798, refuted the geographic determinism of nations - with some restrictions⁴¹ - indicating that "climate and soil also cannot furnish the key here [to a nation's character]; for migrations of entire peoples have

24 Kroeber – Kluckhohn 1952, 3.

25 Hachmann 1987, 11.

26 Wotzka 1993.

27 Molina et al. 2002.

28 Taylor 1948, 98.

29 Wotzka 2000, 55 quoting Taylor 1948, 98 and Eggert 1978, 6 and Wotzka 1993, 35.

30 For example, Eggert 1978, 6; Hachmann 1987; Kroeber – Kluckhohn 1952; Sasse 2017, 5 f.; Sasse 2018, 185–196. 338–345; Sommer 2007; Taylor 1948, 97–112; Wotzka 1993.

31 Sasse 2017, 104; Sasse 2018, 193–195.

32 In Chapter 6 (Sechstes Buch) Herder (1785, 1–70) describes the different organizations of nations in the different regions of the earth, according to geography and climate.

33 Hachmann 1987, 11.

34 Adelung 1782.

35 Elias 1969, 3 f.

36 Hachmann 1987, 11.

37 Hachmann 1987, 11 f.

38 English translation (Kant 2006a, 12) from the original text in German: "Wir sind in hohem Grade durch Kunst und Wissenschaft kultiviert. Wir sind zivilisiert, bis zum Überlästigen, zu allerlei gesellschaftlicher Artigkeit und Anständigkeit" (Kant 1784, 44).

39 C. Renfrew, for example, writes in contrast: "A man is 'civilized' if he behaves decently and ethically" (Renfrew 1972, 3).

40 Sasse 2017, 103.

41 In his article *Determination of the Concept of a Human Race* from 1785, Kant had written that there are human attributes like colour of skin due to the isolation of races in different regions of the world; but he also observed that these attributes are hereditary and that amalgamations of skin colours in children of parents of different races (a genetic observation made almost one hundred years before the development of genetics as a science) also occur; see Kant 1785, 67 f.

proven that they do not change their character as a result of their new place of residence; instead they merely adapt it to the circumstances, while language, type of occupation, and even type of dress always reveal traces of their ancestry, and consequently also their character"⁴². Despite Kant's critique of geographic determinism, it continued to be further developed during the 19th century; in large part due to the works of the geographers Carl Ritter (1779–1850) and Friedrich Ratzel (1844–1904).

Ratzel, in his "anthropogeography", understood the human being as a creature distinguishing itself from others by biological attributes as well as cultural features. Therefore, it would be possible to speak of "space-related cultural groups"⁴³. The development of cultural elements was seen as the development of biological species, an influence of the Darwinian theory of evolution⁴⁴. This idea was later refined by Leo Frobenius (1873–1938) in his *Natural Scientific Doctrine of Culture* of 1899⁴⁵, a method that he first applied one year earlier in his work on the origins of the African cultures⁴⁶ and again in 1897, using the term "Kulturkreis" (or "culture circle")⁴⁷. The Culture Circle Doctrine (Kulturkreislehre) was later developed by the ethnologists Bernhard Ankermann (1859–1943) and Fritz Graebner (1877–1934)⁴⁸. Against this background, Gustaf Kossinna (1858–1931) and his student, Erich Blume (1884–1912), formulated the method of "settlement archaeology" (Siedlungsarchäologische Methode)⁴⁹ which was immediately criticized, but had a widespread influence, even on the young Vere Gordon Childe (1892–1957)⁵⁰.

Later, Frobenius thought that the Culture Circle Doctrine was too mechanistic, and he created the concept of "culture morphology" (Kulturmorphologie)⁵¹, where he conceived a culture as an entity developing such as a liv-

ing organism "from childhood, to adolescence, to adulthood and eventually senility"⁵².

In 1977, Edward Sangmeister published a critical discussion of the term 'culture' as used in German prehistoric archaeology, in which he proposed that we may better distinguish different "Formenkreise"⁵³ (a term that had been in use in German prehistory since the beginning of the 20th century and referred to the distribution of types, or rather, the distribution of different combinations of attributes or features⁵⁴), instead of different 'cultures', noting particularly the difficulty of an interpretation of their geographic limits, and that these surely had nothing to do with political borders or even territories of ethnic groups⁵⁵.

On the Iberian Peninsula, however, the focus has rather been on a division of the prehistoric heritage in supra-regional periods⁵⁶, with the exception of the first half of the 20th century, which saw a great German influence in the school of Pedro (Pere) Bosch-Gimpera (1891–1974), which dominated the research on the Neolithic; and one of his students, Alberto del Castillo Yurrita (1899–1976), wrote a book on *La Cultura del Vaso Campaniforme* (The Bell-Beaker culture)⁵⁷. It might be interesting to conduct a more detailed analysis of the differences between France/Iberia and the rest of Europe, in terms of classifications of prehistoric remains in chronological periods or in culture groups, or "Formenkreise"⁵⁸, in order to determine whether or not it was influenced by the federal structuring of states, like in Germany and Italy, since the Middle Ages and the more centralized structuring of Spain⁵⁹, France and Portugal.

For example, during the late 4th until the beginning of the 2nd millennia BC we speak of many different cultures in Germany; in central Germany alone there are at

42 English translation by Robert B. Loudon: Kant 2006b, 215.

43 Kossack 1999, 32; Ratzel 1882.

44 Jacob-Friesen 1928, 83.

45 Frobenius 1899.

46 Frobenius 1898; see also Jakob-Friesen 1928, 83–85.

47 Frobenius 1897.

48 Ankermann 1905; Graebner 1905; Graebner 1911; see also Sylvain 1996, 487.

49 Jankuhn 1977, 4.

50 Childe 1958, 70; see also Veit 1984, 341; Castro et al. 1996, 6. For biographical information, see Veit 1984, 333–336; there you will also find further literature.

51 Sylvain 1996, 485.

52 Sylvain 1996, 483; it is also similar to J. J. Winckelmann's idea on the development of arts in different nations; he wrote: "The history of the art shall teach the origin, the growth the transformation and the decline of the same..."; Winckelmann 1764, 9.

53 Sangmeister 1977 (2011), 89.

54 Jacob-Friesen 1928, 139–145. There he already discussed the problems of the ethnic interpretation of such *Formenkreise*.

55 See particularly Sangmeister 1977 (2011), 100.

56 For example, Carlos Tavares da Silva showed that there are differences between several regions in Portugal. He also mentioned the terms "Cultura de Vila Nova de São Pedro" and "Cultura do Tejo" (Silva 1993, 201), but in the center stands the chronological subdivision in "Neolítico Médio e Final", "Calcolítico antigo, médio and recente e final" and the regional distinction in "o Calcolítico da Estremadura" (Silva 1993, 201–206), "o Calcolítico do Sudoeste" (Silva 1993, 206–210) and "o Calcolítico do Norte de Portugal" (Silva 1993, 210–213); another example from Spain is the distinction of six phases of the Neolithic for South and East Spain by Joan Bernabeu Aubán Neolítico: IA1, IA2, IB1, IB2, IC and II (Bernabeu 1989, 136).

57 Castillo 1928.

58 Sangmeister 1977 (2011), 89.

59 In this context, the book *España, Reflexiones sobre el ser de España* is very insightful, especially the article by Suárez Fernández 1998.

least six groups, such as the *Salzmünder Kultur*, *Bernburger Kultur*, *Elbe-Havel-Kultur*, *Kugelamphorenkultur*, *Schnurkeramikultur*, *Einzelgrabkultur*⁶⁰. In Spain and Portugal, however, we only have terms like Early, Middle and Late Chalcolithic, with few exceptions⁶¹; for example, the Bell-Beaker culture (now Bell-Beaker phenomenon⁶²) and the culture of El Argar, or Argar culture⁶³.

In the midst of the 20th century, the problems of the term ‘culture’ were just beginning to be discussed, especially by V. G. Childe and in the previously mentioned book by A. L. Kroeber and C. Kluckhohn, and the complexity of its connotations becoming clearer⁶⁴.

The problem of distinguishing different cultures (e. g. based on a partitive culture concept like in Central Europe and Northeast Spain⁶⁵) or subdivisions of a cultural (based on a holistic⁶⁶ culture concept) evolution in different stages or periods (like in France) and its influence on the modern investigation in Spain is discussed extensively by Samuel van Willigen for the development of the Early Neolithic at the Spanish Eastern Mediterranean coast⁶⁷. These questions were also discussed by him and

Christian Strahm, and they concluded that there is a third way, for example, expressed by Pierre Pétrequin relating his objectives as: “to describe the ‘ancient realities’ and the ‘human communities’ by three levels of analysis: the object itself, its associations with other objects and the designated evolutionary tendency. Thus he observes different groups by their characteristic attributes and associations connecting these with their emphasized developments”⁶⁸. They concluded that the research done in France in this way can ignore the archaeological culture concept as it is used in the German investigation, and they asked “if this last⁶⁹ isn’t only something with a tendency to create artificial problems, which in reality didn’t exist, and, thus, would be nothing more than introducing a term, which nobody needs and which doesn’t describe the prehistoric reality”⁷⁰. And we may also add the statement of Hans-Peter Wotzka that “archaeological cultures are not ‘discovered’, but are created by the archaeologists, and often say more about their originators’ “own spiritual and cultural mindsets” than about any ancient reality, whatever form it may take”⁷¹.

The Beginning of Chalcolithic Research on the Iberian Peninsula

One of the first monographs on Spanish recent prehistory is a book by Manuel de Góngora y Martínez (1822–1884)⁷². Somewhat of a Spanish polymath, he began as a natural scientist and jurist and later became a historian, archaeologist and head of the Department of Universal History at the University of Granada from 1860 until his death⁷³. In the aforementioned book, he gives, for the first time, a description of the later prehistory of the entire region of East Andalusia.

It was the Spanish journalist, writer and archaeologist Francisco María Tubino⁷⁴ (1833–1888) who created

the Spanish term ‘prehistórico’ (prehistoric) in around 1867⁷⁵, and he was perhaps also the first to introduce the term ‘Copper Age’ to the Iberian prehistoric investigation in 1876⁷⁶. Very important were also the studies of Casiano de Prado y Vallo (1797–1866), who described copper instruments from an epoch earlier than the Bronze Age, but did not already use the term Copper Age⁷⁷. The Portuguese physician and professor at the University of Coimbra, Augusto Filipe Simões (1835–1884), then used and developed the term in 1878 by comparing the Iberian Peninsula with the whole of Europe⁷⁸.

60 Schwarz 2013.

61 The school from Antonio Arribas and Fernando Molina at the University of Granada use a division of different cultures for the Iberian Chalcolithic; see Molina et al. 2002.

62 Strahm 1995; Strahm 2004.

63 See, for example, Roca et al. 2012.

64 Childe 1951 (1975), 42–58; Kroeber – Kluckhohn 1952.

65 For the distinction of a holistic and a partitive concept of culture see Taylor 1948, 98; Eggert 1978, 6 and Wotzka 1993, 35 as well as Wotzka 2000, 55.

66 See footnote 29.

67 Willigen 2006, 16–27. 42 f.

68 Strahm – van Willigen 2014, 477.

69 that is to say “the archaeological culture concept”.

70 Strahm – van Willigen 2014, 477.

71 Wotzka 1993, 41; the German original reads: “... dass archäologische Kulturen nicht ‘vorgefunden’, sondern geschaffen werden und oft mehr über ‘innere geistig-kulturelle Zusammenhänge’ ihrer Bearbeiter als über eine wie auch immer geartete einstige Realität aussagen...”.

72 Góngora 1868.

73 His biography is published in Pastor – Pachón 1991.

74 His full name was Francisco María Tubino y Oliva.

75 Tubino 1872, 19.

76 Tubino 1876, 338 f.

77 Prado 1864, 200; see also Puche – Ayarzagüena 2016, a book, which appeared after finishing this article at hand.

78 Simões 1878, 113.



2 Juan Vilanova y Piera, approx. 1850, see Pelayo – Gozalo 2012, 20

Juan Vilanova y Piera (1821–1893)⁷⁹ (fig. 2) was possibly the one who made a breakthrough for the use of the term Copper Age in Iberia, when he gave a talk on *Copper and Bronze in Spain and the Period which Preceded the Epoch where these Metals first Occurred* during the 9th International Congress of Anthropology and Prehistoric Archaeology in 1880 in Lisbon, because he confirmed his ideas by copper analysis⁸⁰. This shows that copper analysis already played an important role in the beginning of the use of the term Copper Age or “Chalcolithic”. It is interesting that J. Vilanova argued for a local development

of early copper metallurgy, comparing the polished stone axes from the regions of Valencia, Alicante and Extremadura with the contemporaneous copper axes⁸¹, and he supported his theory by his observations at the site of Argecilla (Guadalajara), where he saw a continuous development from the previous epochs into the metal-using periods⁸². Although his arguments had been criticized at the time, especially by G. de Mortillet⁸³, we should keep in mind for the following discussion that this was the beginning of the autochthonous interpretation of developments in the Iberian Peninsula’s recent prehistory – although M. Pastor Muñoz and J. A. Pachón Romero see M. de Góngora as a forerunner⁸⁴ – which, since then, have competed with diffusionist argumentations. This discussion, between autochthonists and diffusionists, dominated the following decades of investigation. As protagonists producing an outstanding scientific work on the prehistoric archaeology, we have Sebastião Philippes Martins Estácio da Veiga (1828–1891)⁸⁵ (fig. 3) on the one hand – Portuguese and autochthonist working in Southern Portugal⁸⁶ – and Louis (or Luis) Siret (1860–1934) (fig. 4) on the other – Belgian, but working in Southeast Spain, and diffusionist, first accompanied by his brother, Henri (or Enrique) Siret (1857–1933)⁸⁷, three years his senior. They were autodidacts in archaeology, such as Estácio da Veiga, and mining engineers⁸⁸. In 1887, the brothers published a French version of the results of their investigations on the Neolithic to Bronze Age in Southeast Spain in two volumes (text and plates, which was then called an album)⁸⁹, which was really a “sensation of first rate”⁹⁰, and, in 1890, they published the Spanish translation⁹¹. In this work, the term ‘Copper Age’ is ignored, but the Siret brothers mention an ‘Age of Transition’ between the ‘Stone Age’—subdivided into the ‘Kökkenmödinger’ period and the ‘Neolithic’—and a ‘Metal Age’⁹². They thought that the Age of Transition reflected a peaceful immigration of foreigners from the East Mediterranean because of the similarity of idols from La Pernera and Campos to those from Troja (Hissarlik)⁹³. A methodological innovation at that time

79 Pelayo – Gozalo 2012. The book mentioned is an extensive description of the life and work of Juan Vilanova y Piera, but for our purposes, we are mainly interested in pages 147–149.

80 Vilanova 1884, 354 f.

81 Vilanova 1884, 355.

82 Vilanova 1884, 353.

83 Vilanova 1884, 357.

84 In contrast to a then widespread presumption that the megalithic tombs were Celtic, which was considered at the 2nd International Congress for Anthropology and Prehistoric Archaeology 1867 in Paris, but also criticized, for example by H. Schuermans (1870, 80–84), Góngora pointed out that those monuments had been built by pre-Celtic, indigenous populations. M. Pastor and J. A. Pachón (1991, LV) emphasize that Góngora by this argument turned against invasionist theories already at that time and fa-

vored the idea of an autochthonous development. But from my point of view, Góngora is not a real autochthonist as proved by his ideas about the immigration of the Iberians from the Caucasus region (Góngora 1868, 117 f.).

85 Biographical information, see Pereira 1984.

86 Veiga 1886; Veiga 1887; Veiga 1889; Veiga 1891.

87 Biographical information of both, Louis and Henri Siret, see in Schubart – Ulreich 1991, 1–13 and Herguido 1994, 17–114. Also for Louis Siret: Beltrán 2011.

88 Pereira 1984, 13; Pellicer 1986, 13.

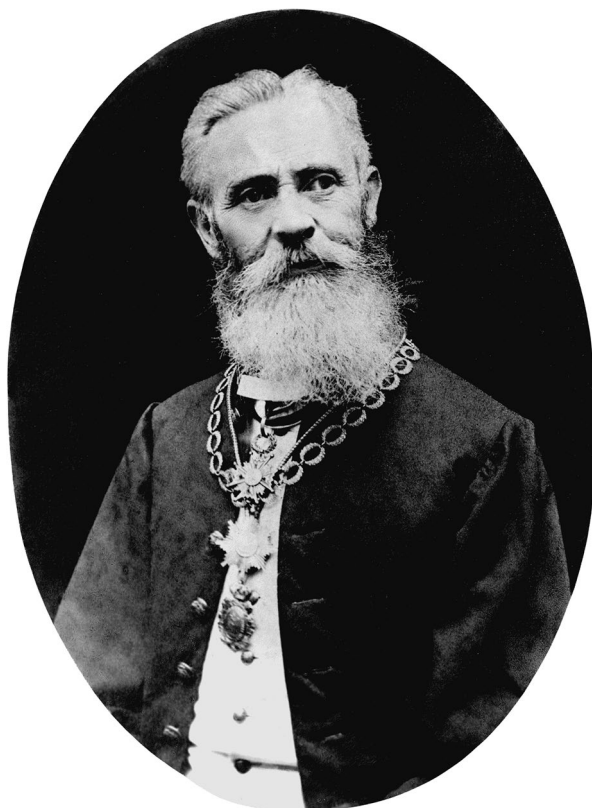
89 Siret – Siret 1887.

90 Schubart – Ulreich 1991, 1.

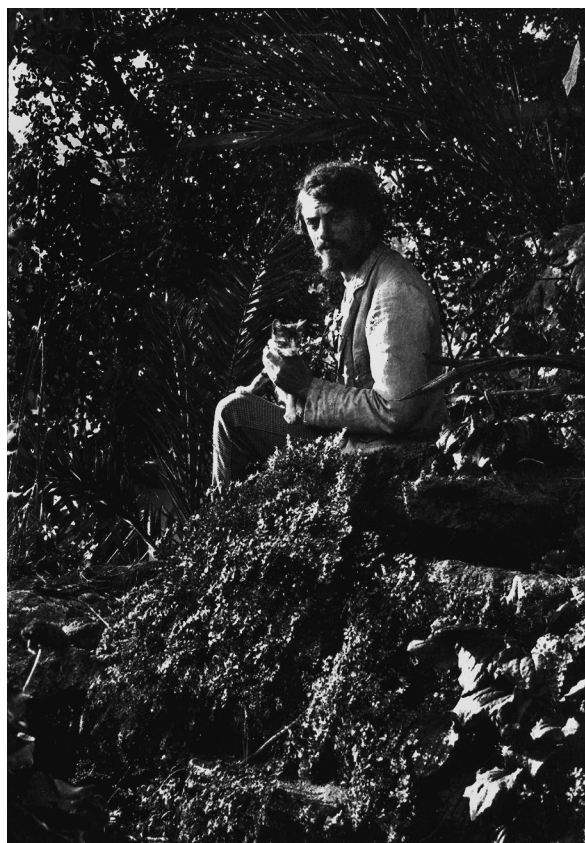
91 Siret – Siret 1890.

