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The Iberian Pleistocene-Holocene Transition

Guest Editors: Steven Schmich & Sarah B. McClure

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Villaverde, V., ed. 2001. *De Neandertales a Cromañones. El inicio del poblamiento humano en las tierras valencianas.* València: Universitat de València.

Villaverde, V., J. E. Aura, and C. M. Barton. 1999. The Upper Paleolitihc in Mediterranean Spain: A review of current evidence. *Journal of Word Prehistory* 12:121–98.

Villaverde, V., R. Martínez-Valle, E. Badal, P. Guillem, R. García, and J. Menargues. 1999. El Paleolítico Superior de la Cova de Les Cendres (Teulada-Moraira, Alicante): Datos proporcionados por el sondeo efectuado en los cuadros A/B-17. *Archivo de Prehistoria Levantina* XXIII:9–65.

Weninger, B., O. Jöris, and U. Danzeglocke. 2006. Glacial radiocarbon age conversion. Cologne radiocarbon calibration and palaeoclimate research package <CALPAL> User manual. Köln: Universität zu Köln, Institut für Ur- und Frühgeschichte.

FROM THE MESOLITHIC TO THE NEOLITHIC on the Mediterranean Coast of the Iberian Peninsula

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This paper summarizes early Holocene cultural sequences, economic strategies, and social dynamics on the Mediterranean coast of the Iberian Peninsula. Recent research in the central-southern regions of Valencia provides important diachronic information, particularly for discerning the nature of the shift from a hunter-gatherer lifestyle to agriculture. If biogeographic conditions played a leading role in determining exploitation strategies, then recognizing distinctive social responses is crucial for understanding the impact of the changes that occurred.

THE SCOPE OF THE RECENT LITERATURE ON THE CENTRAL REGION OF THE MEDITERRANEAN FACADE of the Iberian Peninsula is evidence of this area's importance for understanding the recent prehistory of western Europe. This paper presents a general view of paleoenvironmental, paleoeconomic, and cultural changes and centers on the introduction of agriculture and animal husbandry in the region. We argue for an initial exogenous input tied to the impressed pottery tradition of the western Mediterranean, recognizing different pulses of expansion in space and time that help explain the variability detected among sites (Bernabeu et al. in press). The role of local Mesolithic groups is analyzed in light of data from the natural environment as well as economic, demographic, and territorial dynamics.

Recent excavation and survey in the central Mediterranean region of the Iberian Peninsula has painted a new picture of human settlement from the terminal Pleistocene to the Early and Middle Holocene. Research projects conducted by the University of Valencia and Arizona State University have increased the information available regarding paleoenvironmental, economic, and cultural shifts during a period that witnessed the dissolution of hunter-gatherer societies and the establishment of a production economy. In this paper we outline the general dynamic of land use in this area, centering on the specific chronological interval that begins with the Terminal Pleistocene/Early Holocene and ends with the Middle Holocene (10,500–5,000 cal BC). We focus on two main shifts in human adaptive strategies that occurred during this period: the subsistence dynamics of the hunter-gatherer groups and the introduction of an agricultural economy.

The spatial area of research corresponds to the central portion of the Autonomous Region of Valencia, located in the provinces of Valencia and

Alicante, Spain. It is a territory full of contrasts, with extensive mountains and valleys bordering a coastal plain of varying width (Figure 1). This relief only rarely exceeds 1,500 m and is furrowed by principal and secondary natural corridors that serve as communication routes between coastal and interior areas. The irregular network of rivers articulates with a series of former river channels and is bordered to the north by the Xúquer River. The Serpis or Alcoi River and its valley are particularly relevant to this discussion. The substantial anthropogenic processes have led to varying degrees of preservation and visibility of the surficial archaeological record (Barton et al. 1999, 2002, 2004; Bernabeu et al. 2000). Pine forest and matorral are the most extensive vegetation regimes in the mountainous areas, while varied dryland (olives, grapes) and irrigated (e.g., oranges) cultivars occupy the interior valleys and the coastal plain.

Various paleoenvironmental studies of the Pleistocene-Holocene transition are available for the area, primarily related to archaeological projects in the Alcoi Valley and its surroundings. Charcoal and palynological data from archaeological deposits in caves and rockshelters dating to the Tardiglacial and Early/Middle Holocene—Cova de Santa Maira, Tossal de la Roca, Abric de la Falguera, Cova de l'Or, and Cova de les Cendres—indicate a series of vegetational oscillations representing a climate amelioration (Badal et al. 1994; Carrión 2002, 2006;

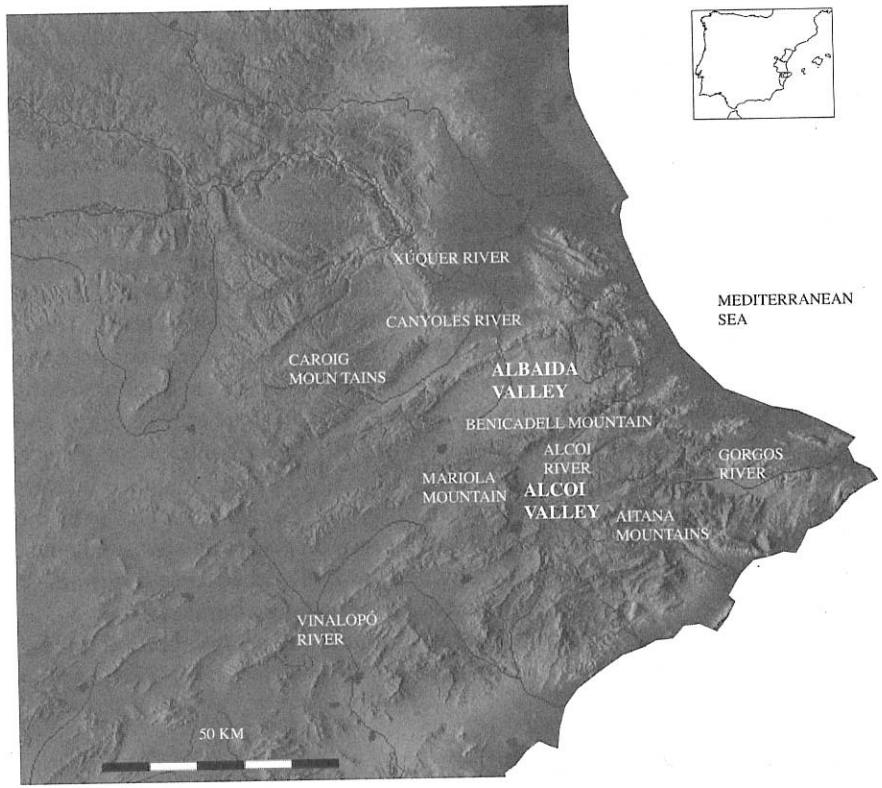

Figure 1. Map of central Valencian region.

