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ORIGINAL PAPER

Producing Inequalities: Regional Sequences in Later Prehistoric Southern Spain

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Abstract This paper presents regional sequences of production, consumption and social relations in southern Spain from the beginning of the Neolithic to the Early Bronze Age (c. 5600–1550 BC). The regions studied are southeast Spain, Valencia, the southern Meseta and central/western Andalucía. The details presented for each region and period vary in quality but show how much our knowledge of the archaeological record of southern Spain has changed during the last four decades. Among the surprises are the rapidity of agricultural adoption, the emergence of regional centres of aggregated population in enclosed/fortified settlements of up to 400 hectares in the fourth and third millennia BC, the use of copper objects as instruments of production, rather than as items with a purely symbolic or 'prestige' value, large-scale copper production in western Andalucía in the third millennium BC (as opposed to the usual domestic production model), and the inference of societies based on relations of class.

Keywords Southern spain · Later prehistory · Production · Consumption · Social relations · Inequalities

Introduction

The study of Mediterranean prehistory from the adoption of agriculture has often been polarised between a focus on either large-scale or local political, social and economic relations. The emphasis on the large-scale owes much to the view of the Mediterranean basin as a geographical and cultural entity (e.g. Braudel 1972; Horden and Purcell 2000; Blake and Knapp 2005), as well as to the prioritisation of the eastern over the western basins in processes of social and political change, from diffusionism to core-periphery theory. The emphasis on local, regional sequences stems from the history of archaeological fieldwork and research (for example, the reaction to diffusionist approaches under the

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impact of radiocarbon dating) and the cultural contexts in which this research has been pursued. At the same time, the focus on regional sequences should not preclude their situation within larger-scale processes (for example, the adoption of plant and animal domesticates from the East to the West Mediterranean).

Whatever the scale of study, the main concern has been with the emergence of societies with greater 'complexity', inequalities, stratification and—the ultimate prize—the early state and civilisation. Key regions include Crete, Thessaly and the Argolid in the Aegean, Etruria in central Italy, and southeast Spain in the Iberian Peninsula. In contrast to these sequences of change across important social and political thresholds, many other regions have been considered to be static, traditional and isolated (see discussion in Horden and Purcell 2000; Chapman 2005). This survivalist assumption effectively marginalises large areas of the West Mediterranean in the study of social, political and economic change, leaving local societies at the 'tribal' or 'egalitarian' stage, with a few 'chiefdoms' and, for some (Mathers and Stoddart 1994, p. 16), no social stratification. As a result, we have a predetermined past of the West Mediterranean, with little attention given to local historical sequences of equal and unequal social relations, of production and reproduction, of the organisation and division of labour, and of tensions and conflicts between sectional and communal interests. Instead of assuming innately 'conservative' or 'static' societies, we should be studying change in historically determined social relations and social practices.

The later prehistoric societies of the far West Mediterranean have been known to archaeology since the late nineteenth century. Within the Iberian Peninsula, the area of southeast Spain was the subject of detailed fieldwork on its later prehistoric societies from the 1880s (Siret and Siret 1887). The richness and excellent preservation of its archaeological record, both of settlements and burials, and the distinctive wealth of its Bronze Age burials, combined to make it a key region in the Peninsula and more widely in Europe and the Mediterranean for the study of change, albeit as the outcome of diffusion processes from the East Mediterranean (Chapman 1990, pp. 19–30). Since the 1970s, both processual and Marxist approaches have emphasised indigenous processes of change in southeast Spain, while the growth of archaeological survey and excavation (both systematic and rescue), coupled with the expansion of universities and the devolution of funding and responsibilities for the heritage to regional governments, has led to a much better understanding of later prehistoric sequences of change in other parts of Spain. For example, our knowledge of the expansion of Neolithic settlement across large areas of the central Meseta tablelands has changed dramatically in the last decade: topics of current debate include the dating and extent of colonisation (see also the most recent evidence from the Balearic islands—Alcover 2008), the nature of early agricultural production, interaction with hunter-gatherer populations (where they existed), the degree of sedentism, the nature and level of human impact on the environment, and the evidence for interaction, specialised production and the division of labour (e.g. Zapata et al. 2004; Bernabeu and Orozco Köhler 1999; Arias et al. 2005). Sites with concentric enclosures of various combinations of ditches and stone walls, thought some forty years ago to be restricted in the main to southeast Spain and southern Portugal, are now known to extend across the whole southern and western parts of the peninsula in the late fourth and third millennia BC (e.g. Oliveira Jorge 1994; Díaz-del-Río 2004a; Chapman 2003, pp. 168–173). In La Mancha, a continuous prehistoric occupation sequence from at least the third millennium BC replaces the vacuum that existed before the 1970s. Interpretive approaches to this data vary from cultural history to Marxism (for some examples, see Díaz-del-Río and García Sanjuán 2006; for examples of Marxism, see Castro et al. 1998a; Lull 2005, 2007) and from local to regional and inter-regional scales.

In the context of this growth in research, the comparison of regional sequences in Spain from the beginnings of agriculture to what are often referred to as the 'more complex' societies of the Early Bronze Age (roughly c. 5600–1550 BC) is now a plausible and desirable objective. For the purposes of this paper I have selected four areas for study: southeast Spain, Valencia, the southern Meseta and central and western Andalucía (Fig. 1). There is a degree of artificiality, both geographically and culturally, in the definition of these regions: they are of different sizes (for example, as defined here, the southern Meseta area is over twice the size of southeast Spain), and the intensity and strategies of research employed in them have varied. Their selection also excludes their comparison, and the evidence for their interaction, with other regions of the peninsula: such a task would require a book-length treatment. Instead we can compare the regional sequence of southeast Spain with contiguous regions of the peninsula. This is an important first stage in giving a (pre)history to regions which have not been considered as 'dynamic' as southeast Spain.

Rather than focus on these regions as examples of 'tribal'/'chiefdom' societies, or different 'levels of complexity', I have found it more instructive to take an historical materialist approach and examine the evidence for production and its organisation as the basis for social life. In other words the material conditions of life are taken as central to the study of social relations. Less emphasis is placed on the kinds of environmental constraints that played a large part in earlier arguments on 'emerging complexity in Spain and Portugal' (e.g. Chapman 1990). There is also less emphasis on shared styles and symbolism of social

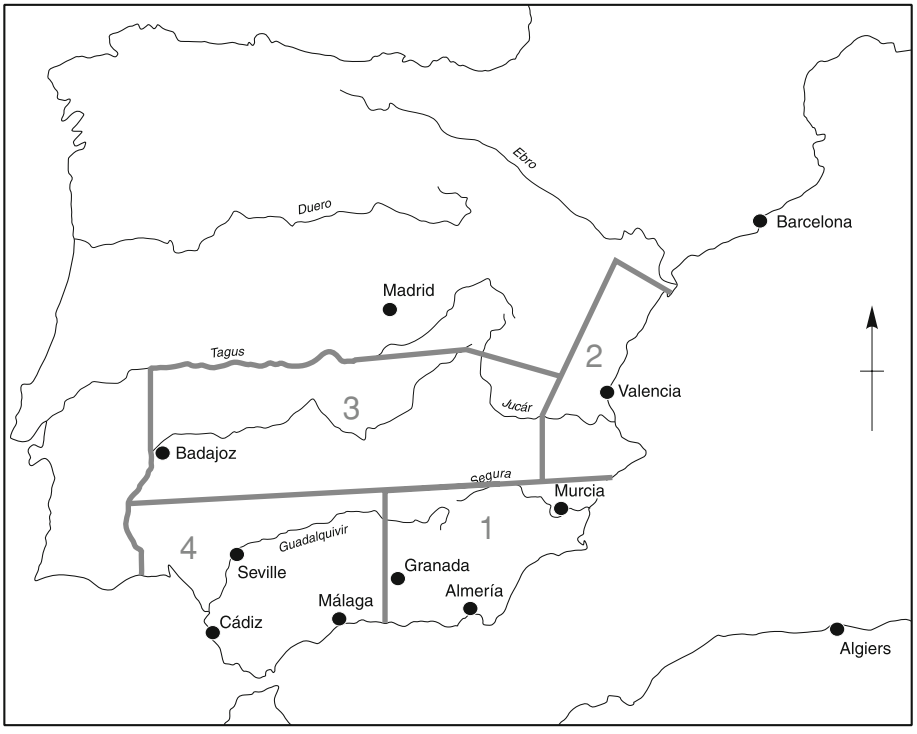

Fig. 1 Map of Iberia showing four study regions: 1, Southeast Spain; 2, Valencia; 3, Southern Meseta; 4, Central and Western Andalucía

objects such as pottery, art and idols, and what they might signify for regional interaction, ideology and social identity.

I have divided the coverage of each region into four sections: the definition of the region, its archaeological units and chronology; and the evidence for, and interpretation of, production, consumption and social relations in each of three periods: c. 5600–3200 BC, c. 3200–2250 BC and c. 2250–1550 BC. These are the dates used for the traditional, technologically-based periods of the Neolithic, Copper Age and Early Bronze Age in southeast Spain and I have used them for comparative purposes in all the areas under study.

Southeast Spain

Region, Archaeological Units and Chronologies

There are two definitions of southeast Spain (Fig. 2): more narrowly it refers to the coastal lowlands of the modern provinces of Almería and Murcia, which are notable for their semi-arid climates, low and unpredictable rainfall (less than 300 mm annual rainfall in the lowlands), and marked desertification, while more broadly it also includes the sierras and intermontane basins of eastern Granada, which rise to nearly 3500 m and 800–900 m respectively, with a consequent increase in rainfall but still many areas that suffer from marked erosion (Chapman 1990, pp. 98–105). Both areas are distinguished by their topographic diversity. The broader definition is preferred here, given the cultural similarities between lowlands and uplands, especially in the Copper Age and the Early Bronze Age, although it should be noted that similarities also exist between eastern and western Granada, taking us from eastern into central and western Andalucía.

Fieldwork during the last three decades has consisted of stratigraphic excavations on major sites such as Los Castillejos, El Malagón, Cerro de la Encina, Los Millares, Almizaraque, Fuente Alamo and Gatas (for references, see Chapman 2003), along with smaller-scale rescue excavations and large-scale survey projects. Publications of the excavations consist mainly of interim reports (although see Castro et al. 1999a; Schubart et al. 2001), while reports on cultural materials and economic and ecological data appear separately. Interpretive models published since the mid-1970s range from ecological and functionalist to different shades and strengths of Marxism (for a review of early models, see Chapman 1990, pp. 141–149; for more recent models, see Camara and Molina 2006; for the most coherent Marxist approach, see for example Castro et al. 1998a).

Neolithic occupation begins in the interior uplands of southeast Spain at c. 5500 BC. Here the Neolithic is divided into Early (c. 5500–4900 BC), Middle (4900–4400 BC), Late (4400–3800 BC) and Final (3800–3300 BC) periods on the basis of stratigraphies at Los Castillejos and Cariguela de Piñar (Cámara et al. 2005), and this chronology is extended into the lowlands, where the Early phase is missing, as are stratified sites. Radiocarbon dating places the duration of the Copper Age, or the culture/group of Los Millares, from c. 3200/3100 BC to c. 2250 BC (for debates on the phasing of Los Millares, see Castro et al. 1996; Molina et al. 2004). The Early Bronze Age is called the Argaric culture/group and is divided into three phases: c. 2250–2000 BC; 2000–1750 BC; and 1750–1550 BC. The Argaric has the finest-grained chronology in southeast Spain, given extensive radiocarbon dating on stratified domestic and funerary deposits in settlements such as Gatas and Fuente Alamo. Sites of the first phase of the Argaric are restricted to the lowlands, but the second phase marks an expansion into the uplands of Granada and the upper Guadalquivir valley.

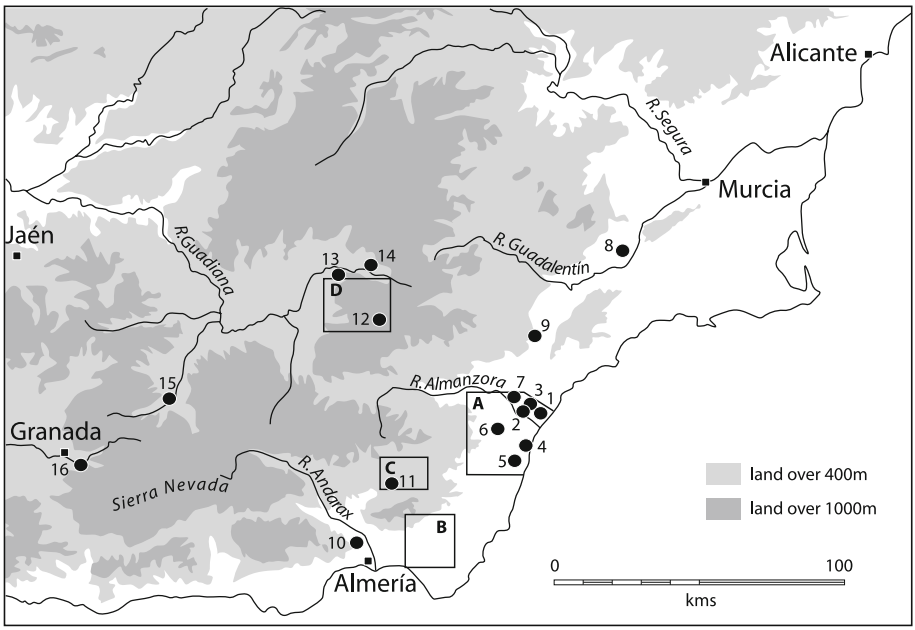

Fig. 2 Map of south-east Spain showing main areas and sites mentioned in text. Areas: A = Vera Basin, B = Campo de Níjar, C = Tabernas basin, D = Cúllar-Chirivel basin. Sites: 1, Almizaraque; 2, Cerro Virtud; 3, Las Palas-Era; 4, Cabecicos Negros; 5, Gatas; 6, El Argar; 7, Fuente Alamo; 8, La Bastida de Totana; 9, Rincón de Almendricos; 10, Los Millares; 11, Terrera Ventura; 12, El Malagón; 13, Cerro de la Virgen; 14, La Venta; 15, Cuesta del Negro; 16, Cerro de la Encina

Production, Consumption and Social Relations: c. 5600–3200 BC

Survey projects in both the uplands (e.g. Cúllar-Chirivel: Moreno et al. 1991–1992) and lowlands (e.g. Tabernas: Alcaraz et al. 1995; Vera Basin/Almanzora valley: Cámalich and Martín Socas 1999) have shown the low density of Neolithic sites (Román Díaz and Martínez Padilla 1998: Fig. 1), c. 1 site per 165 km^2, including tombs and caves as well as open-air sites (Fig. 3). In the Vera Basin, small sites (<1 ha) were located either in the lower parts of river valleys, close to the sea, where there was potential for both dry and wet farming, or over 5 km inland in the foothills of the mountains (up to 150 m altitude), where access to dry farmland was combined with the exploitation of the sierras (Castro et al. 1994, pp. 94–96). The ephemeral and largely perishable nature of structures from open-air sites such as Cuartillas (Fernández-Miranda et al. 1993) and Almizaraque (e.g. Delibes et al. 1996), coupled with the small size and low density of Neolithic sites as a whole has supported the inference of non-sedentary populations (e.g. Molina 1983; Fernández-Miranda et al. 1993; Castro et al. 1994). Opinions differ on the dates at which greater sedentism appeared. It has been proposed that greater sedentism in the Vera basin occurred at the transition to the Copper Age, c. 3200 BC (Castro et al. 1998a). Evidence for earlier dating is argued for Los Castillejos: here a model of mobility between caves (bases for livestock grazing) and open-air sites (for cereal agriculture) is proposed for the Middle Neolithic, with greater storage (implying increased agricultural production and greater sedentism) in the Later Neolithic, although the first standing structures do not appear until the Final Neolithic, when house mice are also known (Sánchez Romero 2000). This model

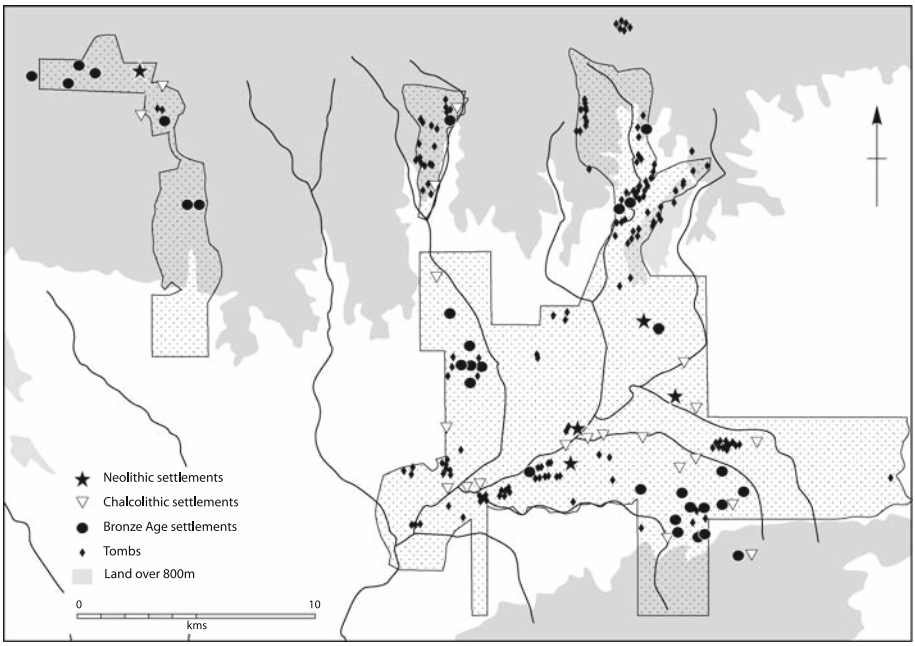

Fig. 3 Tabernas regional survey showing later prehistoric settlements and tombs (after Maldonado et al. 1991–92, Fig. 1)

has its weaknesses, in that neither storage nor standing structures need necessarily be indicators of sedentism (Kelly 1992; Wills 1998).

Direct evidence of agricultural production based on systematic sampling is rare. Domesticated plants and animals are known from sites such as Los Castillejos (Cámara et al. 2005) and Cuartillas (Fernández-Miranda et al. 1993, pp. 82–83). Pits and semi-subterranean structures are known from a number of sites from the Guadalentín valley south to the Vera Basin. Re-examination of materials from excavations over a century ago at Las Palas-Era in the lower Almanzora valley confirms the pits' dating here to the fifth millennium BC (Román Díaz and Maicas 2002). As at other sites, there is evidence of storage vessels placed inside these pits, the capacity of which suggests that they were used for domestic consumption (Román Díaz and Maicas 2002, p. 59). There is no evidence from such structures, or from plant and animal remains, or from pollen and charcoal analyses, to support the inference of any horizon of intensified agricultural production during the Neolithic, or of any inequalities other than those of age and gender in access to such production. There are insufficient areal plans of settlements to show precise relationships between storage pits and habitation structures, although it is usually assumed that the majority of the pits were located outside such structures (Román Díaz 1999, p. 202).

There are few studies of material production, and excavations are of insufficient scale to provide contextual data on the processes and social contexts of production. Exploitation of mainly local sources is documented for stone tool production (e.g. Carrión and Gómez 1983), although the flint used to make blade tools at Cabecicos Negros, in the Vera basin, is argued to have come from the Vélez region of upland Almería, some 50 km to the north (Cámalich and Martín Socas 1999, p. 244). Logistical mobility could account for sources within 10 km of sites, but exchange of raw materials or finished products is the preferred

model for blade tools and for the axes and bracelets of southeastern lithologies found up to 350 km away in Valencia (Harrison and Orozco-Köhler 2001, p. 118). Exploitation of local clay and temper sources is proposed for pottery production at Cuartillas (Fernández-Miranda et al. 1993, p. 64), and on Granadan sites (Navarrete et al. 1991), while the copper produced, so far in isolation, at Cerro Virtud in the fifth millennium BC (Ruiz Taboada and Montero 1999) is also argued to derive from immediately local sources.

The possibility of production for exchange has also been raised for shell beads and stone bracelets from the site of Cabecicos Negros in the Vera basin (Goñi Quintero et al. 1999), where the different stages of their production have been studied. It is proposed that the scale of such production exceeded normal domestic requirements, and that the surplus was used for exchange among semi-mobile populations. In the absence of calculations of these 'normal domestic requirements' (which in themselves do not preclude exchange), it is difficult to evaluate this hypothesis. The time investment for the production of beads and bracelets, as well as the skill involved, may also suggest that production was limited to certain individuals.

Evidence from the disposal of the dead is still of limited quality in itself and as an indicator of inequalities. At Cerro Virtud a burial pit contained a minimum of 11 individuals, all but one being adults (Montero et al. 1999). The oldest male, over 50 years of age, was clearly differentiated from the remaining burials by the presence of five pots, one of which was the largest vessel found in the pit. Dating by C14 is to the first half of the fifth millennium BC. More extensive excavations are required to assess the degree of exclusion from, and the criteria for inclusion in, such disposal rites.

Communal burials in extra-mural small stone cists and circular stone tombs, or 'round graves', 3–9 m^2 in size, mark the appearance in the lowlands of the first megalithic tombs (Leisner and Leisner 1943). There have been no modern excavations of well-preserved tombs and dating has been by tomb and artefact typologies (e.g. Acosta and Cruz-Anon 1981). Re-examination of the records and materials from the excavations over a century ago highlights the problems in the interpretation of these tombs, but inclusion initially appears to have been exclusive: in the Almanzora valley/Vera basin, the majority of the tombs contained one individual, then 2–4 individuals, and only in 15% of the tombs were there more than 10 individuals (Maicas 2005, pp. 771–772). Recent TL dates from tombs in the upper Almanzora valley (Román Díaz et al. 2005) suggest dates in the second half of the fourth millennium BC, continuing into the third millennium BC (as expected with the presence of Copper Age grave goods in larger round graves). Such a dating is supported by U-Th and Ra-Th dates on human remains from two tombs at Zurgena in the middle part of the same valley (Black and Chapman, forthcoming) and agrees with dates proposed for the megalithic tombs at Los Castillejos in the uplands (Cámara et al. 2005). Surveys show the existence of small cemeteries of such tombs within a few hundred meters of settlements.

Production, Consumption and Social Relations: c. 3200–2250 BC

The number of sites known through survey and excavation increases markedly during the late fourth and third millennia BC. In the Tabernas basin (Maldonado et al. 1991–1992; Alcaraz et al. 1995) these are overwhelmingly megalithic tombs (Fig. 3), for which precise dates are unknown, and a handful of settlements, of which the only excavated example is Terrera Ventura (Gusi and Olaria 1991). More settlement sites are known from the upland basin of Cúllar-Chirivel, with stratigraphic excavation concentrated on the 4 ha settlement of El Malagón (de la Torre and Sáez 1986), and again there is a lack of known sites before the Final Neolithic. In the Campo de Níjar, agricultural settlement appears to begin in the

Copper Age (Haro 2006). In the Vera Basin there is an overall increase in site numbers (Delibes et al. 1996), with 90% of Copper Age sites being newly founded (Castro et al. 1994), and the population density has been calculated as about one person per km^2 (Castro et al. 1998b). The majority of settlement sites are still less than 1 hectare in size, but Las Pilas reaches at least 5 ha. Evidence of this increased size range, coupled with greater depth of occupation deposits, increased labour investment in domestic structures (which have stone foundations and timber superstructures), and the investment of surplus labour in the construction of enclosing dry stone walls and larger, extra-mural megalithic tombs (Chapman 1990, pp. 69–83) supports the inference of increased sedentism. In the Guadalentín valley, from Lorca to Murcia, the frequency of open-air settlements increases during the late fourth and third millennia BC in areas of good agricultural potential: fortified sites (e.g. Campico de Lébor, Bajil) are associated with metal objects, beakers and the disposal of the dead in extra-mural megalithic tombs, while small, unenclosed settlements (e.g. La Salud) are characterised by their lack of these features, suggesting a degree of interdependence between the two site types (Eiroa 2005).

Direct evidence of agricultural production is of better quality than in the Neolithic, with cereals, legumes and wild plants (e.g. Buxó 1997; Rovira 2000) and predominantly domesticated animals (especially bovids and ovicaprids) (e.g. Peters and von den Driesch 1990; Navas et al. 2006) known from modern excavations. In all the surveyed areas there is evidence for site location close to cultivable land and pastures (whether in lowlands or seasonally used uplands). These site locations, coupled with evidence for environmental change (e.g. Rodríguez Ariza 2000; Chapman 2003, pp. 151–154) and our knowledge of the water and nutritional requirements of the exploited species of plants and animals, suggest that agricultural production was not as 'risky' as has been argued, nor did it require capital investment to reduce such risks in a so-called 'marginal' environment. A regime of dry farming with fallow periods and stubble grazing, coupled with legume cultivation on naturally humid soils along watercourses in valley bottoms (for discussion see Chapman 2003, pp. 123, 154–158) is perfectly feasible.

Instruments of production are seen in grinding stones, stone axes and adzes, flint artefacts and evidence for storage in pits and pots. Pits can occur in great numbers (e.g. over 300 were found at El Gárcel: Gossé 1941) and in some cases have evidence for the storage of grain (e.g. pit 1 at Campos, with its assemblage of threshed cereals, 98% of which were barley: Cámalich and Martín Socas 1999, pp. 296). The presence of examples with impermeable linings may indicate the use of some pits for water storage. The exclusive use for pits of areas outside structures, as at Almizaraque and Ciavieja, has led to hypotheses on community-wide access to, and control of, openly stored grain in the Final Neolithic/Early Copper Age, then giving way to hidden stores under household control (Chapman 1990, p. 157; Micó 1993). There are also some pits inside structures (assuming that their stratigraphic relationship is reliable). As yet there have been no studies of differences in storage capacities or instruments of production between houses.

As in the Neolithic, the instruments of production were predominantly of local origin. This is particularly true of the lithic materials used for grinding stones, building materials, axes and adzes, for which Risch (1995; 2008) argues that only 10–20% were of non-local origin and that exploitation was of secondary sources in local riverbeds. Andesite was found in sites over 100 km from its sources. The predominant use of local sources of hard rock is also proposed for Murcia (Barrera et al. 1987) and Granada (Carrión and Gómez 1983), although the raw materials or products could be exchanged over distances of c. 100–200 km. In the Vera Basin there is evidence for exploitation of secondary flint nodules from riverbeds, and for the use of non-local flints for prismatic blade production (Cámalich

and Martín Socas 1999, pp. 244–245). The only primary source exploitation of flint excavated in southeast Spain was at La Venta, in the Cúllar-Chirivel basin, where twenty mines of up to 2–3 m depth have been found in an area without evidence of permanent occupation (Ramos 1998). While exploitation focussed on flake production, blade production is argued to have been centred on sites such as Los Castillejos, on the edge of the southeast, and circulated via exchange networks (Ramos 1997, p. 687). Small-scale, localised exploitation of copper is proposed on the basis of (a) the proximity of settlements to copper sources and (b) trace element analyses of artefacts and these sources (e.g. Montero 1993). No copper mines have yet been excavated and dated to the third or second millennia BC in this region. The majority of the copper artefacts (such as awls, axes, knives/daggers, saws and chisels) were instruments of production (see, for example the suggested use of awls for pressure-flaking flint arrowheads: Ramos 1998). A small number of analyses on pottery show the use of local and exotic (up to 50 km distant) sources (e.g. Cámalich and Martín Socas 1999, pp. 174–221).

Inferences about the division of labour have been made on the basis of evidence of production activities within Copper Age settlements. For example flint 'workshops', along with more generalised flint production, have been found on several sites, most notably in Fort 1 at Los Millares. Ramos (1998) proposes that domestic production was responsible for flint flakes, blades and sickle teeth, but that pressure-flaked arrowheads were the outcome of specialist, surplus production. Of course skilled production does not necessarily imply full-time specialisation and thereby exemption from basic productive activities, but it is good evidence in this case of the division of labour. In tandem with the flint working there is evidence of copper working on a number of settlements. It can be argued that this took place in peripheral areas of Los Millares because of the dangers of fire and arsenic poisoning, but at Almizaraque it appears to have been practised in all areas and at all periods of occupation (e.g. Delibes et al. 1989), suggesting that there was no major division of labour, unless at the level of the site as a whole. The on-site production of grinding stones resulted in tools that were of low standardisation, with the time investment related to the qualities of the different raw materials (of which andesite was the best: Risch 2008).

On the whole it is now argued that the onset of the third millennium BC marked no major capital investment in production (as proposed in the irrigation hypothesis of Gilman 1976, 1981) or substantial changes in the means of agricultural production. However, the nature and extent of the division of labour and of inequalities in access to production of all kinds are subjects of intense debate. Broadly speaking, interpretations are polarised between a competitive, kinship-based society and a class-based form of early state, the latter being reconstructed more widely across Andalucía (e.g. Nocete 2001). The critical evidence used in this debate derives from analysis of funerary remains, settlement size and location in the landscape, and evidence for production and consumption within individual settlements. Central to the debate is the excavation and survey work of the Los Millares project since the late 1970s.