92 Siret – Siret 1887, 255 f.

93 Siret – Siret 1887, 257.



3 Sebastião Ph. M. Estácio da Veiga



4 Louis Siret in the garden of the Cortijo de Parazuelos (Mazarrón, Murcia) with a cat, approx. 1884/1885

was the publication of copies of the compared objects⁹⁴, which they showed on plates interspersed in the text. Thus, the readers might decide for themselves if they agreed or disagreed with the comparison. The difficulty of subdividing a continuum of time into individual stages kept reappearing in the argumentation of the Siret brothers, for example, in the discussion about Cruz de Antas and Puerto Blanco⁹⁵ or the stone armrings from the Cabezo de la Raja Ortega⁹⁶.

On the other side of the Iberian Peninsula, aside from the aforementioned investigations of S.P.M. Estácio da Veiga, the excavations of the previously mentioned C. Ribeiro must be emphasized. In 1878, he published the first monograph on the Copper-Age fortified settlement of Leceia (at that time spelled Lecêa and still classified as

Neolithic)⁹⁷ with 21 plates with drawings of the finds and maps of the area. It seems that it was the first publication of a Chalcolithic settlement, but still without a precise plan of the site, whereas the publication of Campos by E. and L. Siret nine years later showed a plan of the walls with three towers in the corners (the first time that any kind of walls or structures were shown)⁹⁸ and some stratigraphic observations (fig. 5).

Another excavation of great importance conducted by C. Ribeiro explored the artificial caves of Palmela⁹⁹, which are located on the homestead of Casal do Pardo in the village of Quinta do Anjo, near the town of Palmela¹⁰⁰. Unfortunately, C. Ribeiro died before he could publish these excavations, which he had intended to do in a monograph¹⁰¹; they were, however, eventually published

94 This had been done also by É. Cartailhac 1885, 2.

95 Siret – Siret 1887, 39.

96 Siret – Siret 1887, 37, who mention parallels to the stone armrings from the Cerro de la Raja de Ortega, from England, France, Switzerland and from the collection of M. de Góngora.

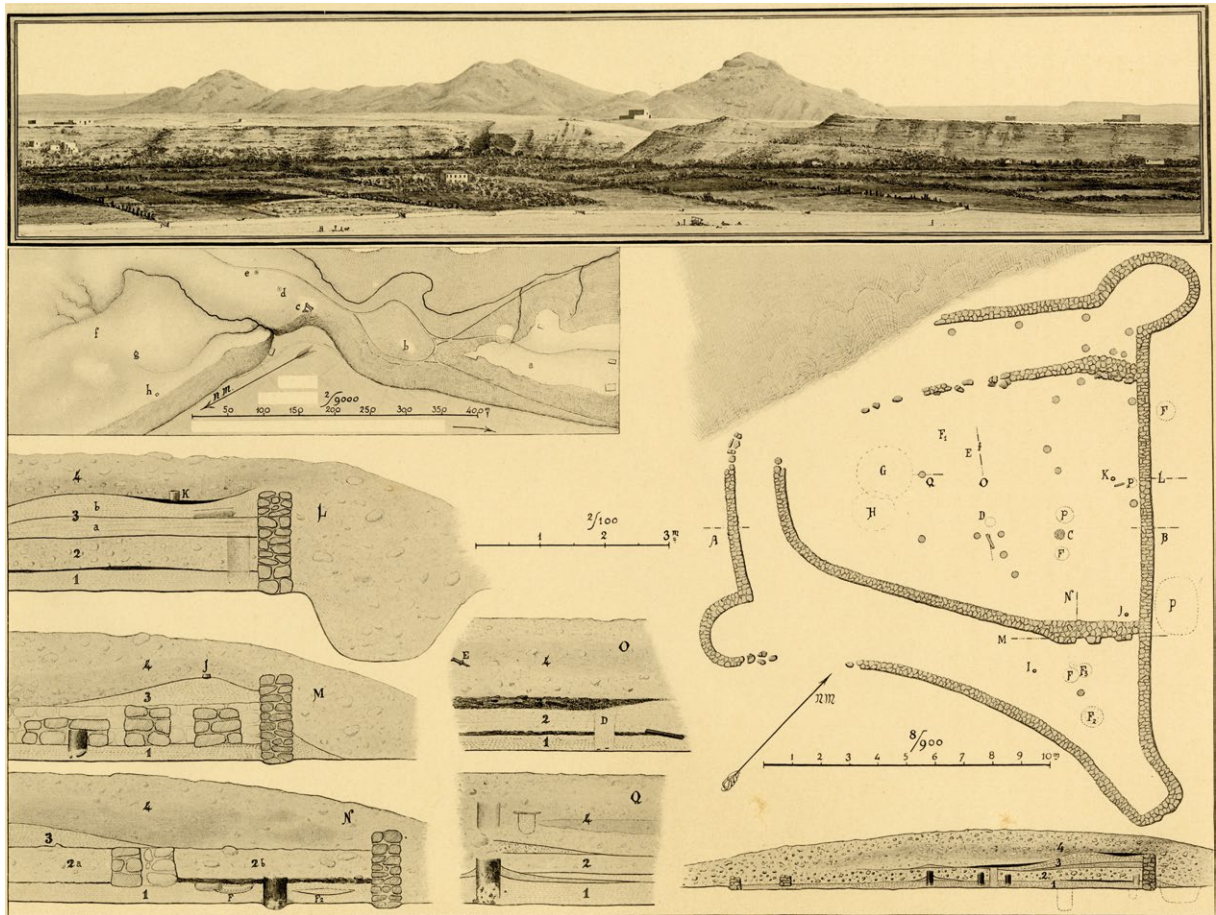
97 Ribeiro 1878; reprint: Ribeiro 1991.

98 Siret – Siret 1887, album, pl. 9.

99 In that time the name of the town was spelled with double l: Palmella.

100 Leisner et al. 1961, 7–11; in a new monograph with excellent photographic documentation J. Soares also considered the relationship of these tombs to the chalcolithic settlement(s) in the area, in particular to Castro de Chibanes, and compared them to other rock-cut tombs of the Iberian Peninsula (Soares 2003, 69–74. 176–182). In conclusion, she arrived at a social interpretation of the Iberian Copper Age in general and the role of war in that context (Soares 2003, 157–218).

101 Cartailhac 1885, 3.



5 Plan, stratigraphy and drawing of the landscape of Campos

by Émile Cartailhac (1845–1921). In his publication, he mentioned seeing the finds exhibited for the first time in 1878 and then again in 1880 and 1881, and knowing that they had been excavated by C. Ribeiro, but not when¹⁰². Cartailhac mentioned the four known rock-cut tombs¹⁰³, but only published a plan and a cross section of two of them (Caves 1¹⁰⁴ and 2¹⁰⁵), along with some significant finds; the Bell-Beaker pottery among them – this was the first publication of this pottery type from the Iberian Peninsula. He also compared the Bell Beakers, which he called “vases caliciformes”¹⁰⁶, with four examples from the Hautes-Pyrénées, Bretagne, Sicily and Arles, which are rather similar. Through these comparisons, the Bell Beakers were from the beginning considered a pan-Eu-

ropean phenomenon. In his book *Les Âges Préhistoriques de l’Espagne et du Portugal*, published one year later, he repeated the text with figures on Palmela¹⁰⁷. These publications are the origins for the denomination of two types of fossils: the Palmela bowl¹⁰⁸ and the Palmela point¹⁰⁹.

Around nearly the same time, S. P. M. Estácio da Veiga did his studies on the Algarve. It should be noted that his excavations were in one of the largest Chalcolithic necropolises known on the Iberian Peninsula. Located in Alcalar near Portimão, it contained one megalithic¹¹⁰ and six corbelled tombs¹¹¹, which he excavated and documented together with the presbyter and painter Antonio José Nunes da Gloria (1842–1916)¹¹². The results were published between 1886 and

¹⁰² Cartailhac 1885, 3.

¹⁰³ Rock-cut tombs of the Late Neolithic and Chalcolithic on the Iberian Peninsula are artificial caves, often in the form of a *tholos*, that is a corridor, and, in the end, a circular chamber with a *cupula* (but sometimes without the corridor), therefore G. and V. Leisner called them “Felskuppelgrab”.

¹⁰⁴ Cartailhac 1885, 6, figs. 8. 9.

¹⁰⁵ Cartailhac 1885, 7, figs. 10. 11.

¹⁰⁶ Cartailhac 1885, 2.

¹⁰⁷ Cartailhac 1886, 116–135, on pages 117 f. he added some lines to his comparisons to the rock-cut tombs of the Marne and Arles regions.

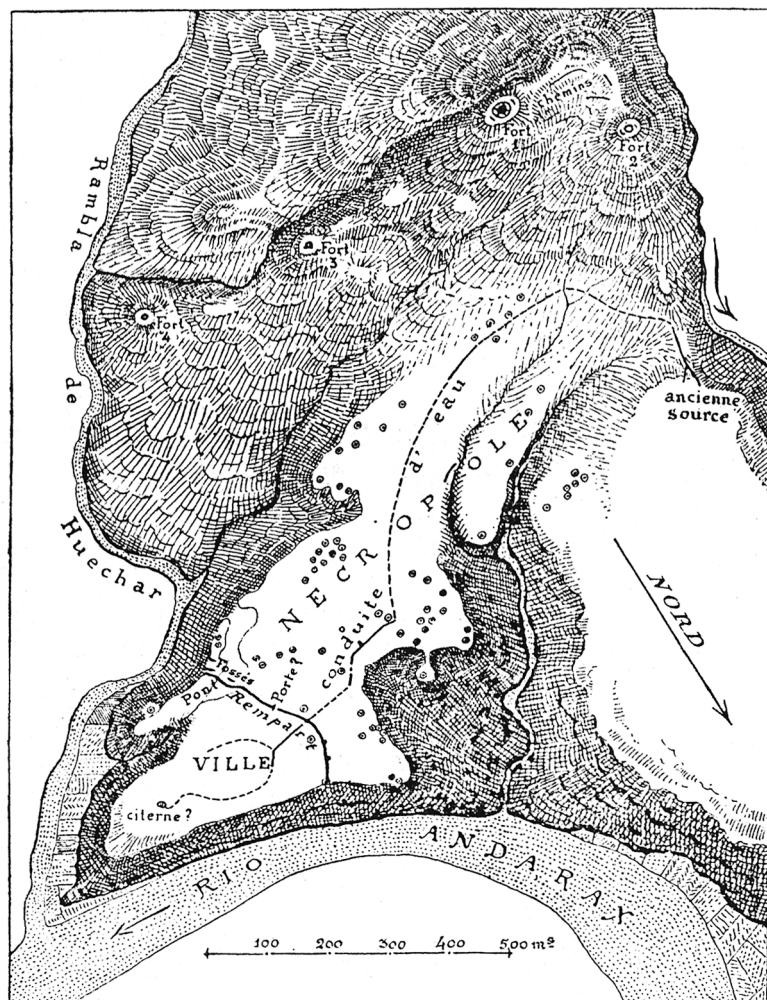
¹⁰⁸ Harrison 1977, 19.

¹⁰⁹ Harrison 1977, 43.

¹¹⁰ Veiga 1886, 214, Est. II, called No. 1.

¹¹¹ Veiga 1889, 130, Est. I, Nos. 2 to 7.

¹¹² Veiga 1886, 214; for biographical information see Simões 2007, 262 f.



6 Los Millares

1891¹¹³. In the 3rd volume, in 1889, he wrote that he subdivided the first Metal Age into a “Copper Age” and a “Bronze Age”¹¹⁴. Thus, we can state that the term ‘Copper Age’ was established in Portugal by 1890, as well as the main types of graves: megalithic tombs, rock-cut tombs and corbelled tombs. He also compares his studies with the studies of H. and L. Siret, publishing a map of Southeast Spain indicating all the sites mentioned by the Siret brothers, and occasionally offering his own chronological interpretation¹¹⁵.

In Almería, L. Siret and his foreman, Pedro Flores, who directed the on-site excavations, began investiga-

tions of the Copper-Age fortified settlement of Los Millares with its huge necropolis of corbelled tombs, possibly in 1891 and 1892, because it was uncovered during the construction of the Almería-Linares railroad, which passes through a tunnel directly underneath the site¹¹⁶. In 1892, L. Siret published for the first time finds from these excavations, but without naming the site¹¹⁷. One year later, he indicated the name on the first map¹¹⁸ of the site, with the necropolis, four of the smaller fortresses (Spanish: fortines) and drawings of some of the graves¹¹⁹ (fig. 6). He also published some typical Copper-Age artifacts, including: long silex blades¹²⁰, the flat retouch,

113 See footnote 78.

114 Veiga 1889, 2.

115 Veiga 1889, 332–335.

116 Molina – Cámara 2005, 16.

117 He wrote: “Dans la province d’Almería j’ai fouillé une nécropole, située près d’une ville fortifiée, où l’on retrouve presque exclusivement le type [of grave] que je vais décrire” (Siret 1892, 389).

118 Siret 1893, 518–520.

119 Siret 1893, 521–524, 526, 528.

120 Siret 1893, 527 f. fig. 185.

some forms of arrowheads¹²¹, copper tools¹²² and various pottery types, like the so-called symbolic pottery¹²³, pottery with painted ornaments¹²⁴ and, last but not least, Bell Beakers¹²⁵. However, he classified all items as belonging to the “Phase of Transition” and used the term ‘Copper Age’ for the subsequent phase of El Argar finds¹²⁶. He compared some elements, like the flat idols from El Gárcel, the early copper metallurgy and some pottery attributes with Hissarlik (Troy)¹²⁷, and also the arrowheads with a concave base mentioning that these even survived in Mycenae¹²⁸. Later he argued that the people who brought these items to Iberia should have been, in his opinion, the Phoenicians¹²⁹. In 1913 he also adopted the term ‘énéolithique’, which is like “Copper-Neolithic”, let us say Copper Age or Chalcolithic, for his former “Age of Transition” and designated the Phoenicians as colonists of that epoch in Iberia. He concluded with the sentence: “L’attribution de nos colonies aux Phéniciens n’est pas à proprement parler une hypothèse: c’est l’identification de faits bien connus par l’histoire avec d’autres révélés par l’archéologie”¹³⁰. These ideas of L. Siret of a Phoenician and also Mycenaean colonisation were already criticized by contemporaneous investigators¹³¹, but they did not deny an Eastern Mediterranean influence; for example, for Georg Wilke (1859–1938) the origin of the corbelled tombs¹³², as well as of some other items, is without doubt the Eastern Mediterranean¹³³.

This diffusionist interpretation of the data influenced the following decades of investigation. The

19th/20th centuries nationalisms needed to know “how long can I follow my ancestors into the past and where did they come from?” And they also wanted to know if the ancient finds were from ›our‹ or another people and where these came from? Against this background, as mentioned before, G. Kossinna also created his so-called Method of Settlement Archaeology (*Siedlungsarchäologische Methode*).

To resume, the term ‘Copper Age’ was established at the end of the 19th century and most of the typical elements of that period were published for the first time, as for example, fortified settlements, corbelled tombs, rock-cut tombs, copper instruments, the silex industry and certain pottery types, leading then to endless discussions which are still on-going. And both, autochthonist and diffusionist interpretations were established then, whereas the diffusionist approach, possibly due to the international influence of the publications by the brothers Siret and their adoption by V. G. Childe, characterized the subsequent 90 years of investigation. V. G. Childe, in contrast to G. Kossinna, was not a nationalist but Marxist, yet, just like the latter, a diffusionist. However, as Ulrich Veit pointed out, “the fact is relatively unknown, that Childe chose the works of Kossinna as starting point for his theoretical considerations”¹³⁴, and in one of his most famous publications *The Dawn of European Civilization*, just in the first edition, he adopted the ideas of L. Siret on an East Mediterranean colonization of the South of Iberia¹³⁵.

Creation of Different Prehistoric Cultures in the Iberian Peninsula: the School of Pedro Bosch-Gimpera

P. Bosch-Gimpera first studied classical philology in Barcelona, and after completing his PhD there he moved to Madrid, where he completed another PhD in History in 1915 with a dissertation on Iberian pottery. At some stage before that, possibly in 1911, he received a scholarship from the Glyptothek in Munich, which he used to travel and study in Europe, especially in Germany, where

he became interested in archaeology. After visiting several Central European cities, he enrolled at the University of Berlin, studied Classical Archaeology under August Frickenhaus (1882–1925), Gerhart Rodenwaldt (1886–1945), and others. It was there that he first became interested in prehistoric archaeology and where he studied with G. Kossinna and Hubert Schmidt (1864–1933).

121 Siret 1893, 531 f.

122 Siret 1893, 533.

123 Siret 1893, 534 figs. 221–225.

124 Siret 1893, 534 fig. 228.

125 Siret 1893, 535 figs. 230. 231.

126 Siret 1893, 549–557.

127 Siret 1893, 515. 546 f.

128 Siret 1893, 549.

129 Siret 1906, 578–582; Siret 1913, 29–70.

130 Siret 1913, 45.

131 For example, Wilke 1912, 4 and Obermaier 1919, 77 f.

132 Wilke 1912, 154 and Obermaier 1919, 78.

133 Wilke 1912, 159–161.

134 Veit 1984, 327.

135 For example, Siret 1906 and Siret 1907, and Childe 1925, 129–137.

The latter published the first overview of Iberian late prehistory from a Central European point of view¹³⁶, which P. Bosch-Gimpera translated into Spanish¹³⁷. It focused on the Bell-Beaker period and emphasized for the first time its origins on the Iberian Peninsula¹³⁸. P. Bosch-Gimpera visited Berlin again in 1913–1914, when he worked as an assistant at the Ethnological Museum, but continued his studies of Greek Archaeology with G. Rodenwaldt and Georg Loeschcke (1852–1915), and of Prehistory with G. Kossinna¹³⁹, which explains how he became a contributor to the *Encyclopedia of Prehistory (Reallexikon der Vorgeschichte)* edited by Max Ebert (1879–1929)¹⁴⁰. Thus, the German culture concept, the Culture Circle Doctrine, and G. Kossinna's methodology had a strong influence on him. As early as 1916 he became professor of History at the University of Barcelona¹⁴¹, where he founded an important school of Archaeology¹⁴². This background explains why a distinction was made between different prehistoric cultures that first appeared in Catalonia. In 1920 he recognized the existence of four cultures on the Iberian Peninsula during the Late Neolithic period: the Western or Portuguese Megalithic culture, the Central or Cave Culture, the Almería culture, and in the Northeast the Culture of the Pyrenees¹⁴³.