Dupré 1988; Gil-Romera et al. 2009; Uzquiano 1990). Increases in temperature and humidity are correlated with the expansion of Mediterranean climax forest, especially oak, in a landscape that was previously more open and dominated by juniper. These transformations have a direct impact on the distribution of resources available for human exploitation. In Mediterranean regions where no significant shift in fauna and vegetation is observed for this period, we expect a redistribution of these resources on a smaller scale. Changes in coastline from the postglacial sea-level rise are equally relevant for the configuration of these new Holocene landscapes. In light of newly published data, current work emphasizes the impact of paleoclimatic pulsations. The 8.2 kya event was a cold spell of short duration, and its biogeographic consequences must still be identified generally as well as on regional and microregional scales (Naughton et al. 2007). This is particularly important for identifying its role in the study area since it coincides with the development of the Geometric Mesolithic and its possible impact in the period immediately preceding the introduction of the food production economy.

THE CULTURAL SEQUENCE

The regional archaeological sequence as it is currently known is based on intensive research that began in the early twentieth century. The time depth of research in this area is perhaps a key reason for the great number of identified prehistoric sites, although many of them have not been adequately published. Several of these assemblages, especially cave and rockshelter deposits, are known to date to the Tardiglacial and Holocene (Figure 2; Table 1). We highlight the Epipaleolithic and Mesolithic sites of Cueva de la Cocina (Dos Aguas, Valencia), Abric Tossal de la Roca (Alcalà de la Jovada, Alicante), Cova de la Santa Maira (Castell de Castells, Alicante), and Abric de la Falguera (Alcoi, Alicante), and the Early Neolithic sites of Cova de la Sarsa (Bocairent, Valencia), Cova de l'Or (Beniarrés, Alicante), Abric de la Falguera (Alcoi, Alicante), Mas d'Is (Penàguila, Alicante), and Cova de les Cendres (Moraira-Teulada, Alicante) because of their extensive publications. A number of significant surface assemblages that date to this period are also considered and broaden the study area to include the headwaters of the Serpis or Alcoi River (Barton 2006; Barton et al. 1999, 2002, 2004; Bernabeu et al. 2006; García et al. 2001).

The cultural sequence for this region has recently been revised based on new data. The beginning of the Holocene sequence includes a series of chronologically distinct lithic technological complexes (Aura Tortosa 2001; Aura Tortosa et al. 2006). Some of the detected radiocarbon gaps may be indicative of changes in the dynamics of human occupation, or they may be the result of erosion episodes (Aura et al. 2006). The Magdalenian/Azilian tradition is apparent in lithic assemblages at the beginning of the Holocene, known as the Microlaminar Epipaleolithic (tenth millennium cal BC). Within this complex, the sauveterroid Epipaleolithic is characterized by the appearance of triangles, segments, and curved dorsals around the mid-ninth millennium cal BC. The only site south of the Ebro River with this component, however, is Santa Maira.

