

SOCIAL DYNAMICS

Islands in the Stream

Stone Age Cultural Dynamics in
Sardinia and Corsica

Robert H. Tykot

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of the prehistoric central mediterranean

edited by
Robert H. Tykot
Jonathan Morter
John E. Robb

Specialist Studies on the Mediterranean 3
Accordia Research Institute
University of London
1999

Published by
Accordia Research Institute
University of London
31-34 Gordon Square, London, WC1H 0PY

British Library Cataloguing in Publication Data

A catalogue record of this book is available from the British Library

Computer typeset by the Accordia Research Institute

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1999

ISBN 1 873415 19 2

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Stone Age Cultural Dynamics in Sardinia and Corsica

Robert H. Tykot

The persistent myth that Corsica and Sardinia are isolated by virtue of being islands may be challenged not only on the historical record but through the archaeological facts of the great antiquity of their settlement and their participation in such wide-ranging cultural phenomena as that of the Impressed Ware sphere of the Early Neolithic and of the sphere of a precocious Copper-Bronze Age *'incastellamento'*.

(Lewthwaite 1988: 180)

INTRODUCTION

Recent research suggests that previous assumptions about the marginal role of Sardinia and Corsica in Mediterranean prehistory were severely biased by the historic period status of these islands. Recent discoveries include the antiquity of human occupation on these islands, the extent and continuity of extra-insular contacts, and the overwhelming evidence for indigenous development of complex societies. It is now possible to describe these Stone Age cultures in some detail, rather than as generically 'Neolithic' or 'Pre-Nuragic' (referring to the monumental Bronze Age towers of Sardinia and southern Corsica), and to illustrate both their dynamic, distinctive individuality and their central place in the cultural and economic stream of the prehistoric Mediterranean world.

It is only in the last twenty-five years that the island of Sardinia has been recognised as having had a rich indigenous culture dating from at least the Early Neolithic period, if not earlier. Our knowledge of Sardinian prehistory has benefited in the past three decades from an explosion of archaeological research (see Lilliu 1988; Balmuth 1992; Webster 1996). Earlier, the only real evidence that the island had been inhabited early on came from the finds of obsidian, assumed to be from Sardinia, associated with Early Neolithic ceramics at sites outside of Sardinia such as Arene Candide in Liguria, and Basi in Corsica (fig. 1). Lilliu (1967) has even suggested that obsidian, a sort of 'black gold', may have played a significant role in the settlement and Neolithic economy of Sardinia. This paper establishes that long-term continuity of extra-insular communication and interaction was in fact characteristic of Sardinia and Corsica in the Stone Age, and effectively integrated



Fig. 1 Mediterranean islands and sites mentioned in the text

these islands within a prehistoric Mediterranean *koiné*. At the same time, the extent and nature of these interactions were considerably variable over the course of the Neolithic, a period of more than 2500 years.

PRE-NEOLITHIC

It is impossible to discuss the dynamics of Neolithic settlement and socio-economic systems in Sardinia and Corsica without first establishing their characteristics in the preceding period as a framework for subsequent development. The question of when these islands were first settled has been the subject of some debate in the last several years. The prevailing evidence appears to indicate that Pre-Neolithic occupation of islands is exceptional in the Mediterranean, with the limiting factors relating more to subsistence and 'attractiveness' (Cherry 1990) than the basic maritime capabilities necessary to get there. The exceptions include the large islands of Sardinia, Corsica, Cyprus and perhaps Mallorca.

The earliest evidence for island occupation anywhere in the Mediterranean comes from Corbeddu Cave (Olièna) in Sardinia, where human remains have now been found in a layer dated approximately 20,000 BP (Sondaar *et al.* 1995; Sondaar 1998). Middle Pleistocene lithic assemblages also have been reported in Sardinia (Arca *et al.* 1982) and now in Corsica (Bonifay 1994); these finds are however controversial and/or not yet fully published, and are of no immediate relevance to the Holocene focus of this paper. At Corbeddu, several stone tools have been reported from later levels of Hall 1 of the cave (Martini 1992), while Hall 2 contains a remarkable accumulation of deer bones including several mandibles seemingly used as cutting or scraping tools (Klein Hofmeijer & Sondaar 1992; 1993). The anthropogenic origins of these materials has been questioned (Cherry 1992), as has the chronological relationship between the two parts of the cave (Tykot 1994). If the bone accumulation is in fact evidence of human activity, it indicates that Corbeddu Cave was frequently occupied for the latter half of the Upper Palaeolithic, a time when Sardinia and Corsica were a single land mass due to lowered sea levels, but remained separated from the mainland as the endemic nature of the island fauna attest. These finds suggest therefore that sea travel and long-distance interactions between the mainland and Sardinia/Corsica began many millennia before obsidian from the Aegean island of Melos first found its way to Franchthi Cave in mainland Greece (Perlès 1987).