In relation with this period of investigation on the Copper Age of the Iberian Peninsula we should also mention the Swede Nils Åberg (1888–1957), who gave an excellent overview in French of the work that had been done on that period in Spain and Portugal¹⁴⁴, and compared it with other regions in Europe. He referred to two different cultures, following to some extent the views of L. Siret and P. Bosch-Gimpera: the Culture of El Argar (culture d'Argar) and the Iberian Culture (culture ibérique), by which he meant the “Bell-Beaker culture”, both of which spread around Europe, one after the other¹⁴⁵.

From the time of É. Cartalhac onwards the idea of a migration of ‘Bell-Beaker people’ around Europe with a

starting point in Iberia was gathering strength through the 1920s and culminated in the dissertation of Alberto de Castillo Yurrita (1899–1976), one of Bosch-Gimpera's most important students, who, like him, had travelled widely visiting Germany, England, France, Czechoslovakia, Italy and Austria, but had studied mostly in Germany, where H. Schmidt had a big influence on him. A. Castillo also contributed to M. Ebert's *Encyclopedia of Prehistory*¹⁴⁶. It was therefore only logical for him to publish his thesis under the title *The Bell Beaker Culture*¹⁴⁷, and follow his teachers in connecting Central Europe directly with the Iberian Peninsula. In the huge volume on Spanish History, edited by Ramón Menéndez Pidal, he provided a new overview on Iberian Prehistory, which discussed in the middle of the 20th century the ever existing problem of dating the Neolithic period and the Copper Age, and the transition from Mesolithic or Epipalaeolithic¹⁴⁸ to Neolithic. A. Castillo argued that a ‘short chronology’¹⁴⁹ must be taken into account for the time between the emergence of the Neolithic and the first use of copper. He termed this period ‘Eneolithic’ and further distinguished an Early from a Developed Eneolithic, and declared that it was almost impossible to date the transition between Neolithic and Early Eneolithic, and therefore he spoke of a Neoeneolithic¹⁵⁰. The subsequent phase, ‘Developed Eneolithic’ (Pleno Eneolítico), was characterized especially by the Bell-Beaker culture: “La Gran Cultura Hispánica del Pleno Eneolítico: El Vaso Campaniforme”, spreading into the whole of Western Europe¹⁵¹. V.G. Childe even used the term “Beaker-folk”¹⁵².

I do not want to go into detail in this article in terms of Bell Beakers¹⁵³, but in both the publication on the rock-cut tombs of Quinta do Anjo (Palmela) by É. Cartailhac and the article on the Late Prehistory of Iberia by H. Schmidt¹⁵⁴, it becomes obvious that the publication of finds was regarded as more important than the publication of the sites and excavated structures themselves.

136 Schmidt 1913.

137 Schmidt 1915.

138 Castillo 1928, 600 f.

139 Ripoll 1977, 8–9.

140 For example Bosch-Gimpera 1926.

141 Ripoll 1977, 9.

142 Ripoll 1977, 18.

143 Bosch-Gimpera 1920, 170.

144 Åberg 1921.

145 Åberg 1921, 169.

146 Ripoll 1980, 496.

147 Castillo 1928.

148 Obermaier 1920, 161.

149 Castillo 1947, 499.

150 Castillo 1947, 506.

151 Castillo 1947, 599–657.

152 Childe 1957, 270–276.

153 Sufficient information on their history of investigation is provided in Ferreira 1966, 11–14; Garrido-Pena 2000, 3–38; Harrison 1977, 1–5; Kunst 2005.

154 Schmidt 1913; Schmidt 1915.

Megaliths and Colonies: Diffusionist Models

In 1943, when Georg Leisner (1870–1957) and Vera Leisner (1885–1972) first published a volume on their corpus of megalithic graves of the Iberian Peninsula, very little was known internationally about the Copper Age in South-West Europe¹⁵⁵. They wrote that most megalithic grave sites remained unpublished and that there were many sites still to be discovered¹⁵⁶, and that there was particularly a lack of information about settlement sites¹⁵⁷. Between 1932 and 1934, following his PhD examination at the University of Marburg on a thesis about the megalithic tombs of Galicia¹⁵⁸, G. Leisner and his wife made three journeys to the southern part of the Iberian Peninsula¹⁵⁹ to carry out research for their book¹⁶⁰. They studied a total of 887 prehistoric graves from 119 different sites and their findings were presented in two volumes containing 188 plates together with maps, plans and photographs of the graves and of a few settlements. They dedicated the volume to L. Siret and George Bonsor (1855–1930), because the excavations of these men were the main sources for the Leisners' studies. They had the opportunity to work together with L. Siret on the archaeology of sites in south-eastern Spain before he died in 1934 (fig. 7), but G. Bonsor was already a very sick man when they met him. However, after his death his widow gave them permission to include his excavations in south-western Spain¹⁶¹ in their publication. At the heart of their publication is Los Millares¹⁶², which L. Siret called a 'town' ('ville', and later a colony)¹⁶³, a term which they also adopted ('Stadt')¹⁶⁴. This site contains a major chalcolithic necropolis with 74 graves, 64 of which were corbelled tombs¹⁶⁵. Other important sources for their volume were the studies of M. de Góngora for the region of Granada and S. P. M. Estácio da Veiga in the Algarve. In addition to the graves from Los Millares, they published for the first time many grave sites from the province of Granada, and all the graves that had up to that

point been excavated at Alcalar¹⁶⁶ (Portimão, Dist. Faro, Portugal)¹⁶⁷: the latter were excavated in 1880 by Padre A. J. Nunes da Glória, in 1882 by S. P. M. Estácio da Veiga, and in 1900 by Joaquim Pereira Jardim (1867–1919)¹⁶⁸ together with his brother in law, António dos Santos Rocha (1853–1910), both from Figueira da Foz, and in 1933 by José Formosinho (1888–1960) from Lagos¹⁶⁹. Today, 20 megalithic tombs and at least four rock-cut tombs¹⁷⁰, located in different groups, are now known from the area around the settlement of Alcalar¹⁷¹.

In their discussions G. and V. Leisner followed the traditional German way, which was more or less the culture-concept of P. Bosch-Gimpera and L. Siret, in identifying cultures with people, but they reached their conclusions critically, and they certainly did not agree with L. Siret's identification of the Copper Age colonists with Phoenicians¹⁷². In general, they were more interested in creating a better framework for the chronology of the Neolithic and Chalcolithic periods, which they tried to do totally empirically; and therein lies the great value of their publication and of all subsequent volumes of the *Madrid-Forschungen* series. These volumes, therefore, are still a very important source for the study of megaliths and the Copper Age of the Iberian Peninsula.

Parallel to the Leisner's research on the megalithic graves excavations of the fortified Copper-Age settlement began in Portugal at Vila Nova de São Pedro. They referred to this excavation in their very first footnote, but did not go into detail¹⁷³.

The site of Vila Nova de São Pedro was discovered by Hipólito Cabaço (1885–1970)¹⁷⁴ from Alenquer, who was the first to investigate and excavate the site, but who produced no record of his work there. Proper archaeological excavations began with Manuel Afonso do Paço (1895–1968)¹⁷⁵. The first 14 campaigns (1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, and

155 Perhaps the most common work was Åberg 1921.

156 Leisner – Leisner 1943, III.

157 Leisner – Leisner 1943, I.

158 Leisner, G. 1938.

159 Schubart 1985, 160; in Leisner – Leisner 1943 G. and V. Leisner mention the following stays: at Alcalar 1930 (page 235), at Laborcillas in January and March 1933 (page 148), and at Madrid in 1934 (page I).

160 Leisner – Leisner 1943.

161 Leisner – Leisner 1943, p. III f.

162 Leisner – Leisner 1943, 17–54.

163 Siret 1893, 517.

164 Leisner – Leisner 1943, 17–19.

165 Leisner – Leisner 1943, 19–54; on page 19 they list a total of 74 graves, but on page 50 they describe a grave which is numbered 75.

166 G. and V. Leisner call it Alcalá, see Leisner – Leisner 1943, 235, such as Veiga 1889, 131–250.

167 Leisner – Leisner 1943, 235–245.

168 With thanks to A. P. Cardoso from the Museum of Figueira da Foz who sent me the dates.

169 Morán – Parreira 2004, 25–27, see there also the mentioned publications until 1953.

170 The artificial caves of Monte Canelas, see Parreira 2010, 399.

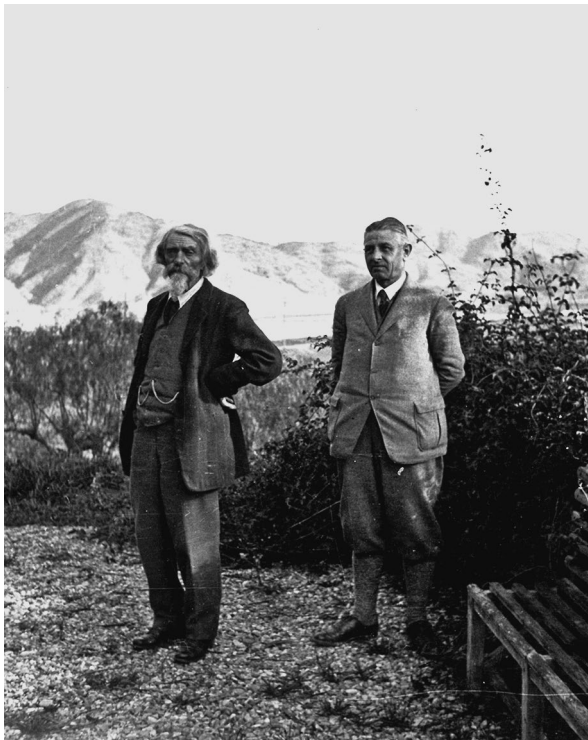
171 See the map of Alcalar, Morán – Parreira 2004, 31.

172 Leisner – Leisner 1943, 386.

173 Leisner – Leisner 1943, I.

174 For biographical information, see Raposo 2000.

175 For biographical information, see Ferreira 1970.



7 Louis Siret with Georg Leisner in the year 1933 or 1934, shortly before his death

1950)¹⁷⁶ were carried out together with Padre Eugénio Jalhay (1891–1950)¹⁷⁷; A. do Paço then collaborated with Maria Lourdes Costa Arthur (1951, 1952, and 1953)¹⁷⁸ and E. Sangmeister (1955)¹⁷⁹. The excavations of C. Ribeiro at Leceia mentioned earlier, and the investigations of António Inácio Marques da Costa (1857–1933) in the area of Setúbal and Pamela¹⁸⁰, although mentioned by N. Åberg in his book¹⁸¹, had less impact on subsequent research into the Iberian Copper Age than did that of Vila Nova de São Pedro.

A. do Paço and also E. Jalhay published many articles not only in Portuguese but also in Spanish journals and

gave talks at congresses. Finds from Vila Nova de São Pedro were given to several European museums, such as the Archaeological Museum of Barcelona and the Ashmolean Museum in Oxford. Some items typical of the Portuguese Chalcolithic were published for the first time, for example the ‘copos canelados’¹⁸², but many other items typical of this period were also published, including clay plaques with perforations in each corner¹⁸³, copper implements¹⁸⁴ and various symbolic objects¹⁸⁵. They reported finding indications of copper working and published some analyses of copper implements¹⁸⁶ and also metallographic studies¹⁸⁷. Several of the clay plaques are decorated, mostly on one side, but some also on both sides. A. do Paço and E. Jalhay discussed their function but without reaching any conclusion, and so continued to refer to them simply as ‘clay plaques’¹⁸⁸. Later they were commonly called ‘loom weights’ (in Portuguese ‘pesos de tear’)¹⁸⁹, but given their light weight and the signs of use visible at the perforations, I think this interpretation may be doubtful. More recently, Rui Boaventura (1971–2016) has suggested that they should be regarded as some form of equipment for weaving and called them ‘loom elements’¹⁹⁰.

The first measured, accurate plan of Vila Nova de São Pedro was produced by E. Sangmeister in 1955 during the 19th campaign of excavation and was published in an article written jointly with A. do Paço¹⁹¹ (fig. 8). The German Archaeological Institute in Madrid had reopened again in 1954 after the war¹⁹² and E. Sangmeister was the first prehistorian to join the staff. He was appointed because Spanish archaeologists had particularly requested the presence of an archaeologist experienced in matters of prehistory. At that time he had already been working for three years on a collaborative project called *Studien zu den Anfängen der Metallurgie* (SAM)¹⁹³ (*Studies on the Beginnings of Metallurgy*), and thus the appointment to Madrid provided him with a good opportunity to further these studies in Spain and Portugal. In 1955, Beatrice Blance joined the project and collected more than one thousand samples for analysis¹⁹⁴.

176 Paço 1955a, 516; Paço – Jalhay 1939a. b. c. d; Paço 1941; Paço – Jalhay 1942, 1943; Jalhay 1944; Jalhay – do Paço 1945; Paço 1954b.

177 For biographical information, see Moita 1951.

178 Paço 1955a, 516–517; Paço – Arthur (1952a. b; 1953a. b); Paço 1954a; Paço – Sangmeister 1956b, 98, footnote 6.

179 Paço – Sangmeister 1956a. b.

180 Costa 1907a; Costa 1907b; Costa 1908; Costa 1910.

181 Åberg 1921, 86–93.

182 Paço 1959a. For recent works on these vessels see: Ferreira 2003, and the first monograph: Amaro 2012.

183 Jalhay – do Paço 1945, 62–76.

184 Paço – Arthur 1952b

185 Paço – Jalhay 1943, 48–51; Jalhay – do Paço 1945, 41–52, where these objects are called “objects which are interpreted as having a religious function”.

186 Paço – Jalhay 1939b, 331.

187 Paço 1955b.

188 Paço – Jalhay 1939b, 95–97, and figs. 21. 24. 25.

189 For example Gonçalves 1971, 61. Estampa XXVII, 1; Silva 1993, 204; Cardoso 1994, 123, 4. 136; Cardoso 1997, 89.

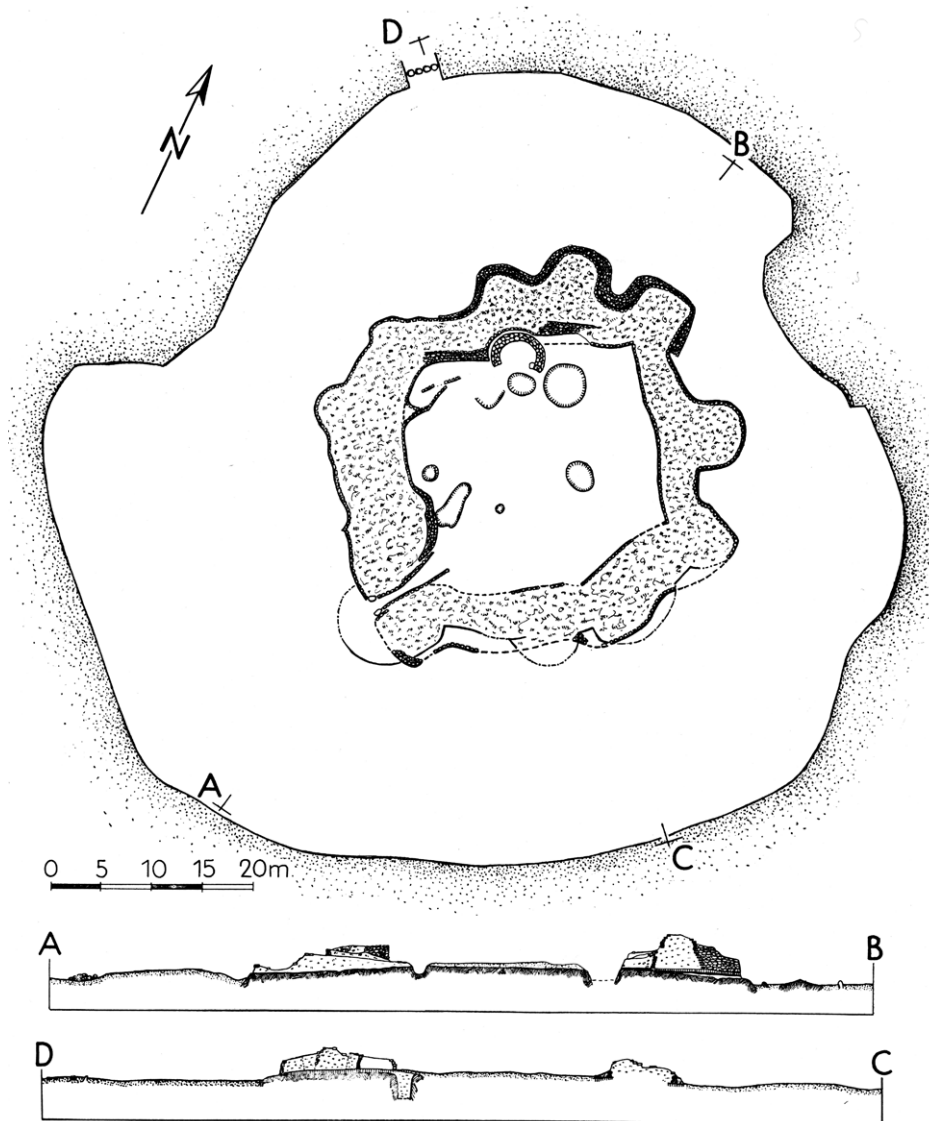
190 Boaventura 2001, 48–54. 182–188. 208–213.

191 Paço – Sangmeister 1956a, 215 fig. 3; Paço – Sangmeister 1956b, fig. 6.

192 Ulbert et al. 2004, 27.

193 The project was begun by Siegfried Junghans and was financed by the Deutsche Forschungsgemeinschaft (DFG). The original name of the project was *Untersuchungen vorgeschichtlicher Kupfer- und Bronzefunde mit Hilfe der Spektralanalyse* (Investigations of Prehistoric Copper and Bronze Artifacts by Means of Spectral Analysis) and E. Sangmeister was responsible for the analysis of the Copper Age artifacts.

194 Sangmeister 1971, 9.



8 Vila Nova de São Pedro, plan and sections recorded by E. Sangmeister in 1955, scale 1:600

During his time in Madrid, E. Sangmeister took part in several excavations in Spain, Portugal and Morocco, and in particular at the two sites mentioned above: Vila Nova de São Pedro (September 1st to 14th, 1955)¹⁹⁵ and Los Millares (February 10th to May 15th, 1955)¹⁹⁶.