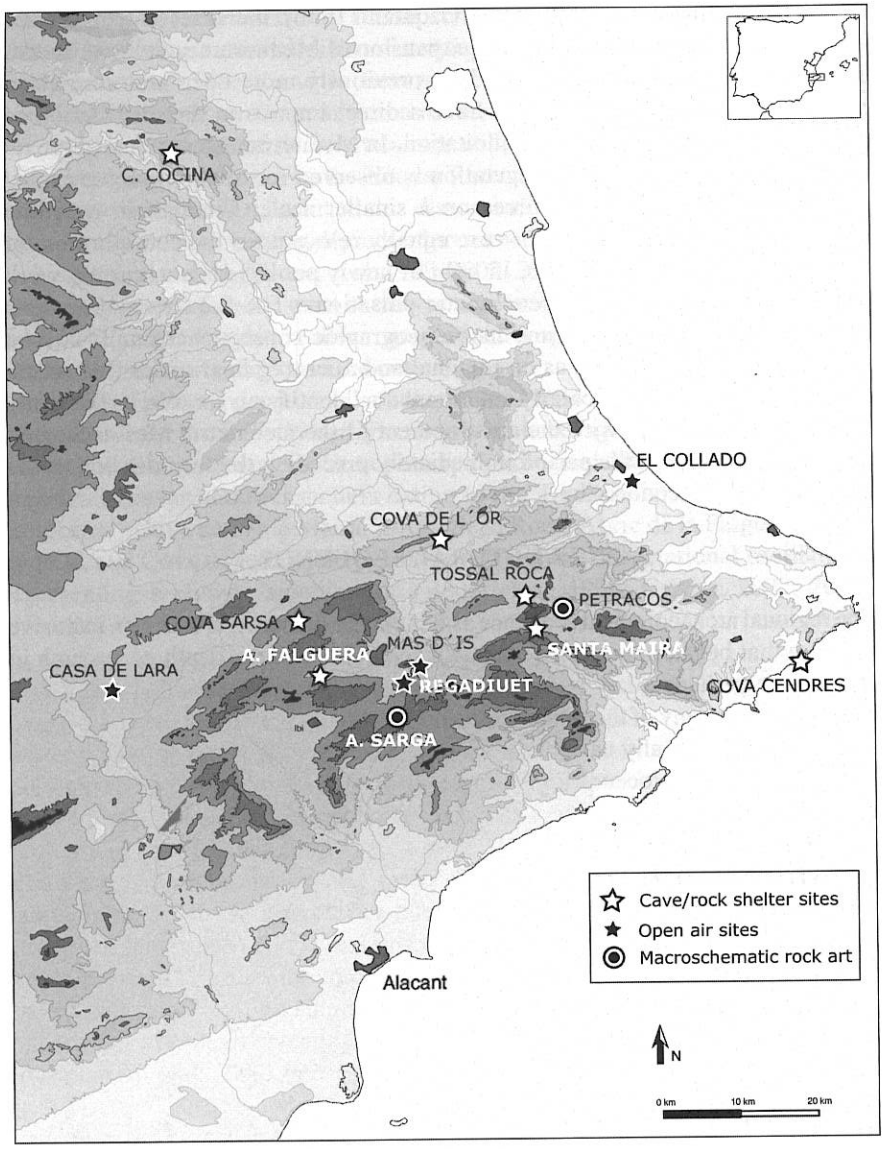

Figure 2. Principal sites discussed in the text.

An important technological shift, known as the Denticulate Mesolithic, is characterized by the presence of massive notches and denticulates in association with a decline in blades. Its chronological development, concentrated in the eighth and mid-seventh millennia cal BC, has been confirmed by numerous dates published for the Mediterranean region and the Ebro River Basin (Utrilla et al. 1998; Alday 2006). This limited chronology, in addition to its distinctive character in comparison with earlier and later lithic complexes, has resulted in the identification of the earliest Mesolithic in the area (Aura Tortosa 2001).

TABLE 1
Radiocarbon dates from the study area

Site	Phase	Lab No.	BP date	Method	Sample	Material	Species	Cal BC 2s 22s 2s	Source
Santa Maira									
Western mouth, 4A-5	EPIP	Beta-156022	9220 ± 40	AMS	S	B	*Cervus elaphus*		Aura Tortosa et al. 2000
Western mouth, A4-5	EPIP	Beta-156021	9370 ± 40	AMS	A	S/F			Aura Tortosa et al. 2000
Tossal Roca									
1 ext.	GM	Gif-6898	7660 ± 80	C	S	B		6650–6391	Cacho et al. 1995
1 ext.	GM	Gif-6897	7560 ± 80	C	A	B		6587–6242	Cacho et al. 1995
El Collado									
Burial	GM	UBAR-281	7640 ± 120	C	S	B	Human bone	6766–6230	Juan Cabanilles & Martí 2002
Burial	GM	UBAR-280	7570 ± 160	C	S	B	Human bone	6775–6062	Juan Cabanilles & Martí 2002
Falguera									
II	GM	AA-2295	7410 ± 70	AMS	S	S/F	*Olea*	6415–6089	Rubio and Barton 1992
UE3151	GM	AA-59519	7526 ± 44	AMS	S	S/F	*Bractea piña*	6455–6248	García Puchol 2005
UE2051b	N	Beta-142289	6510 ± 80	AMS	S	S/F	*Triticum mon.*	5616–5323	Bernabeu 2002
Cendres									
Estrato VII	N	Beta-142228	6340 ± 70	AMS	S	S/F	*Hordeum v.*	5477-5080	Bernabeu et al. 2001
H16	N	Gif-10136	6490 ± 90	AMS	S	S/F	*Triticum dic.*	5617–5309	Bernabeu et al. 2001
VIIa	N	Beta-107405	6280 ± 80	AMS	S	B	*Ovis aries*	5467–5045	Bernabeu et al. 2001
H15	N	GifA-101358	5980 ± 100	AMS	S	S/F	*Triticum ae.*	5207–4618	Bernabeu 2006
Or									
Cardial base, 1955–1958	N	KN-51	6510 ± 160	C	A	S/F	Cereal	5727–5075	Zilhão 2001
J4, capa 17	N	OxA10192	6310 ± 70	AMS	S	S/F	*Triticum ae.*	5469–5075	Zilhão 2001
J4, capa 14	N	OxA10191	6275 ± 70	AMS	S	S/F	*Triticum ae.*	5464–5046	Zilhão 2001
Cardial sup, 1955–1958	N	H1754/1208	6265 ± 75	C	A	S/F	Cereal	5463–5018	Zilhão 2001
Mas d'Is									
UE80205	N	Beta-16672	6600 ± 50	AMS	S	S/F	*Hordeum v.*	5620–5481	Bernabeu et al. 2002
UE80219	N	Beta-16209	6600 ± 50	AMS	S	S/F	*Hordeum* sp.	5620–5481	Bernabeu et al. 2003

Phase: EPIP, Epipaleolithic; GM, Geometric Mesolithic; N, Neolithic. Sample: S, singular; A, aggregate. Material: B, Bone; S, Seeds; F, Fruit; S/F, Seeds, Fruit

The Geometric Mesolithic represents a change of course in the lithic technology and corresponds to a characteristic laminar knapping style (Montbani style) that served as the basis for the manufacture of geometric stone tools. Its initial appearance dates to the mid-seventh millennium cal BC. A series of evolutionary phases within this cultural tradition is visible in the distinctive geometric forms—for example, trapezes, triangles, and segments. This tradition likely had uneven spatial and temporal distributions. Its disappearance is marked by the arrival of the first Neolithic groups in the area around the mid-sixth millennium cal BC. The introduction of agriculture and animal husbandry coincides with the appearance of a new lithic industry with distinctive forms, including different strategies of raw material use, blade technology, and typological composition (e.g., appearance of sickle sheen and drills). These features accompany the introduction of a series of economic novelties (domesticated plants and animals), technologies (ceramics, polished stone, etc.), and symbolism (macroschematic and schematic rock art; Figure 3). Furthermore, they are correlated with a new occupation dynamic on the landscape. Territory is distributed unequally between these two groups, although current data suggest a rapid expansion of the Neolithic and consequently a rapid decline of the Mesolithic tradition.

