

SUSANA OLIVEIRA JORGE, ed.

Existe uma Idade do Bronze Atlântico?

IPA

INSTITUTO PORTUGUÊS
DE ARQUEOLOGIA

TRABALHOS DE ARQUEOLOGIA; 10

COORDENAÇÃO EDITORIAL
Susana Oliveira Jorge

DESIGN GRÁFICO
TVM Designers

PRÉ-IMPRESSÃO E IMPRESSÃO
Gráfica Maiadouro

TIRAGEM
500 exemplares

Depósito Legal 128 359/98

ISSN 0871-25

ISBN 972-97903-0-2

Instituto Português de Arqueologia
LISBOA
1998

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From the collapse of the chalcolithic mode of production to the development of the Bronze Age societies in the south-west of Iberian peninsula

■ JOAQUINA SOARES* ■ CARLOS TAVARES DA SILVA* ■

RESUMO Os autores partem da análise do modo de produção calcolítico, cujo colapso criou as condições para o desenvolvimento das formações sociais da Idade do Bronze. A evolução deste último período caracteriza-se por uma crescente complexidade social. As sociedades do Bronze final, de acordo com o registo empírico, organizaram-se em amplas unidades territoriais, segundo relações do tipo centro-periferia. A hierarquia social apresenta uma clara dimensão espacial. Nos estabelecimentos planos e abertos, constituídos por cabanas de materiais perecíveis, parece ter dominado uma lógica de igualdade social; no extremo oposto do sistema de povoamento, encontram-se extensos povoados fortificados, os quais foram sede de funções centrais e neles devem ter habitado as elites. Estas, com funções político-administrativas e guerreiras, consumidoras de bens de prestígio, terão controlado a metalurgia do bronze e o comércio de matérias-primas e produtos manufacturados.

ABSTRACT The authors focus on the Chalcolithic mode of production whose collapse opened the way for the Bronze Age societies' development. Their evolution is characterized by a growing social complexity. The late Bronze Age societies, according to the available empirical data, organised themselves into large territorial units where the communities would be integrated through core-periphery relations. Social hierarchy has, thus, a spatial dimension. In the open and plain settlements, with huts made in perishable materials, equality seems to have ruled intra-site social relations. At the opposite end of the settlement system, there are large fortified sites in which central functions were located and probably the top-ranking groups lived. These coercive and conspicuous elites would control bronze metallurgical production and the associated trade networks of raw materials and manufactured products.

Introduction

Archaeological research into the Bronze Age in the south-west of Iberia (Fig. 1) has been guided mainly by the *SW Bronze Age* paradigm formulated by Schubart (1975). The *culture* of the Southwest Bronze Age, as it was stated by that author, lying between a flourishing Chalcolithic and the Phoenician colonisation, was quite dormant. The great merit of Schubart's model was to distinguish from the well identified *culture* of El Argar, an archaeological reality partially contemporary, but not well known, located in the provinces of Alentejo, Algarve, Huelva and in part of the Seville and Badajoz regions. Schubart based his work on burial data, using typological criteria to set apart two phases of cultural development (SW Bronze Age I, from 1500 to 1100 BC and SW Bronze Age II, from 1100 to 800/700 BC). The oldest phase was connected with the until now little known Ferradeira Group (Schubart, 1971). The more recent phase could, at least in part of the Southwest, reach the