In 1963 Martín Almagro Basch (1911-1984) and Antonio Arribas Palau (1926-2002) published an account of the latest excavations at Los Millares, which covered the four campaigns between 1953 and 1956¹⁹⁷, and contained a detailed description of the history of investigation at the site¹⁹⁸.

G. and V. Leisner had published the graves together with all the information that was available in the notes left by L. Siret; in contrast, M. Almagro and A. Arribas tried to identify by means of excavation the 74 or 75 graves that the Leisners had published, but in the end they were only able to identify 54 tombs¹⁹⁹, and they reported that there were about 100 graves that they could not identify²⁰⁰. Of the 54 tombs only 21 were described completely with their finds²⁰¹. It is important to recognize that this was the first time that such a settlement and its necropolis had been published along

¹⁹⁵ Paço – Sangmeister 1956b, 105.

¹⁹⁶ Almagro – Arribas 1963, 27; together with E. Sangmeister also B. Blance participated in that campaign, and it seems that both did not stay the whole campaign, which was also considered as two campaigns. During his distinction at Nerja, where E. Sangmeister gave the eulogy and also spoke about that campaign at Los

Millares, A. Arribas emphasized that E. Sangmeister, when he participated, was in effect directing the excavation.

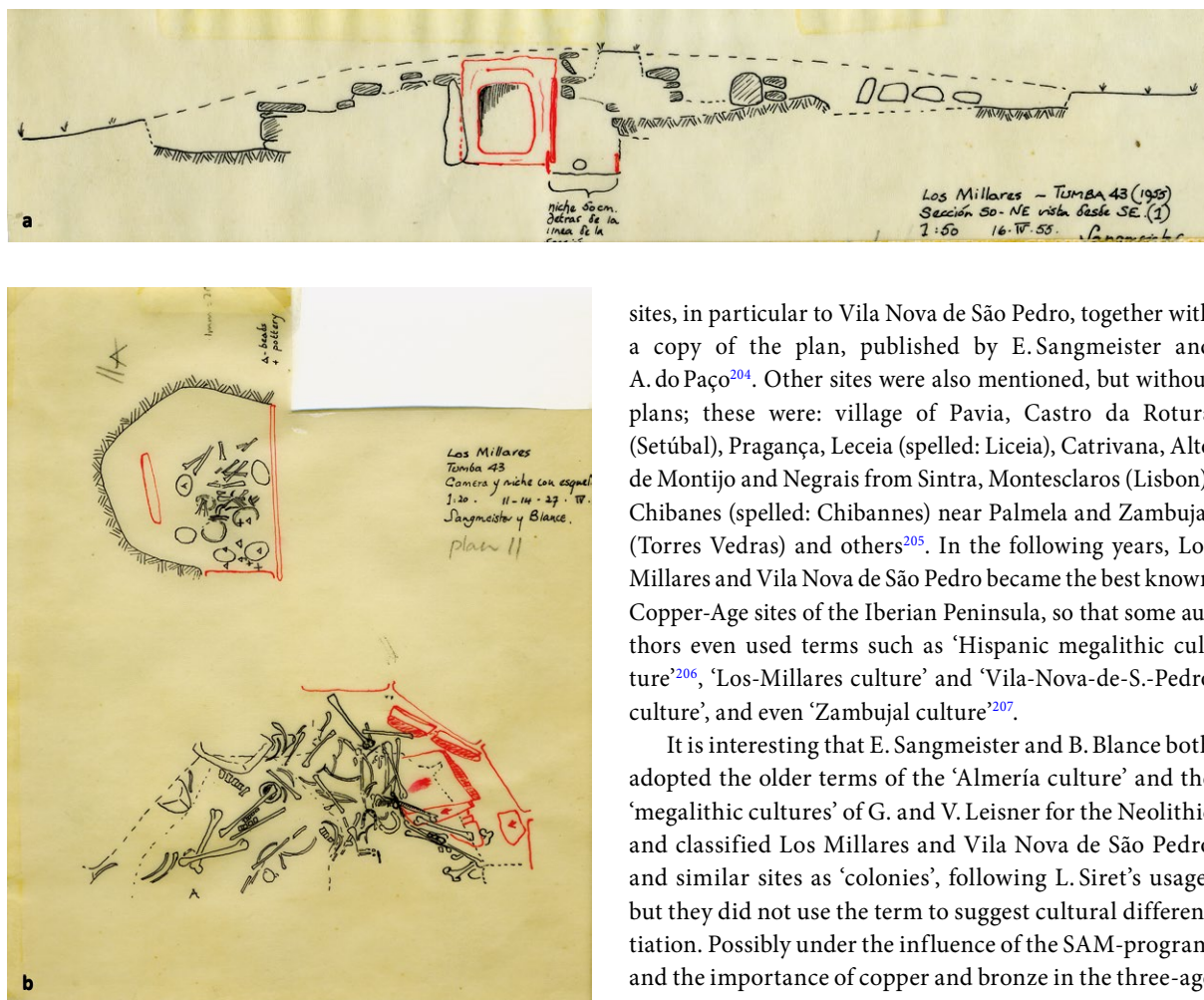
¹⁹⁷ Almagro – Arribas 1963, 26–28.

¹⁹⁸ Almagro – Arribas 1963, 50.

¹⁹⁹ Almagro – Arribas 1963, 55.

²⁰⁰ Almagro – Arribas 1963, 48.

²⁰¹ Almagro – Arribas 1963, 110–161.



9 Los Millares Tomb 43 (Sepultura XXI); a: section SW-NE; b: chamber and niche

with accurately measured detailed plans and sections of the structures excavated²⁰². Many of these plans and sections were drawn on site by E. Sangmeister and B. Blance, as is demonstrated by the signatures on the original publication drawings conserved in the archives of the German Archaeological Institute in Madrid (fig. 9 a. b). It was, in fact, E. Sangmeister who introduced the concept of preparing accurately measured plans and sections of excavated sites to Iberia. The methods were used for the first time by E. Sangmeister at the Iron Age site of Cortes de Navarra²⁰³. The publication on Los Millares contained an interpretative section in which Los Millares was compared to some Portuguese

sites, in particular to Vila Nova de São Pedro, together with a copy of the plan, published by E. Sangmeister and A. do Paço²⁰⁴. Other sites were also mentioned, but without plans; these were: village of Pavia, Castro da Rotura (Setúbal), Pragança, Leceia (spelled: Liceia), Catrivana, Alto de Montijo and Negrais from Sintra, Montesclaros (Lisbon), Chibanes (spelled: Chibannes) near Palmela and Zambujal (Torres Vedras) and others²⁰⁵. In the following years, Los Millares and Vila Nova de São Pedro became the best known Copper-Age sites of the Iberian Peninsula, so that some authors even used terms such as 'Hispanic megalithic culture'²⁰⁶, 'Los-Millares culture' and 'Vila-Nova-de-S.-Pedro culture', and even 'Zambujal culture'²⁰⁷.

It is interesting that E. Sangmeister and B. Blance both adopted the older terms of the 'Almería culture' and the 'megalithic cultures' of G. and V. Leisner for the Neolithic and classified Los Millares and Vila Nova de São Pedro and similar sites as 'colonies', following L. Siret's usage, but they did not use the term to suggest cultural differentiation. Possibly under the influence of the SAM-program and the importance of copper and bronze in the three-age system these 'colonies' were seen as the settlements of metal prospectors coming from the Eastern Mediterranean, and E. Sangmeister wrote an article in which he attempted to produce a historical interpretation of the data by bringing together the accepted dates of archaeological finds from the eastern and western end of the Mediterranean²⁰⁸. It is interesting to note the theme of the book in which Sangmeister's article was published, as explained by the editor and Egyptologist, Eberhard Otto (1913–1974). E. Otto divided the book into three sections, each describing different stages in the development of society; A. *Ursprung und Frühkulturen (Origin of Mankind and Early Cultures)*, B. *Primäre Zentren der Hochkultur (Primary Centers of an Advanced Civilization)* and C. *Die Entstehung weltgeschichtlicher Berührungszonen (The Origin of Global Historical Contact Zones)*²⁰⁹, and Sangmeister's

202 Almagro – Arribas 1963, plates VII–XV; the following plates show the accurate plans of the tombs interchanging with plates showing the drawings of the grave inventories.

203 Maluquer 1958, 9–10. 16. Section I, fig. between pages 48 and 49. This issue was also discussed at the National Congress of Archaeology in Burgos in 1955 (Beltrán 1957, 21). E. Sangmeister told the author, that there the Spanish archaeologists following J. Maluquer de Motes decided that the drawing accurate to measurement should be obligatory for future excavations.

204 Almagro – Arribas 1963, 207 fig. 11.

205 Almagro – Arribas 1963, 207–209.

206 "cultura megalítica hispana": Almagro – Arribas 1963, 203.

207 Almagro – Arribas 1963, 229; Bubner 1981a, 43 f.; Soares 2013, 25–27.

208 Sangmeister 1965.

209 Otto 1965, 1.

article was included in the last section. The dilemma is that the stages of development of societies are fluid and it is thus difficult to define the term ‘Hochkultur’²¹⁰. In his introduction to the book E. Otto emphasized four points that characterize an ‘advanced civilization’ – these concern *Lebensbereiche* (Areas of Life): 1) *die Wirtschaftsform* (the Economic System), 2) *die Gesellschaftsform* (the Social System), 3) *ein historisches Bewusstsein* (Historical Awareness) and 4) *ein der Kultur eigentümlicher Stil* (a Style Specific to this Culture). He explained his ideas as follows:

- 1) The economic system²¹¹ must have a mixed economy²¹² (agriculture, stock farming, fishing etc.); resources outside the culture’s territories are also exploited, long distance trade is implied; its own territory is exploited by certain methods more than it seemed possible at the first sight; it could be called “domination of nature”²¹³.
- 2) The structure of society²¹⁴: the economic system implies a social specialization and division of labour, which must be organized. “On the one hand the size and its apartness within a living environment and on the other hand reaching beyond its borders, the diversity of the tasks which have to be mastered necessarily lead to an organization that develops in direction towards a ‘state.’”²¹⁵ A complication seems to be that all ‘advanced civilizations’ (Hochkulturen) have not evolved as a homogeneous folk or nation: they may be people with linguistic and racial differences as well as different social groups. The integration process might have had a peaceful and also a power-dependent component, and “thus their forms of government express the term of domina-

tion”²¹⁶. E. Otto also explains the role and development of religion(s) during this process.

- 3) Historical awareness²¹⁷: For the first time there is a written record of names, traditions and histories, without regard to their historical reality; according to E. Otto’s point of view, history is not only to be seen as a record of what had happened, but as an impact of the action of individuals. Another important feature of ‘advanced civilizations’ should be the existence of a calendar or some means of calculating time. A secondary expression of the awareness of time and history was the invention of writing, but E. Otto admits also that there are ‘advanced civilizations’ without this invention, and that it is not a precondition for an ‘advanced civilization’, but it is important for its advancement, for its historical continuity and to continue to have its effect. This appears to be a contradiction, and the question must be asked whether, in fact, some system for recording information is not fundamental for an ‘advanced civilization’?
- 4) Style: With regard to E. Otto’s views on style²¹⁸, I consider these as not very specific, whether for ‘advanced civilizations’ or culture in general, so I will not pursue the matter here.

In this way, Los Millares was seen as a colony of some such as the Eastern Mediterranean ‘Hochkultur’, and in the following years Los Millares or the ‘Los-Millares culture’ in the province of Almería was treated as the example *per se* for the Copper Age on the Iberian Peninsula. Oswalo Arteaga Matute called it the “Paradigm of the Southeast”²¹⁹.

The Excavations at Zambujal (1964–1973)

The next few years saw six campaigns (1964, 1966, 1968, 1970, 1972 and 1973) of excavation at the fortified Copper-Age site of Zambujal (fig. 10) under the direction of Hermanfrid Schubart and E. Sangmeister, who brought various methodological improvements to the excavation, for example a method of documentation by which each stone was drawn in plan and section, and layers were dif-

ferentiated. In addition, trenches were laid out at right angles to walls so that the relationship between walls and archaeological layers could be clearly seen. The excavated areas including walls were very carefully cleaned, so that details showed up well in the photographs which accompanied the drawings. Furthermore, an increasing number of interdisciplinary studies were undertaken. Between

²¹⁰ which I translated here as “advanced civilization”.

²¹¹ Otto 1965, 9f.

²¹² In German, he uses the term “gemischtwirtschaftlich” (Otto 1965, 9).

²¹³ Otto 1965, 10.

²¹⁴ Otto 1965, 10–13.

²¹⁵ The original German text reads: “Die Größe und Geschlossenheit des Lebensraumes einerseits, das Hinausgreifen über ihn

andererseits, die Vielfältigkeit der zu bewältigenden Aufgaben machen eine Organisation der Gesellschaft in Richtung auf einen ‘Staat’ notwendig.” Otto 1965, 10.

²¹⁶ Otto 1965, 11.

²¹⁷ Otto 1965, 13–15.

²¹⁸ Otto 1965, 16.

²¹⁹ Arteaga 2000; Arteaga 2001, 161 f.



10 Zambujal, Barbican, view from North to South

1964 and 1973 many Spanish and Portuguese students and young scientists participated in the excavations and were influential in stimulating interest in, and further investigation of, other similar sites²²⁰.

At that time, the concept of ‘colonies’ influenced all discussion of Copper-Age studies on the Iberian Peninsula. In 1971 it was strengthened by the publication of B. Blance’s 1960 doctoral thesis that was translated into German by E. Sangmeister²²¹. The table of contents shows that distinctions were made between several different cultures for the Neolithic, and also between the later Bell-Beaker and El-Argar cultures, but not between any Copper-Age cultures. The title of the relevant chapter is *Die Kolonien (The Colonies)* and a certain few sites are named for each distinct region, in particular Los Millares, Vila Nova de São Pedro and Mesas de Asta. It is important to notice how she describes the term ‘colony’:

“but first the meaning of the term ‘colony’ needs to be considered. The term was first applied by Siret (1893) to Los Millares because he believed that it was a Phoenician trading colony. The Leisners preserved the term, but used it for the arrival at Los Millares of people from the east Mediterranean around the year 2100 BC. The present writer has, after deep consideration, adopted the term ‘colony’ and applied it to all early Bronze Age sites which show obvious connections with the east Mediterranean. These sites are better referred to as colonies and not cultures because the evidence available does suggest that they were small, heavily defended settlements of people with strong Aegean affinities, in an alien environment. As will be seen, the evidence does not suggest that there was an invasion of peoples who gradually spread inland, but rather that there was a series of isolated settlements along the sea coast in the south of the peninsula”²²².

220 Parreira 1985, 209.

221 Blance 1971; she presented her thesis at the University of Edinburgh, supervised by S. Pigott in 1960 (Sangmeister 1971, 9).

222 I thank B. Clayre, née Blance, for the original text in English. The text cited in the German publication is: “Zuvor bedarf es aber noch einer kurzen Erläuterung des Terminus ‘Kolonie’. Er

wurde zuerst von Siret (1893) für Los Millares benutzt, das er für eine Phönizische Handelsniederlassung hielt. G. und V. Leisner übernahmen ihn, da sie an einen ähnlichen Siedlungstyp dachten, jedoch in einer Zeit um 2100 v. Chr. angelegt, und von Leuten aus dem Ostmittelmeer. Die Verfasserin hat den Begriff ebenfalls beibehalten, aber ausgedehnt auf alle Siedlungsplätze mit deutlichen

The following items were regarded as foreign elements:

A very fine-tempered, hard, thin-walled pottery (often decorated by stroke burnishing), that B. Blance had called “cylindrical pots”, which in Portuguese are known as “copos canelados”²²³ was compared with pottery from the Aegean, and especially with the pyxides of the Cyclades²²⁴. Therefore, this pottery was also called “imported pottery” (in German: Importkeramik, in Portuguese: cerâmica de importação)²²⁵, but later tests, initiated by B. Blance, showed that this pottery was made from local clays²²⁶. This fact did not radically change E. Sangmeister’s idea of an import, but he modified it, believing that it was the knowledge of how to produce such pottery that was imported. The same idea was also applied to the very thin-walled small black bowls. Other items that B. Blance regarded as foreign were the ivory items²²⁷, and the stone or bone containers²²⁸, idols²²⁹, and, most of all, the use of towers in fortifications²³⁰, and the defensive restrictions employed at the entrances²³¹.

These diffusionist concepts of colonies and metal prospectors of L. Siret, V.G. Childe, G. and V. Leisner,

E. Sangmeister and B. Blance were very fruitful in different ways. They broke away from the traditional concept of prehistoric cultures²³², and showed contacts between the Eastern and Western Mediterranean, but they resulted in several contradictions which, in turn, stimulated further scientific development. It is interesting to realize that differences between the material cultures of the Southeast (Los Millares and Almizaraque), the Southwest (Mesas de Asta and Alcalar) and the West (Vila Nova de São Pedro) were not seen as the result of different influences from local cultures, but rather as resulting from different regional origins in the Near East²³³.

There was another diffusionist model that was paradigmatic for investigating the end of the Copper Age, or the transition to the Bronze Age: the ‘Bell-Beaker culture’. The idea that Bell Beakers originated in Iberia has already been mentioned²³⁴. At the same time, other possible origins were discussed, because other parallels such as Corded Ware in Central Europe were known. As a result, E. Sangmeister developed the idea of a “reflux-model”²³⁵ and its modifications²³⁶.

The Portuguese Three-Step-Chronology, Autochthonist Models and ¹⁴C-Dates

The idea of Diffusionism became the first subject to be challenged. In reality, it was the old antagonism noted earlier between diffusionists and autochthonists that had begun in the 19th century, and still existed. In this case Joaquina Soares and Carlos Tavares da Silva studied

the local development of pottery types in Portugal and they established – similar to the above-mentioned French method of classifying prehistoric assemblages²³⁷ – three stages in the development of pottery types during the Chalcolithic in the Portuguese Estremadura²³⁸:

Verbindungen zur Ägäis. ‘Kolonie’ ist auch viel kennzeichnender als der Begriff ‘Kultur’, da jeder der Plätze – meist kleine gut befestigte Ansiedlungen – wie ein Fremdkörper in einer ganz bestimmten kulturellen Umgebung liegt, die er zwar zu beeinflussen scheint, die aber nicht zu seiner besonderen, durch Fremdelemente geprägten Kultur gehört. Es wird sich zudem zeigen, dass wir nicht mit einer Invasion zu rechnen haben, die sich langsam ins Innere vorschob, sondern mit einer Reihe von isolierten Siedlungen längs der See-Küste” (Blance 1971, 51).