Figure 3. Macroschematic and Levantine rock art in La Sarga (Rockshelter 1, panel 2) (Alcoi, Alacante; after Hernández Pérez and Segura Martí 2002)

ADAPTATIONS AND SHIFTS IN SUBSISTENCE STRATEGIES

Terminal Hunter-Gatherers

The ecological shifts associated with climatic amelioration in the Holocene coincide with the last hunter-gatherers to live in the region and the subsequent appearance and expansion of Neolithic domestication economies. For hunter-gatherers, ecological transformations tied to forest expansion may have significantly impacted settlement dynamics and economic strategies. Paleoenvironmental data confirm the decline of conifers during the Preboreal, although stands of junipers remained (e.g., at Santa Maira and Tossal de la Roca; see Cacho Quesada and Jordá Pardo 2009). An expansion of oak woodland (*Quercus caducifolio* and *Q. perennifolio*) is also documented.

At the same time, increases in sea level created new landscape configurations along the coastal plain. The distribution of known archaeological sites and published paleoenvironmental studies suggest a colonization of the mid-mountainous zones that complemented the occupation of the coastal valleys (Aura 2001). For the Tardiglacial, economic data confirm an increase in the exploitation of mid-mountainous species, such as roe deer, chamois, and wild boar, in addition to goats, deer, and small prey, such as lagomorphs, birds, fish, and mollusks (Aura 2001). This dynamic is particularly visible in the Boreal with the arrival of the Atlantic phase. Around 7,000 cal BC a climatic optimum has been documented that coincides with maximum expansion of the sclerophyllous Mediterranean forest, dominated by *Quercus ilex coccifera* and associated shrubs.

The increase in the number of identified Mesolithic geometrics beginning around 6,500 cal BC reveals important variability in the nature and distribution of this technology. It is found in caves and rockshelters, where the exploitation of goats, deer, and small species is documented, as well as archaeological sites located in or near wetlands in interior valleys and the coastal plain. The number of sites in the area with these characteristics (e.g., Collado, Encantada, Casa de Lara, Anna) may reflect the dietary importance of these faunal resources. Though we have relatively little information regarding the nature of the deposits or the paleoenvironmental information they may supply, the large Mesolithic cemetery at Collado suggests an increasing degree of permanence on the landscape by the last woodland hunter-gatherers and an economic intensification accompanying the appearance of new management strategies for economic and social territories.

More or less pronounced territorial adjustments and a recognizable regionalization of these hunter-gatherer groups coincide with the Neolithic colonization of this area. Changes in biogeographic configurations cannot be seen as deterministic given the evidence for different social responses to similar environmental changes.

First Farmers

The appearance of agriculture and animal husbandry in the Iberian Peninsula resulted from a process of initial colonization by human groups tied to the western Mediterranean cultural tradition of impressed ceramics (Zilhão 2000, 2001). The absence of local wild progenitors amenable to domestication suggests agriculture

and animal husbandry were foreign introductions. This is implicitly supported by distribution patterns that, where data are available, coincide with Mesolithic population gaps. Currently, indigenist (i.e., Mesolithic groups as determinant factors; see Cruz Berrocal and Vicent García 2007) or migrationist (i.e., exogenous introduction; see Zilhão 2001; Bernabeu et al. 2006; Juan Cabanilles 2007) approaches frame the discussion of the appearance of agriculture and animal husbandry. Notwithstanding this debate, direct data from the Mesolithic and Neolithic archaeological records in the central Mediterranean region denote a noticeable distinction in territory, economy, and material culture between the two traditions (García Puchol 2005; Bernabeu et al. 2006; Juan Cabanilles 2007). Recent data further suggest a Neolithic input whose initial avenues of expansion and chronology were more complex than traditionally thought (Bernabeu et al. work in progress).

In these "pioneer" territories (Zilhão 2001), a clear shift in land use and appropriation is apparent with the arrival of Neolithic populations. For the Early Neolithic (ca. second half of the sixth millennium cal BC), the available paleobotanical information suggests minimal human impact on the environment (Badal et al. 1994; Vernet et al. 1987). The common vegetation community—*Quercus perennifolios,* and the *Prunus*, *Sorbus*, and *Acer* shrubs typically found with it—is found throughout the region. However, it is also clear that this image could be modified with the incorporation of other data, especially pollen sequences, from areas in which the initial Neolithic population was centered. Deforestation of open areas for cultivation resulted in a dynamic increase in conifers by the end of this period based on the available charcoal data (especially *Pinus halepensis* and *Pinus pinea;* Carrión 2002, 2006; Gil-Romera et al. 2009).

Systematic and intensive surveys of the valleys of the Serpis/Alcoi drainage (Barton et al. 1999), integrated ongoing excavations at Mas d'Is, Abric de la Falguera, Regadiuet, Alt del Punxó, and Barranc de l'Encantada (García Puchol and Aura Tortosa 2006; Bernabeu et al. 2003), offer a detailed picture with the potential to explain how the region's first agricultural and pastoral communities began. During this period, a group of Neolithic farmers may have established themselves in the middle Serpis Valley and headwaters of the Serpis River, as well as surrounding valleys, basing their settlement organization on economic and social factors (Bernabeu et al. 2006). Productive and extractive activities resulted in unique spatial patterns. Survey data from many of these valleys document a varying intensity of occupation during the Early Neolithic (Barton et al. 2004). We know that small hamlets or dispersed, open-air cores of population formed the demographic basis of this society. These nodes were located preferentially on what would have been terraces of subsidiary channels of the Serpis River, away from the lowest portions of the valleys. The greater fertility as well as the lightness of soils in these areas may have been key elements for their selection.