By the beginning of the Mesolithic, sea-levels had risen significantly; to about -35m by 8000 cal.BC, putting coastlines near to their present location, and separating the islands of Sardinia and Corsica (Shackleton *et al.* 1984). The anthropogenic origin of the subsequent deposits in Corbeddu Cave are undisputed, since two human bones are associated with the butchered remains of *Prolagus sardus*, a now extinct lagomorph. More importantly, contemporary settlement has been documented at several rock-shelter sites in Corsica (Lanfranchi 1998): Curacchiaghju (Lanfranchi 1967; 1974; 1987a); Araguina-Sennola (Lanfranchi *et al.* 1973; Lanfranchi & Weiss 1977); Strette II (Magdeleine 1985; Magdeleine & Ottaviani 1986); Pietracorbara (Magdeleine 1991); Longone (Lanfranchi 1987b); and Monte Leone (Lanfranchi 1991; Vigne 1992a). Except for Curacchiaghju, all of these sites are located on coastal plains within a few kilometres of the sea. Monte Leone, still under excavation, is the only site with actual domestic structures (hearths), although burials have been found at Araguina-Sennola and Pietracorbara. Associated lithic assemblages are largely idiosyncratic, and always made of local quartz and rhyolite. Typologically, they have been related to the Final Epigravettian and Sauvetterian of Tuscany (Tozzi 1977). Faunal remains suggest that subsistence was based on *Prolagus sardus*, along with other small terrestrial mammals and birds, and was supplemented by some fish and to a lesser extent shellfish (Vigne 1998).

During the Mesolithic, then, it appears that human occupation of Sardinia and Corsica may have become somewhat more common. Nevertheless, there is no evidence of regular traffic between the islands and the mainland, and the human remains from Corbeddu Cave are reported to have morphologies "outside the range of modern human variation and probably due to endemism in an isolated population" (Spoor & Sondaar 1986; Spoor & Germanà 1987). There is also no evidence for the movement of artefactual materials of any kind. No obsidian has been found at any of the pre-neolithic sites in Sardinia and Corsica, nor in Mesolithic levels at Grotta dell'Uzzo in Sicily, nor Arene Candide in Liguria. The only two examples of western Mediterranean obsidian excavated from pre-neolithic contexts come from Perriere Sottano (Ramacca, Catania) in Sicily, where a single fragment of obsidian from Lipari is associated with a flint industry radiocarbon dated to the 8th millennium cal.BC (Aranguren & Revedin 1996), and from a Final Epigravettian layer at Arma dello Stefanin in Liguria (Leale Anfossi 1972), which by all accounts was not contaminated (Williams-Thorpe *et al.* 1979; Barker *et al.* 1990). Obsidian was not found, however, during more recent excavations at Stefanin (Biagi *et al.* 1987), and at minimum cautions that the significance of the single scraper found in layer V not be over-interpreted (cf. Cherry 1990: 190-1). The geological source of this piece has not been determined (*contra* Camps 1986: 37).

EARLY NEOLITHIC

The tripartite Neolithic chronology for Italy developed by Bernabò Brea from his excavations at Arene Candide is still widely used, but it must be emphasised that a particular Neolithic phase (e.g. Late Neolithic) in one region is not necessarily contemporary with the same descriptive phase in another. Radiocarbon dating, especially with the extension of the calibration curve, is helping to address the issue of regional contemporaneity, but limited numbers of good dates from good stratigraphic sequences means that contemporaneity is still usually established on typological grounds.

Radiocarbon and obsidian hydration dates from several sites suggests that the Early Neolithic in Sardinia and Corsica (c.5700–4700 cal.BC) was largely contemporary with Early Neolithic sites in northern Italy and southern France (Tykot 1994; Skeates 1994a; Bagolini & Biagi 1990; Evin 1987); the Early Neolithic probably appeared somewhat earlier in southern Italy and Dalmatia (Sargent 1985; Chapman 1988; Chapman & Müller 1990; Skeates 1994b). In Sardinia, the Early Neolithic is subdivided into Cardial I, Cardial II, and Epicardial (Filiestru) phases (Tanda 1998a); in Corsica, a fourth Early Neolithic phase (Punched = Curasien; Lanfranchi 1992; 1993) is contemporary with the Sardinian Middle Neolithic.