²²³ Paço 1959. For recent works on these vessels, see: Ferreira 2003, and the first monograph: Amaro 2012.

²²⁴ Paço – Sangmeister 1956a, 222 note 4; Blance 1961, 198; Sangmeister 1975, 552.

²²⁵ Paço – Sangmeister 1956a, 222 note 4; Pereira Bubner 1979.

²²⁶ Blance 1959.

²²⁷ Blance 1971, 56 f. Six years later, R. Harrison and A. Gilman go into detail concerning ivory and ostrich eggshells. They think that these are African imports from the Maghreb region (Harrison

– Gilman 1977, 91), and that in the later Copper Age the Bell-Beaker phenomenon is involved in that trade (Harrison – Gilman 1977, 93–97). Recent studies by T. Schuhmacher and A. Banerjee show that some ivory has also come from the Near East, see Schuhmacher 2012, 444.

²²⁸ Blance 1971, 94.

²²⁹ Blance 1971, 93–95.

²³⁰ Blance 1971, 89 f.

²³¹ Blance 1971, 89.

²³² Blance 1961, 192.

²³³ Blance 1961, 200.

²³⁴ H. Schmidt 1913, 248; Åberg 1921, 169–204; Bosch Gimpera 1926, 345; Castillo 1928, 195–198.

²³⁵ Sangmeister 1963.

²³⁶ Sangmeister 1966.

²³⁷ See paragraph 2 of this article and Willigen 2006, 16–27. 42–43 and Strahm – van Willigen 2014.

²³⁸ Soares – Silva 1975, 99–101 and fig. 8.

- 1) Early or Initial Chalcolithic (Calcolítico inicial): with ‘copos canelados’
(horizonte dos copos canelados)
- 2) Middle Chalcolithic (Calcolítico médio): pottery with ‘acacia-leaf’ decoration
(horizonte da “Folha de Acácia”)
- 3) Final Chalcolithic (Calcolítico final): Bell-Beaker pottery
(horizonte campaniforme)

If the idea of a ‘culture paradigm’ had still been in vogue, these three ‘stages’ (in Portuguese: ‘horizontes’) would have been interpreted as three different cultures, in which case further research would have taken a different direction. But as a consequence of the colonies model, the presence of different cultures – with some exceptions²³⁹ – was not discussed, because the independent chronology and other questions were easier to discuss as independent, isolated topics. The three-phase system seemed to be confirmed later in Victor Gonçalves’ monographic study of the ‘Castro da Rotura’²⁴⁰.

One year later, C. Tavares da Silva and J. Soares were able to show that the carinated bowl (taça carenada), a form that is characteristic of the Middle/Late Neolithic²⁴¹, survived into the Early Chalcolithic in Southern Portugal

and South-West Spain (Prov. Huelva – Sevilla), and was contemporary with the ‘copos canelados’ of Estremadura and Ribatejo in Central Portugal²⁴². This was an indication that the Copper-Age settlements had a local origin, and C. Tavares da Silva and J. Soares then focused in their discussion on the evolution of social structure from an egalitarian, agricultural society to a class society²⁴³.

From this period on, researchers became more and more interested in questions of social structure and environmental change, while at the same time new information was becoming available from archaeometry, especially by radiocarbon dating²⁴⁴, which seemed to contradict the idea of influences from the Aegean²⁴⁵, because the Iberian dates were much earlier than previously thought.

The excavations at Zambujal provided not only a new methodological impetus to the situation, as mentioned before, but also stimulated interest in the investigation of similar sites. Thus, more and more, Copper-Age fortifications were discovered and studied, and it became increasingly clear that these settlements were not only coastal, but that many were to be found in the interior of the Iberian Peninsula, as, for example, in the Spanish Extremadura. It was also becoming clear that not all Chalcolithic settlements were fortified²⁴⁶.

Environment and Geo-Archaeology

A new approach came about with the collaboration between the prehistorian Antonio Gilman from Los Angeles (U.S.A.) and the physical geographer John Barrie Thornes (1940–2008) from Bristol (England). They applied interdisciplinary site catchment analysis together with an examination of cadastral land registers for land-use, and undertook geomorphological studies in the South-East of Iberia. Following a preliminary evaluation, the project started in July 1977 with research around the Cueva de los Murciélagos (Zuheros, Córdoba)²⁴⁷. For each of the analyzed sites from the Neolithic to the Bronze Age they published a map showing about one hectare of the territory around the site indicating

the potential for different land-use²⁴⁸ and water resources. By neat statistical analysis of their empirically obtained data²⁴⁹ the authors were able to show that there had been differences in land-use during the period from the Neolithic to the Bronze Age and that there were indications of emerging irrigation²⁵⁰. By comparing these results with the funerary structures and differences in the richness of the burials they were able to show a trend towards increasing social inequality from the 3rd to the 2nd millennium BC²⁵¹.

Some years later, starting in 1982, H. Schubart (German Archaeological Institute in Madrid) and Horst D. Schulz (Department of Earth Sciences, University of Bremen)

239 See Almagro – Arribas 1963, 229; Molina et al. 2002; Bubner 1981a.

240 Gonçalves 1971.

241 Silva – Soares 1977, 183 fig. 1a, Forma 4.

242 Silva – Soares 1977, 265 fig. 48.

243 Silva – Soares 1977, 267.

244 Renfrew 1979, 17.

245 Renfrew 1973, 87–108 and 1979, 51–55. Later also Chapman 1990, 44 f. and Castro et al. 1996, 76–91; concerning the difficulties of an absolute chronology, see Martínez Navarrete 1989.

246 Hurtado – Mondéjar 2009.

247 Gilman – Thornes 1985, 37 f.

248 Gilman – Thornes 1985, 84–171.

249 Gilman – Thornes 1985, 172–181.

250 Gilman – Thornes 1985, 183 f.

251 Gilman – Thornes 1985, 184.

directed an interdisciplinary geo-archaeological project on the development of the ancient coastlines of the Iberian Peninsula²⁵². It was mainly carried out, especially in Andalusia²⁵³, by the geologist Gerd Hoffmann in collaboration with the archaeologist O. Arteaga. They worked mostly in Andalusia but also collaborated between 1990 and 1997 with Dirce Marzoli in the North East of Spain (Ampurdán)²⁵⁴ and with the author of this article in Portugal in 1986 in Zambujal and the Sizandro Valley²⁵⁵ and in 1987 in the Lower Guadiana Valley²⁵⁶. These investigations reconstructed the Holocene sedimentation history of multiple estuaries of rivers in these regions and compared it with the settlement history from the Neolithic until today. From these investigations it became clear that many of the 3rd-millennium-BC Chalcolithic settlements had had much closer access to the sea than is possible today.

More recent projects, undertaken since 1992 by O. Arteaga and Anna-Maria Roos together with H. D. Schulz in Western Andalusia, have demonstrated that the present area known as the 'Marismas' west of Seville, was originally a huge lagoon²⁵⁷, and the Guadalquivir estuary reached as far as the present-day villages of La Puebla del Río and Coria del Río, approximately 12 km south-west of the present city of Seville²⁵⁸. They showed very impressively on 5 maps that all the settlements from the Neolithic until Roman times were situated along their recon-

structed ancient coastline²⁵⁹. These results threw new light on the location of the huge Copper-Age site of Valencina de la Concepción.

In the area of Zambujal a new interdisciplinary geoarchaeological project on the environmental development was started in 2002, called *Sizandro and Alcabrichel*²⁶⁰, where the catchment areas of the valleys of these two rivers were investigated²⁶¹. This project was carried out in close collaboration with the American project headed by Katina Lillios from the University of Iowa investigating the Late Neolithic/Copper-Age burial site of Bolóres (Lillios et al. 2015) in collaboration with the geologist Joe A. Artz and the anthropologist Anna Waterman, who also did the new studies on human bones from Zambujal.

So far the main results of the *Sizandro-and-Alcabrichel* project have been the discovery that far more forest was cleared in the area around Zambujal during the Copper Age than previously supposed, that intensive agriculture was practised, and that agriculture started there as far back as the late 6th millennium BC²⁶². The sedimentation of the Holocene lagoon already detected by G. Hoffmann, as mentioned above, was not very deep during Copper Age, so that it is questionable whether there was a possibility to come into the valley by sea-going ships, as thought before²⁶³, smaller boats could have passed the water without doubt.

Fortifications and Complexity

In 1994 Susana Oliveira Jorge for the first time published a map, together with a catalogue²⁶⁴, of all then known fortified sites of Copper-Age date in the Iberian Peninsula²⁶⁵, which totalled 69. In 2010 José Enrique Márquez Romero and Víctor Jiménez Jáimez produced a new map with a count of 68 walled enclosures²⁶⁶. In 2011, however, the present author published a map showing only 54 walled settlements²⁶⁷, because some that had previously been

considered as walled enclosures, in reality either had no wall or the presence of a wall was not certain. Since then, thanks to Antonio González Cordero's thesis, which has filled in the blanks over the northern part of the Spanish Extremadura, the number has increased to a total of 136 sites. The red dots on the map (fig. 11) indicate the fortified sites in this region and the 19 blue dots indicate potential fortified sites, which would increase the total of

252 Schubart 1988; Schulz 1988.

253 Hoffmann 1988; Arteaga 2001.

254 Marzoli 2005 (for the history of investigations see page 62).

255 Kunst – Trindade 1990; Hoffmann 1990; Kunst 1990, 119–122, 123–127.

256 Schubart et al. 1988, Kunst 1990, 119–127, Kunst 2018.

257 Arteaga – Roos 1995.

258 Arteaga – Roos 1995, for example 205 fig. 2

259 Arteaga – Roos 1995, 204–217.

260 Kunst 2010b; Dambeck et al. 2010.

261 The still existing project is carried out by a collaboration of the author of this article, the archaeologist Nina Lutz from the University of Frankfurt/Main, the pedologists Heinrich Thiemey-

er, Rainer Dambeck, Nico Herrmann and Christian Sängler, the palynologists Arie Joop Kalis, Astrid Schweitzer, Astrid Stobbe and Wim Leeuwaarden from Portugal, the archaeobotanists Hans-Peter Stika (University of Stuttgart-Hohenheim) and Holger Rittweger, the specialist for ostracods Alan Lord (Senckenberg-Museum Frankfurt/Main).

262 Dambeck et al. 2010. Dambeck et al. 2015.

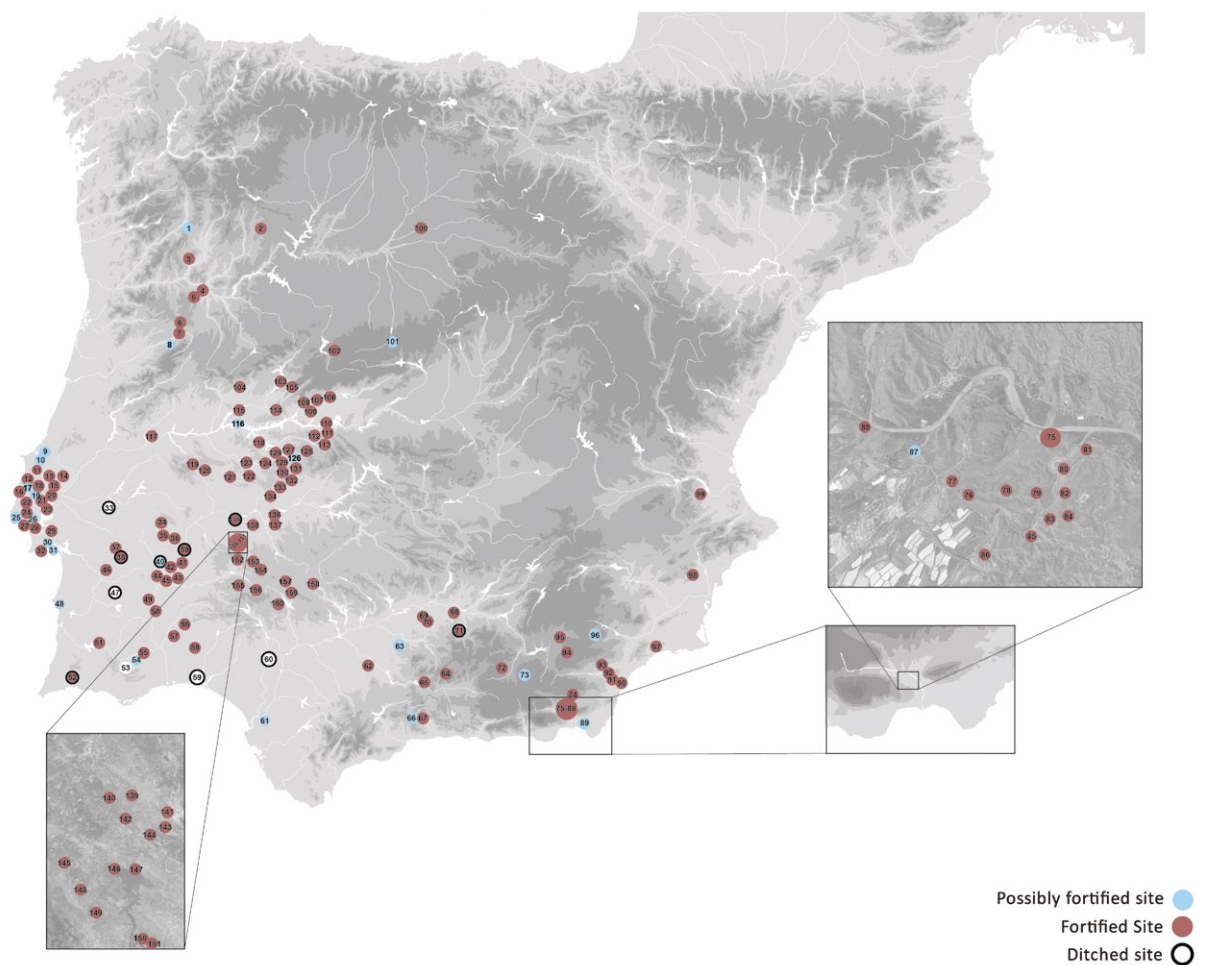
263 Schubart 1990.

264 Oliveira Jorge 1994, 511–546.

265 Oliveira Jorge 1994, 436 fig. 1.

266 Márquez – Jiménez 2010, 517 map 09.

267 Arnold – Kunst 2011, 37 fig. 1.



11 Map of the chalcolithic fortifications of the Iberian Peninsula. Sites: 1 São Lourenço. 2 El Pedroso. 3 Crasto de Palheiros. 4 Castanheiro do Vento. 5 Castelo Velho de Freixo de Numão. 6 Fraga da Pena. 7 Castro de Santiago. 8 Castelejo. 9 Outeiro da Assenta. 10 Outeiro de São Mamede. 11 Columbeira. 12 Pico Agudo. 13 Pragança. 14 Vila Nova de São Pedro. 15 Castro de Ota. 16 Zambujal. 17 Boiaca. 18 Castro da Fórnea. 19 Penedo. 20 Pedra do Ouro. 21 Castelo (Arranhó). 22 Penedo de Lexim. 23 Moita da Ladra. 24 Olelas. 25 Penha Verde. 26 Serra das Baútas. 27 Leceia. 28 Travessa dos Dore (Ajuda). 29 Chibanes. 30 Pedrão. 31 Castro da Rotura. 32 Outeiro Redondo. 33 Cabeço de Pé da Erra. 34 São Gens. 35 São Pedro (Redondo). 36 São Miguel da Mota. 37 Castro do Escoural. 38 Monte da Ponte. 39 San Blás. 40 Perdigões. 41 Porto das Carretas. 42 Monte Novo dos Albardeiros. 43 Monte do Tosco 1. 44 Senhora da Giesteira. 45 Moncarxa. 46 Monte da Tumba. 47 Porto Torrão. 48 Monte Novo (Sines). 49 Três Moinhos. 50 Cerro dos Castelos de São Brás. 51 Cortadouro. 52 Alcalar. 53 Cerro do Castelo de Corte João Marques. 54 Cerro do Castelo das Mestras. 55 Cerro do Castelo de Santa Justa. 56 Los Vientos de la Zarzita. 57 La Junta de los Ríos. 58 Cabezo Juré. 59 Papa Uvas. 60 Valencina de la Concepción. 61 Mesas de Asta. 62 Marinaleda. 63 Los Almiarés. 64 Los Castillejos de Montefrío. 65 Villavieja. 66 Cerro de los Peñones. 67 Cerro de Capellanía. 68 Cerro de la Coronilla. 69 El Albalate. 70 Cerro de los Alcores. 71 Marroquíes Bajos. 72 Cerro de los Castellones. 73 Las Angosturas. 74 Terrera Ventura. 75 Los Millares. 76 LM Fortín 1. 77 LM Fortín 2. 78 LM Fortín 3. 79 LM Fortín 4. 80 LM Fortín 5. 81 LM Fortín 6. 82 LM Fortín 7. 83 LM Fortín 8. 84 LM Fortín 9. 85 LM Fortín 10. 86 LM Fortín 11. 87 LM Fortín 12. 88 LM Fortín 13. 89 El Tarajal. 90 Almizaraque. 91 Zájara. 92 Campos. 93 Puente de Santa Bárbara. 94 El Malagón. 95 Cerro de la Virgen (Orce). 96 Cerro de las Canteras. 97 Cabezo del Plomo. 98 Les Moreres. 99 Ereta de Pedregal. 100 El Pico del Castro. 101 Cerro Hervero. 102 Alto del Quemado. 103 Mesa Alta. 104 El Castillejo. 105 Canchalera del Moralejo. 106 Torreseca. 107 Mesillas. 108 El Canchal. 109 Cuarto de la Lagartera. 110 La Muralla. 111 Cerro de las Cabecillas. 112 Milanillo. 113 Pico de la Covacha. 114 Campillones. 115 El Castillejo (Casillas de Coria). 116 San Albín. 117 Charneca de Fratel. 118 El Castillejo (Santiago del Campo). 119 El Jarinero. 120 El Torrejón. 121 Morrón del Peral. 122 Cancho del Pito. 123 Los Barruecos. 124 El Risco. 125 Aguas Viejas. 126 Castillejos I (Plasenzuela). 127 Castillejos II (Plasenzuela). 128 El Avión. 129 El Castrejón. 130 Cerro de la Horca. 131 Cabrerizas. 132 Los Alijares. 133 La Vaquerizuela. 134 La Navilla. 135 La Pijotilla. 136 La Palacina. 137 Palacio Quemado. 138 Cortijo Zacarías. 139 Las Pilas de Aceuchal. 140 Cerro de la Cruz. 141 Cerro Berraco. 142 Chamorra. 143 Potril. 144 La Sierrilla. 145 Molletes. 146 El Monte. 147 Las Mesas. 148 Salamanco. 149 Las Cumbres. 150 El Moral. 151 Pedrascal. 152 El Punto del Mirro. 153 Cerro del Castillo de los Santos. 154 Puerto de la Plata. 155 Traseras de la Pepina. 156 Los Castillejos I (Fuente de Cantos). 157 El Pedrosillo. 158 Cerro Villa. 159 Los Palacios. 160 Risco del Cuervo

known fortified sites to 155. In Figure 11, sites shown with a black ring have ditches like the causewayed enclosures in Southern Britain²⁶⁸ or in the ‘Michelsberg culture’²⁶⁹, and one site without a ditch or wall is shown in white, but the three maps published by J. E. Márquez Romero and V. Jiménez Jáimez suggest that there are probably many more similar sites²⁷⁰ as well as sites with only ditches or pits²⁷¹. Walled enclosures are more commonly found in the west and south of the Iberian Peninsula, to our present knowledge they are not known in the north-east. The last evidence shows, however, that in the west they extend much further inland (towards the interior of Spain) than previously thought. Around Madrid, in the centre of the peninsula, most known sites are ditched enclosures²⁷², but there are also some walled enclosures, so it seems probable that more walled enclosures remain to be found.