The interpretation of a kinship-based society initially derived from funerary remains. This period was marked by an increased investment of surplus labour in the construction of larger and more elaborate communal tombs, grouped into extra-mural cemeteries of varying size. Differences in the labour used in tomb construction and in the consumption of material items (including exotics such as ostrich eggshell beads and ivory artefacts—both raw materials from North Africa), and shared symbolic motifs on symbol and Beaker pottery, as well as on small portable idols, principally at Los Millares, led Chapman (1981, 1990, pp. 178–195) to propose the existence of ranked kinship groups, with the

highest-ranked locating their dead closer to the settlement. Micó (1993) developed this argument to infer that the largest kinship groups were able to build the larger tombs and accumulate, through more extensive exchange networks, the greatest numbers of wealth items for consumption with the dead. Aranda and Sánchez (2005) have strengthened the identification of these higher-ranking tombs by the addition of further wealth or 'prestige' items. Although there is evidence, as cited above, for increased population during the Copper Age, site sizes suggest at best a two-level settlement hierarchy (Chapman 1990): there is a broad pattern across southeast Spain for sites to be 1 hectare or under, with a small number of sites up to 5–6 hectares (although the occupation traced beneath the modern town of Lorca could exceed this if it was continuous and occupied all at the same time: Fontenla et al. 2005). The presence of, and investment in, variable systems of enclosing dry-stone walls around these settlements, along with the presence of 'forts' in nearby prominent and strategic locations (Fig. 4), supports the inference of conflict (Aranda and Sánchez 2005), which appears to have intensified in the late Copper Age, as shown for example by destruction/burning levels at sites such as Campos, El Malagón, Cerro de la Virgen (Castro et al. 1998a) and Los Millares (Molina and Cámara 2005). Finally Ramos (1997, 1998, 2005) infers the existence of a tribal political economy in the Copper Age, with kinship based society giving way to a chiefdom by the later Copper Age. This is based on: (a) the exploitation and distribution of flint from La Venta; (b) the concentration of flint products in one large structure at El Malagón; and (c) his interpretation of the structural sequence at Los Millares and other sites. He also disputes the prevalence of warfare by pointing out the

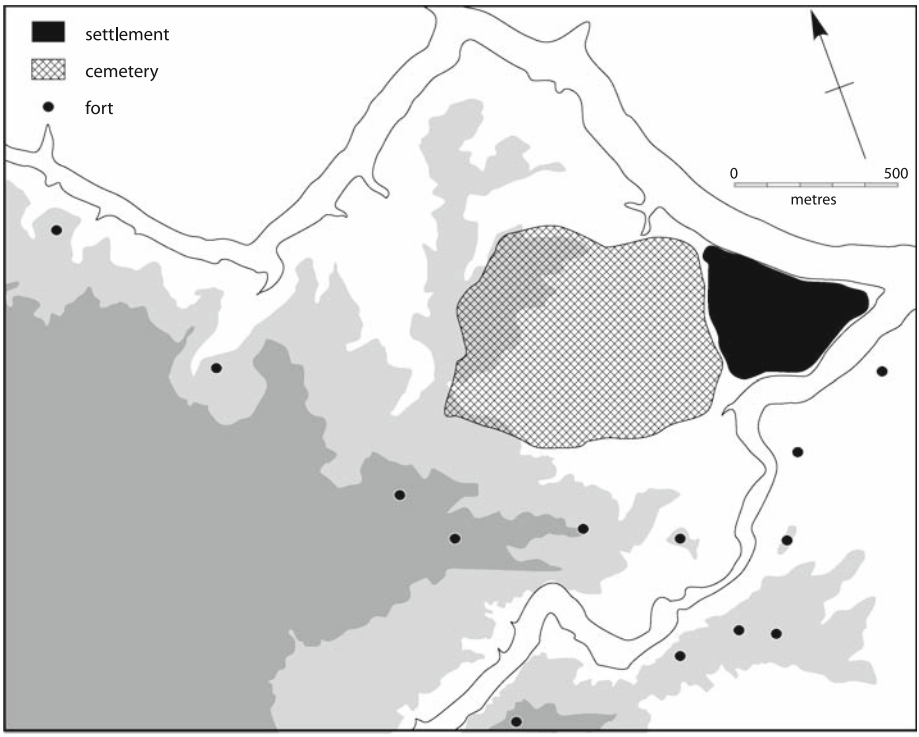

Fig. 4 Location of Los Millares settlement, cemetery and forts (after Molina and Cámara 2005, p. 32)

variation in form, structure, size and use of 'fortifications' around Copper Age settlements, although this tends to throw out the baby with the bathwater.

Members of the Los Millares project, which includes both site-specific excavations and regional surveys, have proposed a larger-scale model for social and political organisation in the third millennium BC. For example, Molina et al. (2004) argue that, from the beginning of the third millennium BC, social stratification is evident in access to property and the consumption of both animals and prestige objects, with the emergence of the centralised state controlling the circulation of prestige objects during the following 3–400 years. This political system, in which livestock were the means of production and used as tribute in a region with restricted arable land, controlled extensive territory but broke down from c. 2500–2250 BC, with the abandonment of Los Millares and the emergence of 'peripheral aristocracies' in the Vera Basin, which formed the basis of Early Bronze Age society in the southeast.

This model has been presented, partly or wholly, in several publications, but its concept of the centralised state is poorly articulated, with no detailed discussion of (a) how this concept of the state differs from that in use in the Anglo-American world, (b) how its key aspects such as class, property, exploitation and surplus are defined, and (c) how these aspects can be studied with archaeological data. Hypotheses are proposed on the dependence of regional elites on those in Los Millares and their entitlement to burial in the tombs of that cemetery; on the existence of political boundaries and political control through visual domination of the landscape; and on the control (by such domination and by the presence of 'forts') of routes by which livestock were taken to seasonal pastures (e.g. Maldonado et al. 1991–1992; Cámara 2001). Some key assumptions are insufficiently discussed (for example: the presence of restricted arable land; the link between visual and political control), while the bases for the periodisation of Los Millares are still largely unpublished or debatable (for instance, the C14 dating of the forts cannot yet be reliably placed before c. 2600 BC, raising doubts as to their use for controlling livestock and people as part of the emergence of this state society). The evidence for production of stone tools such as grinding stones (e.g. low standardisation), coupled with their distribution within settlements, suggests open access (even for the highly valued andesite) and non-centralised organisation (Risch 2008). Thus the existence of exploitation before the Bronze Age is unsubstantiated.

Production, Consumption and Social Relations: c. 2250–1550 BC

The Argaric group shows marked changes in settlements, settlement patterns, burials (now intramural) and artefacts, with radiocarbon dating supporting its expansion c. 2000 BC from the lowlands of the Vera Basin and the Guadalentín and Segura valleys to the southern lowlands and the uplands of Almería, eastern Granada and north to the upper Guadalquivir valley, an area of nearly 50,000 m^2 (Lull 1983; Castro et al. 1996; Lull et al. 2005). These changes took place without any evidence for change in population from the Copper Age (Kunter 1990). Copper Age settlements were abandoned or structurally remodelled, there was more population nucleation and greater preference exercised for naturally defensive locations. For example, in the Vera Basin there was a shift from the major Copper Age settlements and their circular houses to the artificially terraced, often intervisible, foothill settlements (e.g. Fuente Álamo, Gatas) with their rectilinear structures. While there were settlements in the plains and foothills in both periods, it appears that, with the notable exception of El Argar, in the middle of the basin, the peripheral, foothill settlements were now dominant. The very few excavations of plains settlements have taken

place in the Guadalentín valley, as at Los Cipreses and Rincón de Almendricos (Fig. 5), where a less nucleated layout than in the foothill settlements is visible (Ayala 1991). The results of rescue excavations in the town of Lorca suggest that this was the location of the major Argaric settlement in the Guadalentín valley, which perhaps reached 10 ha in size (that is, larger than any other lowland Argaric settlement: Fontenla et al. 2005). There were now fewer settlements in the Vera Basin, but more in the range of 1–4 hectares, and population increased from c. 1300–1600 in the Copper Age to c. 1700–3400 in the Argaric (Castro et al. 1994). Elsewhere there were fewer, but more defensively located, settlements in the Campo de Níjar (Haro 2006), while in the Cúllar-Chirivel basin there was no major change in the total number of sites, but a move to more strategically located settlements (Moreno et al. 1991–1992). The largest settlement in the uplands is Cerro de la Encina, in the foothills of the Sierra Nevada, which reaches 12 hectares in size.

A model of agricultural production in the Vera Basin has been proposed on the basis of plant and animal remains from Gatas (Clapham et al. 1999; Castro et al. 1999b), Fuente Álamo (Stika 1988, 2001), and El Argar (Stika and Jurich 1998). The main trends in the exploitation of plants are for dominance of cereals over legumes, and, among the cereals, barley over wheat, to the extent that barley monoculture was practised c. 1700–1550 BC, when agricultural production reached its peak of intensification. The relative water requirements of the plant species suggest that barley was grown under extensive, dry farming conditions, while the legumes were cultivated near river courses and/or in areas with higher water tables or seasonal (whether artificial or not) inundation (note the presence of a small 'canal' over 100 m long at Rincón de Almendricos, supposedly for taking water from the rambla to an area of cultivation: Ayala 1991, p. 75) (Fig. 5). Carbon isotope discrimination analyses on seeds (Araus et al. 1997a, b) support this model. Both barley monoculture and agricultural intensification would have had major labour implications, given the greater time taken to get to and from fields and to process the cereals. Livestock (principally ovicaprids and bovids) would have been grazed on stubble, while bovids were used for traction. The consumption of animal protein complemented the protein intake from legumes and also increased at the same time as the focus on barley monoculture. Support for this general model can be taken from plant and animal remains on upland sites (e.g. Buxó 1997, pp. 221–230; Peña Chocarro 1999, pp. 143–142; Chapman 1990, pp. 131–138), although there are important details (e.g. the emphasis on bovids and ovicaprids) that reflect specifically local subsistence practices. As for the Copper Age, this model argues against the need for capital investment in agricultural production.

During the Argaric there was increased emphasis on the exploitation of local lithics from secondary sources in riverbeds. For example, 60% of the raw materials from Gatas came from within 3–5 km of the site, with 26% from within 1 km and only 2% from more than 10 km (Castro et al. 1999a; c.f. Risch 1998 on Fuente Álamo, and Contreras 2000 on Peñalosa). The careful selection of local, secondary sources for a variety of stone tools, and especially grinding stones, reduced their production costs. The increased frequency of grinding stones at the same time as barley monoculture supports the inference of intensified food production. For other lithics, such as flint artefacts, production costs were also reduced (as shown by, for instance, the disappearance of pressure-flaking). Flint was still used to produce sickle teeth, but its overall use declined as metal production intensified, to the extent that, allowing for regional variation, there are now nearly five times the number of metal artefacts as known for the Copper Age (Montero 1994). Tools and weapons together contribute just over 44% of the known metal objects and nearly 75% of the total weight of metal used in Argaric artefacts. Copper awls, chisels, saws, axes and knives easily outnumber the lithic and bone tools that could be used for cutting and perforating

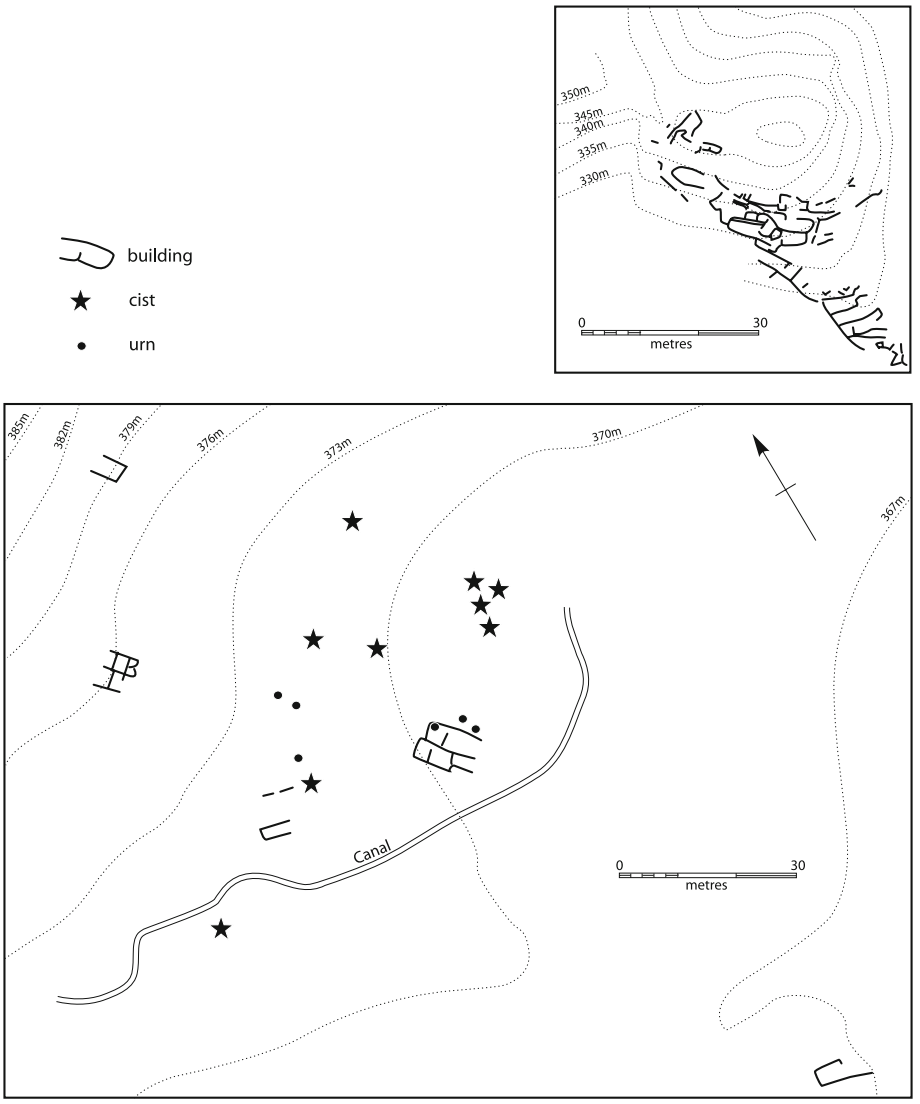

Fig. 5 Contrasting plans of hilltop vs. low-lying Argaric settlements. Top = Peñalosa (after Contreras 2000, Fig. 1.8), Bottom = Rincón de Almendricos (after Ayala 1991, Fig. 11)

other materials, and cut marks on animal bone, shells and hard rock are therefore more likely to have been made by metal tools (Castro et al. 1998a).

While copper sources are widely distributed in southeast Spain, and Montero (1993) proposes the same model of independent, local source exploitation and domestic production as for the Copper Age, this is not supported by lead isotope analyses on artefacts and ore deposits from the lowlands (Stos-Gale 2000). These analyses suggest access to possible sources in the upper Guadalquivir valley (on the northwestern edge of the Argaric area) or in the Huelva-Seville region. Three observations make interpretation even more challenging. First, the lead isotope analyses in the Vera Basin show that different sources

provided copper for artefacts from the same sites (Gatas, Fuente Álamo and El Argar). Secondly, two copper ingots from Peñalosa (Contreras 2000, p. 211) in the upper Guadalquivir valley had different lead isotope values to local sources: the closest match to one of these ingots was in the Huelva-Seville region. Thirdly, there are examples of settlements which contain evidence for the production of specific artefact types, but not the actual artefacts themselves: in the case of Peñalosa, not only were there axe moulds but no axes, but the number of moulds for ingots of standard size and weight suggests production for more than domestic needs on this site (Delgado and Risch 2006, pp. 25–26).

Evidence for the division of labour comes from three sources. First, a palaeopathological study of burials from Argaric settlements in Granada (Jiménez et al. 2004) suggests that males were more engaged in intense physical activities in the landscape than were females, whose activities took place, it is argued, in the domestic sphere. Secondly, there is the evidence of artefact production, principally pottery and metals, derived from study of the artefacts themselves. Standardisation of form and size in pottery and metallurgy was documented by Lull (1983). Pottery standardisation has subsequently been analysed further for Gatas (Castro et al. 1999a), Fuente Álamo (Schubart et al. 2000), Cerro de la Encina (Aranda 2001), Cuesta del Negro (Contreras et al. 1987–1988) and Peñalosa (Contreras 2000). For Gatas, Colomer and Solsona (2005) have shown that a common forming process was applied to all vessels. Differences in production technology, as well as in the types of pottery deposited in funerary as opposed to domestic contexts (although the latter is not an exclusive distinction) have been noted from sites such as Cerro de la Encina, Cuesta del Negro and Peñalosa. Aranda (2004) proposes that the pottery evidence shows the existence of part-time specialised production.

Thirdly, there is the evidence of production activities that are spatially restricted within settlements, leading to the inference of specialist production (although functional factors related to production methods, as in metallurgy, and limited excavation areas have to be assessed each time). There are no traces of pottery production within Argaric settlements, leading to the inference that pottery firing, at least, was conducted outside settlement areas (Aranda 2004, pp. 172). Evidence for metal production varies, with many settlements (e.g. El Oficio, El Argar, La Bastida de Totana) containing only restricted areas of activity. Few sites have evidence of all stages of production: the most notable of these is Peñalosa, which may be an example of community specialisation. Metalworkers' tools such as stone anvils/hammers, sharpeners and polishers have been found in a small number of Argaric settlements, notably in Tomb 3 at Los Cipreses (Delgado and Risch 2006).

What can we infer about inequalities and the social relations of production during the Argaric? The inverse relationship between site size and available land for dry and wet farming in the Vera Basin (Castro et al. 1999b) suggests the hypothesis that there was unequal access to agricultural production, with cereals moving up as tribute to the foothill settlements. Although the secondary sources for grinding stones are found in riverbeds close to areas of greater cultivable potential (Risch 1998), there is little evidence for their use in valley bottom settlements. Instead, processing of cereals into flour seems to have been concentrated in the foothill settlements, where the numbers of grinding stones (e.g. the 22 complete or partially broken examples in piles on the occupation floor of Trench 39 in Fuente Álamo: Risch 1998) exceeded those needed to meet the subsistence needs of their inhabitants. Flint sickle teeth, used for harvesting in the valley bottom, may also have been produced in the foothill settlements (for instance, the deposit of nearly 50, many unused, in Trench 39 at Fuente Álamo: Risch 1998, p. 137). In other words, the essential instruments of agricultural production, perhaps including human labour, were controlled by the larger, hilltop settlements in what Risch (1998, p. 148) calls a 'system of vertical

production', in which surplus production was governed by local political and economic factors, rather than the needs of extensive exchange networks. This is an example of the social appropriation of surplus, with inequalities based on access to the means of production, and the eventual imposition of barley monoculture in spite of its labour costs and impact on the environment and human diet. In the uplands of Granada and Jaén, a model of tribute has been proposed from local territories of agricultural villages to sites such as Peñalosa (see below) and Cerro de la Encina, in exchange for the metal objects produced in these settlements.

A complementary source of evidence for inequalities are the predominantly individual, intramural burials, with sometimes large deposits of wealth items. Recent examples include Grave 111 at Fuente Álamo (Schubart et al. 2004) and Grave 21 at Cerro de la Encina (Aranda and Molina 2006). As a whole, Argaric burials were selected from the total dead (Chapman 1990, pp. 200–201) for interment in urns, cists, pits and artificial caves. Analysis of their grave goods (Lull and Estévez 1986) led to the definition of five groups, or levels, of Argaric society, the top two of which included goods of the highest social value (e.g. copper halberds and swords, gold ornaments, silver diadems) and represented a dominant class. The systematic radiocarbon dating of these burials from a number of sites (Castro et al. 1993–1994; Lull 2000) supports the presence of these groups through time, although they may be symbolised in different ways. Recent analyses of child burials from El Argar show that differences in wealth consumption are fully marked out from six years of age, although members of the dominant class are distinguished from only a few months, and there are increases in consumption with age, especially in adulthood (e.g. the deposition of halberds, swords and diadems only with adults: Lull et al. 2005). Feasting rituals to create communal identity and to naturalise unequal social relations have been inferred on the basis of food offerings with the dead and pottery (especially burnished and decorated) used for the consumption of food and drink and deposited with socially eminent individuals (Aranda and Esquivel 2006).

The practice of intramural burial means that inequalities in death can be compared with those in life. The best example of this is at Fuente Álamo, where there is a correlation between the deposition of the greatest weight (92%) of metalwork in tombs and their location in the main areas of production (e.g. metalworking), storage (a water cistern, possible grain stores, large pottery vessels) and consumption (the concentration of pottery for the consumption of food and drink) on the summit and eastern slopes of the settlement (Risch 2002, pp. 267–274). In contrast, the southern slope has large-scale cereal processing but little evidence for habitation, burial and storage, while the western slope had intensive occupation but little evidence for food production. The control of metal production and consumption was therefore exercised by the dominant class, which also consumed the food produced on the southern slope and thereby exploited its producers. A group of wealthy burials has also been published recently from Cerro de la Encina (Aranda and Molina 2006), but there is as yet no evidence for differential production and consumption in the area of the settlement where they were interred (as is also the case at Peñalosa). However, analysis of nineteen individuals did show an inverse correlation between wealth and muscular development and degenerative pathologies (Jiménez and García 1989–1990).

The inference of class differences in domestic and funerary evidence has led to the description of the Argaric as a form of early state society (e.g. Lull and Risch 1995; Lull 2000; Cámara 2001; Chapman 2003; Aranda and Molina 2006; Lull and Micó 2007). This is a very different definition of 'state' than that which has been prominent in the Anglo-American world since the 1970s, and places more emphasis on class, exploitation and coercion than on administrative specialisation and decision-making hierarchies

(for detailed discussion of the state in political and philosophical thought, see Lull and Micó 2007). It is currently the pre-eminent model for Argaric society (for a dissenting voice, see Gilman 2001).

Valencia

Region, Archaeological Units and Chronologies

The Autonomous Community of Valencia (Fig. 6) includes the provinces of Alicante, Valencia and Castellón and extends along the Mediterranean coast to the north of Murcia for a distance of some 300 km, from the mouth of the Segura river to just short of the Ebro delta. Like southeast Spain, Valencia has a narrow strip of coastal lowlands rising to sierras and intermontane basins, as seen most notably in northern Alicante, where the Baetic mountain chain reaches its northeastern limit between Alicante and Valencia. The eastern

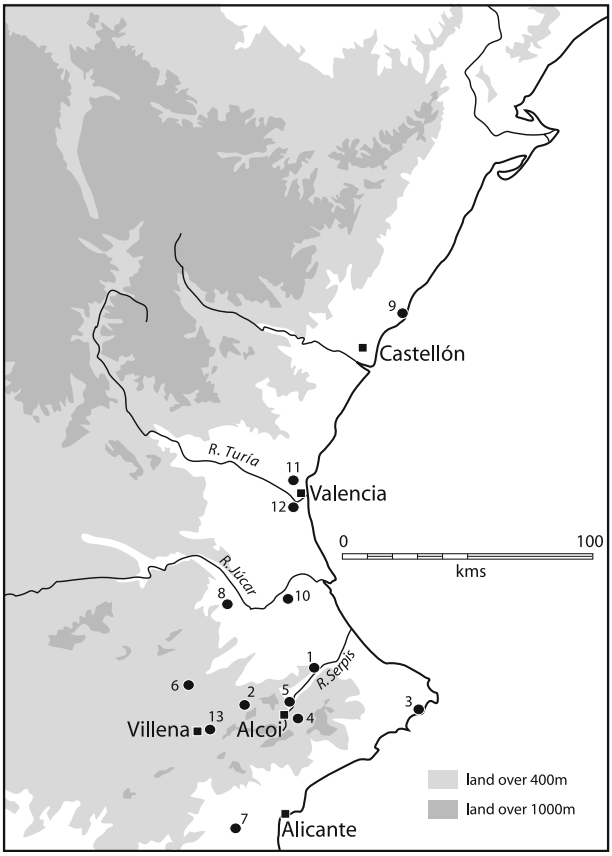

Fig. 6 Map of Valencia showing main sites mentioned in text. 1, Cova de l'Or; 2, Cueva de la Sarsa; 3, Cova de Les Cendres; 4, Mas d'Is; 5, Les Jovades; 6, Arenal de la Costa; 7, Les Moreres; 8, Ereta del Pedregal; 9, Orpesa La Vella; 10, Muntanya Assolada; 11, Lloma de Betxi; 12, Montanyeta de Cabrera; 13, Barranco Tuerto

tablelands of La Mancha and the sierras to the north of them drain eastwards through Valencia to the Mediterranean. It is not surprising that climate and vegetation vary with this topographic diversity, although as a whole the climate is less arid than in southeast Spain.

The focus of later prehistoric archaeology in Valencia has always been on northern Alicante. This is partly the outcome of the early founding of Alcoi museum and therefore its long history of archaeological research, and partly a reflection of the cultural similarities of local sites and materials with southeast Spain, especially in the late third and second millennia BC. Field surveys have been added to stratigraphic excavations in research programmes of the last decade and there is now evidence of greater interest in theoretical issues and interpretive models.

The sequence of Neolithic occupation is based principally on stratigraphic excavations and ceramic typologies from two cave sites in southern Valencia, Cova de l'Or and Cova de Les Cendres (Bernabeu 1989), coupled with radiocarbon dates from these and other cave and open-air sites. The Neolithic is divided into two main periods, with the following subdivisions and dates (Bernabeu et al. 2006): Neolithic IA (c. 5550–5200 BC); Neolithic IB (5200–5050 BC); Neolithic IC (5050–4550 BC); Neolithic IIA (4550–4200 BC); Neolithic IIB (3900–2800 BC); and Neolithic IIC, or the Transitional Beaker Horizon (2800–2250 BC) as it is known locally. There is a gap in the data of some three centuries between Neolithic IIA and IIB. The term 'Copper Age' is not very useful, given that there is no secure evidence for pre-Beaker metallurgy, or indeed for much in the way of local metallurgy before the Valencian Bronze Age, which spans the period c. 2250–1600/1550 BC.

Production, Consumption and Social Relations: c. 5600–3200 BC

The Mediterranean coast of eastern Spain, from southern Valencia to the Pyrenees, has been central to the study of agricultural adoption in the Iberian Peninsula since the second quarter of the last century. While domesticated plant and animal remains are known to be present from the beginning of the Neolithic (Zapata et al. 2004), their varying frequency has given rise to debate on the rapidity and extent of their adoption and the role of indigenous hunters and gatherers in this process. In Valencia this has given rise to the 'Dual Model' (Bernabeu 2002), by which agriculture was introduced by a Neolithic population, initially into largely empty areas on the boundaries of Alicante and Valencia, and then gradually adopted by indigenous communities in the interior. While it is not my intention to enter the debate on the Dual Model (e.g. Vicent 1999), recent research has emphasised regional and chronological variations in the signatures of Neolithic societies in southern Valencia. These are important if we are to understand the nature of production in these societies.

During Neolithic I (Fig. 7), settlement is concentrated on the southern coast and in the middle and upper Serpis river basin (at an altitude of 500–700 m) (Barton et al. 1999; Bernabeu 1996; Fairén 2004, p. 14; Martí and Juan-Cabanilles 1997), with initially Mesolithic groups in the upper Vinalopó valley to the west (although see Guilabert et al. 1999 for low density Neolithic sites spreading down this valley). Within the Serpis basin there is also variation in agricultural adoption. Surface survey in the upper Polop Alto valley (Barton et al. 1999) suggests minimal changes in land use, with residential mobility and the introduction of domesticates into a mainly foraging economy. In contrast, survey in the Penàguila and Seta valleys has revealed open-air settlements of up to 0.5 hectares from the beginning of Neolithic I, with inter-site distances from 0.5 to 3.0 km, averaging

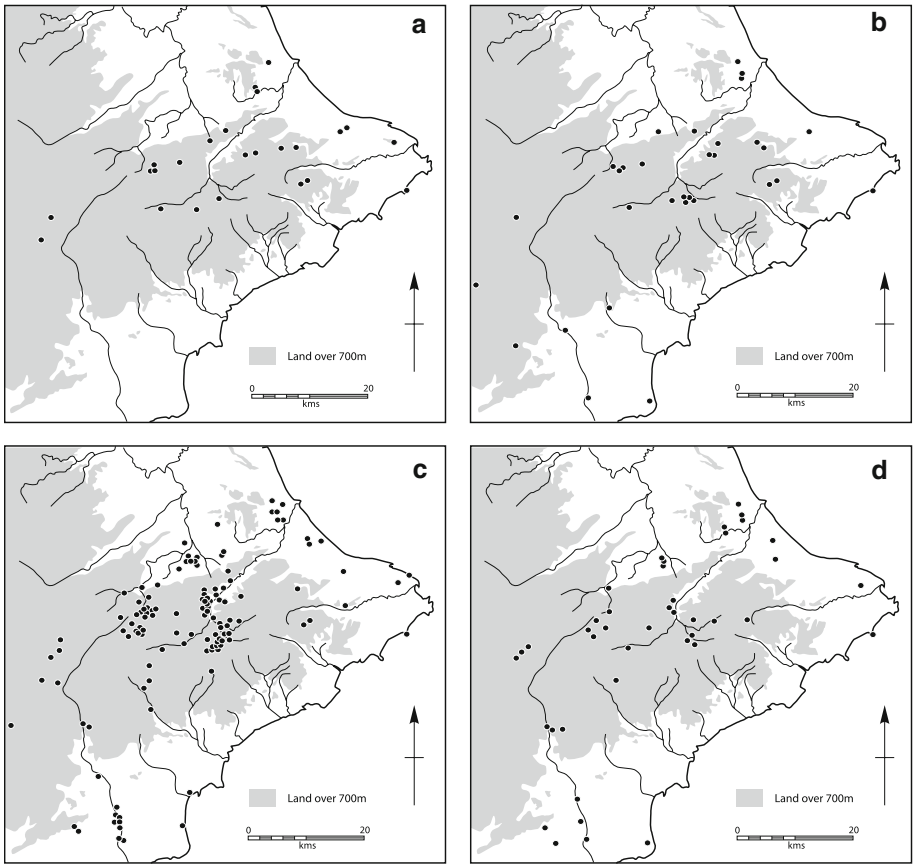

Fig. 7 Distribution of Neolithic sites in Valencia during four main periods of occupation. Top left = Neolithic IA; Top right = Neolithic IB; Bottom left = Neolithic IIB; Bottom right = Neolithic IIC (after Fairén 2006, Figs. 15, 16, 19, 20)

1.07 km (Barton et al. 1999; Molina 2004). In addition, research excavations at Mas d'Is have located a concentric, multiple ditched enclosure: this began as a single ditch (12–14 m wide by 3.5 m deep) enclosing an area of just under 1.0 hectare at c. 5450 BC (currently the only excavated open-air site at this date) and expanded to two ditches enclosing 2.8 hectares by 5150 BC, after which constructive activity ceased for some seven hundred years. Then two further, outer ditches were added to increase the enclosed area to c. 10 hectares by the end of the fifth millennium BC (Bernabeu et al. 2003). Domesticated barley was present from the beginning of the site's occupation. This is the only open-air Neolithic settlement excavated in Valencia before the fourth millennium BC, and makes clear the difficulty of engaging in any kind of 'household archaeology' which can study social relations of production and consumption. A second ditched enclosure dating to the end of the sixth millennium BC may also be located c. 1 km from Mas D'Is.

Site sizes suggest a maximum of 100 persons per site, and in many cases probably only a few families. Even when Mas d'Is reaches its full extent, it is not clear how far it was actually occupied by a settled and nucleated population; so far, habitation structures have only been found outside the enclosure system, making calculations of population size

difficult. Open air sites in the Seta and Penàguila valleys were consistently located near river courses or seasonally inundated lagoons in the humid lower parts of valleys, with slopes of less than 5%, next to good agricultural soils (Barton et al. 1999; Molina 2004; c.f. Guilabert et al. 1999 on the Vinalopó valley), in contrast to cave sites and rock shelters, which lie within 5–6 h walking distance of the valley bottom settlements (Fairén 2006, pp. 93–94). These locations of open-air sites support the inference of small plot horticulture rather than any kind of more extensive slash and burn agriculture. The plant remains from caves at Cova de l'Or and Cova de les Cendres also support this model, with their marked diversity of species, including both cereals and legumes, right from the beginning of the Neolithic (Buxó 1997, pp. 153–157), while the pollen from Cendres does not show the alternating cycles of regeneration that would be expected of slash and burn agriculture. Domesticated sheep and goat, used for meat production, dominate the faunal remains at all these Early Neolithic sites (McClure et al. 2006a; Perez 1999). The small size of open-air sites, coupled with the seasonal inundation of some settlements and the evidence for the use of caves for food storage (clean cereals in storage vessels), production (presence of grinding stones, which are also known from settlements, and blades/bladelets with sickle gloss), consumption, livestock corralling and ritual activities, have been used to support the inference of some degree of mobility, whether residential or logistic (Barton et al. 1999; Fairén 2004; McClure et al. 2006a).