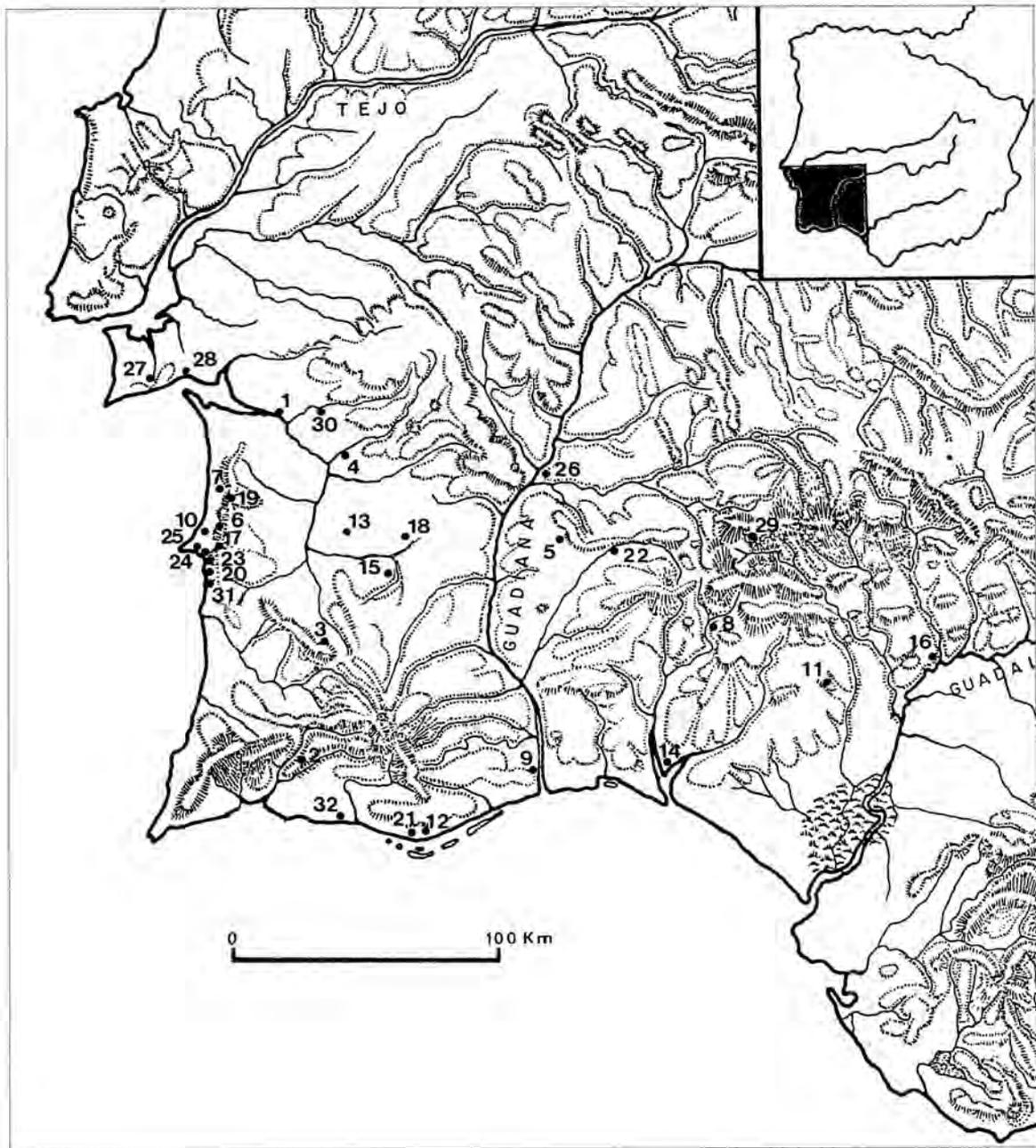


FIG. 1 - Bronze Age sites mentioned in the text: 1. Alcácer do Sal (S; FBA); 2. Alfarrobeira (C; MBA); 3. Atalaia (C; MBA); 4. Barrada do Grilo (S; IBA); 5. Belmeque (C; MBA); 6. Casa Nova (S; FBA); 7. Casas Velhas (C; MBA); 8. Castañuelo (S-C; MBA); 9. Castro Marim (S; FBA); 10. Cerradinha (S; FBA); 11. Chichina (S-C; MBA); 12. Ferradeira (C; IBA); 13. Herdade do Pomar (C; MBA); 14. Huelva (S; FBA); 15. Manganha (S; FBA); 16. Mesa de Setefilla (S-C; MBA-FBA); 17. Miróbriga (S; FBA); 18. Outeiro do Circo (S; FBA); 19. Pedra Branca (C; IBA); 20. Pessegueiro (S-C; MBA); 21. Pontes de Marchil (S; FBA); 22. Passo Alto (S; FBA); 23. Praia da Oliveirinha (S; MBA); 24. Provença (S-C; MBA); 25. Quitéria (S-C; MBA); 26. Ratinhos (S; FBA); 27. Roça do Casal do Meio (C; FBA); 28. Setúbal (S; FBA); 29. Trastejón (S; MBA-FBA); 30. Vale de Carvalho (C; MBA); 31. Vale Vistoso (S; IBA); 32. Vinha do Casão (C; MBA). S - settlement; C - cemetery; IBA - Initial Bronze Age; MBA - Middle Bronze Age; FBA - Final Bronze Age.

period of Phoenician trade. The Late Bronze Age either was not represented or was only for a short period marked by cultural rupture with the pre-existing ones.

Recent radiocarbon dates, even if they are still very scarce, and a better knowledge of the archaeological record of the Chalcolithic period contributed to the loss of validity of Schubart's model and highlighted the need for a new paradigm.

The arrangement of the archaeological evidence we propose enhance the indigenous development of social complexity; thus, this attempt puts emphasis on the transition from Chalcolithic to Bronze Age. The identification of the mechanisms involved in social change is the focal point of this paper.

The Crisis of the chalcolithic mode of production: destruction fo creation

The Chalcolithic in south-west Iberia integrates a mode of production whose internal contradictions led to its collapse at the end of the III millennium cal BC. The productive forces inherent in that mode of production developed in the context of the Secondary Products Revolution (Sherrat, 1983). This technological and economic change, that began in the Late Neolithic, in the second half of the IV millennium cal BC (Fig. 2), led to the application of cattle traction in agriculture (engravings representing a plough and a cart have been found under the Chalcolithic fortification of Escoural) and to the exploitation of wool from sheep leading to textile production (presence of loom weights in Late Neolithic settlements of Southern Portugal such as Vale Pincel II and Cabeço da Mina). Cattle traction allowed important advances in intensification of production, accompanied by major increases in productivity. This event opened up a new range of opportunities for land-use, enlarging the area of cultivable soils, for instance the heavier and more fertile ones, that because of technical constraints could not be worked until then. The SPR technical and economic innovations were crucial for accumulating a significant surplus which created favourable conditions for demographic growth, an increase of sedentism, the first forms of proto-urbanism and forms of negative interaction (warfare). An important shift in every archaeological indicator of economic, social and cultural change like subsistence, settlement and interaction patterns and mortuary rituals, marks the beginning of the Chalcolithic. The copper metallurgy developed only in the Middle Chalcolithic, after the establishment of the first hill-top fortified settlements with imposing bastioned walls that represent important investments for each local group. The evidence of a chronological dissociation between fortifications and metallurgy was crucial to reject diffusionist explanations for the emergence of the Iberian Chalcolithic (Copper Age colonies' theory). Copper metallurgy represents a further step in economic intensification, although its full success would require the dismemberment of Chalcolithic social organisation.