In her article mentioned earlier, S. Oliveira Jorge for the first time challenged the interpretation of walled enclosures as fortifications. Her arguments are based, firstly on two articles by Anatol Rapoport, where he explains that “human activities, organized in systems, take place in scenarios”²⁷³ and that these activities “depend intimately on identification of the scenario”²⁷⁴, and the relation between spatial organization and social complexity²⁷⁵, and secondly on the anthropological studies of Susan Kent concerning socio-political complexity²⁷⁶, which is fundamental for S. Oliveira Jorge. Her argument that the walled structures of the Chalcolithic did not have any defense function, is supported by research carried out in the region of Languedoc²⁷⁷ in Southern France.

At Zambujal, in contrast, there are two towers, A and B, which are still preserved to a height at which the beginnings of ‘corbelled vaults’ can be clearly seen. The architect Felix Arnold has been able to reconstruct them, in collaboration with the author of this article, and has thus demonstrated that they reached a considerable height²⁷⁸ (fig. 12). Other examples of similar reconstructions, are

known from Southern France: a settlement at Bous-sargues belonging to the ‘Fontbousse Group’²⁷⁹, dated between 2800 and 2200 BC²⁸⁰ and thus contemporary with Zambujal and the Iberian Copper Age. At Boussargues, Jacques Coularou found enclosures with round buildings located at the corners. He experimented reconstructing them and came to the conclusion that they were round houses rather than towers. They were not as tall as the towers at Zambujal²⁸¹. There, however, the ground plan of Tower B with an internal diameter of 3.40 to 3.70 meters and an external diameter of 5.80 meters, is very large, so that the height of the corbelled structure²⁸² was probably considerable, and should perhaps better be compared to the corbelled grave Cueva de Romeral at Antequera, which is 3.80 m high²⁸³ or even higher, and similar to Grave “I” of the corbelled tombs in the cairn of Barnenez (Brittany, France), which reaches a height of 4.75 m²⁸⁴. A further indication that Tower B at Zambujal was surely a tower is shown by the fact that the level of the floor under the corbelled vault is already more than 2 meters above ground level²⁸⁵. The cone-shaped form is similar to towers known from Ancient Egypt depicted on a drawing carved into a wooden tablet (London British Museum, EA 35525) and an ivory model (Egyptian Museum Berlin, 18031), both derived from the royal cemetery of Abydos and dated around 3100 BC²⁸⁶. Further evidence for interpreting Zambujal as a fortified site is the fact that 1085 flint arrowheads²⁸⁷ were found at the site and also certain types of arrowheads in relation to particular ‘defensive structures’: according to Margarethe and Hans-Peter Uerpman, arrowheads of the ‘mitre-type’ (fig. 13) were found in greater than average numbers in the ‘barbican’ and in a similar structure in Area Y as well as in ‘Courtyard H’²⁸⁸.

After 1990 it became apparent that the notion of ‘complexity’ seemed to be important for understanding Copper-Age society. Robert Chapman published a book

268 Whittle et al. 2011, 5–12.

269 Seidel 2008, 351–385.

270 Márquez – Jiménez 2010, 203–207, maps 06–08; in the province of Ávila, there seem to be a lot of open-air sites without ditches or walls (see Fabián 2006), as well as in the Spanish Extremadura (see González Cordero 2011); but we have to count with a much more higher number of open-air settlements, which would certainly be beyond the scope of this article.

271 Márquez – Jiménez 2010, 191 map 04.

272 See further down, paragraph 9.

273 Jorge 1994, 485; Rapoport 1990.

274 Jorge 1994, 485; Rapoport 1990.

275 Jorge 1994, 486 f.; Rapoport 1994.

276 Jorge 1994, 487–489; Kent 1990a; Kent 1990b.

277 Colomer et al. 1990, 135.

278 Arnold – Kunst 2011, 79–82.

279 Coularou et al. 2008, 9.

280 Coularou et al. 2008, 238; for radiocarbon dates, see Coularou et al. 2008, 227–232.

281 Coularou et al. 2008, 292–299.

282 Arnold – Kunst 2011, 79–82; Kunst – Arnold 2011, 470–483.

283 Leisner – Leisner 1943, tab. 55f.

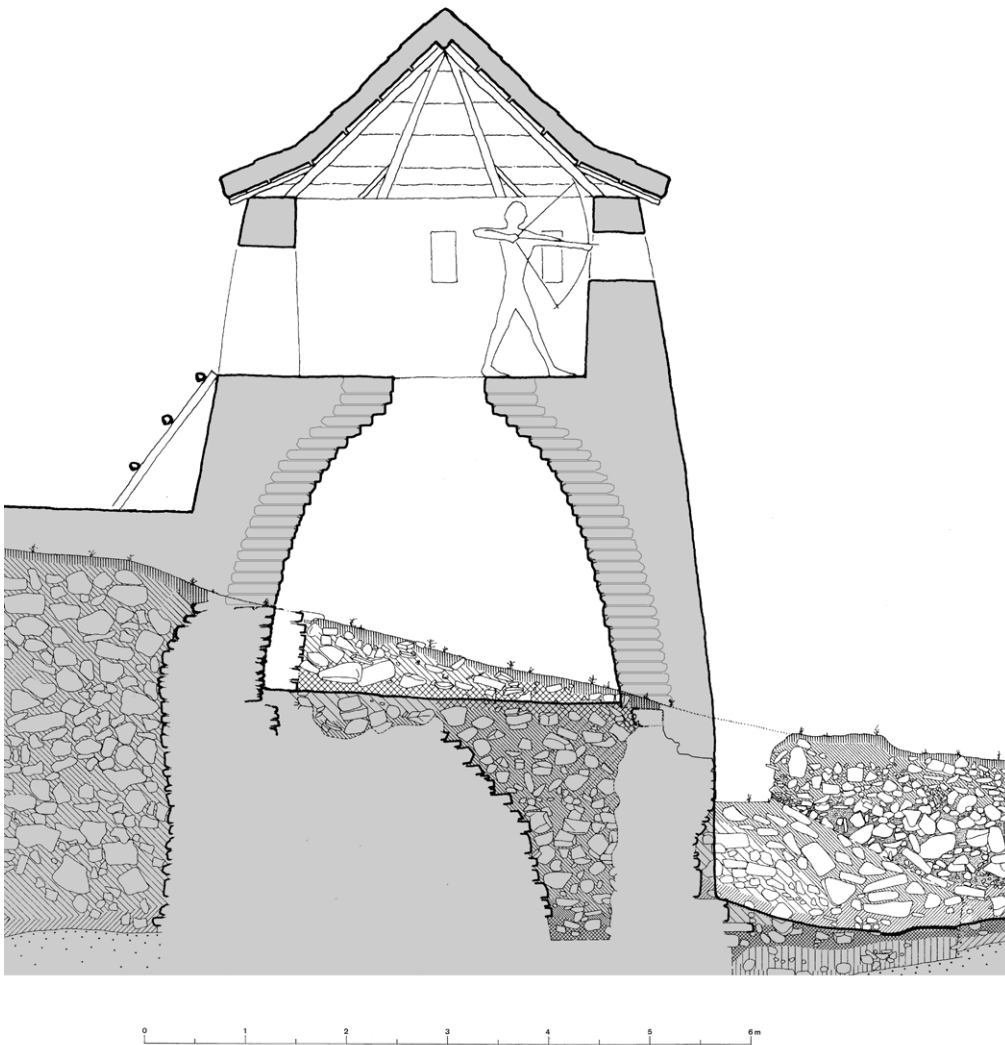
284 Giot 1987, Vol. I, 48; Vol. II, B2. B9 I.

285 Sangmeister – Schubart 1981, 26 fig. 6.

286 Vogel 2010, 10. 20 f.; see also the examples published in Brovanski 2002.

287 This is the number actually counted by Patrícia Jordão, who is elaborating a database of the flint tools of Zambujal and analyzing the provenance of their raw material.

288 Uerpman – Uerpman 2003, 100 f.



12 Zambujal, reconstruction of Tower B. The total external height of the tower from the its base to the highest point of the roof is about 9 metres, and from the base to the start of the roof about 7 metres

entitled *Emerging Complexity*²⁸⁹ in which he distinguished functional differentiations which could be hori-

zontal²⁹⁰ or vertical²⁹¹. A central question in this context was the development of specialization of production²⁹².

Ditches and Pits

In 1975 Diego Ruiz Mata published sherds of Chalcolithic and Bronze-Age pottery found during a survey he made around Valencina de la Concepción, a place also

known for its corbelled tombs: 'Cueva de la Pastora', 'Dólmen de Matarrubilla' and the 'Dólmen de Ontiveros'²⁹³. In his article he noted that the finds came from

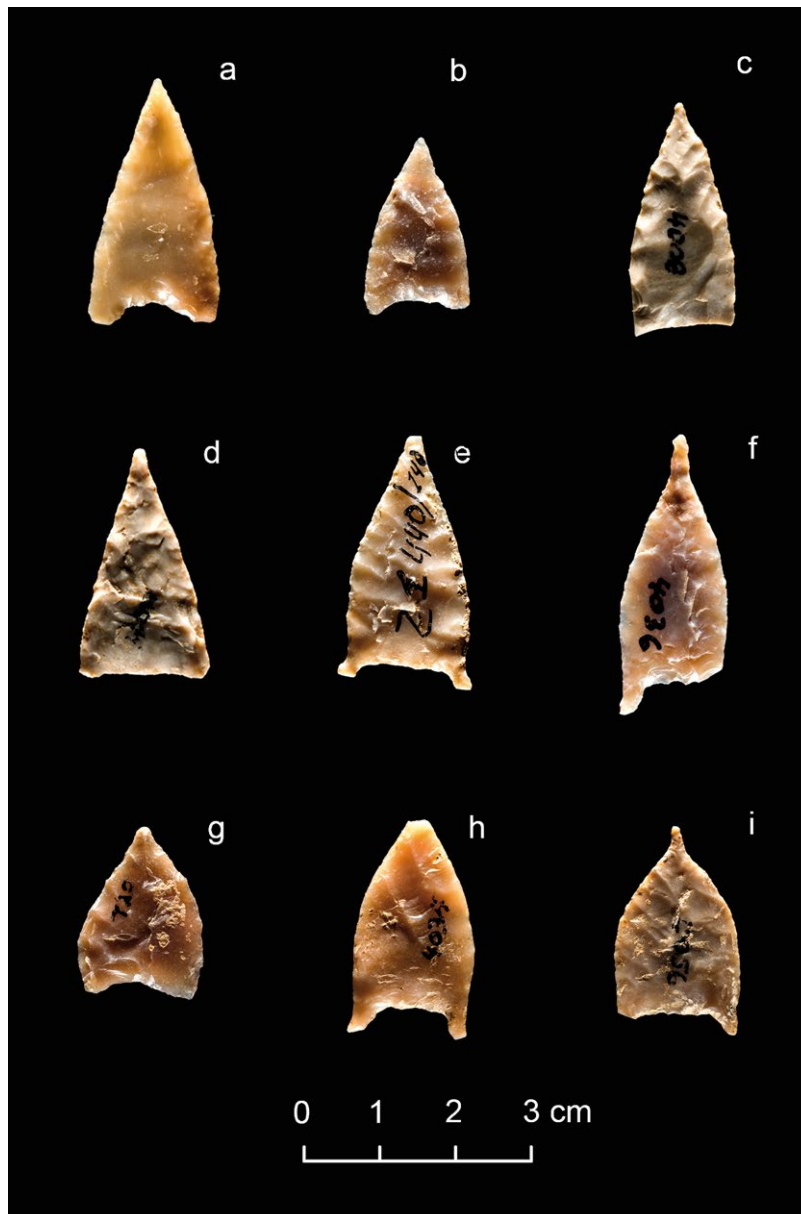
289 Chapman 1990.

290 Chapman 1990, 169–174.

291 Chapman 1990, 174–207.

292 Chapman 1990, 169–172.

293 Obermaier 1919; Leisner – Leisner 1943, 194–196; Almagro 1962; Mata Carriazo 1962.



13 Example of 9 flint 'mitre-type' arrowheads from Zambujal: a: Z-59500-26-02; b: Z-59012-26-12; c: Z-173-4; d: Z-608-26-25; e: Z-1440-26-140; f: Z-251-26-27; g: Z-59010-26-1; h: Z-197-26-27; i: Z-68026-26-87

a wide area, and thus the extensive nature of the site in relation to the tombs became known for the first time²⁹⁴. He reported that he dug a trench to investigate the stratigraphy, but unfortunately it is not clear where the published pottery fragments came from, nor if he had noticed any traces of structures such as ditches or pits in the trench. It is clear that he did not find any stone walls and that the settled area must have been very extensive. There were interesting features in the pottery he found:

most consisted of open forms like plates and big bowls, some of the plates had thickened rims, and some were almond-shaped, the bowls were carinated, and there were some sherds of Bell-Beaker and Late Bronze-Age pottery. These results were confirmed on a larger scale by the excavations of José Clemente Martín de la Cruz at Papa Uvas²⁹⁵ near Huelva, where the pottery sequence confirmed the results obtained by C. Tavares da Silva and J. Soares. He, too, found many pits and ditches at the site.

294 Ruiz Mata 1975, 110 fig. 17.

295 Martín de la Cruz 1985; Martín de la Cruz 1986.

A new era of Chalcolithic research had begun and the search was on for Chalcolithic settlements with ditches. At about this time Manuel Carrilero and his colleagues from Granada found open-air settlements in Western Andalusia containing many pits, which followed the assumptions made by G. Bonsor after his excavations at Campo Real and other sites in Los Alcores (Prov. Sevilla)²⁹⁶, and they named it “Cultura de los Silos”²⁹⁷ (in English: pit culture), but it was also known as “Cultura de los Alcores”²⁹⁸. It became quite obvious that there were not only settlements with stone-built fortifications – the former ‘colonies’ –, but also ‘open-air sites’ with extensive ditch systems, and, in addition, there appear to be

settlements without any surrounding wall or ditch. In the following years more and more such sites were investigated, and this produced a new paradigm, whereby enclosures are not necessarily regarded as fortifications, and distinctions should only be made between walled and ditched enclosures. This new paradigm culminated in a conference at Porto in May 2003 on *Recintos muros* (in English: walled enclosures)²⁹⁹. Protagonists of this new approach are S. Oliveira Jorge, V. Oliveira Jorge, António Carlos Valera and J. E. Márquez-Romero, the last publishing the first monograph on ditched enclosures in the southwest of the Iberian Peninsula together with V. Jiménez Jáimez³⁰⁰.

Marxist Approaches and the Idea of a State

Research into complexity and social interpretations became more and more important, following the end of the Franco dictatorship in Spain³⁰¹ and then of the dictatorship of the ‘New State’ in Portugal which ended with the ‘Carnation Revolution’³⁰², as a result of which essential changes in modern Spanish and Portuguese societies came about³⁰³. The communist movement was clearly present in the Iberian Peninsula and thus Marxist theories had an important impact on archaeological investigation in both countries³⁰⁴. Protagonists of this scientific change were C. Tavares da Silva and J. Soares and also Rui Parreira³⁰⁵ and later Elena Morán³⁰⁶ in Portugal and, among others, A. Gilman³⁰⁷, Juan Vicent³⁰⁸, M^a Isabel Martínez Navarrete³⁰⁹, Francisco Nocete Calvo³¹⁰, O. Arteaga, Vicente Lull in Spain, and the ideas of Luis F. Bate were very influential³¹¹. At the centre of their approach stand the human being and his society. It must, however, be remembered that all these interpretations were only possible because of the increase in information coming from new excavations and finds. According to B. Sasse and Klavs Randsborg, the development of methods and theories always follows on from an increase in new results from empirical studies³¹².

In the meanwhile it was becoming increasingly clear that several aspects of Copper-Age fortifications could be understood as the result of local development. The question was now whether these fortifications originated as a result of a Western Mediterranean ‘Hochkultur’, which O. Arteaga called the “Atlantic-Mediterranean Civilization” (Arteaga 2000, 123), and not as colonies of an Eastern Mediterranean ‘Hochkultur’, as suggested by the older generation of scholars. At this point, a problem arises when translating the German term ‘Hochkultur’. This problem, and the influence it has had on the modern theories and methods in Iberian archaeology, has been made very clear by R. Chapman³¹³. Perhaps the German concept of ‘Hochkultur’ does not mean exactly the same as the Spanish term ‘civilización’ or the English term ‘civilization’. In O. Arteaga’s article the present author translated it³¹⁴ simply as ‘Kultur’, which was probably not really correct; maybe O. Arteaga wanted to convey the idea that it was a more developed society than a Neolithic culture, instead of what the German term ‘Hochkultur’ as defined by E. Otto and discussed earlier, really means³¹⁵.