The Early Neolithic in the western Mediterranean is defined by the appearance of ceramics, and domesticated animals and plants presumably with eastern Mediterranean origins, direct evidence at least of interaction between neighbouring groups on a local scale within a regional interaction sphere. There is some evidence that not all of these elements of the 'Neolithic package' appeared simultaneously in the western Mediterranean, a situation which has complicated our interpretation of this transitional phase. Three major hypotheses exist for the appearance of the Neolithic: (1) adoption of Neolithic elements through social and economic interaction between neighbouring indigenous populations; (2) demic diffusion of a growing farming population; and (3) long-distance migration/colonisation by eastern agro-pastoralists (García 1997; Barnett 1995; Zilhão 1993; Donahue 1992; Binder 1989; Lewthwaite 1986a; 1989; Whitehouse 1987; Guilaine 1979). Since neither Sardinia nor Corsica were entirely unoccupied territories, the indigenous peoples must be considered in any acculturation or assimilation process, especially their potential motivation for a substantial change in their subsistence practices. Every known site of Pre-Neolithic type predates the Neolithic, and most have subsequent Early Neolithic occupations. Long-term continuity of the indigenous population, both originating from and continuing to have interactions with the nearby mainland, and supplemented by continuing local expansion and colonisation, is therefore more likely than two separate biological populations of indigenous hunter-gatherers and immigrant farmers from the east.

Twenty-five Early Neolithic sites have been identified in Sardinia, and an equal number in Corsica, including caves and rockshelters concentrated in the less mountainous parts of the islands or near the coasts, but including a few open-air sites as well. Some are located well in the interior of the islands, away from fluvial systems. Stratigraphic excavations at Grotta Filiestru (Trump 1983; 1985; 1986) and Sa Corona di Monte Maiore (Foschi Nieddu 1982; 1987) have provided the best sequence for Sardinia, with data from Corbeddu Cave still only preliminarily published (Sanges 1987). For Corsica, the Curacchiaghju stratigraphy is probably unreliable (Lewthwaite 1983: 151; Lanfranchi 1987a), but good sequences come from Araguina-Sennola (Lanfranchi *et al.* 1973; Lanfranchi & Weiss 1977), Basi (Bailloud 1969a; 1969b), Strette I and II (Magdeleine & Ottaviani 1986), and Longone (Lanfranchi 1987b; 1992; 1993).

Early Neolithic sites are characterised by Cardial Impressed Ware pottery, a style in use not only in Sardinia and Corsica, but especially common in southeastern Italy, southern France, and both Mediterranean and Atlantic coasts of the Iberian peninsula. At Grotta Filiestru in Sardinia, for example, Cardial impressed bowls, plates, and jars comprise 7% of the ceramic assemblage (Trump 1983). Guilaine (1980) has subdivided the Cardial

Impressed Wares into three regional facies: south Italian/Sicilian; Tyrrhenian; and Classic Cardial. An extremely important study of the provenance of Cardial wares, from six sites in the Aude region of southern France and one in Portugal, has demonstrated the existence of intra-regional, multi-directional interaction networks, with vessels found 50–70km from their production area (Barnett 1989; 1990a; 1990b; 1992); no other analytical studies have been done to determine whether this model holds true for other areas of the western Mediterranean, or if some of the widespread distribution of Impressed Wares is due to extra-regional exchange of pots rather than just decorative concepts. Either way, we may interpret the Cardial phenomenon as suggesting a common cultural base over much of the western Mediterranean, with broad inter-group interaction evidenced not only by the ceramics (Chapman 1988; Barnett 1995) but also by inter-regional movement of ground and chipped stone artefacts including obsidian on Sardinia and Corsica (Lilliu 1989; Contu 1990–91). In Italy, other neolithic ceramic types are generally considered to be of local origin, although this has not been explicitly tested by thin-section or chemical characterisation studies (cf. Skeates 1992).