Sites of Neolithic IIA are poorly represented in the archaeological record, but this is in marked contrast to Neolithic IIB, from c. 3900 to c. 2800 BC. Now there is an increase in site numbers, sizes and densities and, by inference, in population (Figs. 7 and 8). Open-air settlements found by survey are still often associated with the best agricultural land in the Penàguila valley, while others are on higher and more marginal ground, and there are greater densities of surface materials over areas of up to 4 hectares (Barton et al. 1999; McClure et al. 2006a; Molina 2004). Small farming settlements also appear for the first time in the Canyoles valley (McClure et al. in press). In the Vinalopó valley (Fig. 9), there are three times as many open-air sites as in Neolithic I and there is increased evidence for clustering and expansion downriver (Guilabert et al. 1999). In all parts of the valley, sites are located on the best agricultural soils, in the same kinds of location preferred in the

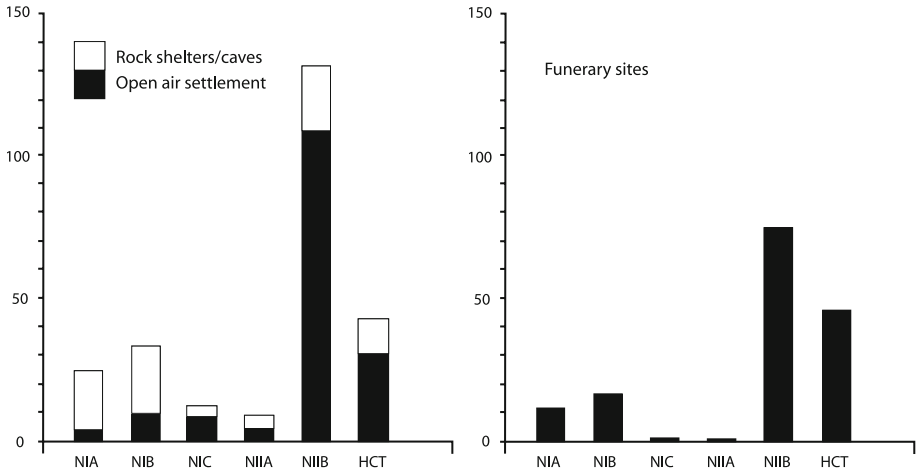

Fig. 8 Frequency of habitation vs. funerary sites in main periods of the Neolithic of Valencia (after Fairén 2006, gráficos 2 and 7)

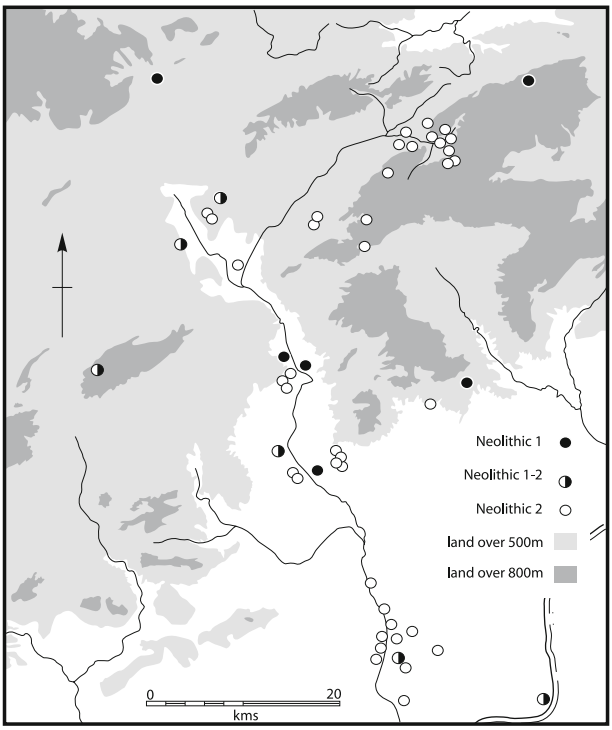

Fig. 9 Expansion of Neolithic settlement in the Vinalopó valley (after Guilabert et al. 1999, pp.284–85)

earlier period. Across southern Valencia as a whole, this association with agricultural soils continues, while sites are also located across a wider range of slopes (Fairén 2006, p. 84). These site locations could be argued to support the inference of small plot horticulture, as in Neolithic I, but reduced crop diversity (Pérez 2005) and the use of bovids for traction (Martínez 1990; Perez 1999) have been used to argue for more extensive dry cultivation (e.g. McClure et al. 2006b). There is no reason why these two agricultural systems should be regarded as mutually exclusive in such a large area as southern Valencia.

Where open-air sites have been excavated, or studied by aerial photography and geophysics, there is evidence of sometimes large numbers of pits and rare semi-subterranean structures ('fondos de cabaña') (Molina 2004; Guilabert et al. 1999). There are also traces of single ditches enclosing these sites (especially in the Serpis basin-García et al. 2008), spanning the late fourth and third millennia BC. At Les Jovades (Fig. 10) three areas of pits (some 200 in all) have been excavated in an area of 4400 m^2, but the total area of the site is said to be at some 55 hectares (Bernabeu 1990; Bernabeu et al. 2006). No ditches have been excavated around this site. Radiocarbon dates for two excavated areas span the period c. 3600–3000 BC. The pits are of various forms and sizes and include the classic closed mouth form that is interpreted as a storage pit. Pascual-Benito et al. (1990, p. 44) use the average life of the pits and the duration of site occupation to calculate that only four such pits would have been in use by two domestic groups at any one time. Such domestic consumption has already been proposed for sites in lowland Almería (see above). In contrast the larger-scale accumulation of surplus has been proposed more recently by

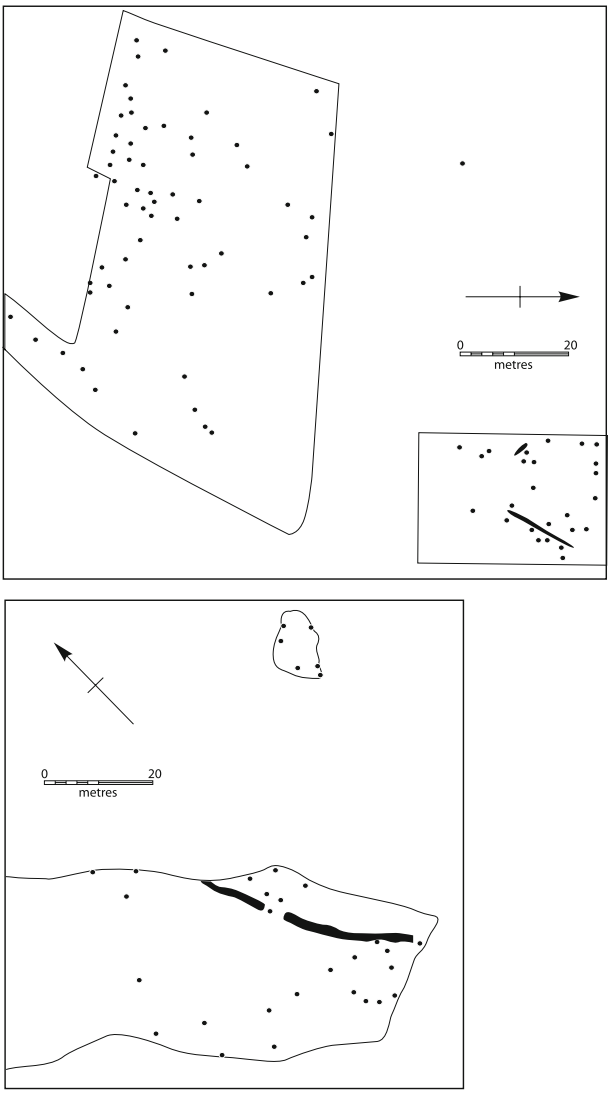

Fig. 10 Plans of open-air Neolithic settlements at Les Jovades (top) and Arenal de la Costa (bottom) (after Bernabeu 1990, Figs. 3.2 and 3.15)

Bernabeu et al. (2006) in the context of increased hierarchy and inequality in the fourth millennium BC (see below).

Putting to one side the scale of occupation at sites like Les Jovades at any one time, a variety of evidence has been used to support what Barton et al. (1999, p. 681) call 'greatly reduced residential mobility' in Neolithic IIB. This evidence includes the increase in settlement size and density, the increase in artefact density (within sites and across the landscape), increased exploitation of cattle and pig and changes in herd management strategies (McClure et al. 2006b) and the use of open-air storage pits. Storage does not automatically imply sedentism (see above) and only one site of Neolithic I date (Mas d'Is)

has been excavated, making difficult a balanced comparison of the frequency of storage pits by period of time. On the other hand, the presence of such pits in clusters might suggest the increased internal site differences which Kelly (1992) proposes as a criterion of sedentism. The continued use of cave sites (e.g. for livestock corrals) also suggests logistical mobility by at least part of the population.

As in southeast Spain there are comparatively few published studies of the production and distribution of social objects during the period from the mid-sixth to the late fourth millennia BC. There is evidence for lithic production on open-air sites in Neolithic I (García 2005b; Molina 2004), using local and non-local flint sources, while the flint production at Les Jovades (García 2005b; Pascual-Benito 1990) used secondary sources within 600 m of the site. Discoidal beads were made from cardium shells in cave sites such as Cova Bernarda and Cendres (Pascual-Benito 2005), but finished beads are rare in local Neolithic I sites (the reverse of the pattern in northern Valencia). The extent to which this production was based on the division of labour is unknown, but the scale of production seems small and the beads could have been distributed via exchange or residential mobility. Sources of dolerite axes are known in central and southern Valencia and production was small-scale during Neolithic I and dependent on the nearest available sources (Orozco Köhler 2000). In the fourth millennium BC a wider variety of rocks was used, including amphibolites and sillimanites, both of which have sources in southeast Spain. Schist bracelets also appear to have been produced in southeast Spain and moved through exchange networks before their deposition in Valencia in Neolithic I.

The typological and stratigraphic analysis of Neolithic pottery styles has provided the basis for the definition of a regional chronology (e.g. Bernabeu 1989; Martí and Hernández 1988). In addition to the types and frequencies of decoration (e.g. cardial decoration dominant in Neolithic IA, undecorated pottery dominant in Neolithic IIB), changes in the frequencies of forms suggest changes in functions from Neolithic I–IIA (closed shapes used primarily for storage) to Neolithic IIB (more open forms used for food preparation and serving) (Bernabeu 1989). Recent research has studied the production of Neolithic pottery (McClure 2004; McClure et al. 2006b). Apart from demonstrating the lack of fit between typological change and raw material selection, these studies highlight major changes from the earlier (c. 5550–3900 BC) to the later (c. 3900–2800 BC) Neolithic. During the earlier Neolithic there is a high labour investment in pottery production, along with production variability between households and stylistically diverse pots, while the later Neolithic sees more standardised and homogenous production between both households and sites. This leads to the inference of a change from household to supra-household production.

What evidence is there for inequalities and the social relations of production and reproduction during Neolithic I–IIB in Valencia? It is not surprising that the visually most impressive sites have been at the core of the reconstruction of changing Neolithic society. According to the main model (Bernabeu et al. 2003, 2006) the archaeological record shows us cycles of population aggregation and dispersion (as seen in site numbers and sizes) and phases of investment in monument construction, which indicate struggles for power and identity. The first phase, in the period c. 5400–5100 BC, saw the construction of Mas d'Is, which is distinguished by its size, its enclosing ditches and an apparent absence of 'domestic' activity. Surplus labour—supported by the intensification of production—is argued to have been mobilised within the context of hierarchical social relations, although relations of property were still communal. The enclosure had an ideological function in the creation and maintenance of regional social identity in a newly colonised environment. It was possibly the location of the founding clan or lineage. Its abandonment was the

outcome of resistance to the excessive accumulation of power by local leaders. After a few hundred years, a new cycle of demographic growth and population aggregation began in c. 3900 BC, requiring an intensification of production that took the form of more extensive, plough agriculture. Local hierarchies emerged based on the competition to accumulate agricultural surplus and attract followers. By the second half of the fourth millennium BC this process had led to a second phase of monumentalisation, with the construction of enclosure ditches around some settlements and their grain stores. These competitive social relations lasted into the third millennium BC.

How far does this model stand up to evaluation? For the earlier period we have to remember that a lot of interpretive weight is being placed on limited excavation of one site. Its function is seen in polarised terms as either 'ideological' (the preferred option) or 'domestic', which flies in the face of recent theoretical discussions in both anthropology and archaeology (e.g. Bell 1992; Bradley 2005). The surplus labour invested in the construction of the two initial ditches is calculated at c. 180,000–225,000 person hours (Bernabeu et al. 2003, p. 55), divided into two 'bursts' of activity, perhaps each taking place over a generation or two at the most, and the earlier one requiring about half the labour of the later one. If we have a population of at least 100 individuals, then the construction of the first enclosure would have required about 30 hours work per person per year over 25 years. This is a comparatively small increase in labour time and would not, I think, require any significant intensification of production or improvement in the means of production. This investment of labour would not have required unequal social relations beyond those present in a lineage mode of production. At the same time, there is nothing inherently implausible in the investment of social labour in physically and ideologically central monuments in the landscape for small-scale, mobile communities over generations. Nor is there any evidence to contradict the inference of communal property relations at this time.

The small numbers of open-air sites at this time, and the small size of most of them, suggest that communities would not have been biologically and socially reproducible without exogamous social relations and the sharing of social objects, whether symbolically (for instance, the investment in decorated pottery) or physically (via exchange). Shared symbolism is also seen in the landscape in rock art, in which gender representation was more shared ideology than it was everyday practice (Escoriza 2002, p. 100): in spite of the agricultural subsistence, it was male hunting and warfare activities that were stressed over females gathering food, cultivating presumably domesticated cereals and tending livestock, while a major activity of females, namely reproduction, is not represented. At the same time, it must be remembered that the dating of this rock art over a period of some three thousand years from the beginnings of the Neolithic remains contentious (e.g. García et al. 2004; McClure et al. in press).

For the fourth-third millennia BC (Neolithic IIB) there is a similar concern that labour investment is being over-rated, given the time over which enclosures may have been constructed and the numbers of people available to engage in this activity. No specific estimates have been made for such enclosures, while those for storage capacity support either small-scale domestic production and consumption or surplus accumulation in the context of hierarchisation, unequal wealth and competitive power relations. The surplus accumulation argument does not seem to take into account the possibility that an uncalculated number of pits may have been for other functions, such as fodder storage for the overwintering of cattle. What is now required is excavations that are able to partition sites like Les Jovades into smaller-scale units of features with a finer chronological scale and

evidence for production and consumption activities within domestic areas, and to develop inferences about the contents of the storage pits.

The paucity of contextual information for the disposal of the dead throughout the Neolithic puts inferences about social inequalities largely beyond our reach at the moment. From the beginning of Neolithic I, caves were used for burial—in some cases exclusively for this purpose and in others as part of mortuary rituals leaving isolated bones in cave sites used for a variety of other purposes (e.g. Or/Sarsa/Cendres: Bernabeu et al. 2001). In Neolithic II there is a marked increase in the number of sites containing burials (Fig. 8), including multiple inhumations in caves and deposition in open air settlements (e.g. Les Jovades). The construction of megalithic tombs noted in the southeast does not occur over Valencia, except for the northern area of Castellon, when they appear in the mid-late fourth millennium BC. In all cases, the frequency of burial suggests that this disposal rite was not afforded to the entire population and was in some way exclusive.

Production, Consumption and Social Relations: c. 3200–2250 BC

The millennium from the late fourth to the late third millennium BC spans two periods in the Neolithic sequence of Valencia, namely the last four centuries of IIB and the whole of IIC, or the Beaker 'horizon'. This horizon is of interest because of its evidence for interaction with other regions (especially the southeast) and its supposed importance as a period of transition to the Early Bronze Age in Valencia (for the most recent discussion, see López 2006a).

Unlike in southeast Spain, there does not appear to be such a major change at c. 3200 BC. There appears to be no evidence for any change in agricultural production and its organisation, nor is there any evidence for changes in access to production. Settlements occupy a similar range of locations to that in Neolithic IIB, from the low-lying areas preferred since Neolithic I to prominent hills and steeper slopes (Fairén 2006, p. 84) (Fig. 7). Evidence for smaller numbers of such sites and increases in their size suggests some nucleation of population (Molina 2004). Open-air settlements with storage pits continue to be used (as at Les Jovades) and further ditched enclosures are founded in the Beaker period (e.g. Arenal de la Costa: Fig. 10). At the same time, walled settlements on prominent locations are founded (although not in all areas) from the mid-third millennium BC: for example Les Moreres consists of a double line of stone walls and bastions and has Beaker pottery throughout its occupation (González et al. 1992–1994). These are formally comparable to the contemporary Millaran tradition in southeast Spain, and are examples of the 'poblados de altura', with their need for artificial terracing, which are such a distinctive feature of the succeeding Early Bronze Age. The use of dry-stone walling is also seen in examples of domestic construction, as at Ereta del Pedregal (Juan-Cabanilles 1994), supporting the increased residential sedentism noted in the fourth millennium BC.

The only change in the means of production was the introduction of metallurgy, although there is no secure evidence for this before the Beaker period (unlike southeast Spain). Copper was used for the production of many of the same kinds of artefacts as in southeast Spain (e.g. awls, axes, chisels, knives/daggers, arrowheads) and there are a small number of gold and silver ornaments (Simón 1998). Sources of these metals are known either in the north of Valencia or to the south in Murcia, and the limited evidence for production (Simón 1998, pp. 219, 328) is used to propose that objects were introduced in finished form (in the form of chisels or flat axes), or as ingots, from the southeast.

Other objects are also argued to have been circulated through exchange networks between Valencia and southeast Spain. There was a further increase in the frequency of

southeastern raw materials used to produce stone axes during the Beaker period (Orozco Köhler 2000), although the actual frequencies and the sample size of analysed axes suggest that the scale of exchange was small (for example, one axe per generation). Objects of ivory (ultimately from North Africa) and amber are also scarce in both Valencia and the southeast. The numbers of sites in the province with Beaker pottery and associated items has increased to 71, although the actual number of pottery fragments is small (Juan-Cabanilles 2005, p. 389). In addition to the basic style, there are specific motifs and their layout shared between Valencian and southeastern sites (Garrido 1996), adding further support to inferences of interaction between the two areas. Similar forms of 'idols' made from animal long bones have also been used to argue for such interaction.

When deposited with the dead, these objects are especially noted as examples of the increasingly 'hierarchical' society in the Beaker horizon (which now is a rather long six hundred years!) between the Neolithic and the Early Bronze. As in the fourth millennium BC, those dead afforded burial were deposited in caves or, more rarely, in pits in open-air settlements. Unfortunately, there have still been no systematic, modern excavations and analyses of the multiple burials in caves to allow us to infer social distinctions from reliable cultural and biological evidence. Given this quality of evidence, any inference of a 'hierarchical' society remains purely hypothetical.

Production, Consumption and Social Relations: c. 2250–1550 BC

The material record of the Valencian Bronze Age has been studied very much in terms of its similarities with and (mainly) differences from the Argaric group of southeast Spain. While both groups have a high frequency of hilltop settlements, with artificial terracing to enable habitation and investment in fortifications, Valencia lacks intramural burial and the distinguishing metal (e.g. swords, halberds, diadems) and pottery (e.g. cups) items of the Argaric; metallurgy decreases in frequency from south to north and the pottery lacks the standardisation and quality of the Argaric. There is a clear break in the material record between the Argaric group and the Valencian Bronze Age on the northern edge of the Segura valley (Jover and López 2004, p. 286, Fig. 1). To the north of this 'frontier' greater continuity in the material record is seen in the presence of Beaker artefacts (e.g. pottery, Palmella points, v-perforated buttons), the use of caves, rock shelters and crevices for the disposal of the dead, both individually and collectively (and all poorly contextualised), and the increase in use of hill-top settlements (see above).

The paucity of systematic excavations, and concomitantly poor publication record, has received frequent comment: for example, of over 500 settlements in Valencia, only 13 (of which 9 are in the south) have been the subject of modern excavations, and only two have been published in monographs (Jover 1999, pp. 11–12). This has undoubtedly hindered attempts to devise a periodisation (for examples, see Jover 1999, p. 91), as has the relative paucity of radiocarbon determinations from short-lived samples in secure contexts (only 38 dates exist from 16 sites, with most sites having only one date: Jover 1999, pp. 68–75; see also Hernández 1997; Castro et al. 1996). There is more of a break in the material evidence at c. 1600/1550 BC (the appearance of the Late Bronze Age or 'Bronce Tardío' phase) than there is at any time from c. 2250 BC until that date. The combination of the material record and the lack of secure periodisation has also determined a rather static interpretation of this period in Valencia.

Hilltop or similar, elevated settlements are typical of the Valencian Bronze Age, but there are also low-lying settlements, as on the coast at Orpesa la Vella (Gusi 2001–2002) and in the Marina Alta region (de Pedro 2004, p. 53), which raises the question of how far such sites are under-represented. The elevated settlements may or may not be restricted to

the hill summits, and there are examples that are fortified, with walls up to 2 m thick (e.g. Muntanya Assolada: Fig. 11) and occasionally with square or circular towers, as well as unfortified (Gil-Mascarell and Enguix 1986). Whatever their location, such sites are small in size. In the Villena basin they range from 0.04 to 0.5 hectares (Jover et al. 1995, p. 98), and while there are examples of even smaller sites in some regions (Hernández 1997, p. 99), this would seem to be a good indication of the size range. The majority of these sites may have contained up to 50 people, while the largest had twice that number.

Recent excavations have revealed examples of rectilinear structures on artificial terraces, with evidence for production, storage and consumption. At Lloma de Betxi (Fig. 11) the upper terrace of a 0.3 hectare site contains a 34 m × 10 m rectangular, two-roomed stone-built structure with 1 m thick walls and wooden posts supporting its roof (de Pedro 2004, pp. 44–47). Different areas contained storage vessels with carbonised grain, grinding stones, loomweights and flint sickle teeth, while two cisterns were found excavated into the rock outside each end of this structure. Study of the animal bones showed the dominance of ovicaprids among the domesticated livestock and the still significant representation of wild animals, especially deer. Storage vessels with carbonised grain were also found inside Terlinques, along with a group of sickle teeth (the remains of two sickles?), an area used for grinding and storage of grinding stones, a metal ingot, a small cistern and evidence for

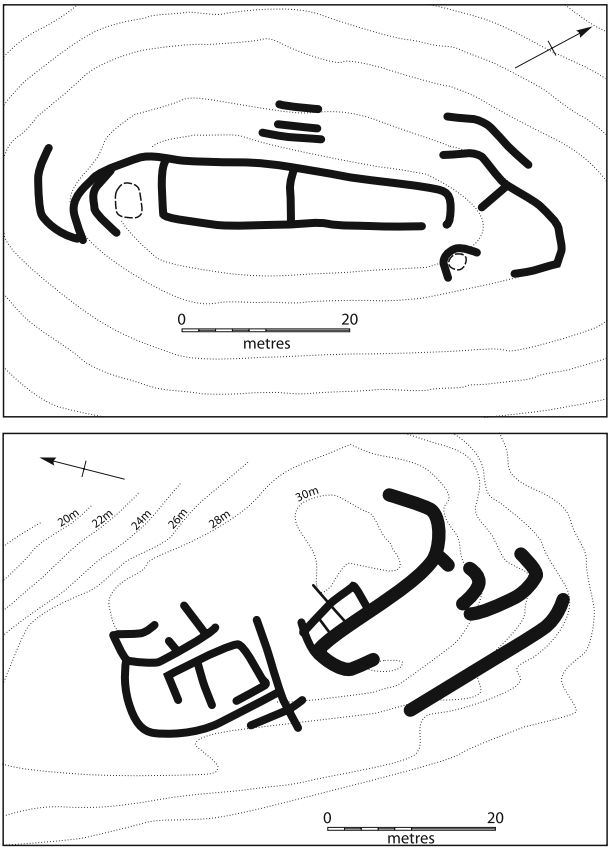

Fig. 11 Plans of Valencian Bronze Age settlements at Lloma de Betxi (top) and La Muntanya Assolada (bottom) (after de Pedro 2001–2, p. 185; Martí et al. 1995, Fig. 2)

textile production and maintenance (a spindle whorl and the remains of at least three wooden bobbins with rush yarn) (Jover and López 2004; Jover et al. 2001). Other examples of the processing, storage and consumption of cereals are given by Jover (1999, pp. 181–130). Sickle teeth are among the most frequently found lithic objects on Valencian Bronze Age sites.

There is no evidence of areas devoted to pottery production. It is proposed that there was a reduction in labour investment in the production of stone tools, which now depended on local sources (Fernández 2004, p. 64). The production of copper, gold and silver objects was entirely dependent on non-local sources in southern Valencia, as in the previous Beaker period, and production evidence is limited to occasional examples of copper lumps and slag, crucibles, ingots and stone axe and chisel moulds (Simón 1998). In contrast to the Argaric group there was no great investment in what could be interpreted as weapons or ornaments, and the focus was on the production of tools and arrowheads. At the very least, the decrease in metal objects from south to north suggests that there was no great exploitation of the copper sources of Castellon (Simón 1998, p. 190), while the extent to which finished objects in the south, as in the Vinalopó valley, were acquired by exchange relationships with the Argaric group (Hernández 1997, p. 108) has still to be evaluated. Ivory was also exotic, of North African origin, but the discovery of bars of this material at Montanyeta de Cabrera (López 2001–2002, p. 249) shows that there was local production of objects such as v-perforated buttons and the comb and haft found at Mola d'Agres.

The identification of all these production activities within settlements does not imply, on current evidence, differences in consumption between households, or the existence of social groups withdrawn from the production of the basic necessities of life. When it comes to the relationship between settlements, the best study undertaken to date is of the Villena basin on the Vinalopó valley (Fig. 12). Jover and López (1999) note that 21 settlements are known here within an area of 304 km^2 (a density of one settlement per 14.5 km^2), and that there is a distinction in location between sites above and below 0.1 hectares in size. The 7 sites above 0.1 ha are almost equidistant, c. 5–7 km apart, with territories of some 20 km^2, intervisibility between them and good views of all the low-lying cultivable land, water sources, saline pastures, and hunting and gathering areas of the basin some 20–70 m below them. No one settlement dominates in terms of size, location or proximity to local resources, and all are thought to have been self-sufficient in their food supply. Sites smaller than 0.1 ha are grouped around the larger sites and argued to be the outcome of colonisation from the larger settlements, where population had increased. The smallest sites, less than 0.03 ha, are on the highest locations of the peripheral parts of the Villena basin, difficult to reach and furthest away from water courses and cultivable land, and with extensive visibility (over 60 km^2). At Barranco Tuerto (Jover and López 1999, pp. 245–249) the evidence for the consumption but not the harvest (absence of flint sickle teeth) or storage of cereals suggests its use for territorial control.

The prevailing interpretation of this Valencian Bronze Age society is of one based on relations of kinship rather than class, a peasant society with no evidence of unequal relations of production and consumption. Jover and López (2004) propose the emergence of a hierarchical tribal society (as developed in Latin American Social Archaeology), from the mid-third to the mid-second millennium BC. There were collective property rights over land, intensified agricultural production, increased population and the manipulation of 'exotic' goods through marriages and alliances by leaders of family groups seeking to enhance their 'prestige'. By c. 1600 BC, they argue, there was a transformation to a class society with population aggregation, increased specialisation, the appropriation of surplus and unequal access to grave goods.

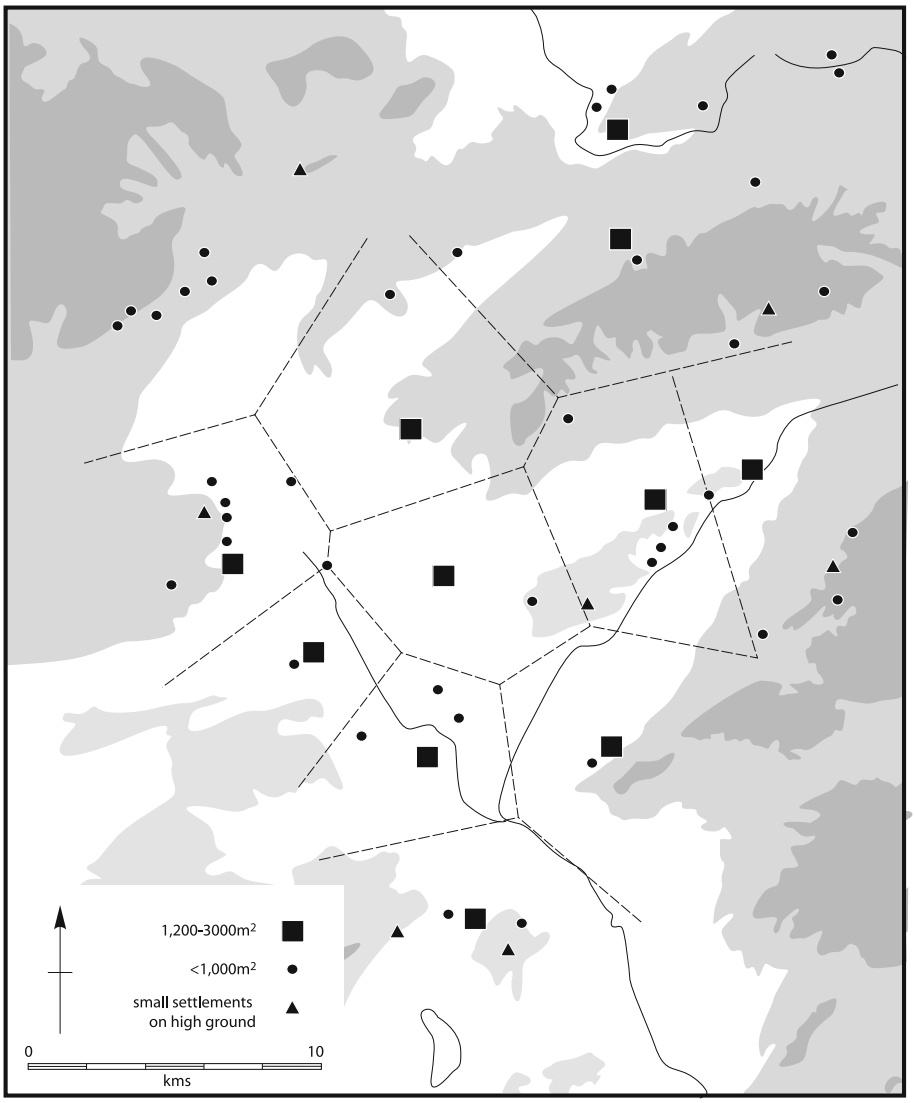

Fig. 12 Early Bronze Age settlement patterns in the Villena region (adapted from Jover and López 2004, Fig. 4)

Southern Meseta

Region, Archaeological Units and Chronologies

The southern part of the central tableland (Fig. 13) ('mesa' = table) of Iberia is at an average altitude of c. 600 m, drained to the Atlantic by the two major rivers Guadiana and Tagus, and surrounded by mountain chains, most notably the sierra Morena (which separates the area from Andalucía), the Baetic and Iberian mountains (which separate it from

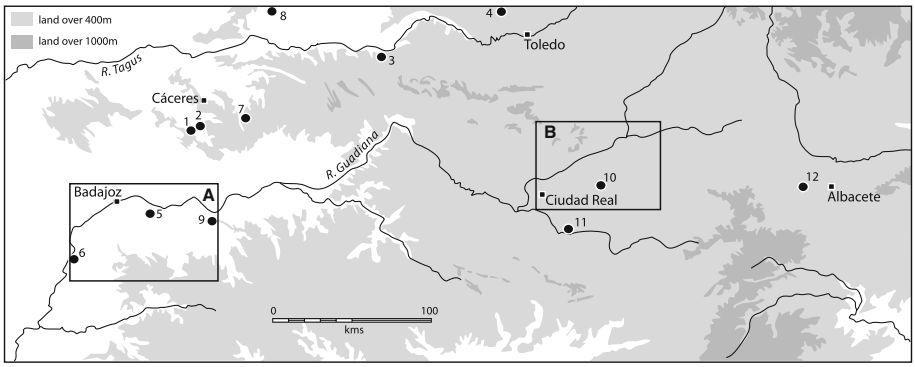

Fig. 13 Map of Southern Meseta showing main areas and sites mentioned in the text. Areas: A = Middle Guadiana, B = La Mancha. Sites: 1, Los Barruecos; 2, El Conejar; 3, Azután; 4, El Castillejo; 5, La Pijotilla; 6, San Blas; 7, Cerro de la Horca; 8, El Canchal; 9, La Solana del Castillo de Alange; 10, El Azuer; 11, Cerro de la Encantada; 12, El Acequión

the Mediterranean coastlands of Valencia to the east) and the Central Mountains (which divide it from the northern Meseta). There are extreme changes of temperature, both seasonally and daily, and rainfall is unreliable, ranging from 400 mm in the east to 500 mm in the west. For the purposes of this paper I have decided to restrict coverage to the area south of the river Tagus, thereby excluding Madrid and focussing on the modern provinces of Badajoz and Cáceres to the west and Toledo, Ciudad Real, Albacete and Cuenca to the east.