296 Bonsor 1899, 156–159. 232–237. 300–305; Bonsor – Maier 1997, 27–29. 30–33. 77–81.

297 Carrilero et al. 1982 (published 1986), 192–205.

298 Bubner 1981b, 145–153 figs. 2. 3.

299 Jorge 2003.

300 Márquez – Jiménez 2010.

301 The “generalísimo” Francisco Franco Bahamonde died on November 20th, 1975.

302 In Portugal: Revolução dos Cravos, April 25th, 1974.

303 Chapman 1997, 279–281.

304 Chapman 1997, 281

305 For example: Parreira 1980.

306 Morán 2018, 17–23.

307 For example: Gilman 1987; Gilman 1991a; Gilman 1991b; Gilman 1998.

308 For example: Vicent 1990; Vicent 1995.

309 Martínez Navarrete 1989, 387–441.

310 For example: Nocete 1984 (published 1988).

311 Bate 1984.

312 Sasse 2018, 211–212; Randsborg 1994, 159.

313 Chapman 1997, 282 f.

314 Arteaga 2001.

315 Otto 1965, 10–16.

One of the best arguments for a ‘developed civilization’ is evidence of hierarchical settlement structures. This observation originated on the basis of more intensive prospection activities in the 1980–1990s, and the Central Place Theory developed by Walter Christaller (1893–1969) and advanced by Dietrich Denecke for medieval times³¹⁶ was applied to the Iberian Copper Age³¹⁷. An interesting approach was made by Daniel J. Pullen, who measured levels of integration and social change, but still did not reach a satisfying solution³¹⁸. Although his arguments were based on a study of the Aegean, I think they could be generalized, and then they might also be valid for the Iberian Peninsula. According to D. J. Pullen, one of the basic difficulties lies in estimating without adequate excavation the size and time-span of a site (this applies particularly to unexcavated sites only known from field surveys³¹⁹), because in that case “sites are then arranged by size into groups reflecting a ‘hierarchy’”³²⁰, which is then the basis for calculating population numbers³²¹. However, as we have seen before, it has been made clear already, for the Central Place Theory and even more for the consideration of states, that the hierarchy of the sites and thus their sizes is fundamental³²². Nicola Terrenato and Donald C. Haggis go further and stress that: “There is clearly the need for more and

more sophisticated thinking on how archaeological data can be used to study the process”³²³ of state formation.

But what is a state? F. Nocete was the first to introduce this concept to the Iberian Copper and Bronze Ages³²⁴. For him, the most important factor to distinguish chiefdom³²⁵ from a state is the step from a classless society to a class society³²⁶. This, however, is very difficult to prove from the archaeological data available. Moreover, there is no general agreement concerning a definition of a state. It is a very complex problem, and even a specialist in social studies such as Max Weber is not consistent in his definitions of a state³²⁷. Roman Herzog³²⁸ observed that definitions are made very often for reasons of usefulness, and that anyone reading his book on early states must decide for himself “what degree of organization is necessary before he is prepared to qualify a ruling system as a ‘state’”³²⁹. Therefore, the term of a “pristine state”, in Spanish “estado prístino”³³⁰ is used for the Copper Age. Great care should be exercised not to commingle the differences between the contemporaneous societies of the Iberian Peninsula and the states of Mesopotamia and Egypt. It may be better to follow A. Gilman and use the term ‘chiefdom’ to describe the situation in the Iberian Peninsula during the 3rd and early 2nd millennia BC³³¹.

The Funerary Context

The funerary context has also changed considerably during the last decade. For example, previously rock-cut tombs (in Portuguese: grutas artificiais) were only known from Andalusia, the Algarve and the Portuguese Estremadura³³². More recent investigations have found rock-cut tombs and pit graves in the Alentejo³³³, and also in the Center of the Iberian Peninsula³³⁴.

Graves are a very important source of information when investigating the notion of statehood, and of social

inequality, because they can show social differentiations through their architecture as well as their grave goods. There is a problem, however, because the usual graves of the Iberian Copper Age are collective and not individual; consequently, it is in many cases not possible to know which burial object belonged to which individual. Modern excavation methods that plot the tridimensional location of each find, as was the case, for example, in the rock-cut tomb Hypogeu I of Monte Canelas, are, however,

316 Christaller 1933; Denecke 1973.

317 Parreira 1987, 47; Parreira 1990, 34; Gilman 1991a, 152; Uerpmann, H.-P. 1995, 51 f.

318 Pullen 2011, 28 f.

319 Pullen 2011, 20–22.

320 Pullen 2011, 20.

321 Chapman 1990, 150–159.

322 Chapman 1990, 175.

323 Terrenato – Haggis 2011, 4.

324 Nocete 1994.

325 Carneiro 1981.

326 Nocete 1994, 121 f.

327 Breuer 2014, 9 f.

328 R. Herzog was president of the Federal Republic of Germany from 1994 to 1999.

329 The original German text reads: “So wird der kritische Leser oft selbst entscheiden müssen, von welchem Grad der Organisation an er bereit ist, einer Herrschaft das Attribut ‘Staat’ zuzubilligen” Herzog 1998, 11.

330 Morán 2018, 222–229.

331 Gilman 2013, 22.

332 See the maps of Rivero 1988, 215–225.

333 Valera 2012.

334 Blasco et al. 2009; Barroso et al. 2014.

able to provide useful results³³⁵. In this way, Rui Parreira and Ana Maria Silva were able to demonstrate that at least 171 individuals had been buried there, of which 147 belonged to the lower layer, and five of them were *in situ*³³⁶. Ten decorated schist plaques were found in this layer, two with each of the five skeletons found *in situ*³³⁷; but eight other schist plaques also found in the grave could not be associated with any specific burial.

The earliest known sites with large cemeteries containing megalithic structures and corbelled graves are at Los Millares (approximately 100³³⁸) and at Alcalar, where a total of 20 tombs are now known, spread over four different areas: Alcalar, Poio, Monte Velho and Monte Canelas³³⁹. The three megalithic graves of La Pastora, Matarrubilla and Ontiveros³⁴⁰ from the area of Valencia de la Concepción have also been known for a long time. Over the last three decades the modern village of Valencia de la Concepción has become a suburb of Seville with the corresponding housing developments. In 1978, the first rescue excavations took place, and in the following decades more and more tombs of different forms had to be excavated with increasing speed³⁴¹. It was O. Arteaga, Ana María Roos and Rosario Cruz Auñón who first drew attention to the fact that there were huge mounds with corbelled chambers and megalithic structures in very long corridors as at Cueva de la Pastora and Matarrubilla, but with a relatively small burial chamber for a few privileged persons only; these contrast with very small tombs full of bones presumably for poorer people³⁴². Meanwhile, tombs of similar importance to La Pastora and Matarrubilla have been found at a site discovered in 1998 and excavated using the latest techniques. The largest one is the Dolmen of Montelirio³⁴³, and there are two smaller barrows, the most important of which is the so-called megalithic funerary structure 10.042-10.049³⁴⁴ situated in an area called “Plan Parcial N°4-Montelirio” or simply “PP4-Montelirio”³⁴⁵. This Grave 10.042-10.049 revealed a burial with extraordinary ivory grave goods³⁴⁶ and a

dagger of rock crystal³⁴⁷. Around these ‘rich’ tombs under mounds were many simpler graves in pits³⁴⁸; some were partly stone-built, others were simply pits. This distinction could be interpreted as a sign of social differentiation, perhaps indicating social stratification; and all this was conceived as an expression of an emerging class society (in Spanish: “sociedad clasista inicial”) and an emerging state³⁴⁹.

At Zambujal, the necropole has not been found yet, but there are some burial finds close to the site and some new indications by prospections – both geophysical and archaeological³⁵⁰ – which could belong to it.

Very important are the first systematical excavations by means of modern methods in a burial site of the concelho of Torres Vedras at Bolores, directed by K. T. Lillios³⁵¹, where only in the preserved remains of a destructed burial under a rock shelter, perhaps originally an artificial cave (?), had been found a “minimum of nineteen adults, four adolescents, and thirteen children”³⁵².

New aspects of funerary customs are now coming to light and nothing seems to be as straightforward as it appeared before. Already as in 1943, A. do Paço had highlighted finds at the settlement of Vila Nova de São Pedro, which suggested some sort of ritual involving a big pot and the sacrifice of animals³⁵³. Then, in 1999, S. Oliveira Jorge for the first time described another ritual activity, not only with animal remains but also with human bones³⁵⁴. In 1981 H. Schubart and E. Sangmeister had noted the occurrence of human bones inside the settlement of Zambujal³⁵⁵, but it was not discussed further at that time. After the finds at Castelo Velho de Freixo de Numão had been published, more and more human bones were recorded from areas around Neolithic and Chalcolithic settlements. Against this background, A. Carlos Valera organized a meeting in Lisbon³⁵⁶, which revealed that in many Chalcolithic settlements human bones were found not only in specific contexts for ritual purposes, as in the example quoted above³⁵⁷, but also, as at Zambujal, simply scattered for no obvious purpose³⁵⁸, but it seems that

335 Parreira 2010, 402 f.

336 Parreira 2010, 403.

337 Parreira 2010, 405.

338 Almagro – Arribas 1963, 48.

339 Parreira 2010, 399; Morán – Parreira 2004, 31.

340 Obermaier 1919; Leisner – Leisner 1943, 194–196; Almagro 1962; Mata Carriazo 1962; Ruiz Moreno 2013.

341 García Sanjuán 2013, 24.

342 Arteaga – Cruz Auñón 1995, 598 f.; Arteaga – Roos 1995, 207.

343 Fernández – Aycart 2013.

344 Mora et al. 2013, 266

345 Mora et al. 2013, 262.

346 Lucíañez et al. 2013.

347 Lucíañez et al. 2013, 81–85.

348 Mora et al. 2013, 266–271, particularly 267 fig. 2; Cruz-Auñón – Mejías 2013, 182 fig. 3.

349 Cruz-Auñón – Mejías 2013, 196 f.

350 Kunst 2017, 13–19.

351 Lillios et al. 2015.

352 Mack – Waterman 2015, 98.

353 Paço 1943, 139–143.

354 Jorge 1999, 88–94.

355 Sangmeister – Schubart 1981, 116.

356 The meeting took place at the Gulbenkian foundation (Fundação Calouste Gulbenkian) in Lisbon on the 6th to 8th November 2012; Valera 2014.

357 Jorge 1999, 88–94.

358 Kunst et al. 2014, 89 fig. 4.

some neonates, which are absent at the Bolores burial site³⁵⁹, had been buried, in, under or close to the defence structures. Furthermore, at Perdigões, corbelled tombs were found within the settlement enclosure³⁶⁰; previously, the only known example of this practice had been Grave 1 at Los Millares³⁶¹. At Porto Torrão, human bones and skeletons were found in the ditches and also in pits³⁶². It was recently reported that graves have been found inside settlement sites in the central area of the Iberian Peninsula. The ditched enclosure of Camino de las Yeseras yield-

ed 64 burials³⁶³ found in collective³⁶⁴ and in individual³⁶⁵ graves in the form of pits³⁶⁶, niches and rock-cut tombs³⁶⁷. The last two types of tombs are typical for Bell-Beaker burials at the site³⁶⁸. It is therefore interesting to note that at Camino de las Yeseras it would appear possible to show the transition from collective to individual burials at the end of the 3rd and beginning of the 2nd millennium BC³⁶⁹. Social differentiations appear to be shown by a differentiation in the richness of grave goods, which in some cases could be called prestige goods³⁷⁰.

Some Final Considerations by the Author

After more than a decade of research, the story of the 3rd millennium on the Iberian Peninsula remains as interesting as ever, with many unanswered questions, while every year further archaeological research produces new surprises. Many sites like Castelo Velho de Freixo de Numão³⁷¹, Leceia³⁷², Zambujal³⁷³, Penedo de Lexim³⁷⁴, Pé d'Erra³⁷⁵, Perdigões³⁷⁶, Porto das Carretas³⁷⁷, La Pijotilla³⁷⁸, San Blas³⁷⁹, Alcalar³⁸⁰, Cerro do Castelo de Santa Justa³⁸¹, Cabezo Juré³⁸², Valencina de la Concepción³⁸³, Marroquíes Bajos³⁸⁴, Los Millares³⁸⁵ and Camino de las Yeseras³⁸⁶, to mention just a few of the most important sites, have yielded a lot of new knowledge after extensive excavation. The last 30 years have seen the beginning of a new epoch of research, which in my opinion has been a time of 'brain storming', a time when many new questions arose, and a time of reflection on new theories which, in turn, have led to new paradigms with many '-isms'³⁸⁷. R. Chapman had already pointed out, that "there is also evidence of a prominent weakness...

to treat the 'isms', or paradigms, of archaeology as hermetically sealed units"³⁸⁸. All this has occurred against a background of an increasing number of new excavations producing finds at an ever accelerating rate. Theories and interpretations multiply and become hot topics. I believe that it is now time to pause (for a moment) and to reflect on all this new data without preconceptions.

One observation, which must be clear to everyone who studies the 3rd millennium of Southwest Europe, is that a certain extensive colonization (not in the sense of colonialism) has taken place on the Iberian Peninsula. Neolithic and Chalcolithic sites are found throughout the Iberian Peninsula almost as widespread as Roman sites. Megalithic tombs, for example, are to be found almost everywhere in mountainous regions³⁸⁹ as well as in lowland areas. Thus, we may conclude that the entire Iberian Peninsula was settled in the 3rd millennium, an assumption that is confirmed by pollen analysis³⁹⁰. Over recent years, surveys have been published which demonstrate that ev-

359 Mack – Waterman, 77 tab 4.4; 98.

360 Valera et al. 2014a, 40–42.

361 "Sepultura nº I" (Almagro – Arribas 1963, 56); according to Leisner – Leisner 1943, 42–43, it is Grave 17.

362 Valera et al. 2014a, 42–46; Rodrigues 2014, 62–67.

363 Blasco et al. 2009, 42.

364 Blasco et al. 2009, 46–49.

365 Blasco et al. 2009, 50–53.

366 Blasco et al. 2009, 44 f.

367 Blasco et al. 2009, 52.

368 Blasco et al. 2009, 53–67.

369 Blasco et al. 2009, 68.

370 Blasco et al. 2009, 67.

371 For example: Jorge 1993; Jorge 1999.

372 Cardoso 1994; Cardoso 1997; Cardoso 2003 with a long list of publications on the site (see p. 67–70), and newer publications in the journal *Estudos Arqueológicos de Oeiras*.

373 Kunst – Arnold 2011; Kunst – Lutz 2008; Kunst et al. 2013.

374 Sousa 2000; Sousa 2010.

375 Gonçalves – Sousa 2014.

376 For example: Lagos et al. 1998; Valera et al. 2014b.

377 Soares 2013.

378 Hurtado 1991; Hurtado 1997, 104–115.

379 Hurtado 2004.

380 Morán 2018; Morán – Parreira 2004.

381 Gonçalves 1989a, 175–330; Gonçalves 1989b, 53–181.

382 Nocete 2004; Nocete et al. 2010.

383 García Sanjuán 2013; Schuhmacher et al. 2015.

384 Barba et al. 2010; Zafra et al. 1999; Zafra et al. 2003.

385 Molina – Cámara 2005.

386 Blasco et al. 2009, 40–43; Blasco et al. 2011, 5–8.

387 Like diffusionism, functionalism, processualism, post-processualism, etc.

388 Chapman 1997, 282.

389 Llovera 1986; Llovera 1992.

390 López-Sáez et al. 2014, 109.

ery region was widely settled, often in the form of apparently small open-air settlements³⁹¹, but others had stone walls and some were ditched enclosures³⁹². It is very difficult to estimate the extent of each site, since in most cases only a small part of the site has been excavated. In some cases later excavations have revealed further lines of fortification, beyond what the excavators had first concluded was the outer defensive wall, as for example at Zambujal³⁹³. We know now that there were also ditches at Zambujal, but we still do not know how far the walls extended beyond the settlement. Another example is Penedo de Lexim, first excavated in 1970, where the excavator identified three or four comparatively broad terraces ('plataformas') at different levels with the following dimensions: the first about 600 m², the second about 495 m², and the third a little bit smaller than 225 m², the excavators also indicated a circular platform with a diameter of 15 meters³⁹⁴. Forty years later, Ana Catarina Sousa noted that this core area had an extent of 1.4 hectares, but after further observations she now estimates that about 8.1 hectares could have been in use at the site³⁹⁵. It is, at the moment, still very difficult to estimate the true size of the sites, and consequently even more difficult to estimate population density³⁹⁶. The lack of excavation and/or geophysical survey of large areas inside the fortified settlements means that we do not know, how many houses there were, and without excavations we cannot know how many of them would have been contemporary. Such chronological investigations are normally very time-consuming.

A study of the pottery at Zambujal showed that the 'three-step-chronology' (first *copos canelados*, then acacia-leaf decoration, then Bell Beakers) is not strictly valid. It can be shown that there was an earlier phase of the Copper Age with *copos canelados*, and a later phase with Bell Beakers, but acacia-leaf decoration seems to have been contemporary with both³⁹⁷. This conclusion is confirmed by finds from other sites³⁹⁸. Thus, it becomes increasingly clear that B. Blance's theory that the *copo canelado* was the forerunner of the Bell Beaker³⁹⁹ is correct⁴⁰⁰.

Another problem is the dichotomy between ditched enclosures as opposed to walled enclosures. In the first place, in my opinion, the majority of walled enclosures were fortifications. This was clearly confirmed by an excellent article by Victor Gonçalves, Ana Catarina Sousa and Catarina Costeira⁴⁰¹. At Zambujal, E. Sangmeister and H. Schubart recognized five distinct 'concepts' or 'strategies' for the defense of the site which are reflected in the architectural layout of the defense system in each of the five phases⁴⁰². The interpretation of the walls as fortifications is further strengthened by the great number of flint arrowheads – at the moment 1085 –, which were found all over the site, while at Vila Nova de São Pedro about 6000 flint arrowheads were recorded by B. Blance in 1958⁴⁰³. Moreover, I am not convinced that the ditched enclosures were not a form of fortification. In Germany, ever since the 1930s it has always been accepted that the earthworks of the 'Michelsberger Kultur' were not part of a defensive system⁴⁰⁴, but recently Ute Seidel was able to prove that a solely cultic function of the earthworks could be excluded, and that the Michelsberger sites combined elements designed to impress along with elements designed purely for defensive purposes⁴⁰⁵. In Spain and Portugal many entrances to ditched enclosures show structures which might have had defense functions, for example, the complex restricted entrances to many ditched enclosures, as shown at Perdigões (Reguengos de Monzaras) with the entrances in the northwest and southeast⁴⁰⁶ or the entrances of the enclosure of Xancra (Cuba, Distr. Beja, Portugal)⁴⁰⁷ (fig. 14). Another question to be asked is: Where was the earth disposed from the ditches? It could have been used to build a rampart along the length of each ditch, which, in some cases, may have been topped by a wooden palisade or similar structure⁴⁰⁸, but later farming methods have resulted in the levelling of such structures. Furthermore, it should be noted, that some of the 'walled enclosures' were also surrounded by ditch systems, as for example at Marroquies Bajos⁴⁰⁹, La Pijotilla⁴¹⁰, Monte da

391 A. C. Sousa distinguishes between "povoado" (settlement) and "habitat", which she defines as a site with an undetermined occupation, which could also correspond to secondary contexts, specialized sites or only temporarily occupied sites (Sousa 2009, 231).