Lithic assemblages are typically composed of geometric microliths, and larger implements including scrapers, burins, and transverse tranchet arrowheads. These tools were fashioned from flint, quartz, rhyolite, and above all obsidian which was available from three main sources (SA, SB2, SC) in the Monte Arci region of Sardinia (Tykot 1995; 1997). These sources are located in different areas in the Monte Arci volcanic complex and vary in their accessibility, as well as in the quantity and quality of the obsidian available at each locality. Obsidian artefacts can be attributed to specific sources using various methods of elemental analysis, and a recent provenance study of more than 2700 artefacts from about 50 archaeological sites in Sardinia and Corsica revealed distribution patterns which were not apparent in earlier studies of limited numbers of artefacts (Tykot 1996). At archaeological sites in Corsica, obsidian is rare (Basi, Curacchiaghju) or non-existent (Longone) in the Cardial I phase, although the flint from which most tools were made was imported from the Perfugas area in Sardinia (Lanfranchi 1980; 1993). In Sardinia, obsidian is found at all Early Neolithic sites, and accounts for 17% of the Cardial I lithic assemblage at Grotta Filiestru (Trump 1983). In Cardial II, obsidian becomes abundant at Corsican sites, although obsidian cores are small and rare, and arrowheads are infrequently made of obsidian. Lanfranchi and Weiss (1973) note that the obsidian can be opaque or translucent, and that there appears to be a drop off in obsidian frequency from south to north. Sardinian obsidian has been found in Early Neolithic contexts on Isola Pianosa between Corsica and the mainland, and at Arene Candide, Grotta Pollera, and Pianaccia di Suvero in Liguria (Tykot 1995; 1996; Ammerman & Polgiase 1997; Williams-Thorpe *et al.* 1979). It is not possible at this time to say whether any obsidian comes from strictly Cardial I contexts at these sites. The impressed ceramics found on Isola del Giglio may be Cardial I, judging from reports of its similarity to material at Basi and Su Carroppu (Brandaglia 1991), and are associated with obsidian, some of which is probably Sardinian, despite the excavator's assumption otherwise (Brandaglia 1985). The strong similarities in relative obsidian source representation (type SB2 obsidian most common; SA and SC also important) between Early Neolithic sites in Sardinia, Corsica, the Tuscan archipelago, and mainland Italy suggest multiple down-the-line type exchanges (Tykot 1996; Renfrew 1977).

The exchange of these materials is undoubtedly related to the introduction and spread of domesticated animals and the transition to an agricultural way of life. Remains of sheep and pig are present in Cardial levels at Basi, Strette and Araguina-Sennola in Corsica (Vigne 1984; 1987; 1988), and Filiestru (Levine 1983) and Corbeddu (Sanges 1987) in Sardinia. Goat has been identified in the same levels at Basi and Strette, and perhaps is represented among the indeterminate caprine remains at Araguina-Sennola. Domestic cattle appear in the Cardial Neolithic at Filiestru, but account for less than 2% of the domestic faunal remains. In Corsica, cattle are not present in the Cardial levels at either Basi or Araguina-Sennola, but do appear by the end of the Early Neolithic at Strette.

Incipient agriculture in the Early Neolithic is suggested by the finds of carbonised domestic grains (*Triticum monococcum*, *Triticum dicoccum*) at Filiestru (Trump 1983) and the presence of grinding stones at Filiestru and Sa Corona di Monte Maiore in Sardinia (Foschi Nieddu 1982), and Basi and Strette in Corsica (Lanfranchi 1993). The evidence for subsistence in Neolithic Sardinia is discussed further by Lazrus (in this volume).

Neolithisation was based then on the adoption of ceramic technology of a widespread decorative type, the cultivation of already-domesticated plants and the raising of non-indigenous animals. This Neolithic package was most likely introduced by expanding mainland populations and/or through local experimental adoption, especially in coastal and insular environments. In all instances, this transition went hand in hand with an accelerated involvement of Sardinia and Corsica in Mediterranean interrelations (see Camps 1991), highlighted in the archaeological record by the long-distance distribution of Sardinian obsidian to Corsica, the Tuscan archipelago, and mainland Italy.

MIDDLE NEOLITHIC

The Middle Neolithic Bonu Ighinu culture, first recognised in 1971 with the excavation of the cave site Sa 'Ucca de Su Tintirriolu (Loria & Trump 1978; Trump 1984a; 1984b), has been identified now at some 38 sites in Sardinia, with additional stratigraphic sequences coming from Corbeddu, Filiestru, Sa Corona di Monte Maiore (Foschi Nieddu 1987), and Cuccuru s'Arriu (Santoni 1989; 1992). The culture appears to be largely homogeneous throughout the island, in contrast to Corsica where multiple Middle/Late Neolithic cultures have been defined (see Lewthwaite 1983 for a review). The recently identified Presian culture, with dates from the type-site (Presa-Tusiu) spanning the 5th millennium cal.BC (see Tykot 1995: table V), is apparently contemporary with both Bonu Ighinu and the Curasien cultures (Lanfranchi 1992). The Basien (Corsica) and Chasséen (southern France) cultures, dating from the mid-5th through the mid-4th millennia cal.BC, are contemporary with the latter part of the Middle Neolithic and the first half of the Late Neolithic in Sardinia, a period which also encompasses the recently defined San Ciriaco-Cuccuru s'Arriu facies (Ugas 1990; Meloni 1993).