Given the size of this area (over 100,000 km^2) it is not surprising that there is considerable variation in archaeological coverage: for example, research on the fifth to third millennia BC has received more attention in the west than in the east, while the reverse is true of the Bronze Age. To a certain extent this is the outcome of regional archaeological traditions and practices, and it makes any kind of critical study of the entire southern Meseta a challenging exercise. It is also clear that we are only beginning to comprehend the agricultural colonisation of this vast area in the fifth and fourth millennia BC.

This recent growth in Neolithic studies, coupled with the absence of deeply stratified sites and detailed analyses of material assemblages, means that the kind of periodisation defined for Valencia has not been repeated in any part of the southern Meseta. Attempts to impose this sequence on areas like Cáceres have not been successful, and the current focus is on broad, stadial divisions such as Early (late sixth/fifth millennium BC), Middle (end fifth to mid-fourth millennium BC) and Final Neolithic (mid-end fourth millennium BC) (Cerrillo 2005, 2006). The transition to the Copper Age is problematic, with one recent sequence for the western tablelands placing the Initial Copper Age at c. 3500–2800 BC, then the Full Copper Age at c. 2800–2400 BC and the Beaker Copper Age at c. 2400–2200 BC, with a Bronze Age transition at c. 2300/2200–2000 BC (Hurtado and Hunt 1999). For the following seven hundred years, neither the western (e.g. Hurtado 1997) nor the eastern tablelands of the southern Meseta support any widely accepted and detailed periodisation of the Early Bronze Age, whether based on pottery typologies or radiocarbon dating. Nájera (1984) proposes the usual division into 'Bronce Antiguo' and 'Bronce Pleno' (with the latter divided into early and late periods) for La Mancha, based on the structural sequences of two sites.

Production, Consumption and Social Relations: c. 5600–3200 BC

Just over twenty years ago it was widely accepted that the central tablelands of Spain, both north and south, were devoid of Neolithic populations (see discussion in Kunst and Rojo 1999). However, survey and excavations in the upper reaches of the Ebro valley and into the northern Meseta during the last decade have now demonstrated that agricultural populations existed here at least from the mid-sixth millennium BC (e.g. the Ambrona valley: see Rojo et al. 2006).Within the southern Meseta we are still at an early stage in our knowledge of Early Neolithic sites and sequences. In some regions, surveys have failed to locate any sites of Neolithic date (e.g. the Tagus valley east of Toledo: see Fernández-Miranda et al. 1990). Recent research has concentrated on Cáceres, where 28 Early Neolithic cave occupations and open-air sites are known in two clusters in the south and northeast of the province (Cerrillo 2005, p. 73). The cave of El Conejar has Epipalaeolithic levels in the eighth millennium BC, with a two thousand year occupation gap before the Early Neolithic. Epipalaeolithic occupations based on surface materials are notoriously difficult to identify (Jiménez 1999), but they have increased in frequency in the Spanish interior in recent years. The density and dating of such sites, coupled with any evidence for mobility and social interaction networks (for instance, the incised slate plaque at El Conejar, with its decorative similarities to sites in Valencia: Cerrillo 2005, p. 65), are central to debates on the relative roles of indigenous and new populations in agricultural adoption in interior Spain.

Excavations at the open-air site of Los Barruecos have revealed a Neolithic occupation sequence from c. 5000 BC, beginning with a hearth and two storage pits (Cerrillo 2005, 2006). The cultivation of cereals (barley) is shown by pollen and phytolith analyses, while wheat seeds were stored at El Conejar; acorns were also ground for flour. The animal bone sample was very small but included ovicaprids, cattle and pig. The location of Los Barruecos near a seasonally inundated area is reminiscent of Early Neolithic open-air sites in Valencia, Cataluña and the Ambrona valley, while the pollen diagram indicates only small-scale clearance in an open vegetation cover of holm oaks, olives and smaller cistus bushes. Both cereal cultivation and animal grazing, along with the consumption of wild plant foods, were practised here, but the extent of sedentism has still to be confirmed. The location of Los Barruecos provides a model for future survey projects designed to locate Early Neolithic settlements in this region. The limited scale of the excavations does not help us with calculations of site and community size. Sources of clays for pottery production were found within 5 km of Los Barruecos, while flint appears to be more distant. Excavation of further sites will help with a more detailed, comparative analysis of pottery forms and motifs, especially with regard to interaction networks: the presence of marine shells at El Conejar already testifies to such interaction.

The Middle Neolithic occupation at Los Barruecos, from the end of the fifth to the mid-fourth millennia BC, shows a more marked anthropogenic effect on the vegetation, with continued local cultivation and livestock grazing. It represents one of the few settlements that is known and has been excavated for this period, the archaeological record of which is dominated by megalithic tombs. These are concentrated in the west of Cáceres and Badajoz, in the Tagus and Guadiana valleys and their tributaries, and extend especially along the Tagus valley into Toledo. The known tombs support the inference that Neolithic communities were widely distributed over the western part of the southern Meseta in the fourth millennium BC, although the restriction of well contextualised radiocarbon dates to a relatively few sites means that we cannot assess finer-scale changes in this distribution.

Recent surveys and excavations have recovered traces of habitation both underneath and alongside tombs. The Azután passage grave lies about 1 km to the south of the Tagus river in northwest Toledo and its initial use dates to c. 4000–3500 BC (Bueno et al. 2005b). Beneath the mound were found pottery, splintered flint, a grinding stone (three more were in the mound fill) and animal bones. Similar pottery was found in the tomb, suggesting that the habitation level occurred only shortly before the tomb was constructed; this is supported by radiocarbon dating. There are five clusters of pre-mound materials (Fig. 14), the two largest reaching 2 m in diameter, and the excavators speculate that these were structures housing at least three families. No structural traces were found and the extent of this pre-mound habitation is unknown (although similar cultural materials were also found around the mound). Some eighty kilometres further to the east, the non-megalithic burial mound of El Castillejo (Bueno et al. 1999) covers a habitation level which includes what appears to be a circular structure of some 3 m diameter. A settlement site containing circular structures and materials of the fourth and third millennia BC extends over 1 km nearby, and both sites are located close to a lagoon area. Bueno et al. (2005b pp. 152–157) also give examples of the close proximity of tombs and settlement areas, as well as of settlement materials included in tomb mounds.

The location of sites like Azután and El Castillejo shows the potential for agro-pastoral production. This is supported by the remains of both cereals and legumes, including fermented barley at Trincones, and the exploitation of sheep and cattle, as well as acorns (phytolith remains on grinding stones at Azután) and honey (the latter found in a pot in the pre-mound occupation at Azután). The existence of open, dehesa vegetation along valley bottoms is again suggested by pollen analysis (Bueno et al. 2005b). The extent to which this agro-pastoral production was (a) sedentary and (b) uniform in its relative emphasis on plants and animals is still open to question. The new data allow us to discard the interpretation of

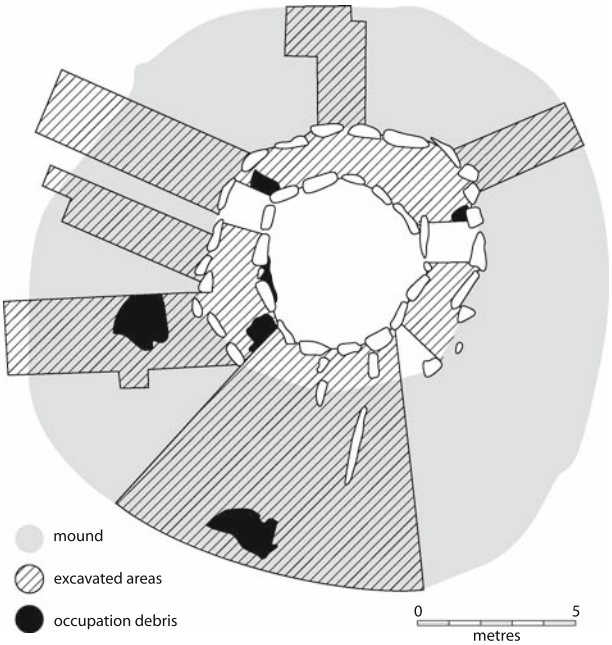

Fig. 14 Plan of pre-mound occupation of megalithic tomb at Azután (after Bueno et al. 2005b, Fig. 99)

mobility based on longer-distance transhumance, but even if there were sedentary communities living by their tombs, there was also some degree of logistical mobility to exploit other resources, as is shown by the location of rock shelters with Neolithic materials and rock art sites (Bueno et al. 2006). With regard to the composition of the palaeodiet, the first trace element analyses, on skeletal materials from Azután (Trancho et al. 2005), indicate a high consumption of milk products, a low consumption of carbohydrates (given the practical absence of dental caries), and a relatively higher meat consumption by males than females.

Clearly our understanding of production in general (including the instruments of production) and its organisation (including the division of labour) during the fourth millennium BC is still at an early stage. The raw materials for tomb construction were locally derived, as were the polished stone artefacts from sites such as Alcántara (Bueno 1988). Evidence for networks of social interaction between the megalithic tomb building communities has been derived from a variety of sources: the forms and construction of the tombs, the engraved and painted art represented inside tombs, on standing stones, or rock surfaces in the landscape and on portable objects such as schist plaques, pottery types and objects made of raw materials such as sea shells, jet and callais (e.g. Bueno 2000). Taken together these suggest networks of interaction linking areas of the southern Meseta to each other and to communities in the northern Meseta, in Portugal to the west and in Andalucía to the south. However the inference of these networks is still only at a very general level.

The inference of social relations is also based on limited evidence of variable quality. Excavated settlement traces are small, disturbed and ephemeral, while very few tombs have been excavated in modern times. Tomb forms range from single chambers to chambers with short or long entrance passages, and non-megalithic tombs such as El Castillejo. Radiocarbon dating does not support a simple evolution from closed chambers to tombs with short and then long passages (Bueno 2000), with different types in the same cemetery, although false-vaulted tombs date mainly to the third millennium BC and the largest tombs in cemeteries may be placed in the most visible locations. Visibility is enhanced in some cases as the tomb mound is covered by a ring of white quartz (Bueno 1987, p. 75). As yet we have little idea what determined the use of these different tomb forms and sizes. Details of the mortuary rituals are also lacking, except for a few glimpses of the collective rite of interment. The non-megalithic mound at El Castillejo covered groups of flexed individuals (adults and children, males and females) divided by a line of stones or inserted into an almost circular stone structure, with a limited range of objects (e.g. flint blades, plain pottery, microliths, bone points) seemingly associated with each interment (Bueno et al. 1999, pp. 148–19; for the same range of objects, see also Azután, Bueno 2005). Both individual (e.g. flint arrowheads, beads) and collective (polished stone axes, schist plaques, pots) offerings have also been distinguished in other tombs (Bueno 2000, p. 63). Overall there is no evidence to suggest anything other than a kinship-based society at this time, with shared mortuary practices and artistic motifs, along with extensive kinship networks, expressing and maintaining social cohesion in a landscape dominated visually by the ancestors.

Production, Consumption and Social Relations: c. 3200–2250 BC

Survey and excavation have made a marked, but uneven, difference to our knowledge of settlement and burial sites on the southern tablelands in the late fourth and third millennia BC. The distribution of fieldwork means that knowledge of sites, sequences and materials is concentrated in a small number of regions, such as the Mérida and Tierra de Barros areas of Badajoz and the Plasenzuela region of Cáceres The first two of these lie in the middle Guadiana basin, for which a three-fold division of the Copper Age is defined (Hurtado 1997;

Hurtado and Hunt 1999), and excavations at sites such as La Pijotilla and San Blas are the centre of a regional approach to social and political organisation (Hurtado 1997, 2003, 2004). To the north, in Cáceres research in the last decade has revealed some one hundred settlement sites, but these are also concentrated in two regions, the centre and the northeast (e.g. Bueno et al. 2000) and a cultural/chronological sequence is less easily defined than in Badajoz. Sites like Cerro de la Horca were occupied from the Final Neolithic. Settlements enclosed by stone walls are known, as at El Canchal, which has 5 hectares of surface materials dating from the Final Neolithic/Chalcolithic transition and circular structures and an external cemetery of megalithic tombs (Bueno et al. 2000, pp. 221–230). In Toledo and Ciudad Real, our knowledge of sites is mainly dependent on surface survey, which shows that occupation occurred from pre-beaker times, and that at least some sites had what appear to be defensive walls around them (e.g. Los Castillos settlement: de Alvaro et al. 1988).

In the middle Guadiana (Fig. 15) there appears to be an increase in site size and density, as well as in fortified sites of an average 1 hectare in size (range 0.5–3 hectares), from c. 2800 BC. The unfortified sites are mostly distributed on the fertile, alluvial soils of the Guadiana basin, although there is a large, unoccupied area associated with the outstanding settlement of the region at La Pijotilla (Hurtado 1997, 2003). Surface survey, aerial photography and excavation show the existence of an almost 80 hectare site, surrounded by a 4 m wide and 1.5 m deep ditch which, where excavated, has evidence of an inner, stone wall and perhaps a gateway. Habitation at its maximum appears to be restricted to a central area of some 20 hectares, delimited by an inner ditch on one side, while other areas are devoted to storage pits (in the east, west and south) and tombs (in the east). Calculation of the number of people who lived here at any one time is difficult, given the size of the

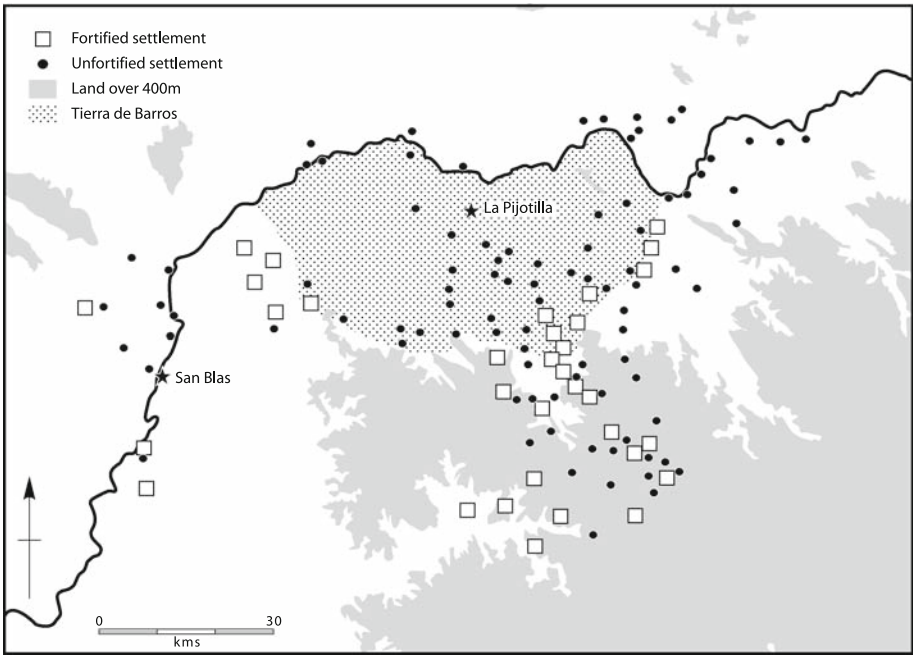

Fig. 15 Settlement distribution in middle Guadiana valley during third millennium BC (adapted from Hurtado 2003, Fig. 4)

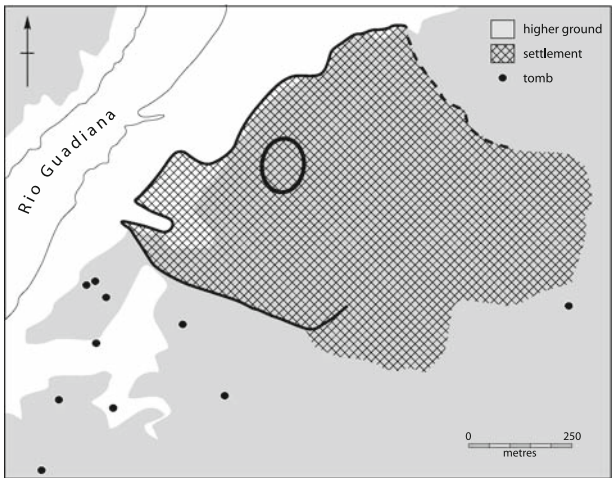

Fig. 16 Plan of third millennium BC fortified settlement at San Blas (after Hurtado 2004, Fig. 2)

excavated area and the limited dating of settlements within 20 km of the site: for example, we do not know the extent to which the occupation of La Pijotilla was the outcome of aggregation from abandoned settlements in this broader region (as is proposed for Marroquiés Bajos in Jaén, see below). Outside this area, and lower down the Guadiana river, lies the other large site of this region, San Blas (Fig. 16), which was at least 30 hectares and occupied throughout the third millennium BC (Hurtado 2004): this had an outer, 1.8 m wide stone wall with an external ditch 5 m wide by 1 m deep, on all except its east side, and an inner 'citadel' of c. 1 hectare (over earlier occupation levels), surrounded by a similar sized stone wall and a much more impressive ditch c. 10 m wide by 3.75 m deep. This time the cemetery is located outside the perimeter of the site.

Evidence for agricultural production is confined to site locations and the presence of plant and animal remains, storage pits, sickle teeth and grinding stones from sites such as La Pijotilla and San Blas. Plant and animal remains have yet to be published in detail, but study of the dentition from La Pijotilla tomb 3 shows a dependence on the unrefined carbohydrate consumed in cereals, as well as periods of dietary crisis and malnutrition (Hurtado 2000a). Much weight is placed upon the frequency of storage pits, especially at La Pijotilla, where they occur both inside and outside circular huts in the central, habitation area and in larger sizes in the western sector of the site, between the inner and outer ditches. When added to the evidence of storage jars, which have the same capacities as the smaller pits, the provision for storage suggests to the excavator the existence of food surpluses and intensified agricultural production (Hurtado 1997, p. 108). This inference depends heavily on the assumed use of such pits as well as their chronology, which must spread over at least six hundred years; where they occur in the western sector of the site, some were abandoned and succeeded by habitation structures (Hurtado 2003, p. 247). Larger numbers of people living in the same settlement would clearly require a greater concentration of food supply, but whether this implies intensification of labour or production per unit area is still to be determined.

Studies of the instruments of production and their sources are still underdeveloped, given the comparatively small number of stratified and larger-scale excavations. The best example to date is of copper objects, which one might expect to be a distinguishing factor

of the Copper Age. Copper ores, mostly polymetallic or arsenical coppers, are known mainly in southern Badajoz (Hurtado and Hunt 1999, p. 249), but archaeometallurgical survey has now revealed a much higher density of sources in the middle Tagus valley in Cáceres (Barroso et al. 2002–2003, p. 90). Claims for 'prehistoric' mineworking have been made on the basis of extraction tools (e.g. grooved mauls, stone hammers) and cultural materials (e.g. Copper Age pottery) collected during survey, but no excavations have taken place to establish this dating more precisely (Hurtado and Hunt 1999, pp. 248–250). There are examples of settlements such as Cerro de la Horca in close proximity to copper sources (Barroso et al. 2002–2003, p. 92) and one might expect to find further such examples along the middle Tagus valley. In Badajoz there appears to be more of a complementary distribution between copper sources (at least 20–30 km to the south of the Guadiana River) and the main centres of agricultural production (e.g. the Tierra de Barros where La Pijotilla is located). Dating of metal objects is difficult, as some 75% of them are from superficial contexts. Of some 200 objects known from the third and first half of the second millennium BC in Badajoz and Cáceres, 50% are from one site, La Pijotilla (Hurtado and Hunt 1999, p. 244). The frequency of objects increases during the Beaker period. The objects include axes, chisels, awls, saws, knives, daggers and arrowheads and comprise a similar range to those already discussed for southeast Spain and Valencia. There is evidence for production in settlements, in the form of lumps of ore, slags, crucibles, and, at La Pijotilla, fragments of crucibles/moulds and a possible ingot (Hurtado and Hunt 1999, pp. 265–266).

A variety of non-local materials have been identified on sites of this period, as in the Neolithic. Objects made of sea shell, amber and callais have been found in the Tagus and Guadiana valleys (Bueno et al. 2005a, b, p. 81), while marble (used for the production of vessels and some idols) at sites like La Pijotilla and San Blas is from the Alentejo region in southern Portugal, and the ivory at San Blas comes ultimately from North Africa (part of a wider dispersion through southern Spain and Portugal (Harrison and Gilman 1977). Hurtado (1997, p. 110) proposes that the working of marble would have required the kind of skills associated with specialist production. There have been few studies of pottery production in the third millennium BC (most recently Kohring et al. 2007), but the composition groups of pots with pellet decoration suggest local production (Hurtado 1997, p. 260). The style of Beaker decoration at La Pijotilla also hints at local production. Examples of painted pottery from a small number of sites like Los Castillos in Toledo (de Alvaro et al. 1988) show stylistic similarities with material from southeast Spain, as do anthropomorphic idols at sites like La Pijotilla (Hurtado in press).

These kinds of 'exotic' objects play a role in inferences about the nature of social relations during the third millennium BC, but the starting point is usually the settlement evidence. Sites like La Pijotilla and San Blas are distinguished by their size and form from other local settlements, such that they are placed at the head of local settlement hierarchies in the middle Guadiana. The regional context for La Pijotilla is of an exceptionally large settlement occupying fertile agricultural lands and a non-defensive location in a scarcely populated landscape, with unfortified sites up and down river, as well as to the south and southeast, and small fortified sites on strategic, high points to the south and southeast controlling the political territory of La Pijotilla and securing important contact routes with the Guadalquivir valley to the south (Hurtado 2003, p. 259). The dominating role of La Pijotilla in local social relations is emphasised by the concentration of the 'exotic' objects, what are called 'prestige' items, within one part of the habitation area and within its tombs (see below). A political territory could also be reconstructed for San Blas, with local unfortified sites along the Guadiana valley to the north and a line of fortified sites separating its territory from that of La Pijotilla to the northeast (Fig. 15). Here again there is a

concentration of 'prestige' items, this time within the central 'citadel' (Hurtado 2004). Leaving aside the issues of what does and does not constitute 'fortifications' and whether a single purpose should be attributed to such enclosures, this kind of reconstruction of more regional, hierarchical political systems is paralleled to the south and southwest in southern Portugal and Andalucía (see below), with the role of 'periphery' in the development of a third millennium BC state society being attributed to middle Guadiana (Nocete 2001). Hurtado (2003, pp. 255–262) rejects this interpretation and prefers one of a 'communal hierarchical society', in which the activities of individual leaders were constrained by communal ideologies acted out through integrating rituals.

Evidence for the disposal of the dead is again heavily concentrated in the west of the southern tablelands. For example, there are only four burial sites of the third millennium BC in the upper Guadiana basin in Ciudad Real (Gutiérrez et al. 2002, p. 116). Different forms and sizes of megalithic tombs continue in use, with the addition of those containing false vaults on their chambers (Bueno et al. 2000, 2005a), while the dead were also disposed of in natural and artificial caves, in cists (Hurtado and Hunt 1999, p. 261) and within settlements (Hurtado 1997, p. 115). Social inferences are made on the basis of the treatment of the dead and the deposition of material objects within tombs. Among the best examples are the megalithic Tombs 1 and 3, both with false vaults, at La Pijotilla (Hurtado 2000a). Tomb 1 contained the remains of more than 100 individuals, while the later Tomb 3 contained some 300 individuals, with initial deposition as flexed bodies and later dispersion of mainly long bones and crania to the edges of the chamber. The norm was for one small pot to be deposited with each interment, although one individual was associated with a copper dagger, two pots, a flint blade and lumps of ochre. Other objects appear to have been deposited in specific areas, such as the idols and larger pots near the entrance and the greatest concentrations of flint blades and points opposite the entrance.

As in the previous millennium, the emphasis of mortuary representation is on kinship-based communal groups, although the data from La Pijotilla suggest that the numbers of people interred in the same tombs decreased through time. The appearance of the Beaker assemblage by the mid-third millennium BC did not mark the customarily assumed break between communal and individual burial: for example, Beaker burials occurred collectively in megalithic tombs (e.g. Azután: Bueno et al. 2005b) and rock cut tombs (as at Valle de la Higueras: Bueno et al. 2005a). Beaker material occupies a pivotal position in interpretations of social change on the central Spanish tablelands, supposedly marking out more prominent individuals, whether competing through drug and alcohol consumption and feasting to achieve greater social prestige, or breaking through egalitarian barriers to become hereditary chiefs (for discussion, see Garrido 1997; Guerra 2006). The representations of the dead in the southern tablelands still focus mainly on the communal rather than the individual and mark out very few individuals with exceptional grave goods. This evidence invites caution in claims for hereditary chiefs at this time.

Production, Consumption and Social Relations: c. 2250–1550 BC

While fieldwork in the middle Guadiana basin has made it the centre of settlement analyses and social reconstruction in the southern tablelands for the millennium from c. 3200 BC, this is not the case for the late third and early second millennia BC. The first stratified settlement of the second millennium BC, at La Solana del Castillo de Alange was excavated in the 1990s (Hurtado 1997). The limited number of such sites identified by surface survey may be due either to changes in settlement density or, more likely, to the inability to distinguish second from third millennium BC occupations on the basis of pottery

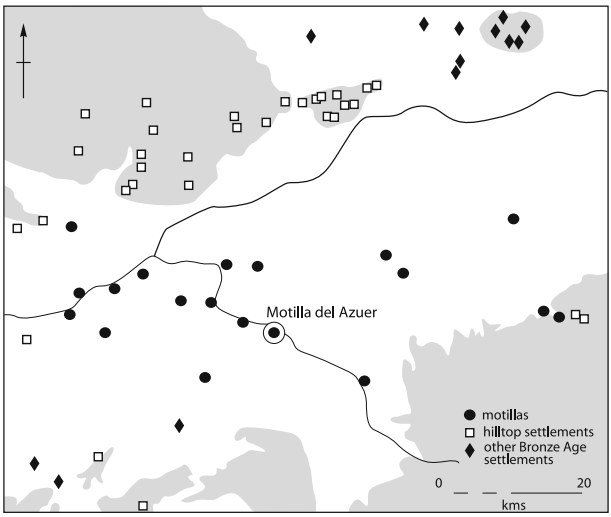

Fig. 17 Early Bronze Age settlement patterns in La Mancha (after Molina et al. 2005, Fig. 1)

typologies (Hurtado 2000b). In contrast, there is much greater evidence of settlement types and distributions from the eastern tablelands of La Mancha, Albacete and Cuenca. For this reason I will concentrate on this area.

Surface surveys in the eastern tablelands began in western La Mancha in 1973 (Nájera and Molina 2004a) and have extended further to the northwest (Ruiz Taboada 1998), to the east along the upper Guadiana (Ocaña 2002) into Albacete (Hernández et al. 1994; Gilman et al. 1997; Fernández-Posse et al. 2001) and to the north into Cuenca (Díaz-Andreu 1994). In all these areas there is a low density/visibility of Copper Age sites and the Bronze Age appears as a new settlement landscape. Beginning with western La Mancha, intensive survey revealed only 7 Copper Age sites (a density of 1 per 21 km^2) compared with 45 sites (a density of 1 per 3.3 km^2) for the period c. 2250–1550 BC (Nájera and Molina 2004a). The Copper Age sites were small and dispersed, located on small elevations on the lowest river terraces. In contrast the Bronze Age settlements took two main forms (Fig. 17) (open air settlements most likely associated with farming activities are also known, but not yet well studied). Along rivers such as the upper Guadiana and lower Azuer, and in low, marshy and lagoonal areas without natural defences, were concentric walled sites with central stone towers, surrounding subdivided enclosures and external settlements (the latter were absent in the marshier areas), known locally as *motillas*. Their central areas range from only c. 2 m in height and c. 20 m in diameter to at least 11 m in height and 40 m in diameter, in the case of the only extensively excavated site at El Azuer (Fig. 18), while the external settlements extend over a radius of up to 50 m. They are fairly regularly distributed at 4–5 km intervals and the overall sizes range from mainly 0.25–1.0 ha to (exceptionally) larger ones of c. 3 ha. (Nájera and Molina 2004a). The second main settlement form consists of easily defensible and fortified sites located on higher ground, especially in the hills to the north, west and south of the *motilla* distribution. They have high degrees of intervisibility and have dominant views over the river valleys. Only Cerro de la Encantada has been subjected to extensive excavations (e.g. Nieto and Sánchez 1980; Romero et al. 1988; Colmenarejo et al. 1988).