392 Fabián 2006; González Cordero 2011; Sousa 2009, 228–232.

393 Kunst – Lutz 2008; Kunst et al. 2013, 105–121.

394 Arnaud et al. 1971, 105 f.

395 Sousa 2010, 59.

396 See Chapman 1990, 150–159.

397 Kunst 1987, 195; Amaro 2012, 237–243.

398 Gonçalves – Sousa 2006.

399 Blance 1971, 115.

400 Kunst 2001, 82–85; Amaro 2013.

401 Gonçalves et al. 2013 (published 2014).

402 Sangmeister – Schubart 1981, 226–255.

403 Blance 1971, 63.

404 Seidel 2008, 353.

405 Seidel 2008, 389.

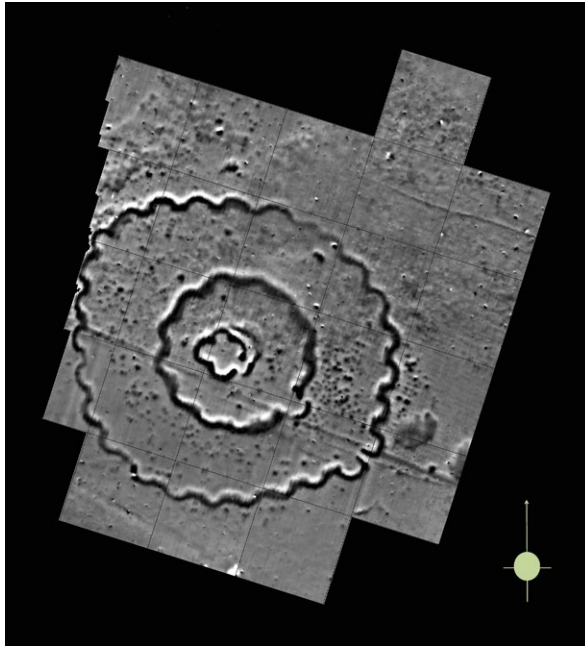
406 Valera – Becker 2011, 27 fig. 4; Valera et al. 2014b, 16 fig. 2.

407 Valera – Becker 2011, 26 fig. 3; 27 fig. 5.

408 Seidel 2008, 359–366.

409 Zafra et al. 1999, 82 f. 89–91; Zafra et al. 2003, 86 f.

410 Hurtado 1991, 57.



14 Magnetogram of Xancra enclosures (Cuba, Beja, Portugal)

Ponte⁴¹¹, Alcalar⁴¹² or Zambujal⁴¹³. Geophysical surveys have never been carried out at many sites enclosed by walls and so the presence or absence of such ditches is not known. Sites with fortification walls are mostly known from highland areas, and tend to be located on hilltops or promontories, whereas ditched enclosures are mostly found in the lowland areas. In my opinion, this relates to the availability of building stone⁴¹⁴ and whether the ground was suitable for digging ditches. There are always exceptions, but, in general, I think that this is the main reason why some regions show more ditched enclosures and others have more walled enclosures.

The social differentiations observed in the graves, are not, to my mind, reflected in the evidence from the houses⁴¹⁵. They may be reflected in the different sizes of settlements, but that could be a misinterpretation, since a small residential area with fortification could belong to a rich man living outside a big fortification; otherwise, he could also live inside a big fortification. One fact of interest is that there is evidence for division of labour. H.-P. and

M. Uerpmann drew attention to the fact, that within the settlement of Zambujal they could find no evidence of sickle shine on flint blades⁴¹⁶, although carbonized wheat and barley grains have been found there⁴¹⁷, and they interpreted this as some evidence for division of labour. This would mean that the crop was harvested by people living outside the fortification, and then brought to the people inside. Another interesting fact is that there are very few grinding stones from the settlement area: only 35 grinding stones and/or rubbers are known from all excavations that have taken place there. This is astonishing for a settlement which was inhabited for more or less 1000 years. A similar result was obtained at Valencina de la Concepción⁴¹⁸, in contrast to the small ditched enclosure of Pé d'Erra, where more than 250 grinding stones (including rubbers) were found⁴¹⁹. This raises the question of whether flour was produced outside large fortified settlements, or whether grain was prepared for meals in some other way. At Los Millares an area set aside for grinding grain was observed in Fortín 1⁴²⁰, and the cause could be that at Zambujal such an area has not yet been found. Perhaps, however, bread was not yet very common, and grain was cocked as porridge. At Zambujal, remains of both cereal porridge and bread were found⁴²¹. An analysis of the remains showed the presence of sand and grit, indicating that the grain had been ground on rough stones⁴²².

The manufacture of copper has been widely discussed⁴²³. In this context the question arises how much specialization was needed to smelt and/or melt copper? The evidence at Zambujal suggests that it was done on the same hearth where food was prepared. Thus, we need to ask to what extent there was division of labour at that time. If there really was such a division, is it possible to talk in terms of specialists? I doubt that there was an intense division of labour and rather think that there were people in command, perhaps chiefs or headmen. This is, for example, reflected in the different concepts of construction seen at Zambujal, where many people must have been engaged in building the constructions under the direction of a smaller group of people or even of a single chief. It would have required many people to defend or mount an attack on such sites. Social differences are well documented, as mentioned above, in the graves.

411 Kalb – Höck 1997, 14–17; Becker 1997, 28–34.

412 See the article of E. Morán and R. Parreira in this volume; Morán 2018, 64–95, particularly Chapter 4.3.2; Morán – Parreira 2003, 320–321.

413 In 2013, H. Becker and A. S. Flade-Becker carried out geophysical prospections around the Copper-Age fortifications of Zambujal and detected a lot of ditch systems east and north of the fortification walls known so far. The results have been published in the meantime: Becker – Flade-Becker 2017.

414 Uerpmann 1995, 51.

415 Kunst 2013, 196f.

416 Uerpmann – Uerpmann 2003, 104.

417 Hopf 1981, 316–320. The finds of the new excavations are studied by Hans-Peter Stika.

418 García – Sanjuán 2013, 37; Murillo 2013, 481.

419 Kind information from Victor Gonçalves.

420 Molina – Cámara 2005, 70–73.

421 See expertise of Max Währen in Hopf 1981, 326–329.

422 M. Währen in Hopf 1981, 329.

423 See article by Salvador Rovira in this volume and Roland Gauß's thesis; Gauß 2015.

Social evolution is another issue and, in my view, human society has been hierarchical from the beginning. Among groups of apes, for example, we see that there is always a leader and then a 'pecking order', which has something to do with fitness and strength. Accordingly, there is a group of subordinates, some closer to the leader and others less close, but whose order in the horde can change through fighting⁴²⁴. I think that to base arguments regarding 'hierarchization' on the material culture may lead us in the wrong direction, because these assumptions are based on the surviving material culture, but take no account of short-lived or perishable items⁴²⁵. Status in individuals may have been shown by tattoos, painting or distinctive clothing and adornment. There is also a statistical problem, as more items will have been left behind after the population increased during the Neolithic and Chalcolithic periods. When there are more finds of rare material such as metal or ivory, it is easier to distinguish the rich from the poor. In a similar way, stone-built structures will survive in a better condition than wooden structures or structures made of other perishable materials. To conclude, in my view, we could expect to see a certain basic and inherently human hierarchical structure in society, which is effected by factors which magnify hierarchy. One of the most important factors is the number of individuals belonging to the group, that is the size of the group, and another could be a coefficient of 'know how' or rather 'technological level'. This coefficient could be obtained empirically, by counting items to reflect the degree of technological skills involved, which would allow us to measure these factors and create a formula. This might then show that the transitions between different stages of society are more fluid than previously thought. Such a mathematically-based method may clarify the definition of different stages of society such as chiefdoms or states.

The question of how they are politically organized is another matter. A state does not mean that power over the masses is necessarily concentrated in the hands of a few people, but on the contrary, in a state there is the possibility of power control as seen in democratic systems which have a separation of 'legislative' and 'executive' functions.

The last thing I want to touch on is the question of why there was this 'sudden' increase in fortified sites in

the south of the Iberian Peninsula. It seems as if the Peninsula had been fortified against attacks and migration from Africa, but we must also take into account the fact that this is a region of high summer temperatures with many arid zones as, for example, in the Spanish province of Almería, which could have provoked inner conflicts about land use and water access. In another paper I suggested that a possible impulse for the social changes and the appearance of fortifications in Southern Iberia was climatic change between the Atlantic and Sub-boreal periods⁴²⁶. B. Eitel noted for the Eastern Sahara that people were fleeing to Egypt from the Eastern Sahara and the spreading desert⁴²⁷. This statement, however, needs some qualification. In the first place, there is to date no record in Egyptian archaeology of the appearance of 'newcomers' from the Sahara Desert⁴²⁸. It appears that in the Eastern Sahara the climate changed from a more humid to an arid one in the second half of the 6th millennium BC⁴²⁹. Rudolph Kuper and Stefan Kröpelin wrote: "Retreating monsoonal rains caused the onset of desiccation of the Egyptian Sahara at 5300 B.C.E. Prehistoric populations were forced to the Nile valley or ecological refuges and forced to exodus into the Sudanese Sahara where rainfall and surface water were still sufficient. The return of full desert conditions all over Egypt at about 3500 B.C.E. coincided with the initial stages of pharaonic civilization in the Nile valley"⁴³⁰. In fact, the oldest fortification so far known in Egypt is the one on the Elephantine Island dating to the first fifth of the 3rd millennium BC⁴³¹, but the increase of fortifications in Nubia occurred later, in the second millennium BC⁴³².

In the Western Sahara and Maghreb regions, however, we have to take into account that climatic changes were not the same as in the Eastern Sahara. Thomas Schuhmacher has recently published a useful resume of the results of climate studies from Northwest Africa, showing partly divergent findings⁴³³. According to Nicole Petit-Maire, more favorable climatic conditions existed in the Mediterranean Maghreb regions between 7500 and 2500 BC⁴³⁴, whereas in Tunisia the climate had started to become arid at the beginning of the 5th millennium BC⁴³⁵. However, according to a recent article by Jörg Linstädter, an arid period also began in the Rif region of Morocco at about 5300 BC⁴³⁶, a similar result to the above-mentioned circumstances in the Eastern Sahara.

424 Goodall 1971, 97–111; Eibl-Eibesfeldt 1974, 404–414.

425 B. Blance let us consider that: "we cannot afford to forget that we are dealing with only that portion of the story which has survived" (Blance 1995, 57).

426 Kunst 2010a, 117–124.

427 Eitel 2007, 308.

428 Kind information from H. Köpp-Junk.

429 Kuper – Kröpelin 2006, 803.

430 Kuper – Kröpelin 2006, 806 fig. 3; see also the supporting online material for this article: www.sciencemag.org/cgi/content/full/1130989/DC1.

431 Ziermann 1993, 32–35.

432 Vogel 2010, 10–17.

433 Schuhmacher 2016, 34–36.

434 Petit-Maire 1984; Schuhmacher 2016, 36.

435 Schuhmacher 2016, 35.

436 Linstädter 2016; Schuhmacher 2016, 35.

The results for the Algerian Sahara, however, can be summarized as a dry period beginning in the second part of the 6th millennium BC (such as in the Rif region of Morocco according to Linstädter!) and lasting until the end of the 5th millennium BC, then replaced by a new humid period until 2800 BC, followed by another arid period⁴³⁷. This date more or less coincides with the results of isotope analysis of ovicaprid bones from Zambujal⁴³⁸. May there have been ‘boat people’ crossing from Africa to Spain? The two continents are separated only by the Strait of Gibraltar, and the opposite coastlines are clearly visible. We know that what is happening today is a result of climate change and that there are wars in the hot and dry regions of Africa and Asia, with many people fleeing to Europe in search for a better life. Was there something similar happening in the 4th and 3rd millennia BC? It probably developed slowly, beginning on the Iberian Peninsula during the Early Neolithic period, as suggested by the similarities in the pottery of both Spain and Northern Africa⁴³⁹, and lasted until the mid-3rd millennium, when the entire Sahara region turned into a desert. In light of the current state of research, however, it appears as if it would never have been such a mass movement as we experience today. Future genetic studies may throw more light on what was actually happening. The main sea routes may have been situated further to the east or west of the Strait of Gibraltar, because of the strong currents there. In the Atlantic Ocean as well as in the Mediterranean, the directions of the main currents are orientated to the North and South⁴⁴⁰. T. Schuhmacher has made similar suggestions concerning the ‘ivory routes’ in the Later Chalcolithic from Eastern Morocco and Algeria to Almería and from Western Morocco to Western Andalusia and the Tagus Estuary⁴⁴¹.

When we ask, what the typical Copper-Age finds in Southwest Europe are, we see that copper implements are rare, perhaps, like ivory and gold, they were only in the hands of the elite. The most typical object was the flint arrowhead with flat retouch on both sides. As already mentioned above, more than 6000 flint arrowheads were found alone at Vila Nova de São Pedro, while from Zambujal 1085 are known so far. In the developed Chalcolithic, around the mid-3rd millennium BC the sit-

uation culminated in the Bell-Beaker phenomenon, which means that for the first time people in the graves appeared to be represented as warriors⁴⁴² with the full armament of that time: arrows with flint arrowheads, a dagger (normally of copper), a Palmela point, and a stone wristguard. And this change, from pre-Beaker to the Bell Beaker period, appears to be contemporary with a possible climatic change at Zambujal, which occurred between construction phases 3b and 3c⁴⁴³, which should be more or less in the middle of the 3rd millennium BC, more or less between 3600 and 3450 BC⁴⁴⁴.

The people to whom these Bell-Beaker items belonged might have been the elite. The existence of real armies cannot yet be verified, but the five different concepts of defensive constructions at Zambujal show that people were familiar with different strategies of defense, in which case they were probably also familiar with different methods of attack. At this time, in the mid-3rd millennium BC, we know that warriors in the Near East were organized into armies as depicted on the well-known ‘Standard of Ur’⁴⁴⁵ and the ‘Stele of the Vultures’ from the city state of Lagash, the former from Tomb PG 779, Chamber D⁴⁴⁶, which should date to the early phase of the Royal Cemetery at Ur, RC I-II, and therefore should be parallel to the historical period ED IIIA⁴⁴⁷; the latter dates to the Early Dynastic period, and the depiction is accompanied by a written description of the conflict⁴⁴⁸.

R. Chapman used radiocarbon dates to prove that there was no Aegean influence on the architecture of fortification in the Iberian Peninsula⁴⁴⁹, but he did not take into account the fortified sites in Egypt and the Near East, such as Arad (Israel)⁴⁵⁰, the use of semicircular towers in Egypt⁴⁵¹, and the fact that as early as the 4th millennium BC in Mesopotamia towers appeared in the town defenses at sites such as Habuba Kabira⁴⁵². Recent studies by Thomas Schuhmacher and Arun Banerjee of ivory from sites mostly in the south of the Iberian Peninsula show clearly that ivory came from Africa and the Near East⁴⁵³. Is it therefore not conceivable that other forms of knowledge could have arrived by the same routes? We do not resort to the concept of colonies, but the Mediterranean was surely an area where communication took place⁴⁵⁴, and even more so from the 3rd millennium

437 Schuhmacher 2016, 36.

438 Waterman et al. 2016, 184 f.

439 Camps 1984, 193–198.

440 Blance 1971, 12.

441 Schuhmacher 2016, 191 fig. 53.

442 See also Soares 2003, 192 f.

443 Waterman et al. 2016, 184 f.

444 Kunst –Lutz 2008, 50–57.

445 Woolley 1934, 61; Winter 2010, 15.

446 Woolley 1934, 60–62.

447 Pollock 1985, 139–145.

448 Winter 2010, 3–51.

449 Chapman 1990, 44–46.

450 Amiran et al. 1978; Amiran – Ilan 1996.

451 For example, the plan of a fortified town in a representation on a wall of the grave of Inti (5th dynasty, 2504–2347 BC), see Köpp-Junk 2015, 233, after Petrie 1897; or the semicircular towers of Phase II of the fortification on the Elephantine Island in Upper Egypt, see Ziermann 1993, 32 fig. 12.

452 Strommenger 1980, 33–35.

453 Schuhmacher 2012, 413–415. 418–425.

454 Blance 1995, 57; Kunst 2006, 56 f.

onwards, as ship technology developed while the domestication of the horse increased communication on land.

In a nut shell, this epoch can be described as “Emerging Complexity”, to use the words of R. Chapman.

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Fig. 5 Siret – Siret 1887, album, plate 9

Fig. 6 first plan published in Siret 1893, 518 fig. 168, entitled "Llano de Los Millares"

Fig. 7 photograph from V. Leisner (by courtesy of Beatrice Clayre, Oxford)

Fig. 8 Paço – Sangmeister 1956 a, 215 fig. 3

Fig. 9 Los Millares tomb 43 (Sepultura XXI in Almagro – Arribas 1963, 105); a section SW-NE (Almagro – Arribas 1963, Lám. CXV, middle); b chamber and niche (Almagro – Arribas 1963, Lám. CXVIII); drawings by E. Sangmeister und B. Blance in April 1955

Fig. 10 photo: D-DAI-MAD-WIT-R-105-68-05; photographer P. Witte

Fig. 11 location and classification of the sites: M.

Kunst; basic map prepared by L. de Frutos and U. Städtler; symbols and arrangement by G. Casella)

Fig. 12 Arnold – Kunst 2011, 80 fig. 27

Fig. 13 a: Z-59500-26-02 (D-DAI-MAD-MLA-DG-14-2015-0010); b: Z-59012-26-12 (D-DAI-MAD-MLA-DG-14-2015-0080); c: Z-173-4 (D-DAI-MAD-MLA-DG-14-2015-0037); d: Z-608-26-25 (D-DAI-MAD-MLA-DG-14-2015-0108); e: Z-1440-26-140 (D-DAI-MAD-MLA-DG-14-2015-0129); f: Z-251-26-27 (D-DAI-MAD-MLA-DG-14-2015-0136); g: Z-59010-26-1 (D-DAI-MAD-MLA-DG-14-2015-0152); h: Z-197-26-27 (D-DAI-MAD-MLA-DG-14-2015-0137); i: Z-68026-26-87 (D-DAI-MAD-MLA-DG-14-2015-0141) (photographer: M. Latova; arrangement of the figure by G. Casella)

Fig. 14: geophysics by H. Becker for a project directed by A. Valera, firstly published in Valera – Becker 2011, 26 fig. 3 (by courtesy of A. Valera)

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