Although most known Bonu Ighinu sites are caves and rock-shelters, many village settlements dot the fertile Campidano plain which extends northwest from Cagliari to Oristano. The Cabras lagoon open-air sites are the earliest known settlements in the Sinis area, despite a recent intensive field survey there (Lazrus 1992). In the Iglesiente region in southwest Sardinia, all known Bonu Ighinu sites are caves or rockshelters, as were their Early Neolithic predecessors (Atzeni 1987b); in the Cagliari area, open-air and cave sites are known from both periods (Atzeni 1986). Insufficient data exist to assess the longevity and potential seasonality/functional specialisation of the cave sites, but a limited number of obsidian hydration dates from several sites suggest discontinuous occupation (Michels *et al.* 1984). In northern Sardinia, however, Trump (1983; 1984a; 1986) notes a change in the intensity of occupation at Grotta Filiestru, which he interprets as a shift to permanent settlement elsewhere with continued use of the cave by shepherds. Faunal assemblages from several sites attest to the continued presence and dietary significance of cattle, pig, sheep, goat, and *Prolagus* (Vigne 1988; Levine 1983). Frequent finds of ground stone axes at Sardinian and Corsican sites, however, suggest more intensive clearing of forests for cultivation, and grinding implements may have been used for cereal processing (Lanfranchi 1990). Some structures at Scaffa Piana (Saint-Florent) in Corsica have been interpreted as having functioned in the processing of oil extracted from wild olive and mastic trees, a practice that lasted in Sardinia and Corsica well into the 20th century (Lanfranchi & Thi Mai 1998).

Bonu Ighinu ceramics exhibit a greater degree of craftsmanship in both their production and decoration than Early Neolithic pottery. A wide variety of hemispherical or carinated bowls, jars, flasks, and ladles, with distinctive necks and handles, are frequently

decorated with original geometric designs, occasional human and animal figures, and characteristic borders of fine punchmarks; the incised designs were often coloured with white or red mineral pigments after firing. The forms are similar to those of the contemporary Curasien punched-ware tradition in Corsica, and the incised motifs are in some cases reminiscent of painted motifs on Ripoli and Serra d'Alto wares from southern Italy (Atzeni 1987a); no argument can be made, however, for significant extra-insular communication based on ceramic decorative similarities as is apparent with Impressed Wares during the Early Neolithic.

By the second half of the 5th millennium cal.BC, however, considerable quantities of obsidian were distributed inter-regionally; judging from finds at numerous Chasséen sites in southern France and Square Mouth Pottery (VBQ) sites in northern Italy (Williams-Thorpe *et al.* 1979; 1984; Ammerman *et al.* 1990; Randle *et al.* 1993; Crisci *et al.* 1994; Binder & Courtin 1994; Guilaine & Vaquer 1994; Ammerman & Polglase 1993; 1997; Tykot 1995; 1996). In Sardinia, the ready availability and exploitation of obsidian is evident from the surface collections of many thousands of obsidian tools from sites in the Oristano-Campidano area and including the Monte Arci zone itself (Contu 1990–91; Atzeni 1992). In this region, obsidian most likely was acquired directly from the source, while obsidian found elsewhere in Sardinia, and on Corsica and the mainland, would have been obtained indirectly through exchange. It is uncertain to what extent specialists were involved in the procurement, production or transport of obsidian from Monte Arci, as no workshop sites have been excavated, nor detailed studies done to determine lithic reduction skill and efficiency; although at Grotta Filiestru there was technological improvement and increasing standardisation of forms relative to the Early Neolithic (Hurcombe & Phillips 1998). At Filiestru, more than 75km from Monte Arci, obsidian accounts for at least 30% of the lithic assemblage (Trump 1983), and was used for a variety of tasks but primarily animal processing (Hurcombe 1992; 1993). In Sardinia, Corsica, and northern Italy the use of type SB2 obsidian decreased significantly relative to the Early Neolithic, with type SC becoming the dominant subsurface represented; in southern France, however, where Lipari obsidian was more common in the earlier Neolithic, Sardinian obsidian now predominates, and is almost entirely of type SA (Tykot 1996).