Some of the factors that have contributed, in the long-term, to the decline and collapse of the Chalcolithic economic model were the high degree of sedentism, growth of inequality between communities (warfare) in a context without centralised power and important constraints to the development of metalworking. As a matter of fact, the need to preserve the fertility of the soil (probably by crop rotation with periods of fallow) to sustain population growth in a scenario of considerable segmentation of territories (increasing lack of arable soil)⁴ could have represented one of the most flagrant contradictions of the Chalcolithic mode of production. The local scale (absence of a regional scale of political organisation) of the mechanisms of social appropriation and control of critical resources, such as cultivable land, would have yielded intense conflicts between groups. This seems to be one of the most

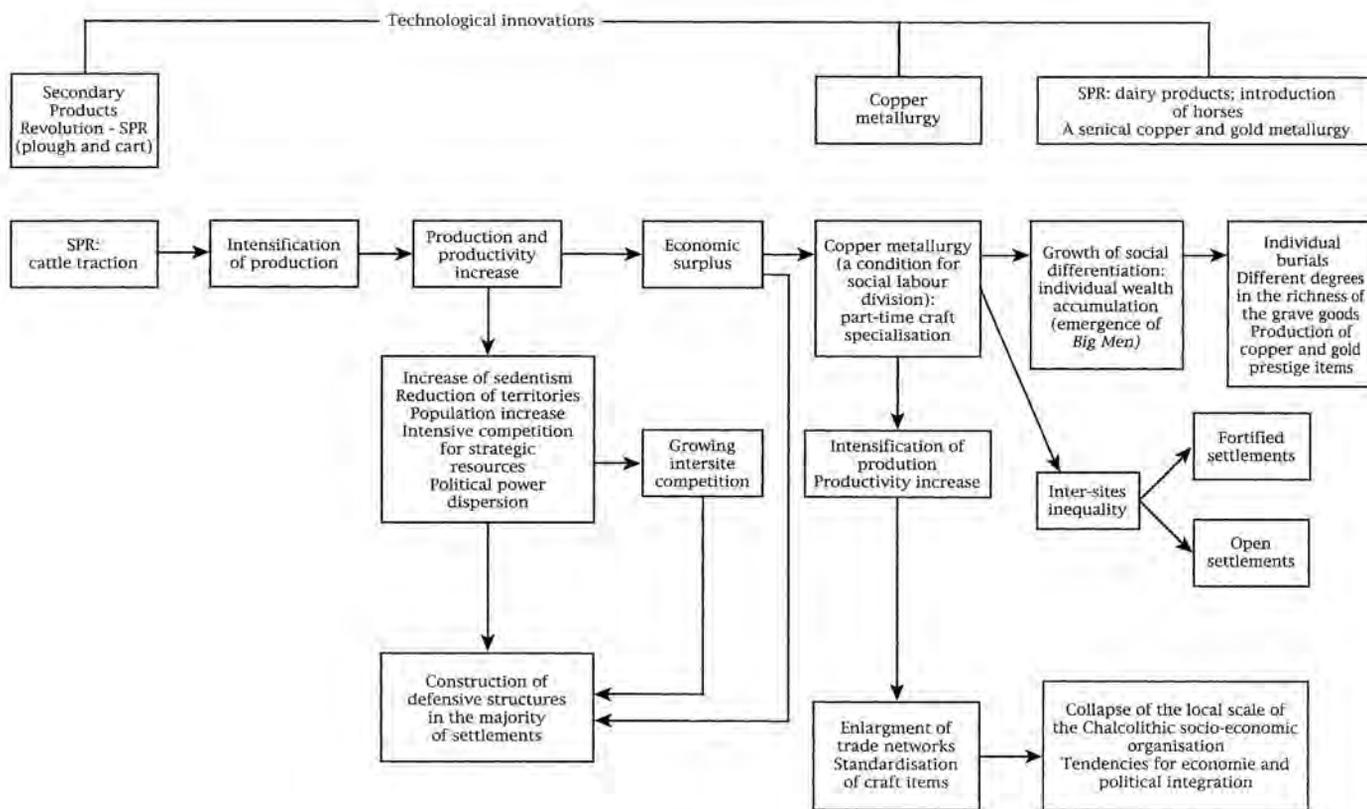


FIG. 3 – Schematic model of the process of economic and social change from the Late Neolithic-Chalcolithic transition to the Initial Bronze Age, in the south-west of Iberia.

striking features of Chalcolithic society. The predominant small scale of the social and economic organisation revealed itself inefficient at the end of the period, not only in what concerns subsistence activities but also regarding metallurgy: the imperfect craft specialisation and the restricted demand of that economic system blocked the development of metalworking, an activity that seems to be central with respect to its ability to lead to structural change in the social and productive spheres (Fig. 2).

The solution of those contradictions, in other words the removal of the obstacles that opposed to the development of the productive forces would take place through the emergence of a centralised authority having redistributive functions and the ability to manage and control production activities of large territories as well as long-distance exchange networks.

At the end of the III millennium cal BC the crisis would have been profound; the visibility of the archaeological record decreases. The Chalcolithic socio-economic model based mainly in local self-sufficiency was disintegrating to give room for the emergence of a more complex social organisation dominated by mechanisms of integration (Fig. 2). We can read signs of disintegration of the Chalcolithic society in the change of settlement strategies: reduction of the occupied surface (Monte da Tumba-Torrão, S. Brás-Serpa), or abandonment (Monte Novo-Sines, Los Vientos-Huelva) of the great majority of fortified Chalcolithic sites, and the foundation of new settlements that could be located on plains, without any defen-

sive structures, like Vale Vistoso (Sines) or Barrada do Grilo (Torrão), with later Beaker materials. On the mortuary ritual, the empirical record shows the appearance of individual burials, even if they reuse collective megalithic tombs, as the later Beaker pit graves inside the chamber of the dolmen of Pedra Branca (Melides). The change from collective funeral rituals to individual tombs that occurred in the Initial Bronze Age is an important aspect of the current process of social ranking.

The standardisation of cultural items in the later Beaker phase (e.g. Palmela points, tanged daggers, archers' bracers, bone and ivory V-perforated buttons, Beaker pottery) is a key fact in understanding the disarticulation of the preceding small scale social organisation in favour of the emergence and further development of larger territories and centralisation of power. The regional scale of economic integration allowed a better allocation of resources, enabled the elimination of the preceding generalised conflict at a local level and created favourable conditions for an easier access to ore resources and for increasing demand of copper tools which would stimulate the development of metallurgy.

The Ferradeira Group² as well as the later Beaker phase represent the Initial Bronze Age of the Southwest, dating from 2200/2100 to 1900/1800 BC, based on ¹⁴C determinations obtained for the Final Chalcolithic, on one hand, and for the beginning of the Middle Bronze Age (layer XIV of Mesa de Setefilla, cemetery of Herdade do Pomar), on the other.