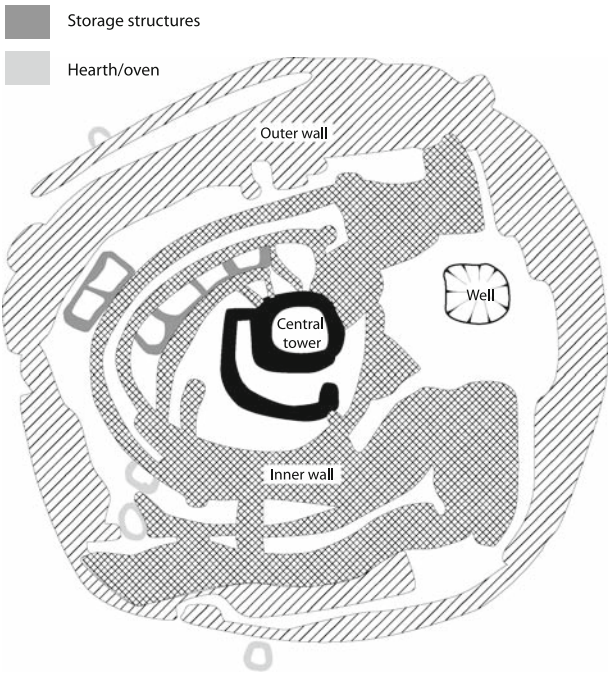

Fig. 18 Motilla of El Azuer, La Mancha (after Molina et al. 2005, Fig. 3)

These settlement forms and locations recur in the Lagunas de Ruidera, where inter-site distances range from 1 to each 0.75 km to 1 to each 2 km, and the generally small, circular, enclosed sites occur as low-lying *motillas,* and on slightly higher ground within some 150 m of the valley bottoms (Ocaña 2002, p. 168). There is a suggestion that smaller sites are clustered around larger, more regularly spaced settlements. Further to the east in Albacete, *motillas* also occur (as at El Acequión: see Fernández-Miranda et al. 1990; Martín et al. 1993) and the sites of similar form located on low hills and elevations are known locally as *morras* (Martín 1983), although the distribution of both types of site does not seem to extend into eastern Albacete (Hernández et al. 1994).

Both *motillas* and *morras* are located in areas of agricultural and livestock grazing potential. Areas of higher phreatic level and lower salinity were favoured in the location of *motillas* (Nájera and Molina 2004b; Aranda et al. 2008): at El Azuer, a well at least 20 m deep was excavated within the enclosed nucleus of the site (Molina et al. 2005). Ocaña (2002, pp. 176–177) proposes that the pastures in the Lagunas de Ruidera were the focus of more regional transhumance, given their localised availability during the dry summer months. Faunal assemblages from El Azuer and Los Palacios (Driesch and Boessneck 1980) show that cattle and ovicaprids dominate by weight, with horses having higher frequencies in external settlement contexts, and secondary products such as wool, milk and cheese were exploited (attested also by the finds of cheese-strainers and loomweights on these sites). Both ovicaprids and pigs were stabled inside the central area at El Azuer, between the tower and the inner enclosure wall (Nájera 1984). Wheat and barley were also stored clean in this area, in rectangular stone and mud structures and later in large pots and esparto grass baskets, as well as in rectangular storage pits in the outer enclosure. Legumes such as lentils, beans and chickpeas were mainly associated with the patio area alongside the well (Nájera and Molina 2004b, pp. 210–212) and could be evidence of horticulture in

low-lying areas around the site. Although cereals were processed before being introduced to the central area, the presence of flint sickle teeth (albeit in small numbers) testifies to cultivation by the inhabitants of sites such as El Azuer. Grinding stones and storage vessels were also found in settlement structures outside the central area, as well as concentrations of pits, some of which were filled with butchered animal remains. A mixed subsistence basis can also be argued for in the case of sites such as El Recuenco, on the northern edge of the tablelands in Cuenca (Rivera et al. 1994). In contrast, Cerro de la Encantada, which is located above and to the south of the tablelands, is argued to have had greater potential for livestock exploitation than cereal agriculture (Miranda et al. 1988).

There is little evidence for either lithic or pottery production in any sites of this period. A small number of provenance analyses on grinding stones and grinders in northwest La Mancha has shown that as many came from 5 to 40 km distance as from areas close to settlements (Ruiz Taboada and Montero 2000, pp. 354–355). Evidence for copper smelting and casting, including slags, crucibles, lumps of copper and moulds occurs on a number of *motillas* and *morras*, as well as in Sector B of Cerro de la Encantada (Nieto and Sánchez 1980, p. 121), where possible furnaces were found for casting. But the frequency of finished copper objects is very low in comparison with the volume of deposits excavated at sites like El Azuer and El Acequión (Fernández-Posse et al. 1999, p. 222). The majority of objects are tools such as chisels, awls and flat axes, along with riveted and tanged daggers and Palmela points; ornaments (e.g. bracelets and rings) are rare. Nearly all objects analysed are of unalloyed copper, for which sources have been identified in areas such as the Toledo mountains in northwest La Mancha, on the northern edge of the plains where the *motillas* are located (Fernández-Posse et al. 1999, p. 221; Ruiz Taboada and Montero 2000, p. 357). Small-scale, household-based production is proposed for this metallurgy in all areas of the eastern tablelands (e.g. Díaz-Andreu and Montero 2000 on Cuenca), with movement of copper from ores up to 30–40 km from settlements (although provenance studies such as lead isotope analyses are lacking).

In contrast to these materials, the presence of ivory v-perforated buttons, beads and bracelets indicates the use of an exotic material, as ivory is usually assumed to have a North African origin (Harrison and Gilman 1977; Martín et al. 1993, pp. 34–35). Bars of raw ivory have been found at El Quintanar and Cerro de la Encantada, along with evidence of different stages of artefact production in one structure at El Acequión (Fernández-Miranda et al. 1990). Study of the materials from El Cuchillo (Barciela 2002) suggests that ivory was traded into the region in semi-manufactured pieces and then worked into artefacts using copper tools such as saws and awls. The exotic nature of the material, added to the kinds, frequencies, and in one case size (one button at El Acequión weighs 107 g), of objects produced suggests that access to ivory was socially restricted (although it was not restricted to the largest sites).

While there might be a case for proposing that only a small number of individuals were involved in the production of metal and ivory objects, the evidence for, and nature of, the division of labour and the social relations of production in this area is not comparable to that from southeast Spain. Nájera (1984) proposed a regional model for western La Mancha based on the two major excavations at El Azuer and Cerro de la Encantada. Thus the evidence for metal and pottery production, grain storage and livestock stabling at El Azuer was argued to represent centralised economic activities, while the contrast between the agricultural potential and agricultural and metallurgical production at this site compared with the hilltop settlement of Encantada suggested a model of complementary production (that is, agricultural produce for metals). The occupational sequences from both sites also suggested that economic centralisation and social stratification (as inferred from

the size and complexity of El Azuer's fortifications and from the burial evidence from Encantada) increased to a peak c. 1700–1550 BC. This model of a strongly hierarchical political system has been maintained in more recent papers, in which it is argued that elites lived in the peripheral, hill-top settlements like Encantada and the communities living on the plains focused on agricultural production (Nájera and Molina 2004b, p. 210; Aranda et al. 2008, p. 257).

This model raises several problems. First, as has already been pointed out, it is dependent mainly on the evidence from one site of each type. Secondly, the presence of flint sickle teeth at Encantada suggests, at the very least, the practice of some cereal cultivation near this site. Also the absence of large-scale grain storage there is open to question. Sánchez and Galán (2004, p. 128) refer to what they call 'silo-towers' in the eastern and southern areas of sector B, which occur singly or in groups associated with walls; where excavated, they have large pottery vessels inside them, suggesting a storage function. Thirdly, there is sufficient evidence for metal production on low-lying *motillas* and *morras*, not to mention alternative copper sources in other parts of La Mancha, to raise doubts about the need for dependence on sites like Encantada. Fourthly, the linkage of Encantada with *motillas* and *morras*, as well as other hilltop settlements in La Mancha in the same political system is questioned by the argument that it embodied the northernmost limit of the last phase of the Argaric political system. While Nieto and Sánchez (1980) and Romero et al. (1988) emphasise differences in pottery types and frequencies between Cerro de la Encantada and the Argaric, Castro et al. (1996, p. 127) argue that domestic and funerary pottery in level III (c. 1700–1550 BC) fit within Argaric norms, as do grave good associations. Fifthly, the concentration of excavations to date within the *motilla* at El Azuer limits our ability to compare its evidence for production and consumption with its surrounding settlement area. There is now evidence from the settlement for pits, ovens and hearths in the open air between structures, as well as the storage and processing of grain within such structures.

Is there any evidence for an elite actually living in the *motilla*, as opposed to the settlement population using it as a defended, communal area? Interestingly, the 75 excavated burials to date are from the settlement area and only impinge on the edge of the central, enclosed area during later phases of occupation (Nájera et al. 2006; Aranda et al. 2008, p. 253). All ages, including a high infant mortality, and both sexes are represented in the pits, while pottery urns were used exclusively for some children. Few grave goods were deposited with the dead (e.g. a small number of male adults with pottery vessels, copper riveted daggers and awls) and none with infants (in contrast to the Argaric world, see above). One example (Tomb 39) has possible evidence for what is called 'socialization', in the form of very small pots associated with an 8–9 year old child (Nájera et al. 2006, pp. 153–154). Palaeopathological analyses suggest a carbohydrate-rich diet and a high level of dietary stress shared by the local community, but there were also differences in engagement in physical activity between males as opposed to females and children (as in the Argaric world, see above), suggesting a division of labour. There are references to some males with greater stature (Nájera 1984). What we currently lack are details of the localisation of all these burials in relation to specific structures (and thus to evidence comparing production and consumption activities among the living with the deposition of the dead) and of their dating in relation to the occupation sequence.

The majority of the burials at Cerro de la Encantada are concentrated in level III (c. 1700–1550 BC) in association with what are called 'ritual buildings'. Leaving aside the interpretation of these buildings, the burials are also deposited in a combination of pits and urns, with a similar infant mortality and life expectancy to El Azuer, although more adult

females than males were present (Sánchez and Galán 2004, pp. 134–136). Grave goods include one to two pots per burial, a total of fourteen copper objects (awls, daggers and one arrowhead) in thirty-seven burials, two silver bracelets (both associated with infants) and a few stone beads (Romero and Sánchez 1988, p. 143). While the numbers of grave goods are greater than those present in El Azuer, this on its own is insufficient to support the inference of elites living in Encantada and exercising political dominance over the plains to its north. Again, we need analyses of these tombs in relation to each other and to structures, as well as to evidence for production and consumption within Encantada (assuming that these 'elites' did not live by themselves) and Azuer before comparing these sites with each other. If Encantada belonged to the Argaric political system, this might also explain the greater deposition of copper and silver grave goods as compared with the *motillas* to the north.

Central and Western Andalucía

Region, Archaeological Units and Chronologies

Central and Western Andalucía (Fig. 19) comprise the provinces of Huelva, Sevilla, Cádiz, Córdoba, Málaga, Jaén and western Granada and occupy an area of some 70,000 km^2. The two main geographical units are the plain of Andalucía, which is drained to the Atlantic coast by the river Guadalquivir, and the Andalucían mountains to the south of this plain. At their peak, these mountains rise to c. 3500 m in the Sierra Nevada and 800–900 m in their intermontane basins, and they are drained via the tributaries of the river Guadalquivir to the north and a series of steep river valleys to the south into the Mediterranean. There are natural limits to the north (the sierra Morena) and south (the Atlantic Ocean and the Mediterranean). For the purposes of this paper, I am defining the western limit as the river Guadiana (the political boundary between Spain and Portugal). To the east, there are geographical and cultural overlaps with southeast Spain, as defined above, in the area immediately to the west of the city of Granada. The hottest summer temperatures and greatest aridity occur in the lower Guadalquivir valley (once known as the 'frying pan of Spain'), while the increasing altitudes of the Andalucían mountains give rise to marked seasonal and diurnal variation in both precipitation and temperature. Annual precipitation rises from c. 300 mm in the plains to 600–1600 mm in the mountains.

Surface surveys, stratigraphic and rescue excavations, and to a much lesser extent, systematic area excavations, have enabled us to reconstruct more regional settlement patterns, fill in gaps in local sequences (especially in the fourth millennium BC), relate sites to the availability of agricultural, metallurgical and other resources, and identify sites of unsuspected population nucleation. There are still too few systematically excavated stratigraphic sequences for some periods, and too few published assemblages of animal bones and plant remains, given the size of the region as a whole. Many sites are known only from interim reports.

The Neolithic in the Andalucían mountains, especially in the east of the region, is divided into Early (c. 5500–4900 BC), Middle (4900–4400 BC), Late (4400–3800 BC) and Final (3800–3300 BC) periods on the basis of stratigraphies and pottery typologies at Los Castillejos and Cariguela de Piñar (Cámara et al. 2005). This broad periodisation is extended into western Andalucía, although there are some small variations in the dates ascribed to each period. There are clearly dangers in applying one scheme too rigidly over such a large area (e.g. using the presence/absence of cardial pottery as indicative of an

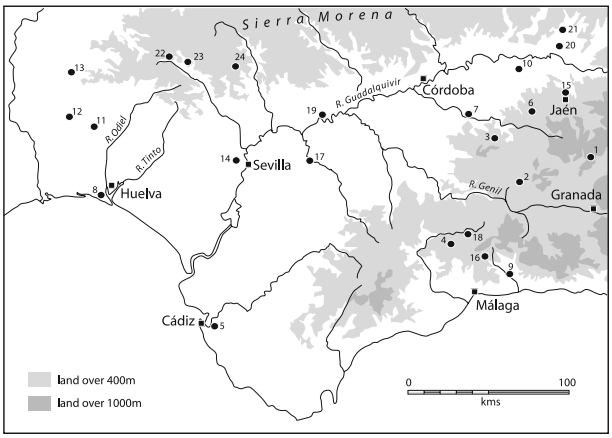

Fig. 19 Map of central and western Andalucía showing main sites mentioned in the text. 1, Los Castillejos; 2, Cariguela de Piñar; 3, Cueva de Los Murciélagos; 4, Cueva del Toro; 5, El Retamar; 6, Polideportivo de Martos; 7, Morales; 8, Papa Uvas; 9, Cerro de Capellania; 10, Albalete/Los Alcores; 11, Cabezo Juré; 12, La Junta de Los Rios; 13, Cabezo de Los Vientos; 14, Valencina de la Concepción; 15, Marroquíes Bajos; 16, Peñon de Oro; 17, Amarguillo II; 18, Antequera; 19, Setefilla; 20, Sevilleja; 21, Peñalosa; 22, La Papua II; 23, El Trastejón; 24, La Traviesa

Early/Middle Neolithic divide: Gavilán and Vera 2001). Taphonomic arguments have been followed in rejecting (a) pre-5500 BC dates for the beginning of the Early Neolithic and (b) claims for local, pre-Neolithic animal domestication (e.g. Zilhão 1993, 2001). The same caution about the applicability of one periodisation over this region applies also to the Copper Age. For the more central and western parts of Andalucía, the general scheme of Initial (c. 3200–3000/2900 BC), Full (c. 3000/2900–2700/2600 BC) and Recent (c. 2700/2600–2300/2200 BC) ties in with that used in southern Portugal (Castro et al. 1996, p. 91). For the Bronze Age, the same links are made between western Andalucía and southern Portugal in defining a transitional Ferredeira horizon (c. 2200/2000–1900 BC) and then a Bronce 1 period (c. 1 900–1600 BC) (Castro et al. 1996, pp. 140–14).

Production, Consumption and Social Relations: c. 5600–3200 BC

There is a marked paucity of hunter-gatherer sites immediately preceding, or contemporaneous with, the appearance of domesticated plants and animals in the whole of Andalucía, including southeast Spain. This is in contrast to areas such as Mediterranean Spain from Valencia to the north, northern Spain and central and southern Portugal (Juan-Cabanilles and Martí Oliver 2002). The stages of agricultural adoption, along with the development of sedentism, are seen in a small number of scattered, stratified sites of uneven quality and publication, mostly located in the Andalucían mountains and intermontane basins, coupled with open-air settlements revealed by excavation and survey across the region.

As we have seen already, the sequences from Carigüela and Los Castillejos show that domesticated plants and animals were present in eastern Granada from the middle of the sixth millennium BC, but mobility, rather than sedentism, was the preferred strategy for at least a millennium. Molina (1983) argued that this mobility was associated with a livestock-based subsistence, for which the locations of known sites in the Andalucían mountains were better adapted than cereal agriculture. The first open-air site at La Molaina was not known until the Middle/Final Neolithic (Saéz and Martínez 1981).

Further to the west, at an altitude of 960 m in the mountains of Córdoba, re-excavation of the Cueva de Los Murciélagos de Zuheros has revealed three major periods of occupation (Neolithic A–C) from the late sixth to the early fourth millennium BC (e.g. Vera and Gavilán 1999). Although plant remains were poorly preserved in what appear to be non-habitation areas (Peña-Chocarro 1999), barley and a variety of wheats, along with a range of wild fruits and poppy seeds, were present from the beginning of the site's use. Microwear analysis showed the presence of sheen on flint sickle teeth, which Peña-Chocarro (1999, p. 133; González et al. 2000) argues were mounted in curved hafts for use, suggesting the practice of local cereal cultivation. Pits used to hold pottery storage vessels were dated to the mid-late fifth millennium BC. There is also some evidence from charcoal analyses for the beginnings of vegetational degradation (Rodríguez Ariza 1995). Surface surveys in this region have shown the existence of mostly small, open-air settlements dating from the late sixth millennium BC, with small amounts of cultural material, and located close to suitable areas for cereal agriculture and stockbreeding (Gavilán and Vera 1996, 1997). The site with the largest amount of material, Cerro del Cercado, was also the only one with grinding stones and flint sickle teeth with surface sheen. In addition to these sites, there are caves and rock shelters with schematic art. At Los Murciélagos this art occurred within the cave system where Neolithic materials were excavated, while in other cases the similarity of motifs with those present on Neolithic pottery from Los Murciélagos and other stratified sites such as Carigüela suggests a contemporary dating (Gavilán and Vera 1993; Gavilán 2004).

The nature and distribution of these different types of sites suggest the existence of at least some mobility, perhaps with logistical sites for resource exploitation (e.g. lithics) and ritual practices around larger sites such as Cerro del Cercado (Gavilán and Vera 1996). Such mobility and exchange must also account for the presence of non-local materials such as marble and sea shell, and some pottery tempers from the Guadalquivir valley some 35–40 km to the north of Los Murciélagos. Gavilán (1997) argues that all this new evidence, coupled with that for cereal agriculture at other Neolithic sites (e.g. Cueva del Toro), and the scarcity of flotation to recover plant remains, makes the Andalucían mountains central rather than marginal to agricultural adoption in southern Spain, and weakens Molina's (1983) model of the predominance of livestock exploitation and exclusively cave occupation before the late fifth and fourth millennia BC. Small open-air settlements (less than 1 hectare) of fifth millennium BC date located near to cultivable land have also been found by survey in the Ronda basin, some 70–80 km to the west of Málaga (Aguayo et al. 1989–1990) and in the Guadalteba region of northeast Málaga (Morgado and Martínez 2005).

The archaeological record of agricultural adoption at the western end of the Andalucían mountains, as they extend down to the Guadalquivir estuary and the Atlantic Ocean, is open to debate. On the one hand there are cave sites like Parralejo and La Dehesilla (Pellicer and Acosta 1982) which have sequences of Neolithic occupation with pottery that fits within styles linking it to central Andalucía (although with almost no cardial decoration: see also the Chica de Santiago cave in the sierra Morena to the north of Seville) but a dominance of wild over domesticated animal species in the early Neolithic and a reversal of this pattern by the Later Neolithic. On the other hand, surface survey has revealed the existence of open-air sites, the most famous of which is El Retamar, just inland from the Bay of Cádiz and located on and in sand dunes (Ramos et al. 2005). Associated with a series of hearths, shell middens, stone concentrations and two burials is what is described as an Epipalaeolithic flint assemblage and a small sample of pottery (which includes some cardial impression). Both appear to be locally produced. Subsistence appears to have been based on wild and domesticated animals, as well as shellfish and fish. Radiocarbon dates

suggest occupation in the sixth millennium BC, but it is not clear which cultural materials may be associated with the dated samples. Local archaeologists favour an interpretation of hunter-gatherer populations gradually adopting animal domestication, with no initial presence of cereal agriculture (although sites like Parralejo and La Dehesilla were excavated before flotation was widely used for the collection of plant remains). Lastly, surface survey in the basin of the river Odiel in Huelva during the last decade has shown that open-air settlements were present here from the fifth millennium BC (e.g. Nocete et al. 1995), but these have only received preliminary publication so far.

In most parts of central and western Andalucía a distinction is made between the nature of Neolithic sites and societies in the Early/Middle Neolithic (c. 5500–4400 BC) and the Late/Final Neolithic (c. 4400–3200 BC). This distinction is based on cultural materials, the frequency of open-air sites, the evidence for ditched enclosures containing semi-subterranean structures and what are called storage pits and the inference of increased sedentism. Nocete (1989, 2001) proposes that there was a 'population explosion' in the upper Guadalquivir valley in the fourth millennium BC, with expansion of the settlement area in the main river valleys and the uneven agricultural lands of the rolling hill country of Jáen. At the beginning of this expansion, no sites were larger than 0.5 ha, but by the mid-fourth millennium BC a small number were up to 12 ha. Dating of this expansion, which is mainly based on pottery from surface survey, is problematic but has no current alternative (Díaz-del-Río 2004b, p. 87). However there are now examples of Middle Neolithic (that is, early-mid fifth millennium BC) open-air sites in this region, as at Peña de la Grieta near Porcuna (Arteaga et al. 1991), casting doubt on the dating of the beginning of this expansion process. The most extensive excavations at the ditched enclosure of Polideportivo de Martos revealed a series of semi-subterranean structures, some with central post-holes (presumably to support a roof), used for food processing, consumption, storage and ritual practices (including the disposal of the dead) through three construction phases, the earliest of which has one radiocarbon date at the beginning of the fourth millennium BC (Lizcano et al. 1991–1992). Although grinding stones were found in the interior of some structures, the low frequencies of cereals and legumes and flint sickle teeth with gloss led the excavators to argue that livestock played a greater role in subsistence practices and that the grinding stones could have been used for activities such as working vegetable fibres to produce baskets. Final Neolithic occupations have also been found preceding third millennium BC ditched enclosures at sites such as Los Pozos (Hornos et al. 1986).

Further down the Guadalquivir valley in Córdoba, Seville, Cádiz and Huelva there is also evidence for open-air sites with semi-subterranean structures, pits and ditches in the fourth millennium BC. In the main these are small in size, near to rivers and have good potential for cereal cultivation. For example, Morales in Córdoba, had circular pits c. 1.6–3.1 m in diameter over an area of 0.2 ha and in groups (up to 20) of 2–3 pits with a space of some 2–3 m between each group (Carrilero et al. 1982), although occupation continued into the third millennium BC and it is difficult to isolate individual phases of use. This is a problem in many sites, as can be limited areas of exposure where rescue excavations have taken place or where later occupation has covered or disturbed traces of Final Neolithic structures. At Papa Uvas on the bay of Huelva there were at least three different structural phases of Final Neolithic ditches c. 1.5–1.7 m. wide by 1–1.5 m deep, but no other features have been established as being of the same date (Martín de la Cruz 1985; Lucena 2004).

The continuity and prominence of these ditched enclosures with their semi-subterranean structures and pits in the third millennium BC brings further interpretive problems which will be discussed in the next section. However the extent to which their fourth millennium BC predecessors were all based on (a) cereal agriculture and (b) sedentism has yet to be

established. Extensive collections of plant and animal remains are severely limited (e.g. Cueva del Toro: Buxó 1997, pp. 161–167). The frequency, duration and use of pits for any one period are unclear. The use of such pits for storage need not, in itself, imply full sedentism. Cave sites remain in use and, in the case of Cádiz, the continued use of caves like La Dehesilla and Parralejo has to be understood alongside the exploitation of marine resources at San Fernando (Ramos 1993) and the use of open-air sites with pits. There is no reason why the subsistence strategies and degrees of sedentism in Cádiz should, for example, be the same as in the upper Guadalquivir valley. This is an important issue and in turn affects our understanding of the distribution of non-local products and raw materials (e.g. Martínez and Morgado 2005 on flint prismatic blades and their sources).

Inferences on the social relations of production for the Neolithic in this region have few reliable empirical bases. For the fourth millennium BC, open-air sites like Morales (Carrilero et al. 1982) and La Viña (Cádiz) (Ruiz 1986) have regular clusters of pits that might suggest the existence of family groups, while at Pago de Cantarranas (also in Cádiz) circular huts were separated from a concentration of pits by some 200 m, suggesting to the excavator the existence of communal storage (Ruiz 1986). However, in all cases these sites show occupation through into the third millennium BC.

Disposal of at least some individuals is documented within a small number of open-air sites. During the third occupation phases at Polideportivo de los Martos, semi-subterranean structure 13 contained the remains of three adults, one adolescent and one infant without grave goods (Lizcano et al. 1991–1992), interred in two phases after the initial occupation of the structure and later sealed before the construction of a new hut. The excavators stress the symbolism of the continuity of the family unit (although why this was only expressed in one structure is not explained) and suggest that the association of burials with living structures is an indication of sedentism. Megalithic tombs were in use by the later fourth millennium BC, as can be seen for example in Málaga (Rodríguez and Márquez 2003), but the scarcity of modern excavations and radiocarbon dating means that their construction may have begun earlier. The quality of the data prevents more than the customary inferences of initial construction and use by familial groups.

Production, Consumption and Social Relations: c. 3200–2250 BC

Surveys and excavations have revealed an interesting range of site types and their development in different regions during the late fourth and third millennia BC. For example, north of the river Guadalquivir in the Guadiato valley (Córdoba) unfortified open-air sites are known both from low-lying fluvial terraces and from more elevated locations, with the latter becoming dominant by the middle of the third millennium BC (Gavilán and Vera 1989–1990; Vera 2004). In the Ronda basin to the west of Málaga there is continuity in site and regional occupation from the Neolithic, with agricultural land an important determinant of site location (Aguayo et al. 1989–1990). More substantial settlements emerge by the mid-late third millennium BC, as do sites with more prominent locations in the landscape. In the sierras to the northeast of Málaga, the stratigraphy of Cerro de Capellanía shows continuity in occupation and cultural materials from the Final Neolithic, with lightly built structures of perishable materials giving way to structures of stone and mud brick, and a defensive wall being constructed after c. 2500 BC, when further fortified sites on prominent locations are found in this region (Martín and Recio 2004). Elsewhere, the best known defended sites are at opposite ends of the region. To the east, in Jaén, there are fortified sites in prominent locations at Albalete and Los Alcores, facing each other on either side of the river Salado at Porcuna; both have an exterior wall with

semicircular bastions and a later inner wall (separated from the outer wall by a passage) constructed of adobe on stone foundations (Arteaga 1985; Arteaga et al. 1986). To the west, in Huelva, there are fortifications at sites such as Cabezo Juré (see below), La Junta de Los Ríos (Nocete 2005) and Cabezo de Los Vientos, where a 'citadel' of some 900 m^2 was enclosed by a 2.5 m thick stone wall with external semicircular bastions (Piñon 1986); this succeeded an open Final Neolithic settlement and had structures and occupation materials both inside and outside.

Ditched enclosures continued to be used and constructed during the third millennium BC. In the majority of cases, they are known from limited exposures of rescue excavations and their development through time is poorly understood (for a recent survey, see Márquez 2006). Where sufficient exposures have been excavated these enclosures are circular or subcircular in shape, with single or double lines of V- or U-shaped ditches, which may vary from 2 to 4 m wide and 0.8 to 7 m deep. The archaeological features within these enclosures are nearly all below ground level, the smaller pits being interpreted as silos and the larger ones as semi-subterranean living structures, with some evidence for access via steps and a superstructure of vegetal material on a stone base on the contemporary ground level. At Amarguillo II this stone base forms the beginning of a false-vaulted roof (Cabrero 1987). The fills of both silos and living structures include cultural materials (e.g. stone tools and knapping debris, copper artefacts and remains of copper-working, grinding stones, pottery fragments), animal bones and plant remains and the deposition of dogs, bovids and human remains, both articulated and disarticulated.

Two examples of these enclosures are notable for their size. Valencina de la Concepción is located 5 km to the west of Seville and appears to consist of separate areas for the living and the dead (a cemetery of megalithic tombs), with clusters of storage pits now being revealed between them in an area delimited by a 7 m wide by 4 m deep ditch (Cruz-Auñón and Arteaga 1995). The settlement seems to occupy c. 20 ha, while the site complex as a whole may be up to 400 ha in size. Our knowledge of the site is dependent on rescue excavations, and it is difficult to know the extent to which it was all occupied at the same time. A similar problem arises for Marroquíes Bajos, which is in an area of urban development in the north of the city of Jaén. Synthesis of individual excavation reports (Zafra et al. 1999) proposes the existence of a site complex consisting of five concentric enclosures over an area of c. 113 ha. Overall the ditches range from 4 to 22 m wide and 1.5 to 5 m deep and, where exposed for any length, notable for their irregularity. The inner enclosure was 100–140 m in diameter and had an internal palisade. The second enclosure was 280–300 m in diameter, while the third was 400–420 m wide and included the widest stretches of ditch. The fourth enclosure was 660–720 m in diameter and had a 2 m wide and 3 m high mudbrick and stone wall with semicircular bastions on its exterior, with one stretch of a mudbrick wall on its interior. These four enclosures comprise some 34 ha and, the excavators argue, the extent of the actual settlement area. A fifth enclosure ditch lies some 250 m beyond this, has traces of a defensive system and occupies an area of c. 79 ha (Sánchez et al. 2005). The periodisation, overall contemporaneity and concentric form of these enclosures has been challenged (Lizcano et al. 2004), but it is also argued that the site represents the aggregation of population (a 'macro-village') in the Guadalbullón valley and its neighbouring parts of eastern Jaén c. 2450–2125 BC (Díaz-del Río 2004b). Within the settlement area the initial structures are semi-subterranean pits or have circular foundation trenches, while c. 2200 BC there are domestic complexes containing huts with stone foundations and delimited by low walls and opening onto narrow passageways.

The investment of labour in enclosed and defended sites, along with their sometimes large size, the evidence for the range of productive activities carried out within them, their

long occupation, the frequencies of grinding stones, and the use of pits inferred to be primarily for storage, have been used to support the inference of fully sedentary, agricultural settlements (although Márquez 2000 argues that sedentism did not emerge in Málaga province until after the mid-third millennium BC, given the small and ephemeral nature of settlements there before this date). Excavators record the existence of cereals and animal bones (e.g. Conlin 2004) and some sites have access to cultivable lands, but there are few published reports of systematically collected plant and animal remains. Pollen analyses from Huelva province show that grape cultivation was practised here by this period (Stephenson and Moore 1988). Faunal remains show the exploitation of both primary and secondary products (including the use of bovids for carriage and traction), and range from the near exclusive exploitation of domesticated animals at Valencina de la Concepción (Hain 1982) to almost the reverse pattern at La Junta de Los Ríos (Nocete 2005, pp. 54–58), where the consistent absence of skeletal parts of domestic animals suggests that they were butchered elsewhere and introduced to the site. There is also no evidence for cereal cultivation in the pollen from this area. The frequency and size of pits in sites like Valencina suggests to some the existence of surplus production (Cruz-Auñón and Arteaga 1995), but we lack the refined chronology to assess how many such pits were in use at the same time. Claims for the use of ditches—like those at Marroquíes Bajos—for irrigation (Zafra et al. 1999, pp. 95–96) require independent verification.