Other materials in circulation in Sardinia were shell, chlorite and aragonite beads, greenstone axes, and polished stone rings or bracelets. Greenstone axes, in particular those of jadeitite and eclogite, have a wide distribution on the mainland, from their western Alpine source to sites in southern France and northern Italy (Ricq-de Bouard 1993; Ricq-de Bouard & Fedele 1993), and to southern Italy and Sicily (Leighton 1992; Leighton & Dixon 1992). The stone rings are also widely distributed in central and northern Italy (Tanda 1977). No provenance study of the Sardinian stone material has yet been undertaken, but sources of nephrite and serpentinite apparently exist in northern Sardinia. Additional hints of mainland-island cultural interactions comes from the so-called *dea madre* figurines, well-known from the Cuccuru s'Arriu necropolis and other sites in Sardinia, and from Liguria and elsewhere on the mainland (Atzeni 1978; Gimbutas 1988; Antona 1998).

LATE NEOLITHIC

The Late Neolithic in Sardinia is also characterised by a relatively homogeneous, island-wide culture, named after the type site of San Michele di Ozieri, with a regional variant in the northeast (Gallura) part of the island. Ozieri settlements, mainly open-air sites, are truly found everywhere on the island, in all ecological zones, but are concentrated in alluvial plains, lagoonal and coastal areas; more than three times as many sites are known than in the preceding Middle Neolithic period (Atzeni 1981). The dating of the Ozieri period to the 4th millennium cal.BC is based on a limited number of radiocarbon dates; a late or sub-Ozieri phase extends into the 3rd millennium cal.BC (Tykot 1994; 1995; Santoni

1992). In Corsica, Ozieri is contemporary with the latter half of the Basien culture, and the early part of the Terrinien culture. It is anticipated that full publication of the Presa-Tusiu material will clarify that island's sequence and allow direct comparison with nearby Sardinia, independent from any typological considerations.

In Corsica, faunal assemblages from Araguina-Scnnoia, Scaffa Piana, and Terrina IV document the importance of cattle, pig, sheep and goat, with cattle and then pig the most significant dietarily, and *Prolagus* least significant (Vigne 1984; 1987; 1988; 1992b). At Filiestru in Sardinia, in contrast, sheep/goat continue to dominate the faunal assemblage, while the frequency of pig remains continued to decline relative to earlier Neolithic phases (Levine 1983). Since Filiestru appears to be a functionally specialised site, it would be unwise to conclude that differences existed between Sardinia and Corsica in terms of animal husbandry practices. Archaeobotanical remains are scanty, and it is mainly the density and location of settlements – many of them villages with several dozen wattle and daub huts – which argues for a fully agricultural economy by this time. This interpretation is reinforced by the numerous grindstones, mortars and pestles, storage vessels and pits, and even stone tools with sickle gloss that are known. In Corsica, less dynamic growth has been attributed to topographical/ecological limitations on the adoption of cereal-ovicaprine based subsistence (Lewthwaite 1983; 1984a; 1984b; 1985).

Ozieri ceramics come in a rich variety of forms and decorations, including new types of bowls and cups with carinated rims, globular vases with tunnel handles, tripods and amphoras, with geometric and stylised figurative motifs impressed or incised in the clay and coloured red or white. The find of Ozieri ceramics under the Piazza della Signoria in Florence demonstrates, for the first time, the movement to the mainland of something other than obsidian, although flint, salt, and metal ores have been proposed as additional candidates. Sardinian obsidian continued to be widely distributed to mainland Italy and France, with the continued predominance of type SA in later Chasséen contexts extending also now to Lagozza sites in northern Italy; this situation contrasts sharply with Sardinia and Corsica where types SB2 and SC remain well represented in Late Neolithic assemblages (Tykot 1995; 1996). The selective consumption of transparent, high-quality type SA obsidian is perhaps related to the increased availability in northern Italy of pre-formed obsidian blades from Lipari (Ammerman & Polglase 1993; 1997), although very few pieces of Lipari obsidian ever made it as far as southern France.

