

# Sardinian and Aegean Chronology

## Towards the Resolution of Relative and Absolute Dating in the Mediterranean

*Proceedings of the International Colloquium  
'Sardinian Stratigraphy and Mediterranean Chronology',  
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Edited by  
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# 1. Introduction

*Miriam S. Balmuth and Robert H. Tykot*

An international colloquium devoted to the chronology of the ancient Mediterranean was convened at Tufts University, in Medford, Massachusetts on March 17, 1995 with the stated purpose of demonstrating the current status of laboratory dating techniques; observing the stratigraphic record at excavated sites in Sardinia; finding typological correlations with extra-insular sites in the Mediterranean; and creating an interplay among the three. The ultimate goal was to discuss and define, and to move toward the resolution of the chronological problems of Sardinian archaeology. With the increasing number of excavations on the island, and the growth of the ability to date contexts, the time had come to begin establishing a precise and absolute chronology. A first step in this direction was the compilation, calibration and preliminary interpretation of radiocarbon dates from Sardinia and Corsica (Tykot 1994), which was reprised as a poster at the colloquium.

The proceedings of this book are the product of the 17th colloquium held at Tufts University since 1979 on the subject of Sardinian archaeology. We have designated this volume *Studies in Sardinian Archaeology V* after its four antecedents: *Studies in Sardinian Archaeology* (Balmuth & Rowland eds., University of Michigan Press, 1984); *Studies in Sardinian Archaeology, Vol. II: Sardinia in the Mediterranean* (Balmuth ed., University of Michigan Press, 1986); *Studies in Sardinian Archaeology III: Nuragic Sardinia and the Mycenaean World* (Balmuth ed., British Archaeological Reports, 1987); and *Sardinia in the Mediterranean: A Footprint in the Sea. Studies in Sardinian Archaeology Presented to Miriam S. Balmuth* (Tykot & Andrews eds., Sheffield Academic Press, 1992).

For this colloquium, each session was designed, and speakers chosen, to provide chapters for a coherent publication. The subject matter is so dynamic, however, that publication was delayed by the need to change or add to some of the papers after they had been submitted. Some

relevant communications that were not given at the colloquium were volunteered and accepted, among them the most recent catalogue of Aegean finds in Sardinia. A few presentations from the colloquium were not submitted for publication, but were significant enough to be cited in some of the individual papers and comments in this volume.

Like the ancient Mediterranean itself, the list of contributors is multicultural, and their contributions multidisciplinary. That all were not in total agreement was shown by the spectrum of opinions expressed. Variations in the orthography reflect the same individuality in the Sardinian language as in the participants: Maiore and Majore refer to the same site, and so do Cuccuru s'Arriu, Cuccuru Is Arrius, and Cuccuru Arrius; beyond Sardinia, Cypriot=Cypriote, and C14 and <sup>14</sup>C are used by different authors to mean the same thing. With such an extensive list of chapters, homogenization is justified only in cases of potential misunderstanding.

## Chronology & Chronometry

The method most widely used for dating is radiocarbon analysis. Its applications, and their results, however, have provoked some expressions of dissatisfaction. In assessing its proper use, Kra emphasizes that the correctness of a particular radiocarbon age must be discussed between the dating laboratory and the excavator, using supporting evidence. A major conclusion is that many more new samples must be dated. "We must harvest dates if we expect to obtain a good crop yield." And these must focus not only on ceramic associations of cultural levels, but also on environments, paleoclimates and their roles in cultural change. Not only must charcoal be dated, but, when available, a whole range of plant, bone, food remains and marine-related samples must also be dated. Now that

<sup>14</sup>C dating technology approaches the 21st century, so too must the tools of the field archaeologist.

James, Kokkinos & Thorpe document misuses of the technique which result in false dates. Trump and Tinè illustrate some archaeological and chronological dilemmas from their own work. Ugas finds uncalibrated dates more accurate than those that have been calibrated. According to Phillips, calibrated radiocarbon dates may not be sufficiently precise for short periods like the Chalcolithic, maintaining that the variation in chronological schemes for Chalcolithic pottery styles and associated structures (villages, tombs, the Monte d'Accoddi temple) is partly due to the broad spread of calibrated dates.