The Ferradeira Group is known only through funeral records: cemeteries of individual stone cists (Schubart, 1975). The individual burial ritual replaces definitively the collective one. The graves, with an oval or rectangular plan, contain arsenical copper artefacts typologically similar to those of the incised and Palmela Beaker complexes (Palmela points, tanged daggers, flat axes, awls), undecorated ceramics with shapes that are similar to some vessels of the incised Beaker pottery, bone and ivory V-perforated buttons, and wristguards. Thus, the archaeological record of death seems to provide evidence of socially prestigious warriors. These high ranked individuals who, hypothetically, had leadership, may have played a central role in the conjuncture of high mobility and social dismemberment peculiar to the crisis situation. The hypothesis of the development of supra-local alliances networks ruled by those high-status individuals is a useful solution to the question of the gap between the Chalcolithic social organisation, without hereditary leadership, and the stratified society, with hereditary leadership, of the Final Bronze Age.

In conclusion, the decline of empirical record of the early Bronze Age reflects a social environment of relative disconnection. In this moment of crisis a radical social change took place. Intensification of production continued to increase during the Initial Bronze Age through the introduction of horses and regular use of milk and dairy products (presence of cheese-strainers in the ceramic assemblages of domestic contexts) and by means of the development of the copper and gold metallurgy.

Middle Bronze Age. Reading social differentiation in funerary contexts

The archaeological record becomes more visible in the full Bronze Age and we can begin reading from 1900/1800 BC a new narrative whose conclusion is reached at the end of the Bronze Age. On the ascendant side of that new development cycle, a Middle Bronze Age arrives with a clear cultural identity, in the peninsular Southwest. Two distinct rhythms of social and cultural change can be observed. An initial stage, of slow development, Middle Bronze Age I, and a second stage, Middle Bronze Age II, in which the changes are faster, witness important innovations in material culture (vessels inspired by metallic models,

Alentejo stelae) which reflect an increase of social complexity. This subdivision provided by the empirical base is obviously generic and schematic. If we compare the archaeological reality of Alentejo with that of the Huelva region we become aware of the existence of spatial variations. The issue of the regional variability of the archaeological record will not be considered in this text. We will give more importance to the communalities of the process.

The first stage (Middle Bronze Age I) can be dated from 1900/1800 to 1600/1500 BC and the second (Middle Bronze Age II), from 1600/1500 to 1200 BC.

TABLE I

Radiocarbon dates for the Southwest Middle Bronze Age

Middle Bronze Age I	Sample	Date BP	Date Bp- -Tapp*	cal BC (2 sigma)	Age ranges from intercepts (cal BC)
Layer XIV of Mesa de Setefilla	charcoal	3520 ± 95		2129 - 1612	1875, 1800, 1785
Layer XIII of Mesa de Setefilla	charcoal	3470 ± 95		2027 - 1522	1748
Cemetery of Herdade do Pomar (ICEN - 87)	human bones	3510 ± 45		1938 - 1688	
Middle Bronze Age II					
Burial of Belmeque (ICEN - 142)	human bones	3230 ± 60		1630 - 1400	1510
Burial A14 of the cemetery of Casas-Velhas-Santo André (OxA-5531)	human bones	3255 ± 55		1670 - 1410	1517
Burial n° 16 of Cemetery II of Pessegueiro (first inhumation) (ICEN - 867)	human bones	3270 ± 45		1679 - 1442	1526
Shell-midden of Praia da Oliveirinha (ICEN - 727)	marine shells	3460 ± 50	3100 ± 60	1510 - 1224	1406

* Tapp (380 ± 30 years) -Apparent age that corresponds to the reservoir effect in the coastal waters of Portugal (Soares, 1993). The calibration of the dates, after Pearson and Stuiver (1993), has been undertaken by António Monge Soares whom we thank.

Table I requires two brief comments concerning the dates of the cemeteries of Herdade do Pomar and Belmeque. The date obtained for a cist burial of the Herdade do Pomar, fits well in the Middle Bronze Age I like the subcylindrical ceramic recipient ascribed to the same grave; the Odivelas carinated bowl which the local workers said was also found in the grave, does not correspond to the context (Gomes and Monteiro, 1976-77).

The date obtained for one of the two inhumations of the Belmeque grave fits well with the typology of the ceramic recipient that belonged to the grave goods; However, the presence of bronze in the same grave was noted, and that alloy makes its appearance and spreads in the south-west, only in the Final Bronze Age (Soares, 1994). It will be necessary to wait for radiocarbon dating of both inhumations to explain the issue.

The funeral ritual seems to be the main common factor of the archaeological sample of the Southwest Middle Bronze Age reality and its most conservative feature. It is characterised by individual inhumations sealed into stone cists³ or, more rarely, in pits excavated in the bed-rock and covered, as with the cists, by a large stone slab. The dead were disposed of in a flexed (foetal) position and nearly always on lateral decubitus. Members of the entire population (men, women and children) would be buried in these cemeteries. Some graves were reused (for instance, in the cemetery II of Pessegueiro-Sines, necropolis of Quitéria-Sines and Vinha do Casão-Vilamoura). Exceptional graves, such as Belmeque or Mesa de

Setefilla, deviate from the general pattern, probably as a result of influences from the culture of El Argar.