The schematic figurines attributed to the Ozieri culture (Antona Rujū 1980; Antona 1998) are apparently earlier than the well-known Cycladic types (produced mainly in the Early Cycladic II period, c.3100–2400 BC; see Getz-Preziosi 1985), and therefore not imported or copied after Aegean models; even the open-work type, perhaps of post-Ozieri, Chalcolithic date, can then be understood as having developed from a long sequence of local prototypes. The Late Neolithic is also rich in the variety of its material culture, from new forms of flaked stone tools in obsidian, flint and other stones, to greenstone axes, to bone tools, to decorated spindle whorls, to baskets. The manufacture of textiles is evident from the spindle whorls, loom weights and bone shuttles found. Copper and silver metal first appear in Late Ozieri (Lo Schiavo 1989) and Terrinien (Camps 1988: 123–34) contexts, suggesting similar (and contemporary) social developments in terms of prestige display in both island and mainland societies.

The increase in the exchange of material goods during the later Neolithic in peninsular Italy has been linked to changes in burial practices (Robb 1994a). Presumably, prestige competition in the circulation of obsidian and other materials was manifested as well in agricultural intensification and the observed shift to formal cemeteries with simple tombs and grave goods. Gender inequalities may have resulted from changes in labour specialisation and a male focus on secondary products (Robb 1994b; Sherratt 1981; 1982; 1983). The Sardinian sample of contextual burial remains is insufficient to statistically corroborate the mainland trend towards more burial goods (Robb 1994c), but elaboration of burial architecture with a presumed emphasis on kin relations is certainly evident in the

hypogean rock-cut tombs known as *domus de janas* (house of the witches) which are found all over Sardinia. These tombs, found isolated or in clusters of up to 40, often are presumably modelled after Ozieri houses, with architectural details carved in the rock including the roof beams, support columns, doorways, windows, benches, niches and even hearths. Symbolic-religious motifs are also cut in bas-relief, especially the horns or silhouettes of bulls and rams, and are commonly interpreted as having connotations of fertility (Tanda 1984; 1985; 1989; 1998b). Inhumations are primary and secondary, and accompanied by ceramics, arrowheads, small votive axes, and *dea madre* figurines; while most interments were of adults, children and even infants were sometimes entombed, and Webster (1996) suggests that a system of ascribed status may have existed in some areas of Sardinia by this time.

Late Neolithic burial structures also exhibit some variety, for example the megalithic circle graves at Li Muri in Arzachena (Puglisi 1941–42), the corridor dolmen (*allée couverte*) at Motorra in Dorgali (Lilliu 1968), and the tumulus complex at Pranu Mutteddu in Goni (Atzeni 1989) associated with large concentrations of menhirs (Atzeni 1982; 1988). The megalithic phenomenon is also well-known in Corsica, with particularly close ties with northern Sardinia (Cesari 1992; Lanfranchi 1992; Lanfranchi & Weiss 1994). The appearance and development of the Sardinian and Corsican tombs are paralleled by similar, but often later, megalithic constructions in much of the central and western Mediterranean (Whitehouse 1981; Joussaume 1985; Guilaine 1992). The 55m long 'altar' of Monte d'Accoddi, located between Sassari and Porto Torres in northwest Sardinia, is unique in the western Mediterranean (Tinè *et al.* 1989; Tinè & Traverso 1992). Constructed on top of an early Ozieri village and probably dating to the end of the classic Ozieri period (Tykot 1994: n. 2; cf. Tinè 1998), a ramp leads up to a platform reconstructed into a ziggurat-like shape with a red-painted shrine at its centre. There is not yet agreement on the ceramic sequence and the multiple construction phases of the monument, nor on its interpretation.

By the Late Neolithic, it is strongly suggested then from ritualistic and burial manifestations, from intensified agricultural production and from the diversified production and exchange of material culture, that at least an incipient level of social hierarchy had begun to appear in Sardinia, relative to the unstratified, egalitarian societies of the Early and Middle Neolithic (Lewthwaite 1984c). In the millennium to follow, increasing socio-political hierarchisation is evident, although not yet fully documented.