New possibilities raised by dendrochronology within the Mediterranean (Kuniholm) offer a chance to establish an independent time-scale and see whether apparent environmental and social change in Sardinia is coeval with the Thera eruption. A wistful hope kept being expressed that the use of dendrochronology to compute dating would clarify situations of doubt. Obsidian hydration dating techniques also continue to be refined (Stevenson & Ellis), and in the case of Sardinia where obsidian is present at most archaeological sites, can be used not only as a complement to radiocarbon dating, but also as a means to date sites where bone and charcoal are absent.

### Pre-nuragic Sardinia

Attempts to determine the earliest human presence on the island have concentrated on the excavation at the Corbeddu cave in Oliena. The excavator (Sondaar) has concluded that his finds there include the oldest human fossil so far on Sardinia (or any Mediterranean island), and that it demonstrates the presence of humans in the Paleolithic of the island. Settlement in the Mesolithic was not as uncommon on Corsica, where six sites are now known (de Lanfranchi). Archaeozoological analysis indicates that these early settlers subsisted on small mammals and birds, coastal fishing, and to a lesser extent by gathering shellfish (Vigne).

Contu provides a master synthesis of Sardinian stratigraphic sequences and the bases of Sardinian chronology, while Tanda provides some justification for three phases of the Early Neolithic. Obvious changes in ceramic styles define the various Neolithic periods, but chronological changes in lithic exploitation, technology and use are also becoming apparent (Hurcombe & Phillips). In addition to the domesticated animals and plants introduced to Sardinia and Corsica in the Neolithic, wild plants were also exploited in an organized manner, judging from the oil or resin extracting installation identified at Scaffa Piana in Corsica (Lanfranchi & Mai).

'Beyond the Laboratory' was the name of the session at the colloquium in which relative chronologies were shown and discussed, for the most part by local Sardinian archaeologists. Definitions of sequence are the building

blocks of chronology, providing relative dates, and are essential even where <sup>14</sup>C ages are available (Phillips). They concentrate for the most part on changing styles in the Chalcolithic period, such as of ceramics and other artifacts (Usai) and their architectural contexts (Ugas; Foschi Nieddu); engraved superimposed bull protomes in hypogea (Tanda); building styles (Fadda; Moravetti); masonry (Russu); and the effect of megaliths on hypogeum design (Basoli). The evidence from figurines is discussed by Antona for the Neolithic ('*Dea Madre*') and by Contu for the Nuragic period (*bronzeti*). Typology as a chronological tool is discussed in an extracolloquial contribution (Melis).

### Aegean Chronology & Sardinia

The most recent map and catalogue of sites in which Aegean material was found on Sardinia has been included to allow the growing number of sites and their positions on the island to be shown graphically (Re). A chronology of the Aegean Bronze Age was sought to aid in dating the contexts of the Aegean material found on the island. In turn, the speakers approached Aegean chronology by seeking its own extra-insular synchronisms: the eruption of Thera, and the Aegean-style wall painting in Egypt at Tel el-Dab'a. After the colloquium, the excavator of Tel el-Dab'a requested and received agreement to submit a communication for purposes of clarification, describing his own current work and dates (Bietak). Betancourt's statement that disagreement between specialists is caused by the ambiguous nature of the correlations that survive, anticipates the conflicting dates for the eruption: 17th century (Betancourt; Manning) or 16th century (Warren; Bietak). Betancourt continues that most of the correlations are so imprecise that they could accommodate either an early or a late chronology. What began as an informal conversation among participants during meals at the colloquium ended as a note in *Nature* (vol. 381, 27 June 1996, 780–783). The finds of Sardinian pottery at Kommos in Crete (Watrous) are presently recognized as the earliest Sardinian ceramics found outside the island, and the first from the Bronze Age in the Aegean.