This settlement distribution reflects social as well as natural conditions. The Neolithic population was not equally distributed in all locations with the above-described traits throughout the region. On the contrary, they concentrated around certain elements that likely articulated the entire settlement system. Although excavations have not been completed, research conducted at Mas d'Is (Penàguila)

has uncovered a monumental structure formed by two concentric rings of large trenches (between 12 and 14 m wide and 3.5–4 m deep). Both trenches were constructed in this period, with the interior ring created first (Bernabeu et al. 2003; Bernabeu and Orozco 2005). We know little about what these features housed. Unfortunately, fluvial downcutting has destroyed a large area of the site. However, the space between the two structures does not show any evidence of occupation. The presence of domestic structures, including possible houses, outside the monumental area suggests that the function of these trenches is likely not domestic. This runs contrary to other Mediterranean areas during the same period, such as the villages of the Tavoliere in Italy.

From information provided by the ceramic assemblage, primarily the development of diverse decorative styles, we can approximate a chronology of the different settlements in the area around Mas d'Is. Interestingly, almost no sites were occupied longer than a single cultural phase, and sites increased in number from the earliest to the latest Neolithic. The general settlement model in this period is characterized by the establishment of small hamlets dispersed in the core territory. These were located in proximity to one another and subject to significant socioeconomic tensions (e.g., soil exhaustion, bad harvests, demographic crises, etc.) that may have led to the failure of specific hamlets (Bernabeu et al. 2006). Nonetheless, the increase in sites during the period may be interpreted as a demographic increase, demonstrating the success of the system overall.

The economic basis for this was a well-established production system from the earliest part of the Neolithic sequence. Cereals were the focus of agricultural exploitation, and a variety of wheat and barley species are documented. Legumes, specifically *Lens culinaris, Vicia faba,* and *Pisum sativum,* are present in smaller proportions; however, we cannot eliminate the possibility that the small sample sizes are a result of taphonomic processes and may not accurately reflect the actual dietary importance of legumes. Domesticated species, especially ovicaprids (primarily sheep), also dominate the faunal record from the beginning of the Neolithic sequence.

Surrounding this settlement core is a large area with evidence of more extensive activities, including animal management as well as the exploitation of organic and mineral resources (wood, chert, pigments). Figure 2 documents the significant number of caves located in the most rugged areas of the region which contained materials from this period. The map illustrates a network of temporary occupations, possibly reflective of specialized activities (e.g., pastoralism) and/or the exploitation of certain resources.

Excavations conducted at Abric de la Falguera have provided important data on this type of settlement (Molina et al. 2006). The rockshelter was used as a corral for ovicaprids (based on the presence of microsedimentological indicators, neonate remains, and deciduous dentition in the faunal record), as well as a temporary human shelter (based on the variety and quantity of artifacts, presence of fires, and excavated storage pits). This use as a seasonal or temporary habitation is documented in other caves and rockshelters in the area and should be seen as complementary to the known open-air sites. The diversity of raw materials identified in a technological study of ceramics from this period (McClure 2006)

may indicate a large variety of source areas for those who occupied these temporary sites, thereby highlighting their mobility.

Domesticated resources played an essential role in the diets of the people at Abric de la Falguera. Excavations documented a larger volume of cereal remains in Neolithic levels at the site. People may have brought cereals with them from their usual settlement area, or they may have tended fields in open areas at the entrance to the gorge where the rockshelter is located. In contrast, the faunal assemblage documents an unusually high quantity of wild species, especially rabbits. This is not surprising given the nature of temporary human occupations—wild game is more likely to be available and accessible, lessening the need to exploit domestic animals. Furthermore, pastoralists would have limited their impact on a domestic herd to injured animals, conserving the herd for exploitation at the main settlement.

Finally, the artistic manifestations that these groups developed (schematic and macro-schematic rock art) are outward expressions of the appropriation of exploited territories. The distribution of the rock art has been interpreted as a phenomenon tied to the definition of territories, control of communication routes, and the existence of aggregation ceremonies in "sanctuaries" (Fairén 2004).

From the beginning of the region's Neolithic occupation, a qualitative shift took place in the relationship between humans and the environment. The existence of different economic activities (production) and their underlying social factors explain the regional distribution of the human population. If natural factors (location and quality of resources) played a limited role, we must then focus on the social factors that organized the human community and distributed humans in the area. Unequal social relations have already been documented for the mid-sixth millennium cal BC (Bernabeu et al. 2006; Castro et al. 2006). The mobilization of labor represented by the trenches at Mas d'Is documents the complexity of internal relationships in these farming communities. The variety and types of known settlements define an important structuring of activities on the landscape. Humans simultaneously dominated nature, took control of it, and were subject to it.

MESOLITHIC AND NEOLITHIC INTERACTION

As one might expect, the introduction of the Neolithic in the area was a turning point for indigenous hunter-gatherers. Even if initial colonization occurred in unoccupied areas, it is clear that the subsequent rapid expansion would have quickly created situations in which hunter-gatherers and farmers interacted. Abric de la Falguera, located at the head of a valley in the Serpis River drainage, shows a rupture between Mesolithic and Neolithic occupations in terms of stratigraphy as well as economic activities and material culture (García Puchol and Aura Tortosa 2006).

This example, however, also highlights stratigraphic problems with deposits that were laid down during the Middle Holocene. Erosion processes that culminated during the Mesolithic sequence in Abric de la Falguera call into question the continuity of the strata and possibly skew the archaeological

sequence. Nevertheless, we do not know of any Mesolithic deposits in the Serpis Valley that postdate 6,000 cal BC (Figure 4). Despite intensive surveys, only one site in the entire drainage, Barranc de l'Encantada, can be ascribed to this period (García et al. 2001). However, Encantada's recovered assemblages extend chronologically from the Middle Paleolithic to the Bronze Age. Given that these are mixed surface assemblages, unambiguously assigning parts of them to the Mesolithic Phase B may not be possible.