While there are comparatively few studies of pottery production for this period (although note the evidence for local production of Beaker pottery: Lazarich 2005, p. 356), studies of lithics and metals are on the increase. In addition to surveys showing examples of the close proximity of settlements to flint sources with surface evidence of exploitation, as at Peñon de Oso in Málaga (Marquez 2004), there are localised studies of changes in the technology of flint production (e.g. from direct to indirect percussion, the use of finer quality flint and the production of long blades) from the fourth to the third millennium BC (Márquez 1998). There is also evidence for the movement of oolitic flint, in the form of long prismatic blades, from sources in the Baetic mountains down and across the Guadalquivir valley to the Guadiana river and beyond, over distances of up to 300 km (Nocete et al. 2005).

The practice of, and access to, metallurgy appears to have varied across the region, with the major mineral sources of the Pyrite Zone running through from Huelva and the famous Río Tinto area in the west through the Sierra Morena on the north side of the Guadalquivir Valley (Hunt 2003; Hunt and Hurtado 1999). In addition to the major sources, surveys have revealed the existence of mineralisations which are too small for contemporary exploitation, but which could have been exploited in prehistory. Surface cultural materials have enabled the identification of 'prehistoric' exploitation of mines (Hunt and Hurtado 1999, p. 286), but there is still little detailed evidence for their exploitation in the third millennium BC. Lead isotope analyses support the inferences that a range of sources were exploited for objects on individual settlements and that these sources need not have been the nearest ones available (Hunt and Hurtado 1999, p. 321). Surveys have shown the close proximity of some settlements to mineral sources (e.g. the Guadiato valley: Gavilán and Vera 1989–1990), although Valencina de la Concepción was at least 30 km from such sources (Nocete et al. 2008). The main ores exploited were copper carbonates like malachite, and they were used to produce a familiar range of tools such as flat axes, awls, saws, chisels and knives, along with Beaker objects such as tanged daggers and Palmela points.

Evidence of on-site copper production (e.g. ores, slags, crucibles) comes mainly from key sites in the lower Guadalquivir valley, such as Amarguillo II (Cabrero 1986; Bayona 2008), Guta (with over 20 kg of copper objects and large quantities of scrap metal from the

surface alone: Carrilero and Martínez 1985), Cabezo Juré and Valencina de la Concepción. Evidence for large-scale production is seen at Cabezo Juré in the Odiel valley of Huelva (Nocete 2004, 2006). All stages of copper production were present in the lower areas of this 2 ha settlement, with large quantities of carbonate and oxide ores, furnaces, crucibles, tuyères, hammers and anvils, and abundant slag and scrap metal, along with finished objects such as axes, saws and knives. The exploitation of ores from Tharsis, some 5 km away, which would have required deep mining, is supported by lead isotope analyses. Even more impressive is the nearly nine hectare, specialised production 'barrio' at Valencina de la Concepción, with its copper minerals, slags, stone hammers, grinders and grinding stones, furnaces, crucibles, tuyères and so on (Nocete et al. 2008; Bayona 2008). This evidence for larger-scale production from early in the third millennium BC is in contrast to the domestic production inferred for regions such as southeast Spain and La Mancha (see above). Nocete et al. (2004–2005, 2008) infer that this larger-scale production characterised the lower Guadalquivir valley and created an equally large-scale environmental impact of deforestation, erosion and contamination extending down to the mouths of the Tinto and Odiel rivers in the Bay of Cádiz.

Metal objects and lithics (especially the long blades of oolitic flint) were also deposited with the dead. Human remains are not only found in semi-subterranean structures in ditched enclosures, but also in rock-cut tombs and in above-ground megalithic tombs. Tholos tombs, with dry-stone walling and false-vaulted chambers, occur mostly in the lower Guadalquivir valley and Huelva, where the greatest labour investment is seen in the tombs associated with the settlement of Valencina de la Concepción. The tomb of Matarrubilla had a chamber of 2.6 m diameter and a passage 30 m long (the nearby Cueva de la Pastora had a passage 46 m long) and contained several hundred, sometimes minute, fragments of gold leaf, beads of variscite, a 10 cm long fragment of an unworked elephant's tusk (of North African origin) and a series of small ivory objects (Collantes 1969). In the region as a whole, the deposition of gold, copper and ivory objects in megalithic tombs is concentrated in the lower Guadalquivir valley (Lacalle 2000). To the southeast, in the valleys and basins of the Andalucian Mountains, the three Antequera tombs are the only examples of large labour investment in megalithic monuments. Their small, associated settlement, like many others of this date associated with above ground tombs in central Andalucía, suggests a comparatively small population of tomb builders.

Given this settlement, production and mortuary evidence, how can we interpret the nature of social relations and inequalities during the third millennium BC in central and western Andalucía? One answer is to propose the existence of a form of early state, or 'initial class' society (e.g. Nocete 1994, 2001; Cruz-Auñón and Arteaga 1995; Ramos 2004). Such a model requires the existence of a dominant class controlling the labour force and surpluses (as tribute), and exercising coercion. The proponents of this model see the large differences in site size and their unequal distribution in the region as indicating the existence of hierarchies and political centralisation, with fortified settlements and their visual control marking the exercise of coercion, the large numbers of storage pits in sites like Valencina indicating the appropriation of surplus production as tribute (along with the control of the circulation and accumulation of a hierarchy of goods such as metal and ivory, the former the subject of specialised production) and the entire region being structurally linked in a series of cores and peripheries. Thus, for example, Ramos (2004) places Cádiz on the periphery of the regional political centre of the lower Guadalquivir, coerced into increasing agricultural production to generate surpluses as tribute. In Huelva the large-scale metallurgical production of Cabezo Juré was also on the periphery of the same political system, one of a number of hypothesised sites that guaranteed metal objects

to the centre. Within the site itself, it is proposed that a dominant class living in the central, fortified area controlled the means of metal production and monopolised the use of force, trading the copper objects produced by those living outside the fortifications for imports and exotica (Nocete 2006).

This regional approach has its attractions, not least the attempt to integrate diverse sources of evidence into a regional model of production and reproduction. However, it also requires us to evaluate critically the reliability of inferences based on those individual sources of evidence. For example, how satisfied can we be that the appropriation of surplus production has been demonstrated? In the larger ditched enclosures we do not know the extent to which pits were in use at any one time, nor the extent to which they were all used for storing grain for human consumption, nor the size of the site populations. In other words, our understanding of the relationship between production and consumption, and hence of the emergence of a class system, is still limited. If the equation of large numbers of pits with surplus production is open to debate, then so is that between large settlements and political hierarchies. In the case of Marroquíes Bajos there are no clear architectural or functional differences between enclosed areas, although there are some larger and better built domestic structures (Zafra et al. 1999). Domestic complexes in the later stages of occupation appear to have been self-sufficient in subsistence and other production needs. Díaz-del-Río (2004b) sees the emergence of exceptionally large settlements such as Marroquíes Bajos as the temporary outcome of the aggregation of regional population in societies based on the kinship mode of production. Labour is mobilised by emergent chiefs to create a common identity within this multiple-ditched enclosure, but temporary unity eventually gives way to factionalism, tensions and dispersion. No regional political and economic centralisation or class structure is present.

Production, Consumption and Social Relations: c. 2250–1550 BC

The settlement record of this period is characterised by small-scale rescue or deep stratigraphic excavations on multi-period sites (e.g. Setefilla, in the lower Guadalquivir valley: Aubet et al. 1983), with a low incidence of area excavations. In central Andalucía there have been surface surveys showing, for example, changes in site numbers and distributions (e.g. Aguayo et al. 1989–1990 on Ronda), but greater emphasis has often been placed on trying to trace the process of 'argarisation', the expansion of the Argaric political systems and culture to its western and northern limits, through typical pottery and metal objects deposited in burials. In western Andalucía the major sites like ditched enclosures appear to have been abandoned. Given the nature of the archaeological record for this period across the region as a whole, I will focus on two study areas, namely the upper Guadalquivir valley of Jaén and the lower Guadalquivir valley and its adjacent uplands.

The upper Guadalquivir valley saw changes in the occupation and distribution of settlements at this time. The ditched enclosures of Marroquíes Bajos were abandoned, although a pattern of more dispersed occupation can be traced, including urn and rock-cut tomb burials (Zafra et al. 1999). Occupation continued on fortified sites such as Albalate (Arteaga et al. 1986), Los Alcores (Arteaga 1985) and Cerro de la Horca (Ruiz et al. 1987), but architectural changes occurred, including the construction of artificial terraces and new fortifications with circular towers and complex entrances. The Rumblar valley, rising to the north of the Guadalquivir river, was colonised now, most notably at the terraced settlements of Sevilleja (Contreras et al. 1985; Spanedda et al. 2004) and Peñalosa (Contreras 2000) (Fig. 5). The latter site is the most extensively excavated settlement in the whole of the region. Within the upper Guadalquivir valley it is the best example of an Argaric

settlement and has already been mentioned in the section of this paper on southeast Spain. Such sites recur in Jaén, but there are also low-lying, undefended settlements along the major rivers which represent cultural continuity from the previous period. Peñalosa's location requires it to be studied both in this local context and in relation to the Argaric political system, hence its additional inclusion in this section of the paper.

In the lower Guadalquivir valley there are also changes in the settlement system. For example, in the sierra de Huelva region there appears to be greater nucleation of population in defended, artificially terraced settlements at higher altitudes and further away from the cultivable soils located along the main rivers (García 1999a, b). Excavations are still of small scale, but La Papúa II is 14 ha in size and its eastern part has a 3 m high defensive wall with two bastions on either side of the main entrance. El Trastejón is only 1.5 ha, but has traces of structures on upper and lower terraces, the latter of which has a 7 m high front wall.

Evidence for agricultural production is present in both the upper and lower Guadalquivir, but it is still limited to a small number of systematic collections of plant remains and animal bones. At both Peñalosa and Sevilleja, barleys (principally hulled barley) predominate over wheats, with legumes such as beans and peas in much smaller numbers, along with flax and wild plants, suggesting the practice of extensive dry farming coupled with small-scale horticulture in fluvial valleys (Peña-Chocarro 1999; Spanedda et al. 2004, pp. 69–71). The presence of chaff remains and weed seeds at Peñalosa, coupled with cultivation potential, suggests the possibility of local cultivation, although the low frequencies of agricultural tools such as flint sickle-teeth (which are present in greater numbers at contemporary sites) have been used to argue against this hypothesis (Contreras 2000, p. 350). Among the livestock, ovicaprids and bovids were mostly exploited for meat, as were pigs (although in smaller numbers). Osteological study shows that bovids and horses were also used for traction and carriage (Contreras 2000, pp. 223–236; Spanedda et al. 2004, pp. 71–73). The location of settlements in the Sierra de Huelva at a greater distance from cultivable soils, coupled with the presence of processed wheat and beans at El Trastejón and the absence of cereal pollen in the local pollen record, suggests that local cultivation was either absent or small-scale (García 1999a, b).

Evidence for other productive activities is also present at Peñalosa (Contreras 2000). Some 98% of the raw materials for worked stone artefacts were present within 3–6 km of the site. Textile working is indicated by flax seeds and the presence of loomweights in most areas of the settlement and in two major concentrations in well-lit areas of houses where looms might have stood (Contreras 2000, p. 132). There is no evidence for on-site pottery production, nor for clay sources, but there are compositional differences related to vessel functions (e.g. funerary/consumption vs. storage/food production). Evidence for metallurgy includes the presence of copper ore and galena, slags from carbonate and sulphide ores, crucibles for casting and smelting and univalve sone moulds. Although copper ores are located within 3–6 km of Peñalosa, lead isotope analyses (see above) do not currently support their exploitation. The metal artefacts from this site are mainly of arsenical copper and include awls, arrowheads, chisels and broken daggers in domestic contexts, with some of the same types and knives, a short sword, bracelets and rings in funerary contexts. No axes were present, in spite of the existence of moulds for their production. Artefact frequencies suggest that metal chisels and awls were now more important than bone and flint tools as instruments of production.

In the lower Guadalquivir valley it is argued that there was little change in the exploited mineral sources and the techniques of metallurgical production (Hunt 2003, pp. 383, 385). Objects such as awls, chisels, axes and knives continued to be produced, while swords and

rapiers, halberds and ornaments such as bracelets, rings and pendants now made an appearance (Hunt and Hurtado 1999, pp. 309–314). However, there is a decrease in the frequency of such objects, compared with the preceding period. Silver ornaments may be new, but we only know of 29 examples, compared with 460 in the Argaric of southeast Spain (Hunt 2003, p. 386), while García (1999a, p. 162) notes that there are over 250 examples of daggers known from southeast Spain as compared to just three in the western Sierra Morena. Examples of all kinds of metal objects in the lower Guadalquivir valley often lack reliable contexts and precise dating. Production evidence from settlements includes slags, crucibles, stone hammers and moulds, and there is evidence in one part of the Sierra de Huelva for association of more nucleated population with areas of copper ore sources. The inferred small-scale of production during this period contrasts with that claimed for the third millennium BC. Lead isotope analyses also suggest that a wide range of mineralisations (local and non-local) were exploited, and not always those closest to settlements where production took place or artefacts were ultimately deposited (Hunt 2003, pp. 242–249).

In contrast to southeast Spain, there are also few metal objects found in burial contexts (except for burials in the upper Guadalquivir and western Granada). Disposal of the dead occurred in both intramural and extramural contexts. Intramural burial is known from Peñalosa in the east to Setefilla and El Trastejón in the west, but it is much rarer in the latter two sites than it is in the former (and by extension in the Argaric political system of southeast Spain). In central and western Andalucía (as in parts of southeast Spain), megalithic tombs were re-used in many parts of the region (e.g. García 2005a), as were rock-cut tombs (e.g. the Alcaide cemetery, Antequera, see Márques et al. 2004). Disposal of the dead in stone cists (mostly extramural) is known in varying frequencies in most parts of the region. For example, the cemetery of La Traviesa in the Sierra de Huelva contained 29 cist graves, which, when not disturbed, contained only one pot each or no grave goods, except for Grave 5 with an adult male and two pots (one probably containing grapes) and an arsenical copper halberd (García 1998). This pattern of few grave goods, coupled with poor preservation of human bones due to soil acidity, characterises burials of this period in western Andalucía. In the absence of sufficient data on production and consumption from settlements, this paucity of evidence for the disposal of the dead makes drawing inferences on inequalities and social relations difficult. García (1999b) argues for a change from 'communal ranking' in the third millennium BC to 'disaggregated ranking' in the early second millennium BC in southwest Iberia and no clear social stratification until the first millennium BC. There is a marked contrast with studies of the third millennium BC (e.g. Nocete 2001) in terms of willingness to engage in inferences of social relations, which is at least partly related to the different quality of the archaeological record.

This observation cannot be made of the upper Guadalquivir valley, on the northwestern edges of the Argaric political system. At Peñalosa, the excavators have attempted to infer the social relations of production using the evidence for how people lived and died both in this settlement and beyond (Contreras 2000; Contreras et al. 1995). Three classes are distinguished, on the basis of their grave goods, and referred to as the 'nobility', 'warriors/peasants' and 'slaves' (Contreras et al. 1995). Although there is evidence of food storage and consumption in most structures, it is inferred that grain and horses were appropriated by the 'nobility' within the fortified, upper terrace of the settlement. This appropriation is tied in to a model of regional power based on control of metal sources, with the grain being tribute from subordinate, agricultural villages. While the inference of a class society is perhaps not surprising, given the wider context in southeast Spain (see above), there are

still some problems with the methodology of social inference used for Peñalosa (for instance, the evidence for unequal consumption of food and metal), the size and quality of the burial data, and the evidence for tribute (given the potential for local cultivation—see above) (Chapman 2003, pp. 174–175).

Comparison and Implications

The details presented for each region and period show how much our knowledge of the archaeological record of southern Spain has changed during the last four decades. In trying to make sense of these changes, we have to allow for the variable quality of the data. For example, a major problem in the Southern Meseta is how we account for the paucity of evidence for third millennium BC occupation in La Mancha and for the early second millennium BC in Cáceres and Badajoz: is this low visibility an artefact of the ways in which we are studying the archaeological record, or does it reflect real differences in settlement numbers and densities? Comparison of sequences from the late third to the mid-second millennium BC is also made problematic by differences in the measurement of time between southeast Spain, Valencia and La Mancha. Wherever possible I have tried to highlight such differences in the quality of data between the regions, or at least give sufficient information for the reader to think about the significance of such problems.

A second issue is the reliability of some of the inferences made about later prehistoric societies in southern Spain. For example, we now know that Neolithic sites, including open-air settlements, were present in locations consistent with agricultural exploitation and spread across southern Spain c. 5600/5500−5000 BC. In a well-surveyed area like the Serpis valley of Valencia, these settlements have a density comparable to those seen in Thessaly (Perlès 2001), although it remains to be seen if this high density is repeated in other areas of southern Spain, and if it represents a contemporary rather than a cumulative pattern. But does this justify the inference of sedentism from the beginnings of agricultural colonization? What were the scales of residential and logistical mobility in different locations and at different times? The answers to these questions are not yet sufficiently robust and may, of course, vary regionally. At present there seems to be a consensus that the fourth millennium BC witnessed the main period of 'settling down' in all regions. If this was the case, then the change to the inequalities and political structure of the Argaric in southeast Spain occurred within a millennium of this process. This is in marked contrast to areas like the Aegean, where sedentism was present from the beginnings of agricultural adoption.

Other inferences require equally rigorous scrutiny. These include specialisation, the division of labour and surplus production. Let us consider the problems posed by inferences of surplus production (large numbers of storage pits = surplus production = tribute?) from ditched enclosures in the fourth and third millennia BC. Many are known from the limited exposures of rescue excavations, and their full extent, as well as their detailed chronologies (how many pits were in use at the same time?) and the specific sequences of usage in the pits (as could be analysed via techniques such as soil micromorphology) have still to be evaluated. These problems are magnified when it comes to study and interpretation of the outstandingly large sites such as Valencina de la Concepción, La Pijotilla and Marroquíes Bajos. The organisation of space (habitation, cultivation, livestock breeding, storage, burial) and the relationship to surrounding communities (were there any? if there was tribute, where did it come from?) are critical to the interpretation of their size and function(s).

The materialist approach adopted in this paper stems from research undertaken in southeast Spain (e.g. Castro et al. 1998a, 1999a, b; Chapman 2003; Lull 2000, 2005, 2007; Lull and Micó 2007; Lull et al. 2005), and is used to discover how far inferences on production, consumption and social relations are well founded in different regions. More deterministic approaches, based on inherent environmental constraints, are rejected, although the role of environmental factors in site location is raised, for example, for early agricultural settlements and for the motillas of La Mancha. Archaeological and palaeo-environmental data also suggest that the challenges for agricultural practices in lowland southeast Spain (e.g. Chapman 1978; Gilman 1976) have been overestimated. Environmental impacts can also be recognised, as for example those of larger-scale metallurgy during the third millennium BC in southwest Spain.

The focus on production and consumption, and not on the 'post' agenda of Anglo-American archaeology (e.g. symbolism, agency, materialisation, identity) does not mean that issues relevant to this agenda are not raised (for instance, shared symbolism between different categories of social objects, such as rock art, pottery and idols; rock art and gender ideology; pottery standardisation in the Argaric; the proposal of feasting rituals and communal identity, also in the Argaric). The inter-regional boundaries between the Argaric and contemporary cultures in Valencia and La Mancha, as well as third millennium BC differences in practices for the deposition of the dead between southeast Spain and Valencia, would also be pertinent to this agenda.

From the beginnings of the Neolithic, there is evidence of the exchange of social objects, some of which were deposited in the archaeological record at least 300 km from their geological/production sources, on a similar scale to the sharing of motifs and symbolism. In addition to these regional and inter-regional interactions, there is also evidence for objects of extra-peninsular origin. Thus ivory (although worked locally) and ostrich eggshell came from North Africa, while the dentated ivory haft mount of a riveted dagger from an Argaric tomb at Illeta dels Banyets has been compared with objects from the Bush Barrow in Wessex and Mycenae Circle B (López 2006b). Even if this last object does indicate some level of extra-peninsular contact, it occurs too late in the sequence to indicate that such contact played any significant role in local social and political changes. Where provenance studies have been undertaken, it would seem that the majority of the instruments of production had local and intra-regional origins within southern Spain, although there is some interesting variation in the extent of such movement (for example, comparing the local sources of grinding stones at third millennium BC sites in southeast Spain with the more highly valued andesite from up to 100 km away).

Wherever copper objects of the third and early second millennia BC have been analysed in southern Spain, it would appear that the majority were instruments of production, rather than items with a purely symbolic or 'prestige' value, and were used in the production of objects by cutting and perforating bone (including ivory), shell and stone, and possibly the pressure-flaking of flint. The decline in frequency of flint objects (and their reservation for cereal processing) from the third to the early second millennium BC in southeast Spain is a clear indication of the growth in the productive importance of copper tools. The variation in frequency of copper objects between regions during the third and early second millennia BC may, in turn, be telling us as much about their relative importance in productive activities and levels of production as about their proximity to ore sources. The scale of copper production indicated for the third millennium BC in western Andalucía is in marked contrast to the domestic production proposed for other regions. Although local ore deposits are widespread across large parts of southern Spain, they vary in size and distribution in relation to the centres of human settlement. Their presence does not necessarily imply their

exploitation, and such exploitation was not limited to single sources. Sites such as Valencina de la Concepción and Cabezo Juré in third millennium BC Western Andalucía, Peñalosa and perhaps Almizaraque in southeast Spain suggest the existence of community specialisation and complementary production. The movement of copper within and between regions is supported by the finds of copper ingots, along with the absence of local sources (e.g. southern Valencia) and the results of lead isotope analyses in southeast Spain and western Andalucía. Copper objects, whether instruments of production or not, were also socially valued, along with objects of silver and gold, as can be seen in their contexts of production and deposition. The best example of this value is still in the Argaric of southeast Spain, where metal production is argued to have been in the hands of a dominant class.

Social inferences based on both settlement and funerary data of southern Spain range from the neoevolutionist tribes and chiefdoms, through individuals competing for 'power' and 'prestige', to 'hierarchisation' and models—based to varying degrees of reliability on classical Marxist sources and Latin American Social Archaeology—of class societies and 'initial' class societies. Related models of core-periphery theory are used locally, as between southeast Spain and Valencia in the third millennium BC (López 2006b),and inter-regionally, for instance, in structuring the 'initial class societies' of Andalucía (Nocete 2001). This range of models may appear somewhat confusing to the reader, and challenges long-held expectations of the nature of later prehistoric societies in Europe. A positive response lies in the use of the evidence for production and consumption to make more robust inferences concerning social relations throughout the period of study in this paper, as well as opening up debate on the nature and existence of class societies. These 'alternative' states (Lull and Micó 2007; Chapman 2008) were first proposed in the mid-1980s for the Argaric Bronze Age in southeast Spain and have since been projected back to the third millennium BC societies of this region and of central and western Andalucía. There are four key questions to be asked: how clearly is the model of the state defined; what are the key analytical concepts (e.g. exploitation, class, property) and how are they defined and used in analysing the empirical record; how coherent is the theoretical argument; and how successful is research in using multiple lines of evidence (e.g. domestic/funerary contexts)? The criticisms outlined in the regional presentations show that the Argaric remains the most convincing example of a class or early state society, while the third millennium BC examples are examples of what one might call 'complexity inflation'—attributing a more 'complex' form of society than is justified by the combination of theoretical argument and archaeological data.

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References

Acosta, P., & Cruz-Anon, R. (1981). Los enterramientos de las fases iniciales en la "Cultura de Almería". *Habis, 12*, 275–360.

Aguayo, P., Martínez, G., & Moreno, F. (1989–1990). Articulación de los sistemas de habitats Neolítico y Eneolítico en function de la explotación de los recursos naturales en la depresión de Ronda. *Cuadernos de Prehistoria de la Universidad de Granada, 14–15*, 67–80.

Alcaraz, F. M., Castilla, J., Hitos, M. A., Maldonado, M. de. G., Mérida, V., Rodríguez, F. J., et al. (1995). Prospección arqueológica superficial en el Pasillo de Tabernas. Primeros resultados y perspectives metodológicas. In M. Kunst (Ed.), *Origens, estructuras e relações das culturas calcolíticas da Península Ibérica* (pp. 217–223). Torres Vedras: Instituto Português do Património Arquitectónico e Arqueológico.

Alcover, J. A. (2008). The first Mallorcans: Prehistoric colonization in the Western Mediterranean. *Journal of World Prehistory, 21*(1), 19–84.

Aranda, G. (2001). *El análisis de la relación forma–contenido de los conjuntos cerámicos del yacimiento arqueológico del Cerro de la Encina (Granada, España)* (p. 927). Oxford: British Archaeological Reports International Series 927.

Aranda, G. (2004). Craft specialization in pottery production during the Bronze Age in south-eastern Iberia. *Journal of Iberian Archaeology, 6*, 157–179.

Aranda, G., Fernández, S., Haro, M., Molina, F., Nájera, T., & Sánchez, M. (2008). Water control and cereal management on the Bronze Age Iberian Peninsula: La Motilla el Azuer. *Oxford Journal of Archaeology, 27*(3), 241–259.

Aranda, G., & Molina, F. (2006). Wealth and power in the Bronze Age of the south-east of the Iberian Peninsula: The funerary record of Cerro de la Encina. *Oxford Journal of Archaeology, 25*, 47–59.

Aranda, G., & Sánchez, M. (2005). The origins of warfare: Later prehistory in southeastern Iberia. In M. Parker & I. J. Thorpe (Eds.), *Warfare, violence and slavery in prehistory* (pp. 181–194). Oxford: British Archaeological Reports International series 1374.

Araus, J. L., Buxó, R., Febrero, A., Camalich, M. D., Martín, D., Molina, F., et al. (1997a). Identification of ancient irrigation practices based on the carbon isotope discrimination of plant seeds: A case study from the southeast Iberian Peninsula. *Journal of Archaeological Science, 24*, 729–740.

Araus, J. L., Febrero, A., Buxó, R., Camalich, M. D., Martín, D., Molina, F., et al. (1997b). Changes in carbon isotope discrimination in cereal plants from different regions of the western Mediterranean Basin during the past seven millennia. Palaeoenvironmental evidence of a differential change in aridity. *Global Change Biology, 3*, 107–118.

Arias, P., Ontañon, R., & García-Moncó, C. (Eds.). (2005). *Actas del III Congreso del Neolítico en la Península Ibérica*. Santander: Universidad de Cantabria.

Arteaga, O. (1985). Excavaciones arqueológicas sistemáticas en el Cerro de Los Alcores (Porcuna, Jaén). Informe preliminar sobre la campaña de 1985. *Anuario Arqueológico de Andalucía, 1985*, 279–288.

Arteaga, O., Nocete, F., Ramos, J., Recuerda, A., & Roos, A. Ma. (1986). Excavaciones sistemáticas en el Cerro de El Albalete (Porcuna, Jaén). *Anuario Arqueológico de Andalucía, 1986*, 395–400.

Arteaga, O., Ramos, J., Roos, A. Ma., & Nocete, F. (1991). Balance a medio plazo del "Proyecto Porcuna". Campaña de 1991. *Anuario Arqueológico de Andalucía, 1991*, 295–301.

Aubet, Ma. E., Remedios, M., Escacena, J. L., & Ruiz, M. (1983). *La Mesa de Setefilla. Lora del Río (Sevilla). Campaña de 1979*. Madrid: Ministerio de Cultura.

Ayala, M. M. (1991). *El poblamiento Argárico en Lorca. Estado de la cuestión*. Murcia: Compobell S.A.

Barciela, V. (2002). Intercambio y trabajo del marfil en un poblado de la Edad del Bronce: el cerro de El Cuchillo (Almansa, Albacete). *Bolskan, 19*, 75–84.

Barrera, J. L., Martínez Navarrete, Ma. I., San Nicolas, M., & Vicent, J. M. (1987). El instrumental lítico pulimentado calcolítico de la comarca noroeste de Murcia: algunas implicaciones socio-económicas del estudio de su petrología y morfología. *Trabajos de Prehistoria, 44*, 87–146.

Barroso, R., Bueno, P., & de Balbín, R. (2002–2003). Las primeras producciones metalicas en la cuenca interior del Tajo: Cáceres y Toledo. *Estudios Pré- Históricos, 10–11*, 87–106.

Barton, C. M., Bernabeu, J., Aura, J. E., & Garcia, O. (1999). Land-use dynamics and socioeconomic change: An example from the Polop Alto valley. *American Antiquity, 64*, 609–634.

Bayona, M. R. (2008). *La investigación de la actividad metalúrgica durante el III milenio A.N.E. en el Suroeste de la Península Ibérica*. Oxford: British Archaeological Reports International Series 1769.

Bell, C. (1992). *Ritual theory, ritual practice*. Oxford: Oxford University Press.

Bernabeu, J. (1989). *La tradición cultural de las cerámicas impresas en la zona oriental de la Península Ibérica*. Valencia: Diputación de Valencia.