The grave goods reveal indications of status differentiation related to age and gender: generally, children do not have grave goods and females were not accompanied by metallic objects (García Sanjuan, 1993). Indication of social hierarchy can be read in some graves with a quite distinctive and wealthy series of grave goods including ceramic vessels, copper, gold and silver artefacts, stelae of the Alentejo type. As examples, we can refer to the Middle Bronze Age I, a grave from the necropolis of Vale de Carvalho (Alcácer do Sal) and the inhumation nº 2 of Mesa de Setefilla (Seville). The former provided a ceramic recipient associated with an awl and a riveted dagger of arsenical copper and a polished stone button interpreted as the handle extremity of a dagger (Arruda [et al.], 1980); the inhumation nº 2 of Mesa de Setefilla was accompanied by a riveted dagger and a long sword with a square handle also riveted; both artefacts were manufactured in arsenical copper (Aubert [et al.], 1983, p. 66). The grave nº 12 of the cemetery of Provença (Sines) also illustrates the richness of some personal grave goods, in the Middle Bronze Age II (Silva and Soares, 1981); its cultural remains included an undecorated cylindrical-carinated ceramic vessel, a decorated ceramic vessel inspired by metallic models, a copper riveted dagger and two beads of green mineral and gold.

Rare burials have increased in value by means of adding engraving stelae of Alentejo type as observed in the grave nº 2 of the necropolis of Alfarrobeira (Silves) (Gomes, 1994).

When excavating in the 1970's in the Sines region, the cemeteries of Quiteria, Provença and Pessegueiro, the first settlements of the Middle Southwest Bronze Age were identified. They are located close to the cemeteries of cists and have no natural or artificial defence structures. In the site of Pessegueiro, remains were identified from rectangular huts (*ca.* 6 m x 5m) that were built in perishable and light materials, sometimes with stone pavement areas, and generally with a fireplace of sub-circular plan, elevated from the floor and limited by small standing stones. The coastal settlements mentioned above had a broad spectrum economy. Agriculture and animal husbandry were associated with fishing and gathering of shellfish. There are also remains of weaving and metal casting activities (e. g. arsenical copper and crucibles).

The domestic pottery displays a great typological diversity contrasting with that of funeral contexts having a restricted number of standardised shapes. Storage vessels are very well represented amongst the domestic ceramics.

At the site of Chichina (Seville), the settlement was located at a short distance from the necropolis. Castañuelo (Huelva) has the same pattern of physical proximity between settlement and necropolis. The unfavourable conditions in which the excavation took place and the fact that the archaeological layer was quite disturbed (Castañuelo II) did not allow Mariano del Amo (1974, p. 166-168, Lam. 174) to understand that he was facing a residential area contiguous to the necropolis, though he had observed the presence of recipients so large that they could not have been placed in the cists. The ceramic profiles show similarities with those of the settlements from the region of Sines.

Later on, the hill-top fortified settlements of Trastejón and Mesa de Setefilla would be identified. The site of Trastejón (Mountain of Aracena - Huelva) is located on an elevation that controls access to the valley of the Huelva river. The occupied area was artificially ordered and extended by the building of structures (Hurtado Pérez and García Sanjuan, 1993). The settlement had two main phases of occupation. They are dated 14C: from 1600 to 1200 BC (Middle Bronze Age occupation) and from 1200 to 800 BC (Final Bronze Age stage). The absence of rupture in the Middle Bronze Age - Final Bronze Age transition in

Trastejón permits the hypothesis that some of the large fortified settlements of Southern Portugal (not yet excavated), generally attributed to the Final Bronze Age based on surface finds, could have a Middle Bronze Age foundation. Outeiro do Circo is likely to be a case in point. Indeed, some ceramics found on the surface seems to be of the Middle Bronze Age II.

The first occupation phase (Middle Bronze Age) of Trastejón reveals an intra-settlement functional organisation, with areas specialised in storage (*Hordeum sativum*, *Triticum aestivo/compactum*, *T. Durum* or *turgidum*) and weaving. The houses would have been oval shaped, some of them of large dimensions. They had perishable light material walls (presence of fragments of daub with the impressions of small branches and grass stems), lying on a stone foundation (walls with small standing stones placed in two rows). Agriculture and livestock breeding activities (possibly the latter being more important because of environmental conditions) would have been complemented by copper metallurgy.

The settlement of Mesa de Setefilla (Seville), though showing features influenced by El Argar, can be included in the Southwest Bronze Age. There are similarities between its material culture and that of the cist cemeteries of Huelva. The layer XIV and the base of the layer XIII belong to the Middle Bronze Age I, dated by radiocarbon to the first half of the II millennium BC. This settlement was defended by fortifications with round bastions. The intra-site space was built with stone and sun-dried bricks. A sophisticated metallurgy developed in Mesa de Setefilla (Aubet [et al.], 1983).

Thus, during the Middle Bronze Age there are in the south-west of Iberia large fortified settlements, likely central places where top-range functions, such as defence, trade control, administration, took place, and open settlements, on plain areas, where ordinary functions were located. The diversified and complementary strategies of territorial exploitation are underlined by the existence of economically specialised camps, like the shell-midden of Praia de Oliveirinha (Sines). The site dates from the second half of the II millennium BC (Middle Bronze Age II).

The socio-economic organisation of the Southwest Middle Bronze Age has been conceptualised mainly through two opposite perspectives.

The authors have already proposed, based on research developed in the necropolis and settlements of Sines (Silva and Soares, 1981, 1984), the progressive consolidation of social ranking and political centralisation (the access to prestige items was, in fact, very restricted, as the greater wealth of grave goods from exceptional burials infer). The open settlements identified close to the cemeteries were interpreted as the peripheral area of a socio-political unit led by a hypothetical hill-top fortified settlement.

Previously, Mário Varela Gomes and J. Pinho Monteiro (1976-77) concluded, based on the study of the Bronze Age engraved stelae that “chiefdoms are [...] the type of social organisation that better adjusts to [the Middle Bronze Age]” and explained: “these societies are based on the centralising function of the leaders [...] They are, indeed, the pillars on which the economy of each group is based [...] the peculiar system of exchanges [redistribution mechanisms] allows an increase of economic specialisation, providing to each group the goods they cannot produce. The leaders of the groups integrated in a chiefdom would be organised on a hierarchy system based on ancestry and consanguineous proximity towards the high chief” (Gomes and Monteiro, 1976-77, p. 330).