These problems in interpreting assemblages relevant to hunter-gatherer populations further underscore the uncertainty of Mesolithic reconstructions. For example, at the head of the Vinalopó Valley, in an area neighboring the Serpis River drainage, surface assemblages at Casa de Lara and Arenal de la Virgen identified as evidence of Mesolithic Phase B occupations (beginning 6,000 cal BC) were found next to Neolithic surface materials (Cardial ceramics). Furthermore, Cueva de la Cocina documented both Mesolithic and Neolithic occupations, although recent revisions in the lithic tools analysis indicate the presence of breaks in the sequence (García 2005). This population dynamic incorporates Mesolithic occupations in other nearby areas. Covacha de Llatas, Muntanya Cavall, and La Mangranera, in mountainous areas north of the Turia River, document Mesolithic occupations beginning in Phase B (García 2005). As a consequence, it is possible

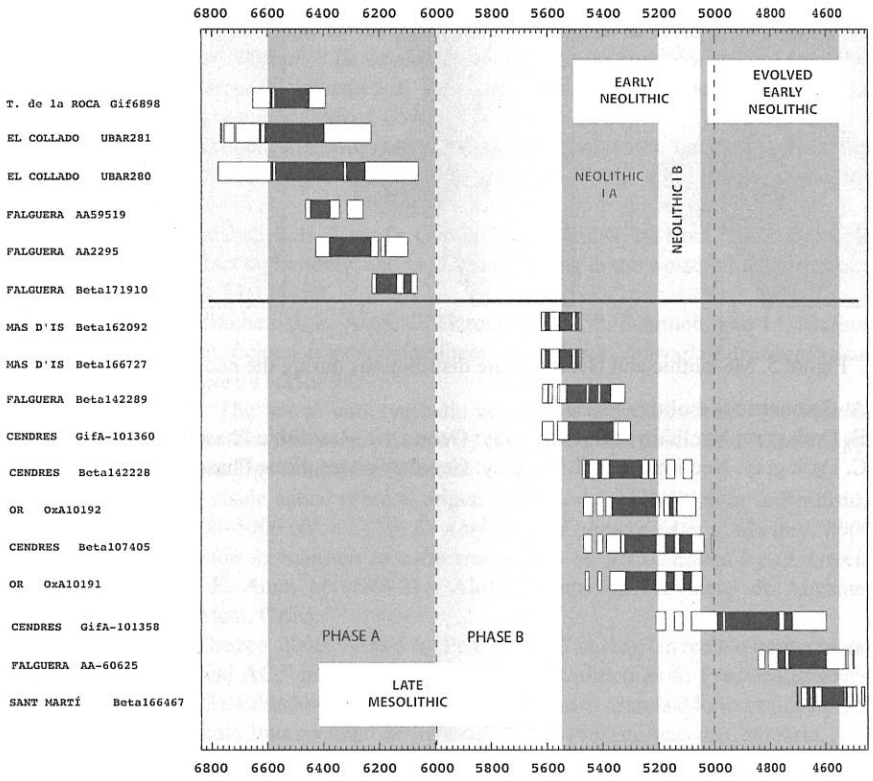

Figure 4. Radiocarbon dates (cal BC) in the Serpis Valley during the neolithization process.

to suggest a territorial reorganization during which specific areas defined by the presence of Mesolithic sites were incorporated quickly into the Neolithic world (Figure 5). The mechanisms may have included assimilation, acculturation, or a dramatic Mesolithic population decline as a consequence of newly introduced pathogens. The question of mechanisms is open to future research. We argue that in the case of the Mediterranean region on the Iberian Peninsula, the rapidity of this expansion suggests greater weight should perhaps be given to the dynamics of population assimilation.

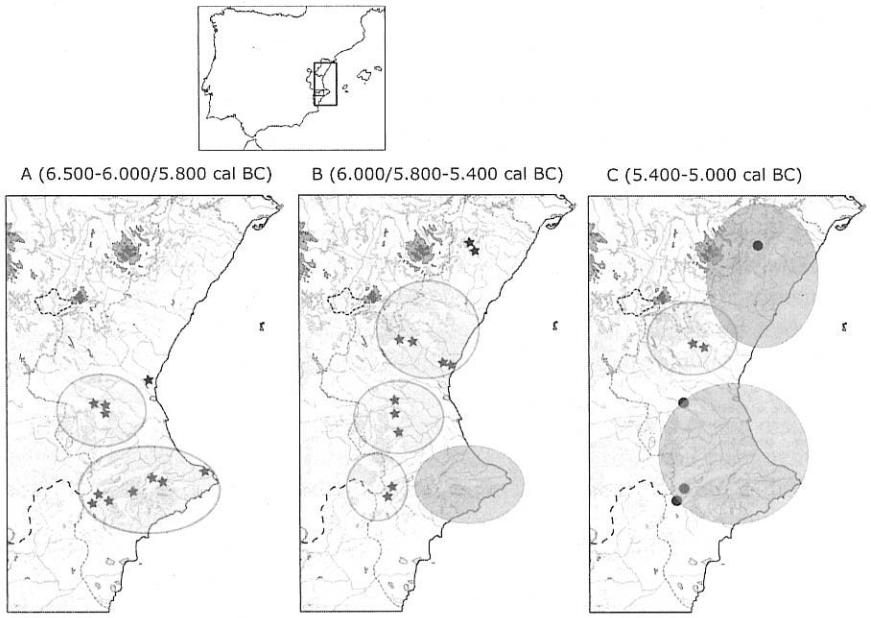

Figure 5. Mesolithic and Neolithic site distributions during the neolithization process.

A. Geometric Mesolithic Phase A
B. Dark gray: Neolithic area; Light gray: Geometric Mesolithic Phase B area
C. Dark gray: Neolithic area, Light gray: Geometric Mesolithic Phase C area

REFERENCES CITED

Alday, A. 2006. "El Mesolítico de muescas y denticulados en la Cuenca del Ebro y el litoral mediterráneo peninsular: Síntesis de los datos," in *El mesolítico de muescas y denticulados en la cuenca del Ebro y el litoral mediterráneo peninsular.* Pp. 303–17. Serie Memorias de yacimientos alaveses, 11. Vitoria: Diputación Foral de Álava

Aura Tortosa, J. E. 2001. "Caçadores emboscats: l'epipaleolític al país Valencià," in *De neandertals a cromanyons. L'inici del poblament humà a les terres Valencianes.* Edited by V. Villaverde, pp. 219–38. València: Universitat de València.