Bernabeu, J. (Ed.). (1990). *El III Milenio a.c. en el País Valenciano, Los poblados de Jovades (Cocentaina, Alacant) y Arenal de la Costa (Ontinyent, València)*. Valencia: Universidad de Valencia.
Bernabeu, J. (1996). Indigenismo y migracionismo. Aspectos de la Neolitización en la fachada oriental de la Península Ibérica. *Trabajos de Prehistoria, 53*, 37–54.
Bernabeu, J. (2002). The social and symbolic context of Neolithization. *Saguntum Extra, 5*, 209–233.
Bernabeu, J., Molina, Ll., & García, O. (2001). El mundo funerario en el horizonte cardial valenciano. Un registro oculto. *Saguntum, 33*, 27–36.
Bernabeu, J., Molina, Ll., & Orozco Köhler, T. (2006). Inequalities and power. Three millennia of prehistory in Mediterranean Spain (5600–2000 cal BC). In P. Díaz-del-Río & L. García Sanjuan (Eds.), *Social inequality in Iberian late prehistory* (pp. 97–116). Oxford: British Archaeological Reports International Series 1525.
Bernabeu, J., & Orozco Köhler, T. (Eds.). (1999). *Actes del II Congrés del Neolític a la Península Ibérica. Saguntum Extra, 2*. Valencia: Universitat de València.
Bernabeu, J., Orozco Köhler, T., Díez, A., Gómez, M., & Molina, F. J. (2003). Mas D'Is (Penàguila, Alicante): aldeas y recintos monumentales del Neolítico inicial en el valle del Serpis. *Trabajos de Prehistoria, 60*(2), 39–59.
Black. S. & Chapman, R. (Forthcoming). U-Series determinations on human skeletal remains using gamma spectrometry: Implications for dating of young and old remains.
Blake, E., & Knapp, B. (Eds.). (2005). *The archaeology of Mediterranean prehistory*. London: Blackwell.
Bradley, R. (2005). *Ritual and domestic life in prehistoric Europe*. London: Routledge.
Braudel, F. (1972). *The Mediterranean world in the age of Phillip II*. London: Collins.
Bueno, P. (1987). Megalitismo en Extremadura: estado de la cuestión. In *El megalitismo en la Península Ibérica* (pp. 73–84). Madrid: Ministerio de Cultura.
Bueno, P. (1988). *Los Dolmenes de Valencia de Alcantara*. Madrid: Ministerio de Cultura.
Bueno, P. (2000). El espacio de la muerte en los grupos neolíticos y calcolíticos de la Extremadura española: las arquitecturas megalíticas. *Extremadura Arqueológica, 8*, 35–80.
Bueno, P., Barroso, R., & de Balbín, R. (2005a). Ritual campaniforme, ritual colectivo: La necrópolis de cuevas artificiales del Valle de las Higueras, Huecas, Toledo. *Trabajos de Prehistoria, 62*(2), 67–90.
Bueno, P., Barroso, R., de Balbín, R. & Carrera, F. (2006). *Megalitos y marcadores gráficos en el Tajo Internacional: Santiago de Alcántara (Cáceres).* Ayuntamiento de Santiago de Alcántara.
Bueno, P., de Balbín, R., & Barroso, R. (2005b). *El Dolmen de Azután (Toledo). Áreas de habitación y áreas funerarias en la cuenca interior del Tajo*. Alcalá: Universidad de Alcalá.
Bueno, P., de Balbín, R., Barroso, R., Rojas, J. M., Villa, R., Félix, R., et al. (1999). Neolítico y calcolítico en Huecas (Toledo). El túmulo de Castillejo. Campaña de 1998. *Trabajos de Prehistoria, 56*, 141–160.
Bueno, P., González Cordero, A., & Rovira, S. (2000). Áreas de habitación y sepulturas de falsa cúpula en la cuenca extremeña del Tajo. Acerca del poblado con necropolis del Canchal en Jaraíz de la Vera (Cáceres). *Extremadura Arqueológica, 8*, 209–242.
Buxó, R. (1997). *Arqueología de Las Plantas*. Barcelona: Crítica.
Cabrero, R. (1986). Informe preliminar sobre las excavaciones arqueológicas realizadas en el yacimiento de Amarguillo II (Los Molares, Sevilla). *Anuario Arqueológico de Andalucía, 1986*, 180–185.
Cabrero, R. (1987). El poblado de la Edad del Cobre denominado Amarguillo II (Los Molares, Sevilla). Informe preliminar tras la excavación sistemática de 1987. *Anuario Arqueológico de Andalucía, 1987*, 276–277.
Cámalich, M. D., & Martín Socas, D. (1999). *El territorio Almeriense desde los inicios de la producción hasta fines de la antiguedad. Un modelo: la Depresión de Vera y Cuenca del Río Almanzora*. Seville: Junta de Andalucía.
Cámara, J. A. (2001). *El ritual funerario en la Prehistoria Reciente en el Sur de la Península Ibérica*. Oxford: British Archaeological Reports, International Series 913.
Camara, J. A., & Molina, F. (2006). Selection of data, determinism and scientific relevance in interpretations of social development in the Late Prehistory of the Iberian Southeast. In P. Díaz-del-Río & L. García Sanjuán (Eds.), *Social inequality in Iberian Late Prehistory* (pp. 21–35). Oxford: BAR International Series 1525.
Cámara, J. A., Molina, F., & Afonso, J. A. (2005). La cronología absoluta de Los Castillejos en Las Peñas de Los Gitanos (Montefrío, Granada). In P. Arias, R. Ontañon & C. García-Moncó (Eds.), *Actas del III Congreso del Neolítico en la Península Ibérica* (pp. 841–852). Santander: Universidad de Cantabria.
Carrilero, M., & Martínez, G. (1985). El yacimiento de Guta (Castro del Río, Córdoba) y la prehistoria reciente de la campiña cordobesa. *Cuadernos de Prehistoria de la Universidad de Granada, 10*, 187–223.
Carrilero, M., Martínez, G., & Martínez, J. (1982). El yacimiento de Morales (Castro del Río, Córdoba). La cultura de los silos en Andalucía Occidental. *Cuadernos de Prehistoria de la Universidad de Granada, 7*, 171–207.

Carrión, F., & Gómez, M. T. (1983). Análisis petroarqueológico de los artefactos de piedra trabajada durante la Prehistoria Reciente en la provincia de Granada. *Cuadernos de Prehistoria de la Universidad de Granada, 8*, 447–477.

Castro, P. V., Chapman, R. W., Gili, S., Lull, V., Micó, R., Rihuete, C., Risch, R. & Sanahuja, Ma. E. (1993–1994). Tiempos sociales de los contextos funerarios argáricos. *Anales de Prehistoria de la Universidad de Murcia*, *9–10*, 77–107.

Castro, P. V., Chapman, R. W., Gili, S., Lull, V., Micó, R., Rihuete, C., et al. (1998a). *Aguas Project. Palaeoclimatic reconstruction and the dynamics of human settlement and land use in the area of the middle Aguas (Almería) in the south-east of the Iberian Peninsula*. Luxembourg: European Commission.

Castro, P. V., Chapman, R. W., Gili, S., Lull, V., Micó, R., Rihuete, C., et al. (1999a). *Proyecto Gatas 2. La dinámica arqueoecológica de la ocupación prehistórica*. Seville: Junta de Andalucía.

Castro, P. V., Chapman, R. W., Gili, S., Lull, V., Micó, R., Rihuete, C., et al. (1999b). Agricultural production and social change in the Bronze Age of southeast Spain: The Gatas Project. *Antiquity, 73*, 846–856.

Castro, P. V., Colomer, E., Courty, M. A., Federoff, N., Gili, S., González Marcén, P., et al. (Eds.). (1994). *Temporalities and desertification in the Vera Basin, south-east Spain* (Vol. 2). Brussels: Archaeomedes Project.

Castro, P. V., Escoriza, T., & Oltra Puigdomenech, J. (2006). Sociological hypotheses for the communities of the Iberian Mediterranean basin (VI to II millennia cal BC). In P. Díaz-del-Río & L. García Sanjuán (Eds.), *Social inequality in Iberian late prehistory* (pp. 117–131). Oxford: BAR International Series 1525.

Castro, P. V., Gili, S., Lull, V., Micó, R., Rihuete, C., Risch, R., et al. (1998b). Teoría de la producción de la vida social. Mecanismos de explotación en el sudeste ibérico. *Boletín de Antropología Americana, 33*, 25–77.

Castro, P. V., Lull, V., & Micó, R. (1996). *Cronología de la prehistoria reciente de la Península Ibérica y Baleares (c. 2800–900 cal ANE)*. Oxford: British Archaeological Reports. International Series 652.

Cerrillo, E. (2005). *Los Barruecos: primeros resultados sobre el poblamiento Neolítico de la Cuenca Extremeña del Tajo*. Mérida: Consejería de Cultura, Junta de Extremadura.

Cerrillo, E. (2006). *Los primeros grupos Neolíticos de la Cuenca Extremeña del Tajo*. Oxford: British Archaeological Reports, International Series 1393.

Chapman, R. (1978). The evidence for prehistoric water control in south-east Spain. *Journal of Arid Environments, 1*, 261–274.

Chapman, R. (1981). Archaeological theory and communal burial in prehistoric Europe. In I. Hodder, G. Isaac & N. Hammond (Eds.), *Pattern of the past: Studies in honour of David Clarke* (pp. 387–411). Cambridge: Cambridge University Press.

Chapman, R. (1990). *Emerging complexity. The later prehistory of south-east Spain, Iberia and the west Mediterranean*. Cambridge: Cambridge University Press.

Chapman, R. (2003). *Archaeologies of complexity*. London: Routledge.

Chapman, R. (2005). Changing social relations in the Mediterranean Copper and Bronze Ages. In E. Blake & B. Knapp (Eds.), *The archaeology of Mediterranean prehistory* (pp. 77–101). London: Blackwell.

Chapman, R. (2008). Alternative states. In J. Habu, C. Fawcett & J. Matsunaga (Eds.), *Evaluating multiple narratives: Beyond nationalist, colonialist, imperialist archaeologies* (pp. 144–165). New York: Springer.

Clapham, A. J., Jones, M. K., Reed, J., & Tenas, M. (1999). Análisis carpológico del proyecto Gatas. In P. V. Castro, R. W. Chapman, S. Gili, V. Lull, R. Micó, C. Rihuete, R. Risch & E. Ma (Eds.), *Sanahuja, Proyecto Gatas 2. La dinámica arqueoecológica de la ocupación prehistórica* (pp. 311–319). Seville: Junta de Andalucía.

Collantes, F. (1969). El dolmen de Matarrubilla. In *Tartessos y sus problemas. V Simposium sobre Prehistoria Reciente Peninsular* (pp. 47–61). Barcelona: University of Barcelona Press.

Colmenarejo, R., Sánchez, J. & Valverde, M. A. (1988). Las cerámicas del "complejo B" del Cerro de la Encantada. El proyecto arqueos. In *Actas, 1. Congreso de Historia de Castilla–La Mancha, 3*, 169–178. Ciudad Real: Junta de Comunidades de Castilla-La Mancha.

Colomer, I., & Solsona, L. (2005). Cerámica prehistórica y trabajo femenino en El Argar: una aproximación desde el studio de la tecnología cerámica. In M. Sánchez Romero (Ed.), *Arqueología y Genero* (pp. 178–217). Granada: Universidad de Granada.

Conlin, E. (2004). El poblado calcolítico de Carmona (Sevilla). In *II–III Simposios de Prehistoria. Cueva de Nerja* (pp. 37–78). Nerja: Fundación Cueva de Nerja.

Contreras, F. (2000). *Proyecto Peñalosa. Análisis histórico de las comunidades de la Edad del Bronce del Piedemonte Meridional de Sierra Morena y Depresión Linares-Bailén*. Seville: Junta de Andalucía.

Contreras, F., Cámara, J. A., Lizcano, R., Pérez, C., Robledo, B., & Trancho, G. (1995). Enterramientos y diferenciación social 1. El registro funerario del yacimiento de La Edad del Bronce de Peñalosa (Baños de la Encina, Jaén). *Trabajos de Prehistoria, 52*, 87–108.

Contreras, F., Capel, J., Esquivel, J. A., Molina, F. & de la Torre, F. (1987–1988). Las ajuares cerámicas de la necrópolis argárica de la Cuesta del Negro (Purullena, Granada). Avance al estudio analítica y estadístico. *Cuadernos de Prehistoria de la Universidad de Granada, 12–13*, 135–155.

Contreras, F., Nocete, F., & Sánchez, M. (1985). Análisis histórico de la comunidades de la Edad del Bronce de la depresión Linares-Bailén y estribaciones meridionales de Sierra Morena. Sondeo estratigráfico en el Cerro de Plaza de Armas de Sevilleja (Espeluy, Jaén), 1985. *Anuario Arqueológico de Andalucía, 1985*, 141–149.

Cruz-Auñón, R., & Arteaga, O. (1995). Acerca de un campo de silos y un foso de cierre prehistóricos ubicados en "La Estacada Larga" (Valencina de la Concepción, Sevilla). Excavación de Urgencia de 1995. *Anuario Arqueológico de Andalucía, 1995*, 600–607.

de Alvaro, E., Municio, L. J. & Piñon, F. (1988). Informe sobre el yacimiento de "Los Castillos" (Las Herencias, Toledo): un asentamiento calcolítico en la submeseta sur. In *Actas, 1. Congreso de Historia de Castilla–La Mancha, 3*, 181–192. Ciudad Real: Junta de Comunidades de Castilla-La Mancha.

de la Torre, F., & Sáez, L. (1986). *Nuevas excavaciones en el yacimiento de la Edad del Cobre de "El Malagón" (Cúllar-Baza, Granada). In Homenaje a Luis Siret 1934–84* (pp. 221–226). Sevilla: Junta de Andalucía.

de Pedro, Ma. J. (2001–2002). La cultura del Bronce Valenciano. In *Y acumularon tesoros. Mil años de historia en nuestras tierras* (pp. 181–200). Alicante: Caja de Ahorros del Mediterráneo.

de Pedro, Ma. J. (2004). La cultura del Bronce Valenciano: Consideraciones sobre su cronología y periodización. In L. Hernández & M. S. Hernández (Eds.), *La Edad del Bronce en tierras Valencianas y zonas limítrofes* (pp. 41–57). Villena: Ayuntamiento de Villena.

Delgado, S., & Risch, R. (2006). La tumba no.3 de Los Cipreses y la metalurgia Argárica. *Alberca, 4*, 21–50.

Delibes, G., Díaz-Andreu, M., Fernández-Posse, Ma. D. Martín, C., Montero, I., Muñoz, I. & Ruiz, A. (1996). Poblamiento y desarrollo cultural en la cuenca de Vera durante la prehistoria reciente. In *Homenaje al Profesor Manuel Fernández-Miranda Vol. I. Complutum Extra*, 153–170.

Delibes, G., Fernández-Miranda, M., Fernández-Posse, Ma. D., Martín, C., Rovira, S. & Sanz, M. (1989). Almizaraque (Almería): minería y metalurgia calcolíticas en el sureste de la península ibérica. In *Minería y metalurgia en las antiguas civilizaciones Mediterráneas y Europeas* 1 (pp. 81–94). Madrid: Ministerio de Cultura.

Díaz-Andreu, M. (1994). *La Edad del Bronce en la provincia de Cuenca*. Cuenca: Diputación de Cuenca.

Díaz-Andreu, M., & Montero, I. (2000). Metallurgy and social dynamics in the later prehistory of Mediterranean Spain. In C. F. E. Pare (Ed.), *Metals make the world go round. The supply and circulation of metals in Bronze Age Europe* (pp. 116–132). Oxford: Oxbow Books.

Díaz-del-Río, P. (2004a). Copper Age ditched enclosures in Central Iberia. *Oxford Journal of Archaeology, 23*(2), 107–121.

Díaz-del-Río, P. (2004b). Factionalism and collective labor in Copper Age Iberia. *Trabajos de Prehistoria, 61*, 85–98.

Díaz-del-Río, P., & García Sanjuán, L. (Eds.). (2006). *Social inequality in Iberian late prehistory*. Oxford: BAR International Series 1525.

Driesch, A. von den & Boessneck, J. (1980). Die Motillas von Azuer und Los Palacios (Prov. Ciudad Real). *Studien über frühe Tierknochenfunde von der Iberischen Halbinsel, 7*, 84–121.

Eiroa, J. J. (2005). *El Cerro de la Virgen de la Salud (Lorca)*. Murcia: Consejería del Educación y Cultura.

Escoriza, T. (2002). Representations of women in Spanish Levantine rock art. An intentional fragmentation. *Journal of Social Archaeology, 2*, 81–108.

Fairén, S. (2004). Rock-art and the transition to farming. The Neolithic landscape of the central Mediterranean coast of Spain. *Oxford Journal of Archaeology, 23*, 1–19.

Fairén, S. (2006). *El paisaje de la Neolitización. Arte rupestre, poblamiento y mundo funerario en la comarcas centro-meridionales valencianas*. Alicante: Universidad de Alicante.

Fernández, J. (2004). Las puntas foliáceas en el horizonte campaniforme: hacia una definicion de los contextos de producción. In L. Hernández & M. S. Hernández (Eds.), *La Edad del Bronce en tierras Valencianas y zonas limítrofes* (pp. 59–66). Villena: Ayuntamiento de Villena.

Fernández-Miranda, M., Fernández-Posse, M. D., Gilman, A., & Martín, C. (1993). El sustrato neolítico en la cuenca de Vera (Almería). *Trabajos de Prehistoria, 50*, 57–85.

Fernández-Miranda, M., Fernández-Posse, M. D., & Martín, C. (1990a). Un área doméstica de la Edad del Bronce en al poblado de El Acequión (Albacete). *Archivo de Prehistoria Levantina, 20*, 351–362.

Fernández-Miranda, M., Mangas, J., Plácido, D. & Pereira, J. (1990). Indigenismo y romanización en la cuenca media del Tajo. Planteamiento de un programa de trabajo y primeros resultados. In *Actas del*

Primer Congreso de Arqueología de la Provincia de Toledo (pp. 13–65). Toledo: Diputación Provincial de Toledo.
Fernández-Posse, M. D., Gilman, A., & Martín, C. (2001). Arqueología territorial. El ejemplo del poblamiento de La Mancha oriental. In M. Ruiz-Gálvez (Ed.), *La Edad del Bronce, Primera Edad de Oro de España? Sociedad, economía e ideología* (pp. 120–137). Barcelona: Crítica.
Fernández-Posse, M. D., Martín, C., & Montero, I. (1999). Meseta Sur. In G. Delibes & I. Montero (Eds.), *Las primeras etapas metalúrgicas en la Península Ibérica: II estudios regionales* (pp. 217–239). Madrid: Instituto Universitario Ortega y Gasset.
Fontenla, S., Gómez, J. A., & Miras, M. (2005). Lorca, poblado más extenso y primogenio de la Cultura del Argar. *Alberca, 2*, 39–52.
García, L. (Ed.). (1998). *La Traviesa. Ritual funerario y jerarquización social en una comunidad de La Edad del Bronce de Sierra Morena Occidental*. Sevilla: Universidad de Sevilla.
García, L. (1999a). *Los orígenes de la estratificación social. Patrones de desigualdad en la Edad del Bronce del suroeste de la Península Ibérica (Sierra Morena occidental c. 1700–1100 a.n.e./2100–1300 A.N.E.* Oxford: British Archaeological Reports International Series 823.
García, L. (1999b). Expressions of inequality: Settlement patterns, economy and social organization in the southwest Iberian Bronze Age (c. 1700–1100 BC). *Antiquity, 73*, 337.
García, L. (2005a). Las piedras de la memoria. La permanencia del megalitismo en el suroeste de la península ibérica durante el II y I milenios ANE. *Trabajos de Prehistoria, 62*, 85–109.
García, O. (2005b). *El proceso del Neolitización en la fachada Mediterránea de la Península Ibérica. Tecnologia y tipologia de la Piedra Tallada*. Oxford: British Archaeological Reports International Series 1430.
García, O., Barton, C. M., & Bernabeu, J. (2008). Programa de prospección geofísica, microsondeos y catas para la caracterización de un gran foso del IV milenio cal AC en Alt del Punxò (Muro de L'Alcoi, Alacant). *Trabajos de Prehistoria, 65*(1), 143–154.
García, O., Molina, Ll., & García, M. R. (2004). El arte Levantino y el proceso de neolitización en el arco mediterráneo peninsular: el contexto arqueológico y su significado. *Archivo de Prehistoria Levantina, 25*, 61–90.
Garrido, R. (1996). Redes de intercambio entre el sudeste y el país valenciano durante el calcolítico. Reflexiones en torno a un patrón decorativo campaniforme. *Complutum, 7*, 63–72.
Garrido, R. (1997). Bell Beakers in the southern Meseta of the Iberian Peninsula: Socioeconomic context and new data. *Oxford Journal of Archaeology, 16*(2), 187–209.
Gavilán, B. (1997). Relexiones sobre el Neolítico andaluz. *Spal, 6*, 23–33.
Gavilán, B., (2004). Arte esquemático postpaleolítico en el macizo de Cabra (Córdoba): contextualización y territorio. In *Huelva en su Historia–2nd Época vol II* (pp. 1– 24). Huelva: Universidad de Huelva.
Gavilán, B. & Vera, J. C. (1989–1990). La Edad del Cobre en el alto valle del Guadiato (Tramo Fuente Obejuna-Belmez, Córdoba): características de los asentamientos y evolución diacrónica. *Cuadernos de Prehistoria de la Universidad de Granada, 14–15*, 137–155.
Gavilán, B., & Vera, J. C. (1993). Cerámicas con decoración simbólica y cordón interior perforado procedentes de varias cuevas situadas en la Subbética Cordobesa. *Spal, 2*, 81–108.
Gavilán, B., & Vera, J. C. (1996). Estaciones neolíticas al aire libre en el sureste de la provincia de Cordoba. *Antiquitas, 7*, 5–18.
Gavilán, B., & Vera, J. C. (1997). Nuevos datos sobre los patrones de poblamiento neolítico y calcolítico al aire libre en el piedmonte de las Sierra Subbéticas. *Antiquitas, 8*, 5–22.
Gavilán, B., & Vera, J. C. (2001). El Neolítico en la Alta Andalucía: cuestiones sobre la caracterización de sus fases. *Spal, 10*, 177–183.
Gilman, A. (1976). Bronze Age dynamics in southeast Spain. *Dialectical Anthropology, 1*, 307–319.
Gilman, A. (1981). The development of social stratification in Bronze Age Europe. *Current Anthropology, 22*, 1–23.
Gilman, A. (2001). Assessing political development in Copper and Bronze Age southeast Spain. In J. Haas (Ed.), *From leaders to rulers* (pp. 59–81). New York: Kluwer Academic/Plenum.
Gilman, A., Fernández-Miranda, M., Fernández-Posse, M. D., & Martín, C. (1997). Preliminary report on a survey program of the Bronze Age of Northern Albacete province, Spain. In M. S. Balmuth, A. Gilman & L. Prados-Torreira (Eds.), *Encounters and transformations. The archaeology of Iberia in transition* (pp. 33–50). Sheffield: Sheffield Academic Press.
Gil-Mascarell, M. & Enguix, R. (1986). La cultura del Bronce Valenciano: estado actual de la investigación. In *Homenaje a Luis Siret 1934–1984* (pp. 418–424). Sevilla: Consejería de Cultura de la Junta de Andalucía.

Goñi Quintero, A., Rodríguez, A., Camalich, Ma. D., Martín, D., & Francisco, Ma. I. (1999). La tecnología de los elementos de adorno personal en materias minerales durante el Neolítico Medio. El ejemplo del poblado de Cabecicos Negros (Almería). *Saguntum Extra, 2*, 163–170.

González, J. E., Ibañez, J. J., Peña-Chocarro, L., Gavilán, B., & Vera, J. C. (2000). El aprovechamiento de recursos vegetales en los niveles neolíticos del yacimiento de Los Murciélagos (Zuheros, Córdoba). Estudio arqueobotánico y de la función del utillaje. *Complutum, 11*, 171–189.

González, A., Ruiz, E., Gil, J. & Seva, R. (1992–1994). Cerámica roja monocroma anatólica en el poblado calcolítico de Les Moreres (Crevillente, Alicante, España). *Lucentum*, *11–13*, 7–38.

Gossé, G. (1941). Aljoroque, estación neolítica inicial de la provincia de Almería. *Ampurias, 3*, 63–84.

Graham, M. (1994). *Mobile farmers. An ethnoarchaeological approach to settlement organization among the Rarámuri of Northwestern Mexico*. Ann Arbor: International Monographs in Prehistory.

Guerra, E. (2006). Exploring the significance of Beaker pottery through residue analysis. *Oxford Journal of Archaeology, 25*(3), 247–259.

Guilabert, A. P., Jover, F. J., & Fernández, J. (1999). Las primeras comunidades agropecuarias del Río Vinalopó (Alicante). *Saguntum Extra, 2*, 283–290.

Gusi, F. (2001–2002). Distribución territorial y evolución cronocultural durante la Edad del Bronce en tierras de Castellón. In *Y acumularon tesoros. Mil años de historia en nuestras tierras* (pp. 163–179). Alicante: Caja de Ahorros del Mediterráneo.

Gusi, F., & Olaria, C. (1991). *El poblado neoeneolítico de Terrera Ventura (Tabernas, Almería)* (p. 160). Madrid: Excavaciones Arqueológicas en España.

Gutiérrez, C., Gómez, A., & Ocaña, A. (2002). Fuego y ritual en el enterramiento colectivo de Cueva Maturras (Argamasilla de Alba, Ciudad Real). In M. A. Rojo & M. Kunst (Eds.), *Sobre el significado del fuego en los rituales funerarios del Neolítico* (pp. 99–126). Valladolid: Universidad de Valladolid.

Hain, F. H. (1982). *Kupferzeitliche Tierknochenfunde aus Valencina de la Concepción (Sevilla)* (p. 8). München: Studien über frühe Tierknochenfunde von der Iberischen Halbinsel.

Haro, M. (2006). El poblamiento durante la prehistoria reciente en el Campo de Níjar (Almería). Arqueología y Territorio. Revista electrónica del Programa del Doctorado Arqueología y Territorio. http://www.ugr.es/~arqueol/docencia/doctorado/ArqyT/Articulos%201/ Artic4.htm. Accessed 6 January 2007.

Harrison, R. J., & Gilman, A. (1977). Trade in the second and third millennia BC between the Maghreb and Iberia. In V. Markotic (Ed.), *Ancient Europe and the Mediterranean: Studies in honour of Hugh Hencken* (pp. 90–104). Warminster: Aris and Phillips.

Harrison, R. J., & Orozco-Köhler, T. (2001). Beyond characterisation. Polished stone exchange in the Western Mediterranean 5500–2000 BC. *Oxford Journal of Archaeology, 20*(2), 107–127.

Hernández, M. S. (1997). Desde la periferia de El Argar. La edad del Bronce en las tierras meridionales valencianas. *Saguntum, 30*, 93–114.

Hernández, M. S., Simón, J. L., & López, J. A. (1994). *Agua y poder. El Cerro de El Cuchillo (Almansa, Albacete)*. Toledo: Servicio de Publicaciones de la Junta de Comunidades de Castilla-La Mancha.

Horden, P., & Purcell, N. (2000). *The corrupting sea. A study of Mediterranean history*. Oxford: Blackwell.

Hornos, F., Nocete, F., & Pérez, C. (1986). Actuación arqueológica de urgencia en el yacimiento de Los Pozos en Higuera de Arjona (Jaén). *Anuario Arqueológico de Andalucía, 1986*, 198–202.

Hunt, M. A. (2003). *Prehistoric mining and metallurgy in south west Iberian Peninsula*. Oxford: British Archaeological Reports International Series 1188.

Hunt, M. A., & Hurtado, V. (1999). Suroeste. In G. Delibes de Castro & I. Montero (Eds.), *Las primeras etapas metalúrgicas en la Península Ibérica. II estudios regionales* (pp. 275–331). Madrid: Instituto Universitario Ortega y Gasset.

Hurtado, V. (1997). The dynamics of the occupation of the middle basin of the river Guadiana between the fourth and second millennia BC. In M. Díaz-Andreu & S. Keay (Eds.), *The archaeology of Iberia. The dynamics of change* (pp. 98–127). London: Routledge.

Hurtado, V. (2000a). Excavaciones en la tumba 3 de La Pijotilla. *Extremadura Arqueológica, 8*, 249–266.

Hurtado, V. (2000b). El proceso de transición a la Edad del Bronce en la cuenca media del Guadiana. Ruptura o continuidad. *Actas do 3o Congresso de Arqueología Peninsular, 4*, 381–398.

Hurtado, V. (2003). Fosos y fortificaciones entre el Guadiana y Guadalquivir en el III milenio AC: evidencias del registro arqueológico. In S. O. Jorge (Ed.), *Recintos murados da Pré-historia recente* (pp. 241–268). Porto: Faculdade de Letras da Universidade do Porto.

Hurtado, V. (2004). El asentamiento fortificado de San Blas (Cheles, Badajoz). III milenio ANE. *Trabajos de Prehistoria, 61*(1), 141–155.

Hurtado, V. (in press). Ídolos, estilos y territorios de los primeros campesinos en el sur peninsular.

Hurtado, V., & Hunt, M. (1999). Extremadura. In G. Delibes de Castro & I. Montero (Eds.), *Las primeras etapas metalúrgicas en la Península Ibérica. II estudios regionales* (pp. 241–274). Madrid: Instituto Universitario Ortega y Gasset.

Jiménez, J. (1999). El proceso de neolitización del interior peninsular. In J. Bernabeu & T. Orozco Köhler (Eds.), *Actes del II Congrés del Neolític de la Península Ibérica* (pp. 549–557). *Saguntum Extra, 2*. Valencia: Universitat de Valencia.

Jiménez, S. A., Al Oumaoui, I., & Esquivel, J. A. (2004). Actividad física según sexo en la cultura argárica. Una aproximación desde los restos humanos. *Trabajos de Prehistoria, 61*, 141–153.

Jiménez, S. A., & García, M. (1989–1990). Estudio de los restos humanos de la Edad del Bronce del Cerro de la Encina (Monachil, Granada). *Cuadernos de Prehistoria de la Universidad de Granada, 14–15*, 157–180.

Jover, F. J. (1999). *Una nueva lectura del "Bronce Valenciano"*. Alicante: Universidad de Alicante.

Jover, F. J., & López, J. A. (1999). Campesinado e historia. Consideraciones sobre las comunidades agropecuarias de la edad del Bronce en el corridor del Vinalopó. *Archivo de Prehistoria Levantina, 23*, 233–257.

Jover, F. J., & López, J. A. (2004). 2100–1200 BC. Aportaciones al proceso histórico en al cuenca del río Vinalopó. In L. Hernández & M. S. Hernández (Eds.), *La Edad del Bronce en tierras Valencianas y zonas limítrofes* (pp. 285–302). Villena: Ayuntamiento de Villena.

Jover, F. J., López, J. A., & López Padilla, J. A. (1995). *El poblamiento durante en II milenio a.C. en Villena (Alicante)*. Villena: Fundación Municipal José Ma. Soler.

Jover, F. J., López, J. A., Machado, C., Harráez, M. I., Rivera, D., Precioso, M. L., et al. (2001). La producción textile durante la Edad del Bronce: un conjunto de husos o bobinas de hilo del yacimiento de Terlinques (Villena, Alicante). *Trabajos de Prehistoria, 58*, 171–186.

Juan-Cabanilles, J. (1994). Estructuras de habitación en la Ereta del Pedregal (Navarrés, Valencia). Resultados de las campañas de 1980–1982 y 1990. *Saguntum, 27*, 67–97.

Juan-Cabanilles, J. (2005). Las manifestaciones del Campaniforme en el País Valenciano. Una vision sintética. In M. A. Rojo, R. Garrido & I. García-Martínez de Lagrán (Eds.), *El Campaniforme en la Península Ibérica y su contexto Europeo* (pp. 389–399). Valladolid: Universidad de Valladolid.

Juan-Cabanilles, J. & Martí Oliver, B. (2002). Poblamiento y procesos culturales en la Península Ibérica del VII al V milenio A.C. (8000–5500 BP). Una cartografía de la neolitización. In E. Badal, J. Bernabeu & B. Martí (Eds.), *El paisaje en el Neolítico mediterráneo* (pp. 45–87). *Saguntum Extra, 5*. Valencia: Universitat de Valencia.

Kelly, R. L. (1992). Mobility/sedentism: Concepts, archaeological measures and effects. *Annual Review of Anthropology, 21*, 43–66.

Kohring, S., Odriozola, C. P., & Hurtado, V. M. (2007). Materialising 'complex' social relationships: Technology, production and consumption in a Copper Age community. In S. Kohring & S. Wynne-Jones (Eds.), *Socialising complexity. Structure, interaction and power in archaeological discourse* (pp. 100–117). Oxford: Oxbow Books.

Kunst, M., & Rojo, M. (1999). El Valle de Ambrona: un ejemplo de la primera colonización neolítica de las tierra del interior peninsular. *Saguntum Extra, 2*, 259–270.