More recently, M. Eugenia Aubet [et al.] (1983, p. 136) also proposed, based on the excavations of Mesa de Setefilla, the existence, during the Middle Bronze Age, of a centralised power. S. Oliveira Jorge (1990, p. 123) supports a similar perspective. This author argues for the emergence of socio-political units sustained by a “highly centralised internal organisation”.

L. García Sanjuan (1993, p. 177), after a statistical study of the funeral data from the Atalaia and Provença necropolis, concluded that the archaeological evidence cannot support the hypothesis of social structures with coercive elites. This analysis, apart from not considering the diachrony of the sites, did not include the spatial dimension of the social hierarchy. The archaeological record from Atalaia and Provença must be reconsidered with respect to their degree of integration with the social whole (core-periphery relations type). The socio-economic models proposed by J. Barceló (1991, p. 20) and A. Monge Soares (1994, p. 179) are not very different from the L. García Sanjuan propositions. The latter author states that the Southwest Middle Bronze Age consists of independent nucleus with a heterogeneous social and economic structure, though they are a part of a complex system of relations responsible for the apparent unity suggested by the material culture; he also underlines the fact that the differences did not create conflicts between groups. A. Monge Soares states that between the Chalcolithic and the Final Bronze Age there is a setback stage "with scattered populations, living from agriculture and in temporary camps". The social model supported by those authors would be as far as we are concerned, adequate in the crisis context of the Initial Bronze Age.

For the Southwest Middle Bronze Age, having as a starting point the global analysis of the archaeological record, we support, like other authors (Jorge, 1990; Gomes, 1994), the hypothesis of the emergence of a social organisation of a chiefdom type, whose complexity increased during the Final Bronze Age. The territories would be structured by a centralised power. The stelae of Alentejo type, characteristic of the Middle Bronze Age II, are one of the most expressive testimonies of social hierarchy. The stelae distribution pattern shows a space polarised by areas of greater agricultural potential⁴ and mineral wealth.

The Final Bronze Age and social complexity

When, in 1978, we identified and studied the Final Bronze Age settlement of Cerradinha⁵, located on the south-west Portuguese coast we posed questions about the survival of the recent phase of the Southwest Bronze Age until the beginning of the Iron Age (800/700 BC), as supported by Schubart. The survey of the area showed that Cerradinha was not an isolated case. Other open settlements of the Final Bronze Age, still unreported, were identified in the Santo André area, implying an important demographic growth then. There are also Final Bronze Age remains in the base of the stratigraphical sequence of Miróbriga (Santiago do Cacém). The idea of a growing population density in the area, during the Final Bronze Age, is also supported by pollen analyses that have been made on the north Alentejo coast (Mateus and Queiroz, 1996)⁶.

The material culture of Cerradinha shows an artefact matrix inherited from the Middle Bronze Age II (with clear similarities to that of the settlement of Quitéria-Sines, for example) with innovations in ceramic assemblage (Boquique and burnished decorations, diversity of carinated shapes) and in metallurgy, the introduction of bronze knowledge (crucibles with slag of copper-tin alloy).

In view of the available data it seems possible to argue for continuity concerning the settlement pattern and the material culture between the Middle and the Final Bronze Age, although in the latter phase important technological improvements linked with bronze metallurgy and with new exchange network patterns took place. Even the homesteads (for example the site of Neves II-Castro Verde) scattered throughout the countryside and appearing to be economically self sufficient would be linked with larger economic and socio-cultural networks, receiving, over time, information and goods.

The absence of cultural discontinuities during the transition from the Middle to the Final Bronze Age is especially evident in the settlement of Trastejón (Aracena Mountain - Huelva). In this settlement, the ceramic assemblage of the Final Bronze Age still retains features from the preceding phase. The agricultural and pastoral economy (with arsenical copper metallurgy) of the Middle Bronze Age, became, nevertheless, reorientated to craft specialisation in bronze metallurgy (great amounts of slag, smelting droplets, crucibles) in the Final Bronze Age. Thus, metallurgy developed on a large scale, directed towards a supra-local market (Hurtado and García Sanjuan, 1993).

In the South of Portugal, large fortified settlements provided Final Bronze Age materials (Parreira and Soares, 1980; Soares, 1986), from the surface and from some restricted archaeological excavations (Passo Alto, for instance). They are usually located in areas of high agricultural potential (clays of Beja) and areas of rich mineral resources to which we already have referred. Also an important locational factor seems to have been proximity to and accessibility to the Guadiana river – the Mediterranean/Atlantic path alternative to that of the dangerous route north to Cape St. Vincent.

The hillforts, with several wall lines, such as the one of Ratinhos (Moura), clearly document the hierarchy of the settlement. In those central places – where one can hypothesise that elites lived – would be located control of the manufacture of bronze objects and management of the long distance trade networks.

At the other end of the settlement hierarchy (peripheral zone of a economic system) we can place open settlements, homesteads (e.g. the sites of Cerradinha, Pontes de Marchil⁷, Neves II).

Observing the area of Santo André on the Alentejo littoral, the hierarchy of the settlement can be read in the relationship between the open settlements (without stone structures) of Cerradinha, Casa Nova, etc, and the hill-top settlement, probably fortified, of Miróbriga.

The intensification of the agro-pastoral economy continued in the late Bronze Age through the exploitation of olive-trees and probably vineyards. Some authors (Ruiz-Gálvez, 1994) have emphasised the importance of the *Leguminosae*, especially the *Vicia faba* (documented at Trastejón, for example) as a regenerator of soil fertility. We think that to the all these factors related to intensification of production must be added the reorganisation of labour made possible by the existence of a coercive centralised power.