POST-NEOLITHIC

The Chalcolithic period in Sardinia is a still poorly understood millennium-long transition between the widespread and well-known Late Neolithic Ozieri culture and the Bronze Age Bonnanaro and Nuragic cultures (Atzeni *et al.* 1988). Currently recognised in five aspects – sub-Ozieri, Filigosa, Abealzu, Monte Claro, and Beaker – stratigraphic sequences come only from Monte d'Accoddi and La Tomba dei Vasi Tetrapodi in Santu Pedru (Contu 1966). Other than the Beaker material (Ferracse-Ceruti 1981; 1988), there is little direct evidence of extra-insular contacts, as little obsidian has been identified in mainland Chalcolithic contexts (but see Pollmann 1993) although it remains the most common lithic material in Sardinia until at least the Iron Age. It is likely that, at least in peninsular Italy and southern France, obsidian had somewhat more than a simple functional utility, and that by the end of the Chalcolithic this role was replaced by objects in metal. As early as the Filigosa-Abealzu phase of this period, however, sites enclosed by megalithic walls are known, perhaps denoting a response to increased economic interests in prospecting and metallurgy and developing social tensions between groups. Increasing population density and subsequent competition over prime agricultural lands may have resulted in the marginalisation of some communities and the development of asymmetrical relationships based on differential access to draft animals, plough technology, and intensified agricultural production (Lewthwaite 1986b; Webster 1990; 1996).

DISCUSSION AND CONCLUSION

In this brief review, I have emphasised the dynamic nature of the Stone Age in Sardinia and Corsica. Just as it is no longer necessary to ascribe indigenous Bronze Age architectural feats to 'higher' Aegean civilisations, we need not describe the early settlement and Neolithic development of Sardinia and Corsica as the simple, generic consequence of diffusion from the eastern Mediterranean. Rather, there is now documented evidence of significant Pre-Neolithic occupation of these islands, extending back to the Upper Palaeolithic and demonstrating the maritime capabilities of local populations. Thousands of years later, the 'Neolithic package' was selectively adapted to local conditions and integrated with local cultural manifestations.

In the Early Neolithic, the widespread distribution of ceramics – a new technology – in the Impressed Ware style and the exploitation of Sardinian obsidian reflect cultural interactions on a large scale in the western Mediterranean, and suggest the movement of additional materials not evident in the archaeological record including salt, basketry, domesticated grains, animals and animal products. In contrast to the eastern Mediterranean, regional exchange here coincides with instead of preceding the Neolithic and its new subsistence base of domesticated cereals and animals. Long-distance exchange, therefore, is probably a consequence of this new way of life rather than a potential incentive for the adoption of agriculture and the production of surplus in order to acquire non-local goods (see Runnels & van Andel 1988; Tangri 1989; Runnels 1989). I have argued elsewhere that long-distance prestige exchange of obsidian and other materials was an important way of maintaining ethnic or kin connections in increasingly sedentary Neolithic societies, connections which must have extended from Sardinia and Corsica to the mainland (Tykot 1996).

In the Middle Neolithic, the expansion of village settlements was probably accompanied by changes in social relations and perhaps uneven access to material resources. This is reflected at the island level in changing representation of the multiple Monte Arci obsidian sources, by greater local and regional diversity in ceramic styles, and by variability in burial treatments. Sardinian obsidian is even more widely available on the mainland, although the generally small quantities found at large numbers of individual sites emphasises its social rather than economic importance. The selection of specifically type SA obsidian in southern France argues not only for changes there in preference, but also in the mechanism(s) by which obsidian was obtained. The presence of obsidian from Pantelleria in Malta and Sicily indicate the capability of making open-water crossings (to a tiny destination) of at least 100km; this presents the possibility then that some direct contacts may have taken place between southern France and Corsica/Sardinia.

By the Late Neolithic, further economic and socio-political developments had taken place. Much denser settlement of Sardinia and Corsica suggests the emergence of a fully agricultural economy; at the same time elaboration of burial monuments and megaliths signals both further social changes and participation in a phenomenon widespread in the western Mediterranean. The continued importance of island obsidian in northern Italy and southern France attests to ongoing inter-regional interactions, as does the contemporary appearance of metal artefacts at later Neolithic and Chalcolithic sites on both the islands and the mainland. It is probably this latter material – primarily copper – which led to the abrupt decline in obsidian use on the mainland; the absence of obsidian, however, implies only that its prestige value declined, not that interaction with the islands ceased as the search for metal resources would have been an important activity for Chalcolithic cultures in the western Mediterranean and Sardinia is rich in metalliferous deposits including copper, lead and tin.

Stone Age societies in Sardinia and Corsica were neither isolated from surrounding cultural entities, nor unitary in their spatio-temporal characteristics. From the introduction of domesticated animals and cereals, to the exploitation and distribution of

obsidian and other materials, to the appearance of megalithic monuments and the development of metallurgy, these islands maintained important relationships with the mainland throughout the Neolithic. The Bronze Age cultures of the central Mediterranean are now recognised as having been an important part of Mediterranean and specifically Aegean cultural networks; it should be recognised that Sardinia and Corsica belong to the main stream of Stone Age prehistory as well.

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