Kunter, M. (1990). *Menschliche Skelettreste aus Siedlungen del El Argar-Kultur. Ein Bietrag der Präh istorischen Anthropologie zur Kenntnis bronzezeitlicher Bevölkerungen Südostspaniens. Madrider Beitrage 18*. Mainz: Philipp von Zabern.

Lacalle, R. (2000). El megalitismo en el S·O. de Andalucía: un indicador de jerarquización social. *Madrider Mitteilungen, 41*, 54–70.

Lazarich, M. (2005). El campaniforme en Andalucía. In M. A. Rojo, R. Garrido & I. García (Eds.), *El Campaniforme en la Península Ibérica y su Contexto Europeo*. Valladolid: Universidad de Valladolid.

Leisner, G., & Leisner, V. (1943). *Die Megalithgräber der Iberischen Halbinsel: Der Süden*. Berlin: Walter de Gruyter.

Lizcano, R., Cámara, J. A., Contreras, F., Pérez, C. & Burgos, A. (2004). Continuidad y cambio en comunidades calcolíticos del Alto Guadalquivir. In *II–III Simposios de Prehistoria. Cueva de Nerja* (pp. 159–175). Nerja: Fundación Cueva de Nerja.

Lizcano, R., Cámara, J.A., Riquelme, J. A., Cañabate, M.L., Sánchez, A. S. & Alfonso, J. A. (1991–1992). El Polideportivo de Martos. Producción económica y símbolos de cohesion en un asentamiento del Neolítico Final en las Campiñas del Alto Guadalquivir. *Cuadernos de Prehistoria de la Universidad de Granada,* 16–*17*, 5–101.

López, J. A. (2001–2002). El trabajo del hueso, asta y marfil. In *Y acumularon tesoros. Mil años de historia en nuestras tierras* (pp. 247–257). Alicante: Caja de Ahorros del Mediterráneo.

López, J. A. (2006a). Consideraciones en torno al "horizonte campaniforme de transición". *Archivo de Prehistoria Levantina, 26*, 193–243.

López, J. A. (2006b). Distribución territorial y consumo de botones de perforación en "V" en el ámbito argárico. *Trabajos de Prehistoria, 63*(2), 93–116.

Lucena, A. Ma. (2004). Estructuras y contenidos cerámicos documentadas en el yacimiento arqueológico de Papa Uvas (Ajaraque, Huelva): Campaña de 1994. In *II–III Simposios de Prehistoria. Cueva de Nerja* (pp. 227–237). Nerja: Fundación Cueva de Nerja.

Lull, V. (1983). *La 'cultura' de El Argar. Un modelo para el estudio de las formaciones económico-sociales prehistóricas*. Madrid: Akal.

Lull, V. (2000). Argaric society: Death at home. *Antiquity, 74*, 581–590.

Lull, V. (2005). Marx, producción, sociedad y arqueología. *Trabajos de Prehistoria, 62*(1), 7–26.

Lull, V. (2007). *Los objetos distinguidos. La arqueología como excusa*. Barcelona: Edicions Bellaterra.

Lull, V. & Estévez, J. (1986). Propuesta metodológica para el estudio de las necrópolis argáricas. In *Homenaje a Luis Siret 1934–84* (pp. 441–452). Seville: Junta de Andalucía.

Lull, V., & Micó, R. (2007). *Arqueología del origen del Estado: las teorías*. Barcelona: Edicions Bellaterra.

Lull, V., Micó, R., Rihuete, C., & Risch, R. (2005). Property relations in the Bronze Age of southwestern Europe: An approach based on infant burials from El Argar (Almería, Spain). *Proceedings of the Prehistoric Society, 71*, 247–268.

Lull, V. & Risch, R. (1995). El estado argárico. *Verdolay, 7*, 97–109.

Maicas, R. (2005). Rituales de enterramiento en la cuenca de Vera. In P. Arias, R. Ontañon & C. García–Moncó (Eds.), *Actas del III Congreso del Neolítico en la Península Ibérica* (pp. 767–774). Santander: Universidad de Cantabria.

Maldonado, G., Molina, F., Alcaraz, F., Cámara, J. A., Mérida, V., & Ruiz, V. (1991– 1992). El papel social del megalitismo en el sureste de la Peninsula Ibérica. Las comunidades megalíticas del pasillo de Tabernas. *Cuadernos de Prehistoria de la Universidad de Granada, 16–17*, 167–190.

Márques, I., Aguado, T., Baldomero, A., & Ferrer, J. E. (2004). Proyectos sobre La Edad del Cobre en Antequera (Málaga). In *II–III Simposios de Prehistoria. Cueva de Nerja* (pp. 238–260). Nerja: Fundación Cueva de Nerja.

Marquez, J. E. (2004). El asentamiento del Peñon del Oso (Villanueva del Rosario, Málaga) y la economía del sílex a finales del III milenio a.C. In *II–III Simposios de Prehistoria. Cueva de Nerja* (pp. 290–299). Nerja: Fundación Cueva de Nerja.

Márquez, J. E. (1998). La producción de piezas líticas talladas para hoz durante el Calcolítico y la Edad del Bronce en la provincial de Málaga: Implicaciones económicas y socials. *Baetica, 20*, 271–286.

Márquez, J. E. (2000). Territorio y cambio durante el III milenio A.C.: propuestas para pensar el tránsito del Calcolítico a la Edad del Bronce. *Baetica, 22*, 203–230.

Márquez, J. E. (2006). Neolithic and Copper Age ditched enclosures and social inequality in the south of the Iberian peninsula (IV–III millennia cal BC). In P. Díaz-del-Río & L. García Sanjuan (Eds.), *Social inequality in Iberian late prehistory* (pp. 171–187). Oxford: British Archaeological Reports International Series 1525.

Martí, B., de Pedro, M. J., & Enguix, R. (1995). La Muntanya Assolada de Alzira y la necrópolis de la cultura del Bronce Valenciano. *Saguntum, 28*, 75–91.

Martí, B., & Hernández, M. S. (1988). *El Neolític Valencià. Art rupestre i cultura material*. Valencia: Diputación de Valencia.

Martí, B., & Juan-Cabanilles, J. (1997). Epipaleolíticos y Neolíticos: población y territorio en el proceso de neolitización de la Península Ibérica. *Espacio, tiempo y forma, Serie 1, Prehistoria y arqueología, 10*, 215–264.

Martín, C. (1983). Las fechas del Quintanar (Munera, Albacete) y la cronología absoluta de la Meseta sur. In *Homenaje al Prof. Martín Almagro Basch* 2 (pp. 23–35). Madrid: Ministerio de Cultura.

Martín de la Cruz, J. C. (1985). *Papa Uvas 1*. Madrid: Ministerio de Cultura.

Martín, C., Fernández-Miranda, M., Fernández-Posse, M. D., & Gilman, A. (1993). The Bronze Age of La Mancha. *Antiquity, 67*, 23–45.

Martín, E. & Recio, A. (2004). Aportación de la documentación arqueológica del Cerro de Capenallía (Periana, Málaga) al desarrollo de las comunidades calcolíticas de las tierras orientales de Málaga. In *II–III Simposios de Prehistoria. Cueva de Nerja*: (pp. 41–51). Nerja: Fundación Cueva de Nerja.

Martínez, R. (1990). La fauna de vertebrados. In J. Bernabeu (Ed.), *El III Milenio a.c. en el país Valenciano, los poblados de Jovades (Cocentaina, Alacant) y Arenal de la Costa (Ontinyent, València)* (pp. 123–147). Valencia: Universidad de Valencia.

Martínez, G., & Morgado, A. (2005). Los contextos de elaboración de hojas prismáticas de sílex en Andalucía oriental durante el Neolítico reciente. Aspectos técnicos, modelos de trabajo y estructuración social. In P. Arias, R. Ontañon & C. García- Moncó (Eds.), *Actas del III Congreso del Neolítico en la Península Ibérica* (pp. 359–368). Santander: Universidad de Cantabria.

Mathers, C., & Stoddart, S. (1994). Introduction. In C. Mathers & S. Stoddart (Eds.), *Development and decline in the Mediterranean Bronze Age* (pp. 13–20). Sheffield: J. R. Collis Publications.

McClure, S. B. (2004). *Cultural transmission of ceramic technology during the consolidation of agriculture in Valencia, Spain*. PhD Dissertation, Department of Anthropology, University of California, Santa Barbara.

McClure, S. B., Balaguer, L. M., & Bernabeu, J. (in press). Neolithic rock art in context: Landscape history and the transition to agriculture in Mediterranean Spain. *Journal of Anthropological Archaeology, 27*.

McClure, S. B., Bernabeu, J., García, O., Aura, E., Molina, L., Descantes, C., Speakman, R. J., & Glascock, M. D. (2006a). Testing technological practices: Neutron activation analysis of neolithic ceramics from Valencia, Spain. *Journal of Archaeological Science, 33*, 671–680.

McClure, S. B., Jochim, M., & Barton, C. M. (2006b). Human behavioral ecology, domestic animals and land use during the transition to agriculture in Valencia, Eastern Spain. In D. Kennett & B. Winterhalder (Eds.), *Human behavioral ecology and the transition to agriculture* (pp. 197–216). Berkeley: University of California Press.

Micó, R. (1993). *Pensamientos y prácticas en las arqueologías contemporáneas. Normatividad y exclusión en los grupos arqueológicos del III y II milenios cal ANE en el sudeste de la península Ibérica*. PhD Thesis, Universitat Autònoma de Barcelona.

Miranda, J. M., Ramirez, A. & Sánchez, J. I. (1988). Introducción a un estudio de la utilización del medio ambiente en el Cerro de la Encantada. In *Actas, 1. Congreso de Historia de Castilla–La Mancha 3*, 129–138.

Molina, F. (1983). *Prehistoria de Granada*. Granada: Editorial Don Quijote.

Molina, F. J. (2004). La ocupación del territorio desde el Paleolítico Medio hasta La Edad del Bronce en el area oriental de las comarcas de l'Alcoià y el El Comtat (Alicante). *Archivo de Prehistoria Levantina, 25*, 91–135.

Molina, F., & Cámara, J. A. (2005). *Los Millares. Guía del yacimiento arqueológico*. Sevilla: Junta de Andalucía.

Molina, F., Cámara, J. A., Capel, J., Nájera, T., & Sáez, L. (2004). Los Millares y la periodización de la prehistoria reciente del sureste. In *II–III Simposios de Prehistoria. Cueva de Nerja* (pp. 142–158). Nerja: Fundación Cueva de Nerja.

Molina, F., Nájera, T., Aranda, G., Sánchez, M., & Haro, M. (2005). Recent fieldwork at the Bronze Age fortified site of Motilla del Azuer (Daimiel, Spain). http://antiquity.ac.uk/ProjGall/aranda/index.html. Accessed 1 December 2005.

Montero, I. (1993). Bronze Age metallurgy in southeast Spain. *Antiquity, 67*, 46–57.

Montero, I. (1994). *El origen de la metalurgia en el sudeste de la Península Ibérica*. Almería: Instituto de Estudios Almerienses.

Montero, I., Rihuete, C., & Ruiz Taboada, A. (1999). Precisiones sobre el enterramiento colectivo neolítico de Cerro Virtud (Cuevas de Almanzora, Almería). *Trabajos de Prehistoria, 56*(1), 119–130.

Moreno, A., Contreras, F., & Cámara, J. A. (1991–1992). Patrones de asentamiento, poblamiento y dinámica cultural en las tierras altas del sureste peninsular. El Pasillo Cúllar-Chirivel durante la prehistoria reciente. *Cuadernos de Prehistoria, 16–17*, 191–245.

Morgado, A., & Martínez, G. (2005). Desarollo local y diversificación regional del Neolítico de las cordilleras béticas: la comarca del Guadalteba (Málaga). In P. Arias, R. Ontañon & C. García-Moncó (Eds.), *Actas del III Congreso del Neolítico en la Península Ibérica* (pp. 1045–1055). Santander: Universidad de Cantabria.

Nájera, T. (1984). La Edad del Bronce en La Mancha Occidental. Resumen de Tesis Doctoral, Tesis Doctorales de la Universidad de Granada 458.

Nájera, T., & Molina, F. (2004a). La Edad del Bronce en La Mancha: problemática y perspectivas de la investigación. In L. Hernández & M. S. Hernández (Eds.), *La Edad del Bronce en tierras Valencianas y zonas limítrofes* (pp. 531–540). Villena: Ayuntamiento de Villena.

Nájera, T., & Molina, F. (2004b). Las motillas. Un modelo de asentamiento con fortificación central en la llanura de La Mancha. In M. R. García & J. Morales (Eds.), *La Península Ibérica en el II Milenio A.C.: Poblados y fortificaciones* (pp. 173–214). Cuenca: Universidad de Castilla-La Mancha.

Nájera, T., Molina, F., Sánchez, M., & Aranda, G. (2006). Un enterramiento infantil singular en el yacimiento de la Edad del Bronce de la Motilla del Azuer (Daimiel, Ciudad Real). *Trabajos de Prehistoria, 63*, 149–156.

Navarrete, S. Ma., Capel, J., Linares, J., Huertas, F., & Reyes, E. (1991). *Cerámicas Neolíticas de la Provincia de Granada. Materias primas y técnicas de manufacturación*. Granada: Universidad de Granada.

Navas, E., Molina, F., & Esquivel, J. A. (2006). La distribución especial de los restos faunísticos de Los Millares (Santa Fe de Mondújar, Almería). *Complutum, 16*, 89–104.

Nieto, G., & Sánchez, J. (1980). *El Cerro de la Encantada, Granátula de Calatrava (Ciudad Real)*. Madrid: Ministerio de Cultura.

Nocete, F. (1989). *El Espacio de la Coerción. La transición al estado en las campiñas del Alto Guadalquivir (España) 3000–1500 a.C.* Oxford: British Archaeological Reports International Series 492.

Nocete, F. (1994). Space as coercion: The transition to the state in the social formations of La Campiña, upper Guadalquivir valley, Spain, c. 1900–1600 BC. *Journal of Anthropological Archaeology, 13*, 171–200.

Nocete, F. (2001). *Tercer milenio antes de nuestra era. Relaciones y contradicciones centro/periferia en el Valle del Guadalquivir*. Barcelona: Bellaterra.

Nocete, F. (Ed.). (2004). *Odiel. Proyecto de investigación arqueológica para el análisis del origen de la desigualidad social en el sureste de la Península Ibérica*. Sevilla: Junta de Andalucía.

Nocete, F. (Ed.). (2005). *Andévalo patrimonio arqueológico. El yacimiento de La Junta de Los Ríos. Modelo de recuperación, análisis e interpretación del registro arqueológico en la presa del Andévalo-Huelva.* Huleva: Ministerio de Medio Ambiente.

Nocete, F. (2006). The first specialised copper industry in the Iberian Peninsula: Cabezo Juré (2900–2200 BC). *Antiquity, 80*, 646–657.

Nocete, F., Alex, E., Nieto, J. M., Sáez, R., Inácio, N., & Bayona, M. R. (2004–2005). Intensidad e intensificación en la primera minería y metalurgia del cobre especializada de la península Ibérica (III milenio ANE): la identificación arqueológica de un proceso regional de deforestación y polución. *Revista Atlántica-Mediterránea de Prehistoria y Arqueología Social, 7*, 33–49.

Nocete, F., Orihuela, A., Escalera, P., Linares, J. A., Otero, R., & Romero, J. C. (1995). Prospecciones arqueológicas de superficie en el marco del Proyecto Odiel en 1992: III Muestreo Sotiel Coronada-Calañas. (Huelva). *Anuario Arqueológico de Andalucía, 1992*, 215–223.

Nocete, F., Queipo, G., Sáez, R., Nieto, J. M., Inácio, N., Bayona, M. R., et al. (2008). The smelting quarter of Valencina del la Concepción (Seville, Spain): The specialised copper industry in a political centre of the Guadalquivir valley during the third millennium BC (2750–2500 BC). *Journal of Archaeological Science, 35*, 717–732.

Nocete, F., Sáez, R., Nieto, J. M., Cruz-Auñon, R., Cabrero, R., Alex, E., et al. (2005). Circulation of silicified oolitic limestone blades in South Iberia (Spain and Portugal) during the third millennium B.C.: An expression of a core/periphery framework. *Journal of Anthropological Archaeology, 24*, 62–81.

Ocaña, A. (2002). Las Lagunas de Ruidera durante la Edad del Bronce: un territorio jerarquizado. *Trabajos de Prehistoria, 59*, 167–177.

Oliveira Jorge, S. (1994). Colónias, fortificações, lugares monumentalizados. Trajectória das concepções sobre um tema do Calcolítico Peninsular. *Revista da Faculdade de Letras, 11*, 447–546.

Orozco Köhler, T. (2000). *Aprovisionamiento e Intercambio. Análisis petrológico del utillaje pulimentado en la Prehistoria Reciente del País Valenciano (España)*. Oxford: British Archaeological Reports International Series 867.

Pascual-Benito, J. Ll. (1990). El sílex. In J. Bernabeu (Ed.), *El III Milenio a.c. en el País Valenciano, Los Poblados de Jovades (Cocentaina, Alacant) y Arenal de la Costa (Ontinyent, València)* (pp. 67–82). Valencia: Universidad de Valencia.

Pascual-Benito, J. Ll. (2005). Los talleres de cuentas de Cardium en el Neolítico peninsular. In P. Arias, R. Ontañon & C. García-Moncó (Eds.), *Actas del III Congreso del Neolítico en la Península Ibérica* (pp. 277–286). Santander: Universidad de Cantabria.

Pascual-Benito, J. Ll., Bernabeu, J., & Pascual Beneyto, J. (1990). Los yacimientos y las estructuras. In J. Bernabeu (Ed.), *El III Milenio a.c. en el País Valenciano, Los poblados de Jovades (Cocentaina, Alacant) y Arenal de la Costa (Ontinyent, València)* (pp. 25–46). Valencia: Universidad de Valencia.

Pellicer, M., & Acosta, P. (1982). El neolítico antiguo en Andalucía occidental. In *Le Néolithique ancien méditerranéen. Actes du Colloque International de Préhistoire. Montpellier* (pp. 49–60). No. Special 1982, Revue de la Fédération Archéologique de L'Hérault.

Peña-Chocarro, L. (1999). *Prehistoric agriculture in southern Spain during the Neolithic and the Bronze Age. The application of ethnographic models*. Oxford: BAR International Series 818.

Perez, M. (1999). La explotación ganadera durante el III milenio a.C. en la Península Ibérica. *Saguntum Extra, 2*, 95–103.

Pérez, G. (2005). Nuevos datos paleocarpológicos en niveles neolíticos del País Valenciano. In P. Arias, R. Ontañon & C. García-Moncó (Eds.), *Actas del III Congreso del Neolítico en la Península Ibérica* (pp. 73–81). Santander: Universidad de Cantabria.

Peters, J., & von den Driesch, A. (1990). *Neolithische und Kupferzeitliche Tierknochenfunde aus Südspanien. Los Castillejos. Los Millares* (p. 12). Munich: Studien über frühe Tierknochenfunde von der Iberischen Halbinsel.

Piñon, F. (1986). Los Vientos de la Zarcita (Santa Bárbara de Casa, Huelva). Campaña de excavaciones. *Anuario Arqueológico de Andalucía, 1986*, 317–324.

Ramos, J. (1993). *El hábitat prehistórico de "El Estanquillo". San Fernando*. San Fernando: Fundación Municipal de Culture.

Ramos, A. (1997). Flint political economy in a tribal society. A material culture study in the El Malagón settlement (Iberian southeast). In A. Ramos & M. A. Bustillo (Eds.), *Siliceous rocks and culture* (pp. 671–711). Granada: Universidad de Granada.

Ramos, A. (1998). La minería, la artesanía y el intercambio de sílex durante la Edad del Cobre en el Sudeste de la Península Ibérica. In G. Delibes de Castro (Ed.), *Minerales y metales en la prehistoria reciente. Algunos testimonios de su explotación y laboreo en la Península Ibérica* (pp. 13–40). Valladolid: Universidad de Valladolid.

Ramos, A. (2004). La evolución urbanística del asentamiento millarense. Un texto de historia social y política en al cultura tribal. In *II–III Simposios de Prehistoria. Cueva de Nerja* (pp. 404–424). Nerja: Fundación Cueva de Nerja.

Ramos, J. (2004). El poblamiento calcolítico en la borde atlántica de Cádiz. Aproximación a la sociedad clasista inicial del IIIer milenio A.N.E. In *II–III Simposios de Prehistoria. Cueva de Nerja* (pp. 352–360). Nerja: Fundación Cueva de Nerja.

Ramos, J., Lazarich, M., Cáceres, I., Pérez, M., Castañeda, V., Herrero, N., et al. (2005). El asentamiento de El Retamar. Síntesis del registro arqueológico y enmarque socio-económico e histórico. In P. Arias, R. Ontañon & C. García-Moncó (Eds.), *Actas del III Congreso del Neolítico en la Península Ibérica* (pp. 509–518). Santander: Universidad de Cantabria.

Risch, R. (1995). *Recursos naturales y sistemas de producción en el Sudeste de la Península Ibérica entre 3000 y 1000 ANE*. PhD Thesis, Universitat Autònoma de Barcelona.

Risch, R. (1998). Análisis paleoeconómico y medios de producción líticos: el caso de Fuente Alamo. In G. Delibes de Castro (Ed.), *Minerales y metales en la prehistoria reciente. Algunos testimonios de su explotación y laboreo en la Península Ibérica* (pp. 105–154). Valladolid: Universidad de Valladolid.

Risch, R. (2002). *Recursos naturales, medios de producción y explotación social. Un análisis económico de la industria lítica de Fuente Álamo (Almería), 2250–1400 antes de nuestra era*. Mainz am Rhein: Philipp von Zabern.

Risch, R. (2008). Grain processing technologies and economic organisation: A case study from the South-East of the Iberian Peninsula during the Copper Age. *The Arkeotek Journal, 2*: http://www.thearkeotekjournal.org/. Accessed 15 July 2008.

Rivera, D., Obon, C., & Diaz-Andreu, M. (1994). Estudio del aprovechamiento del medio natural en el yacimiento de la Edad del Bronce de El Recuenco (Cervera del Llano, Cuenca). Análisis paleo-botánicos. *Trabajos de Prehistoria, 51*, 169–178.

Rodríguez Ariza, Ma. O. (1995). Análisis antracológicos de yacimientos neolíticos de Andalucía. *Rubricatum, 1*, 73–83.

Rodríguez Ariza, Ma. O. (2000). El paisaje vegetal de la depresión de Vera durante la prehistoria reciente. Una aproximación desde la antracología. *Trabajos de Prehistoria, 57*(1), 145–156.

Rodríguez, F. J., & Márquez, J. (2003). Dataciones absolutas para la prehistoria reciente de la provincia de Málaga: una revisión crítica. *Baetica, 25*, 313–353.

Rojo, M. A., Kunst, M., Garrido, R., & García Martínez de Lagran, E. I. (2006). La neolitización de la Meseta Norte a la luz del C-14: análisis de 47 dataciones absolutas inéditas de los yacimientos domésticos del Valle de Ambrona, Soria, España. *Archivo de Prehistoria Levantina, 26*, 39–100.

Román Díaz, Ma. P. (1999). Primeras aldeas con almacenamiento en el Sureste de la Península Ibérica. *Saguntum Extra, 2*, 199–206.

Román Díaz, Ma. P., & Maicas, R. (2002). "Campos de Hoyos" en el desembocadura del Río Almanzonra (Almería): Las Palas y la Era. *Complutum, 13*, 51–76.

Román Díaz, Ma. P., & Martínez Padilla, C. (1998). Aproximación al estudio de las transformaciones históricas en las sociedades del VI al III milenio a.C. en el sureste peninsular. *Trabajos de Prehistoria, 55*(2), 35–54.

Román Díaz, Ma. P., Martínez Padilla, C., Suárez de Urbina, N., & Martínez Acosta, F. (2005). Alto Almanzora: "Cultura de Almería" y termoluminescencia. In P. Arias, R. Ontañon & C. García-Moncó (Eds.), *Actas del III Congreso del Neolítico en la Península Ibérica* (pp. 465–473). Santander: Universidad de Cantabria.

Romero, H., & Sánchez, J. (1988). La facies necropolis de la Encantada: aproximación a su estratigrafía. In *Actas, 1. Congreso de Historia de Castilla-La Mancha, 3*, 139–149.

Romero, H., Sanz, E., & Sánchez, J. (1988). La Encantada: Bronce de La Mancha o Bronce Argárico? In *Actas, 1. Congreso de Historia de Castilla-La Mancha,* 3, (pp. 119–127). Ciudad Real: Junta de Comunidades de Castilla-La Mancha.

Rovira, N. (2000). Semillas y frutos arqueológicos del yacimiento calcolítico de Las Pilas (Mojácar, Almería). *Complutum, 11*, 191–208.

Ruiz, J. A. (1986). Informe excavaciones de urgencia. Pago de Cantarranas–La Viña. El Puerto de Santa Maria. *Anuario Arqueológico de Andalucía, 1986*, 95–100.

Ruiz, A., Nocete, F., & Zafra, N. (1987). La excavación arqueológica de urgencia en el Cerro de la Horca, La Guardia, Jaén. *Anuario Arqueológico de Andalucía, 1987*, 344–353.

Ruiz Taboada, A. (1998). *La Edad del Bronce en la Provincia de Toledo: La Mancha y su entorno*. Toledo: Instituto Provincial de Estudios Toledanos.

Ruiz Taboada, A., & Montero, I. (1999). The oldest metallurgy in Western Europe. *Antiquity, 73*, 897–903.

Ruiz Taboada, A., & Montero, I. (2000). The pattern of use of stone and copper in central Spain during the Bronze Age. *European Journal of Archaeology, 3*, 350–369.

Saéz, L., & Martínez, G. (1981). El yacimiento neolítico al aire libre de La Molaina (Pinos Puente, Granada). *Cuadernos de Prehistoria de la Universidad de Granada, 6*, 17–34.

Sánchez, J., & Galán, C. (2004). El Cerro de la Encantada. In M. R. García & J. Morales (Eds.), *La Península Ibérica en el II Milenio A.C.: Poblados y Fortificaciones* (pp. 115–172). Cuenca: Universidad de Castilla-La Mancha.

Sánchez, A., Pedro, J., & Rueda, C. (2005). Nuevos datos sobre la zona arqueológica de Marroquiés Bajos: el quinto foso. *Trabajos de Prehistoria, 62*(1), 51–64.

Sánchez Romero, M. (2000). *Espacios de producción y uso de los útiles de piedra tallada del Neolítico. El poblado de "Los Castillejos de Las Peñas de Los Gitanos" (Granada, España)*. Oxford: BAR International Series 874.

Schubart, H., Pingel, V., & Arteaga, O. (2001). *Fuente Álamo. Las excavaciones arqueológicas 1977–1991 en el poblado de la Edad del Bronce*. Seville: Junta de Andalucía.

Schubart, H., Pingel, V., Kunter, M., Von Lettow-Vorbeck, C. L., Pozo, M., Medina, J. A., et al. (2004). Studien zu Grab 111 von Fuente Álamo (Almería). *Madrider Mitteilungen, 45*, 57–146.

Simón, J. L. (1998). *La metalurgia prehistórica Valenciana*. Valencia: Diputación Provincial de Valencia.

Siret, H., & Siret, L. (1887). *Les premiers âges du métal dans le sud-est de l'Espagne*. Anvers.

Spanedda, L., Lizcano, R., Cámara, J. A., & Contreras, F. (2004). El poblado de Sevilleja y la Edad del Bronce en el valle del Rumblar. In M. R. García & J. Morales (Eds.), *La Península Ibérica en el II milenio A.C.: Poblados y fortificaciones* (pp. 57–85). Cuenca: Universidad de Castilla-La Mancha.

Stephenson, A., & Moore, P. D. (1988). Studies in vegetational history of SW Spain II. Palynological investigations at El Acebrón, Huelva. *Journal of Biogeography, 15*, 339–361.

Stika, H.-P. (1988). Botanische untersuchungen in der bronzezeitlichen höhensiedlung Fuente Alamo. *Madrider Mitteilungen, 29*, 21–76.

Stika, H.-P. (2001). Resultados arqueobotánicos de la campaña de 1988 en Fuente Alamo. In H. Schubart, V. Pingel & O. Arteaga (Eds.), *Fuente Álamo: Las excavaciones arqueológicas 1977–1991 en el poblado de la Edad del Bronce* (pp. 183–221). Seville: Junta de Andalucía.

Stika, H.-P., & Jurich, B. (1998). Pflanzenreste aus der probegrabung 1991 im bronzezeitlichen siedlungsplatz el Argar, prov. Almería, südostspanien. *Madrider Mitteilungen, 39*, 35–48.

Stos-Gale, S. (2000). Trade in metals in the Bronze Age Mediterranean: An overview of lead isotope data for provenance studies. In C. F. E. Pare (Ed.), *Metals make the world go round. The supply and circulation of metals in Bronze Age Europe* (pp. 56–69). Oxford: Oxbow Books.

Trancho, G. J., Robledo, B., & Larrea, T. (2005). Paleodieta y patron económico de la población megalítica de Azután. In P. Bueno, R. de Balbín & R. Barroso (Eds.), *El Dolmen de Azután (Toledo). Áreas de habitación y áreas funerarias en la cuenca interior del Tajo* (pp. 251–272). Alcalá: Universidad de Alcalá.

Vera, J. C. (2004). Formación y desarrollo de los primeros sociedades metalúrgicas en al comarca minera del alto valle del Guadiato (Córdoba). In *II–III Simposios de Prehistoria. Cueva de Nerja* (pp. 321–329). Nerja: Fundación Cueva de Nerja.

Vera, J. C., & Gavilán, B. (1999). Organización interna y usos de espacio en la Cueva de los Murciélagos de Zuheros (Córdoba). *Saguntum Extra, 2*, 229–234.

Vicent, J. (1999). The island filter model revisited. In M. S. Balmuth, A. Gilman & L. Prados-Torreira (Eds.), *Encounters and transformations: The archaeology of Iberia in transition* (pp. 1–13). Sheffield: Sheffield Academic Press.

Wills, W. H. (1998). Early agriculture and sedentism in the American Southwest: Evidence and interpretation. *Journal of World Prehistory, 2*(4), 445–458.

Zafra, N., Hornos, F., & Castro, M. (1999). Una macro-aldea en el origen del modo de vida campesino: Marroquiés Bajos (Jaén) c. 2500–2000 cal. ANE. *Trabajos de Prehistoria, 56*, 77–102.

Zapata, L., Peña-Chocarro, L., Pérez-Jorda, G., & Stika, H.-P. (2004). Early Neolithic agriculture in the Iberian Peninsula. *Journal of World Prehistory, 18*(4), 283–325.

Zilhão, J. (1993). The spread of agro-pastoral economies across Mediterranean Europe: A view from the far west. *Journal of Mediterranean Archaeology, 6*, 5–63.

Zilhão, J. (2001). Radiocarbon evidence for maritime pioneer colonization at the origins of farming in west Mediterranean Europe. *Proceedings of the New York Academy of Sciences, 98*, 14180–14185.