Aura Tortosa, J. E, Y. Carrión Marco, O. García Puchol, P. Jardón Giner, J. F. Jordá Pardo, Ll. Molina Balaguer, J. V. Morales Pérez, J. Ll. Pascual Benito, G. Pérez Jordá, M. Pérez Ripoll, M. J. Rodrigo García, and C. Verdasco Cebrián. 2006. "Epipaleolítico-Mesolítico en las comarcas centrales valencianas," in *El mesolítico de muescas y denticulados en la cuenca del Ebro y el litoral mediterráneo peninsular.* Pp. 65–118. Serie Memorias de yacimientos alaveses, 11. Diputación foral de Álava, Portugal.

Aura Tortosa, J. E., J. Seguí, M. Pérez Ripoll, C. Verdasco, F. Cotino, C. I. Pérez Herrero, B. Soler, O. García Puchol, S. Vidal, I. Carballo, B. Nebot. 2000. Les Coves de Santa Maira (Castell de Castells, la Marina Alta-Alacant). Primeros datos arqueológicos y cronológicos. *Recerques del Museu d'Alcoi* 9:75–84.

Badal, E., J. Bernabeu, and J.-L. Vernet. 1994. Vegetation changes and human action from the Neolithic to the Bronze Age (7000–4000 BP) in Alicante, Spain, based on charcoal analysis. *Vegetation History and Archaeobotany* 3:155–66.

Barton, C. M. 2006. "Systematic survey and landscape studies," in *El Abric de la Falguera (Alcoi, Alacant). 8000 años de ocupación humana en la cabecera del río de Alcoi.* Edited by O. García-Puchol and J. E. Aura, pp. 73–83. Alcoi: Diputación Provincial de Alicante, Ajuntament d'Alcoi, CAM.

Barton, C. M., J. Bernabeu, J. E. Aura, and O. García Puchol. 1999. Landscape dynamics and socioeconomic change: An example from the Polop Alto Valley. *American Antiquity* 64:609–34.

Barton, C. M., J. Bernabeu, J. E. Aura, O. Garcia Puchol, and N. La Roca. 2002. Dynamic landscapes, artifact taphonomy, and land-use modeling in the western Mediterranean. *Geoarchaeology* 17:155–90.

Barton, C. M., J. Bernabeu, J. E. Aura, O. Garcia Puchol, S. Schmich, and Ll. Molina. 2004. Long-term socioecology and contingent landscapes. *Journal of Archaeological Method and Theory* 11:253–95.

Bernabeu, J. 2002. "The social and symbolic context of Neolithization," in *Neolithic landscapes of the Mediterranean.* Edited by E. Badal, J. Bernabeu, and B. Martí, pp. 209–33. Valencia: Universitat de València.

———. 2006. "Una visión actual sobre el origen y difusión del Neolítico en la Península Ibérica. Ca. 5600–5000 cal. a.C," in *El Abric de la Falguera (Alcoi, Alacant). 8000 años de ocupación humana en la cabecera del río de Alcoi.* Edited by O. García Puchol, and J. E. Aura, pp. 189–211. Alcoi: Diputación Provincial de Alicante, Ajuntament d'Alcoi, CAM.

Bernabeu, J., and T. Orozco. 2005. "Mas d'Is (Penàguila, Alicante): Un recinto monumental del VI milenio cal AC," in *III Congreso sobre el Neolítico en la Península Ibérica* (Santander, 2003). Edited by P. Arias, R. Ontañón, and C. García-Moncó, pp. 485–95. Santander: Instituto Internacional de Investigaciones Prehistóricas de Cantabria.

Bernabeu, J., C. M. Barton, O. Garcia Puchol, and N. La Roca. 2000. Systematic survey in Alicante, Spain: First results. *Türkyie Bilimer Akademisi Arkeoloji Dergisi* 3:57–86.

Bernabeu, J., M. P. Fumanal, and E. Badal. 2001. *La Cova de les Cendres,* vol. 1.

Paleogeografía y estratigrafía. Valencia: Universitat de València.

Bernabeu, J., Ll. Molina, A. Diez Castillo, and T. Orozco Koehler. 2006. "Inequalities and power: Three millennia of prehistory in Mediterranean Spain (5,600–2,000 cal BC)," in *Social inequality in Iberian late prehistory*. Edited by P. Díaz-del-Río and L. García Sanjuán, pp. 97–116. Oxford: BAR International Series.

Bernabeu, J., T. Orozco, and A. Díez. 2002. "El poblamiento neolítico: Desarrollo del paisaje agrario en el Valle de l'Alcoi," in *La Sarga: Arte rupestre y territorio*. Edited by M. S. Hernández and J. M. Segura, pp. 171–84. Alcoi: Ajuntament d'Alcoi, CAM.

Bernabeu, J., T. Orozco, A. Díez, M. Gómez, and J. F. Molina. 2003. Mas d'Is (Penàguila, Alicante): Aldeas y recintos monumentales del Neolítico inicial en el Valle del Serpis. *Trabajos de Prehistoria* 60:39–60.

Cacho Quesada, Carmen, and Jesús F. Jordá Pardo. 2009. El Tossal de la Roca and the Pleistocene-Holocene transition in the Mediterranean region of eastern Spain. *Journal of Anthropological Research* 65:221–36.

Cacho, C., M. P. Fumanal, P. López, J. A. López, M. Pérez Ripoll, R. Martínez Valle, P. Uzquiano, A. Arnanz, A. Sánchez, P. Sevilla, A. Morales, E. Roselló, M. D. Garralda, and M. García. 1995. El Tossal de la Roca (Vall d'Alcalà, Alicante). Reconstrucción paleoambiental y cultural de la transición del tardigalciar al Holoceno inicial. *Recerques del Museu d'Alcoi* 4:11–102.