The most dynamic economic sector, with strong ability to create social complexity, seems to have been bronze metallurgy and the associated trade networks of raw materials and manufactured products. They crossed the Europe, from the North Atlantic to the Eastern Mediterranean. This exchange network has been named by Coffyn and Sion (1993) a *Bronze Common Market* and appeared with the emergence of territorial units ruled by *princes controlling the flows of metal*. It is important to remember the richness of metallic arms in the Huelva wreck that occurred around 900 BC.⁸

One of the more impressive and synthetic material expressions of the ideological structure and social organisation of the Final Bronze Age consists of the stelae of Extremadura type. The more ancient form, found in the Cáceres-Badajoz area, with an engraved V-notched shield, spear, sword and without human figures, may be dated to the XII century (Gomes, 1992, p. 115). They became more complex, adding to the initial features engraved human figures and other objects. These stelae have been interpreted as evocative records of warriors, shown with their arms and with elements indicating wealth: for instance, the stela of Ervidel II has a central male human figure, with spear and sword, surrounded by engravings of a brooch, tweezers, a mirror, a comb, a dog; below it, there is a V-notched shield

engraved and, in the base of the composition, two reclining human figures. This stela was found close to the cemetery of Herdade do Pomar. In summary, the stelae of Extremadura type seem to document the institutionalisation of coercive power on the hands of strong chiefs, consumers of luxury objects. These standardised prestige items, with high added-value and displaying social differentiation, support the idea of the development of important economies of non-essential production.

The open character of the Final Bronze Age societies and the importance of the long distance exchanges can also be seen in the Extremadura stelae: Atlantic influences (V-notched shields, girded swords), continental elements (helmets) and Mediterranean features (brooches, mirrors, combs, chariots) (Coffyn, 1985; Gomes, 1992).

Finally, the geographical distribution of the Extremadura stelae compared with the Alentejo stelae shows a displacement of the main centre of development (Alentejo) of the Middle SW Bronze Age towards lower Spanish Extremadura. The stela of the Extremadura type more distant from the initial focus was found at Salen (Vaucluse), in a funerary context (incineration) dating from the middle of the X century BC (Coffyn and Sion, 1993, p. 292).

Thus, the Southwest Final Bronze Age, from 1200/1100 to 700 BC, marked technologically by the widespread diffusion of the bronze metallurgy, corresponds to the full development of the social and economic model that emerged in the Initial Bronze Age.

The late Bronze Age societies, according to the available empirical data, were organised into large territorial units (Fig. 3), into which the communities would be integrated through core-periphery relations. Economic and social hierarchies have, thus, a spatial dimension. In the open and plain settlements, with huts made in vegetable materials, scattered over the countryside, equality seems to rule social relations. In fact, the archaeological record of sites such as Cerradinha, Neves II or Pontes de Marchil, by hypothesis exporters of surplus to the centre of the system, does not display any intra-site features of social hierarchy. At the opposite end of the settlement system there are the large fortified settlements such as Ratinhos, Mangancha and Outeiro do Circo, in which central functions were located and where probably top-rank groups lived. These elites, to which we can associate arms and other manufactured objects in bronze, would have also developed the taste for luxury artefacts whose circulation would increase exchange with distant areas and would feed the exercise of the spectacle of power. Elites would be concerned with tributes from agricultural production of peasant communities, in other words, labour control, as well as the management of trade networks were the main sources of power. In this context, the display of ritual knowledge and the possession of prestige goods was crucial to demarcate the social status of elites inside their groups and to define them in relation to the exterior. The production of non-utilitarian items stimulated craft specialisation and provided favourable conditions for growth of social complexity. Indeed, they could act as important means of elites' social manipulation within their territories and supported exchange flows with outside groups. The monopoly of contacts with the exterior (Fig. 3) was an important source of power that could be useful to maintain the social order. At the very end of the Southwest Final Bronze Age, social complexity attained forms of proto-state organisation.

The socio-political model proposed has as yet a fragmentary empirical basis. The funeral data, for example, is almost absent. The tomb of Roça do Casal do Meio is a rare example from the northern limit of the Southwest region. It is a chambered monument for a high ranked individual visible in the prestige grave goods: a bronze brooch and tweezers, an ivory comb, burnished pottery.

In Southern Portugal, with some caution, it is possible to distinguish two subphases in the Final Bronze Age (Gomes, 1992). The oldest one (XII-X centuries BC) is clearly repre-