### Sardinia in the Mediterranean

Appropriately, Fulvia Lo Schiavo presided at a Round Table at which aspects of her specialty, Sardinia's place in the Mediterranean, were discussed. The purpose of the Round Table was to try to establish synchronisms with datable contexts outside of the island. This attempt not only succeeded in enlarging the known presence of Sardinian material in the Mediterranean from Kommos in Crete to Carthage, but also in extending its temporal range. The areas treated included the islands of the Tyrrhenian Sea: Corsica (Lanfranchi) and Sicily (Tusa) with the Aeolian islands (Ferrarese Ceruti); the Iberian

peninsula (Gilman); the Aegean Sea and the eastern Aegean: Cyprus (Karageorghis) and Crete (Watrous); and North Africa: Carthage (Køllund). Two previously published extracolloquial contributions were added to this session: Ferrarese Ceruti on Sardinian finds on Lipari, and Bafico on finds from Sant'Imbenia, the nuraghe at which Phoenician, Greek, and Nuragic material were found in a context interpreted as a Phoenician emporium dating at least to the early eighth century.

Documentation of the mix of Euboean and Phoenician pottery with Nuragic at a Nuragic site sets the stage for the spectrum of interpretations on the interrelationship between Greek and Phoenician, both in the Bronze Age, when they are referred to as Mycenaean and Levantine, and in the Iron Age. Divergent opinions ranging from doubt of Greek maritime primacy, forcefully stated (Morris; Papadopoulos), to an evenly handled discussion of a more complex relationship (Peckham), to firm assertion of symbiosis between Phoenicians and Greeks from the Bronze Age onward (Bartoloni) represent another example of a controversy for which Sardinia is in a position eventually to point to a solution. At the same time, it illustrates how the same incomplete data are interpreted in different ways. The identification of sites with Mycenaean material as subsequent major Phoenician cities (Bartoloni; Vagnetti) reinforces the island's ability to reflect precolonization activity in the West Mediterranean, with evolving reconsiderations based on changing information.

Certain archaeological sites in the Mediterranean have acted as catalysts for interpretation of Greek/Phoenician involvement by virtue of the mix of material found: Al Mina and Ialysos, for example. Now such sites in Sardinia as Sant'Imbenia (see Bafico) and Tharros (see Re; Vagnetti) have become catalysts, not only because of the material found there, but because the whole package that includes material, site, and subsequent developments, offers insights into the evolution of new interpretations. Both Morris and Papadopoulos see the Phoenician material at Sant'Imbenia and actual Phoenician settlement at Sulcis as compelling evidence rather than as ceramic hints of Phoenician involvement. Phoenician carriers would also account for the growing quantities of Greek pottery at Carthage as well as the Sardinian pottery now found both in Carthage and in Crete.

Denying Phoenicians one single ethnicity, Peckham illuminates the separate identities among Tyrians and Sidonians in western Mediterranean settlements. He further defines the mix of nationalities in the description of the tomb in which Nuragic pottery was found buried on Crete at Khaniale Tekke: in what has been understood as the family tomb of a resident alien, whose work resembles North Syrian products and is especially like that found at Tell Halaf. He and his family were probably the offspring of Sidonians who had moved at some earlier time into North Syria. It was characteristic of the Sidonians to settle and assimilate: the oriental traditions of this goldsmith,

who had married into a Cretan family, were maintained for some time by his children, but gradually were adapted to local styles and taste. It was in this same tomb, but with a later burial, that a Sardinian *askos*, impressed with concentric circles of the kind found on the sherds in Carthage, was buried with its Sardinian owner or with a Sidonian traveller from Crete, one of the itinerant craftsmen who frequented the western island.