Carrión, Y., 2002. "Charcoal analysis at La Falguera rockshelter (Alcoi, Alacante, Spain) from the Mesolithic to the Bronze Age: Landscape and use of plant resources," in *Charcoal analysis: Methodological approaches, paleoeconomical results and wood uses*. Edited by S. Thiébault, pp. 103–8. Proceedings of the Second International Meeting of Anthropology, Paris, September 2000. Oxford: BAR International Series.

Carrión, Y. 2006. "La secuencia antracológica del Abric de la Falguera," in *El Abric de la Falguera, 2: Estudios*. Edited by O. García-Puchol and Ll. Molina, pp. 60–110. Alcoi: Diputacion de Alicante, Ajuntament d'Alcoi, CAM.

Cassano, S. M., and A. Manfredini. 1983. *Studi sul Neolitico del Tavoliere della Puglia. Indagine territoriale in un area-campione*. Oxford: BAR International Series, Oxford University Press.

Castro, P., T. Escoriza, and J. Oltra. 2006. "Social hypotheses for the communities of the Iberian Mediterranean basin (from the fifth to the first millennium BC)," in *Social inequality in Iberian late prehistory*. Edited by P. Diaz del Rio and L. García Sanjuan, pp. 148–71. Oxford: BAR International Series.

Cruz Berrocal, M., and J. Vicent García. 2007. Rock art as an archaeological and social indicator: The neolithisation of the Iberian Peninsula. *Journal of Anthropological Archaeology* 26:676–97

Dupré, M. 1988. *Palinología y paleoambiente: Nuevos datos españoles. Referencias*. Valencia: Diputación Provincial de Valencia.

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.

García Puchol, O. 2005. *El Proceso de neolitización en la fachada mediterránea de la Península Ibérica. Tecnología y tipología de la piedra tallada*. Oxford: BAR International Series.

García Puchol, O. and J. E. Aura Tortosa, eds. 2006. *El Abric de la Falguera (Alcoi, Alacant). 8.000 años de ocupación humana en la cabecera del río Alcoi*. Alcoi: Diputación de Alicante, Ajuntament d'Alcoi, CAM.

García Puchol, O., C. M. Barton, J. Bernabeu, and J. E. Aura. 2001. Las ocupaciones prehistóricas del Barranc de l'Encantada (Beniarrés, Alacant): un primer balance de las intervenciones auqueológicas en el area a través del análisis del registro lítico.

Recerques del Museu d'Alcoi 10:25–42.

Gil-Romera, Graciela, José S. Carrión, Sarah B. McClure, Steven Schmich, and Clive Finlayson. 2009. Holocene vegetation dynamics in Mediterranean Iberia: Historical contingency and climate-human interactions. *Journal of Anthropological Research* 65:271–85.

Juan Cabanilles, J. 2007. La fase C del Epipaleolítico reciente: Lugar de encuentro o línea divisoria. Reflexiones en torno a la neolitización en la fachada mediterránea peninsular. *Veleia* 24–25(1):611–28.

Juan Cabanilles, J., and B. Martí. 2002. Poblamiento y procesos culturales en la península Ibérica del VII al V milenio a.C. (8000–5500 BP). Una cartografía de la neolitización, El paisaje en el neolítico mediterráneo. *Saguntum (PLAV)* Extra-5:45–87.

McClure, S. B. 2006. "Neolithic ceramic technology at the Abric de la Falguera," in *El Abric de la Falguera,* vol. 2: *Estudios*. Edited by O. García-Puchol and Ll. Molina, pp. 246–59. Alcoi: Diputacion de Alicante, Ajuntament d'Alcoi, CAM.

Molina, Ll., Y. Carrión, and M. Pérez. 2006. "Las ocupaciones del Abric de la Falguera en contexto. El papel de la ganadería en las sociedades neolíticas," in *El Abric de la Falguera (Alcoi, Alacant). 8.000 años de ocupación humana en la cabecera del río de Alcoi*. Edited by O. García-Puchol and J. E. Aura, pp. 237–51. Alcoi: Diputacion de Alicante, Ajuntament d'Alcoi, CAM.

Naughton, F., J. F. Bourillet, M F. Sanchez Goñi, J-L. Turon, and J-M. Jouanneau. 2007. Long-term and millennial-scale climate variability in northwestern France during the last 8850 years. *The Holocene* 17:939–53.

Rubio, F., and C. M. Barton. 1992. Abric de la Falguera. Avance preliminar. *Anales de la Real Academia de Cultura Valenciana* 69:15–30.

Tine, S. 1983. *Passo di Corvo e la civiltà nelitica del Tavoliere*. Florence: Sagep.

Utrilla, P., A. Cava, A. Alday, V. Baldellou, I. Barandiarán, C. Mazo, and L. Montes. 1998. Le pasaje du Mésolithique au Néolithique Ancien dans le Bassin de l'Ebre (Espagne) d'aprés les datations C14. *Préhistoire Européenne* 12:171–94.

Uzquiano, P. 1990. Analyse anthracologique du Tossal de la Roca (Paleolithique Supérieur Final-Epipaleolithique), province d'Alicante, Espagne. *1st European Conference on Wood and Archaeology. PACT* 22:209–17.

Vernet, J.-L., E. Badal, and E. Grau. 1987. "L'environnement végétal de l'homme du Néolithique dans le sud-est de l'Espagne (Valence, Alicante), d'après l'analyse anthracologique," in *Premières communautés paysannes en Méditerranée Occidentale*. Edited by J. Guilaine, J. Courtin, Roudil and J.-L. Vernet, pp. 131–36. Paris: CNRS.

Zilhão, J. 2000. "From the Mesolithic to the Neolithic in the Iberian Peninsula," in *Europe's first farmers*. Edited by T. D. Price, pp. 144–82. Cambridge: Cambridge University Press.

———. 2001. Radiocarbon evidence for maritime pioneer colonization at the origins of farming in west Mediterranean Europe. *Proceedings of the National Academy of Sciences (USA)* 98:14180–85.