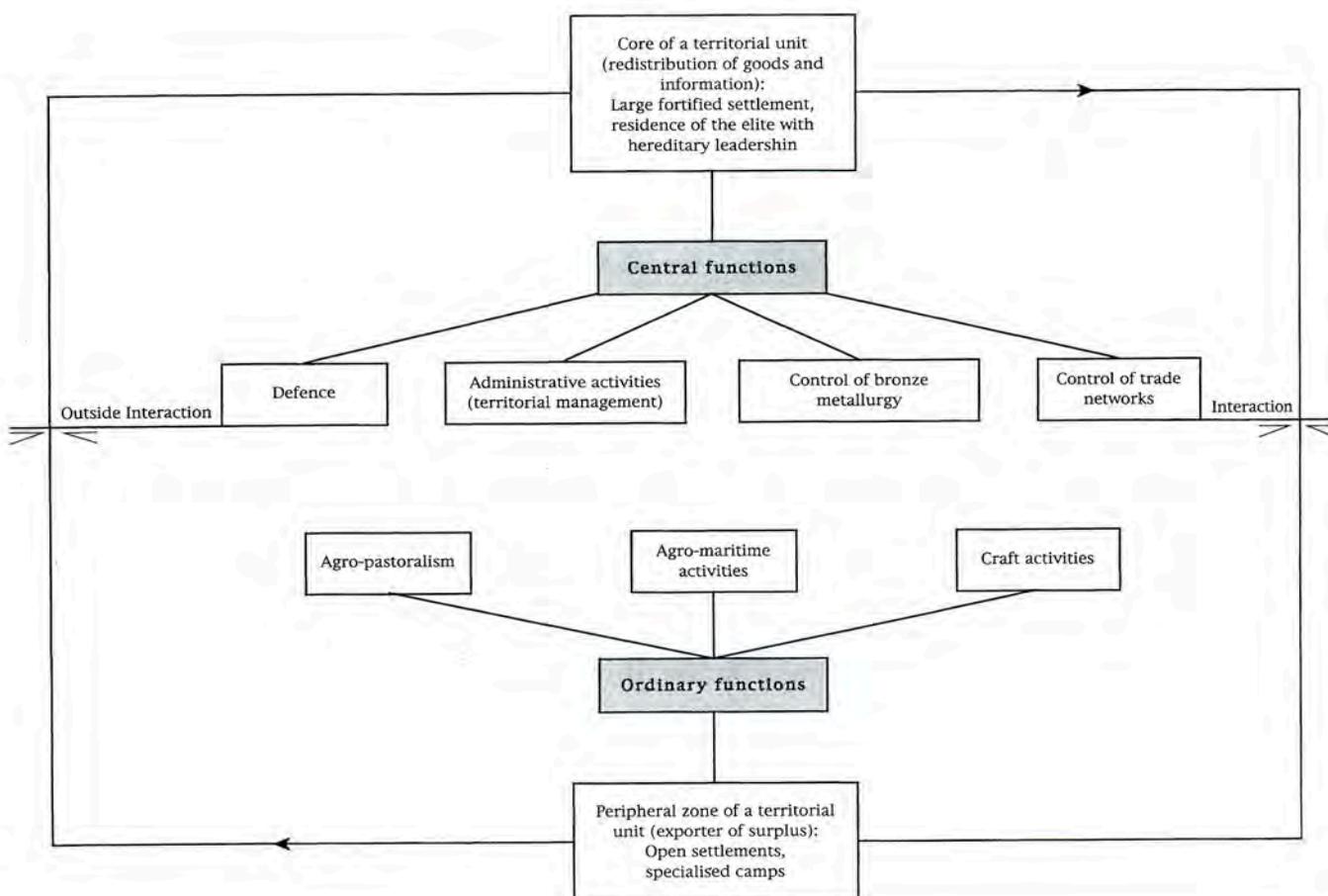


FIG. 2 – Schematic model of the process of economic and social change from the Late Neolithic-Chalcolithic transition to the Initial Bronze Age, in the south-west of Iberia.

sented at the site of Pontes de Marchil, dating from 2970+50 BP (ICEN 648); calibrated to one sigma = 1262-1115 cal BC, and to two sigma = 1377-1009 BC. According to the age ranges derived from intercepts it is acceptable to date the site back to the early XII century BC. In this subphase the peninsular Southwest would be polarised into the Spanish lower Extremadura and the circulation of influences, Atlantic and Continental. During the second subphase (X-VIII centuries BC) relations with the Mediterranean basin intensified, until the creation of the Western Phoenician colonies⁹. Then, the peninsular Southwest would be polarised into the Western Andalusia (the legendary Kingdom of Tartessos) whose development was due to the wealth of its mineral resources (silver, copper and gold) and its mobility increased by the Mediterranean - Atlantic trade. In Southern Portugal one can observe a relative displacement of the main centres of development from the interior to the coast: Castro Marim, Alcácer do Sal, Setúbal, Almaraz are some examples of gateway centres of that trade network, founded in the Final Bronze Age and which expanded during the early Iron Age.

- ⁵ Note the coincidence between the distribution of Chalcolithic settlements and fertile soil plots (type A) and the proximity of contemporary settlements such as Monte da Tumba and Castelos do Torrão (ca 1 Km).
- ⁶ The Ferradeira Group develops on the Southern Alentejo and Algarve regions. It seems to have been, at least partially, contemporary with the later Beaker phase.
- ⁷ At the necropolis of the Sines region, the average of grave sizes are: 1,20/1,00m X 0,55/0,50m X 0,60m.
- ⁸ About 50% of the stelae of the Alentejo type are located in the Beja region; the panoply type with engraved arms, other metallic artefacts and a probable ritual object with anchor shape, is found in the same area.
- ⁹ The Cerradinha settlement is an open site, with huts made in vegetable materials, located on the eastern river-side of Santo André lagoon and Cascalheira rivulet mouth. This area has a great agricultural and pastoral potential and good accessibility to marine and lagoon resources. The inhabitants of Cerradinha developed a diversified economy: agriculture (cereals would be cultivated in the surrounding lands; flint denticulates as elements of sickles, elements of mill-stone and large vessels for provisions appeared in the archaeological excavations), cattle breeding (presence of ceramic cheese-strainers), probably fishing and shellfish gathering and bronze casting activities (e.g. copper-tin alloy and crucibles) (Silva and Soares, 1978).
- ¹⁰ Between 2820 BP and ca 2650 BP the anthropogenic impact had reached almost all ecosystems of the region. This extensive human intervention had caused an extensive clearance of oak forests and maquis of *Erica scoparia*, to create agricultural fields and pastures that would be extended to the borders of the damp lowland (heavy and fertile soils). The deep valley forest of *Alnus* and *Salix* had also been cleared at this phase. It is possible that the *Pinus pinna*, as well as the wild olive, were saved and, even that *Olea* was cultivated incipiently.
- ¹¹ The settlement of Pontes de Marchil, with domestic structures such as fire-places and dump pits, is located close to the lagoon area of Faro (Ria de Faro) and had an economy partly based upon shellfish gathering and fishing.
- ¹² The ¹⁴C dating gave results between 2870 and 2800 ± 70 BP; calibrated, we reach a period of: 1225-825 BC (Coffyn and Sion, 1993).
- ¹³ In the Portuguese Southwest coast, there are several sites that show the beginnings of Phoenician influence: either settlements of Bronze Age foundation such as Alcácer do Sal, Santa Maria hill in Setúbal and Almaraz (Almada) which established trade relations with Phoenician merchants, or sites of Phoenician foundation, at present represented by the unique case of the Abul factory (Mayet and Silva, 1994), in the Sado valley. This settlement repeats architectural models of Eastern Mediterranean origin. They are a valid indicator of Phoenician Atlantic navigation, which some authors still doubt (Burgess, 1990).

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