Some possibilities of the identification of Sardinia with *šrdn* as related to a tribe of "Sea Peoples" were briefly discussed (Cross; Mazar; James). Like oxhide ingots, this is another subject that involves Sardinia on which entire colloquia can be and are held. This is not to trivialize the profound importance of the metal trade to Sardinian archaeology of which new information was added by Ceruti and Watrous, but to concede the limits imposed by time and space.

## Roman and After

Tronchetti points out regional diversity in Roman pottery in Sardinia; the problem of production; local imitation of imported styles; and the dates of arrival and period of use of imported pottery. The Websters propose Nuragic VII as an Early Medieval phase of Nuragic chronology beyond Punic and Roman, lasting until the Arab invasion and the end of Byzantine rule in 1015 AD.

## Ceramic Fossils

While radiocarbon and other dating techniques are being perfected to increase their accuracy in dating, pottery, likened to fossils by Fadda and Tronchetti, still remains the universal medium for interpretation of place as well as time in all phases after the Paleolithic; yet the weaknesses of this practice are constantly pointed out. The problems are especially expressed by Phillips, Wiener, Papadopoulos, Tronchetti and the Websters.

Pottery is not the ideal cross-dating medium in the Chalcolithic because ceramic shapes and decoration may vary according to raw material or skill of the potter, or more importantly the affiliations of each local group, trade requirements, ritual requirements and so on (Phillips).

Wiener's enumeration of factors that affect the absolute dates assignable to imported Aegean pottery of a particular ceramic phase can be applied to other times and places as well: the length of time between creation and deposition in the archaeological record; the extent of time over which the pottery type(s) in question were produced, and the links between the ceramic phase and absolute dates derived from a historical chronology or by scientific means. Papadopoulos and the Websters both point to the vulnerability of the notion of a rigidly linear development of style. The claim that "Euboean pottery does not necessarily equal Euboean presence, nor does that pottery have to be

carried by a Euboean" (Papadopoulos) further emphasizes the fragility of the use of pottery as a material witness. Tronchetti deals with more datable material in Roman pottery in Sardinia, long overlooked, that still presents problems of regional diversity; local imitation of imported styles; and the dates of arrival and period of use of imported pottery. Local imitations of pottery styles, especially frequent in Sardinia, confound even more: do they imply presence of the originals or makers of the originals or memory of the originals?

### Conclusions?

The colloquium with the ambitious title, *Sardinian Stratigraphy and Mediterranean Chronology*, was planned to begin seeking results by combining stratified contexts and extrinsular synchronisms with the newest scientific testing techniques. The wealth of information, insights, and hypotheses that emerged, however, have prompted continuing research and writing. Conclusions are not yet appropriate for such a vital, dynamic subject. Rather than conclusions, we list new developments as they have emerged from this colloquium: the appearance of the oldest human fossil so far on Sardinia; a responsible way to date by radiocarbon on Sardinia; the fact that radiocarbon and

other dating methods are always being improved; a confirmation once more of Sardinia's place in Bronze Age Mediterranean long distance trade; the earliest find off the island of Sardinian ceramic material (Kommos); the extension of area in which Sardinian material is found (Carthage); the extension of time for the duration of Nuragic cultures; Sardinia as a catalyst in the interpretation of Mediterranean uncertainties; Sardinia as a reflection of activity elsewhere in the Mediterranean (the *halysos* effect); the narrowing of the knowledge gap for the crucial transition from Late Bronze Age long-distance trade to Iron Age colonial activity; the recognition of changes in interpretation prompted by changes in material or ideas; and the hazards of overdependence on ceramics for chronological determinations.

### Acknowledgments

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### In Memoriam

*In a touching tribute to Maria Luisa Ferrarese Ceruti, whose presence at this colloquium would have added lively discussions, Fulvia Lo Schiavo points out the range in the work of this scholar, whose professional career in a sense paralleled the development of archaeology in Sardinia; her death is a loss to the profession. The statement that archaeological work should not be measured by its timelessness but rather by its ability to stimulate more research and to accommodate changes that time may bring, once more emphasizes the dynamic, fast-moving quality of archaeology, especially in Sardinia.*