



THE UNIVERSITY OF
SYDNEY

THE NEAR EASTERN ARCHAEOLOGY FOUNDATION BULLETIN

NUMBER 56

April 2013



A Chalcolithic hunting station in central Cyprus

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Excavations always provide surprises and sometimes sites turn out to be quite different from what was expected. This was certainly the case when we decided to work at Politiko Kokkinorotsos in central Cyprus. On the basis of surface survey and geophysical prospecting by the Sydney Cyprus Survey Project we hoped to uncover a settlement with well-built round houses typical of the latest period of the Cypriot Chalcolithic – and possibly also evidence of the earliest Bronze Age, a time of cultural innovation in which we have a particular interest. In this we were disappointed. What we did find provides instead an important new view of Chalcolithic Cyprus, opening up several intriguing lines of enquiry and explanation.

Kokkinorotsos is a small site in the northern foothills of the Troodos range, set on a river terrace in the narrow valley of the Koufos River as it flows out of the foothills to join the Pedeios, one of the main rivers of the island. Today the area has small pockets of arable land surrounded by steep, pine-clad hills (see photo above). At about 400m above sea level, it is sufficiently high to provide some relief from the summer heat of the central lowlands and is considerably colder in winter.

In 2007, with a team of students from La Trobe University, we cleared 550m² of the shallow cultural deposits of the site, while trial trenches indicated that it did not extend significantly beyond this area. We were frustrated not to find any traces of the stone and pisé buildings that we expected. Nor were there other structural features or burial pits, although a few lumps of daub suggested the presence of light timber structures and we did find remains of a hearth and oven pit. We also excavated three roughly circular pits (3–5m in diameter and up to 1m deep) and a large natural hollow up to 1.5m deep and some 200m² in extent, taking up much of the excavated area. These were filled with massive quantities of pottery, stone and animal bone, all of which appears to have been redeposited, perhaps from midden dumps, during a short and deliberate episode of clearance.

A series of Accelerator Mass Spectrometry radiocarbon determinations provided almost identical dates, showing that the site was used between about 2880 and 2670 BCE. There is so little material from this time from elsewhere in Cyprus that suggestions have been made that there was some sort of cultural collapse and associated redistribution



Three circular pits and a natural depression excavated at Politiko Kokkinorotsos.

of populations. One possible explanation for our site was, therefore, that it represents some such set of events. However, when we look more closely at the artefacts and animal bone another, more interesting explanation emerges.

The animals

We recovered an exceptionally large quantity of animal bones. These were studied by Dr Paul Croft, who counted over 7,000 identifiable pieces of large mammal bone, three-quarters of which are from *Dama mesopotamica* – fallow deer. The remaining animals are mainly feral sheep (mouflon) but include a few goats and a small number of pigs and dogs. Deer are a major contributor to the diet at other Chalcolithic sites in Cyprus, but do not dominate to anywhere near the extent that they do at Kokkinorotsos.

Paul Croft proposed that all the animals at Kokkinorotsos were hunted. This was based in large part on the extensive presence of fallow deer, a species which was never domesticated in Cyprus. The ages at which the sheep and goat had been killed, together with the body parts represented, suggested that these animals were also hunted and not from domesticated herds.

Further observations opened up the related issue of seasonality. Several lines of evidence indicate that hunting was confined to the warmer months. The first is the absence of male sheep over three years of age. This may be explained by the fact that in the summer older males separate from the females and younger animals, which are more easily hunted at this time of year. In addition, there

were a significant number of foetal and neonatal bones, indicating late winter and early spring kills respectively.

Recently we were able to test these indirect arguments. Dr Anne Pike-Tay of Vassar College in the USA has worked extensively on prehistoric seasonality and developed techniques for analysing the annual growth patterns of animal teeth and identifying season of death (odontochronology). She kindly offered to apply her methods to our samples. Her study of 28 deer and mouflon teeth from Kokkinorotsos conclusively demonstrated that these animals were hunted and killed between late winter and late summer.

The stone artefacts

Another colleague, Dr Carole McCartney, studied the chipped stone from Kokkinorotsos. The assemblage is dominated by three tool classes: pièces esquillées, scrapers and burins. Pièces esquillées, which represent over a quarter of the sample, were probably used as small wedges for splitting bone. The second most common tools are scrapers. All show visible polish and sometimes linear striations perpendicular to the tool edge, probably as a result of hide scraping. Burins provide the third element of this formal tool trio. They are also frequently associated with the working of animal products, particularly the grooving of bone or antler. In other words, the chipped stone assemblage is highly specialised and primarily related to processing meat, hides and bone – as might be expected where hunting rather than agriculture was the focus of activity.

A similar story emerges from the ground stone tools. Axes, adzes and chisels are relatively rare. Overall, the assemblage suggests a bias toward the processing of wild foods (nuts and fruits), rather than the chopping, splitting or specialised woodworking common at other Chalcolithic sites.

The pottery

At first sight this picture of a seasonal hunting station seems at odds with the huge quantities of pottery (over one tonne) we recovered. The sheer quantity of this and other material suggests that the site was intensively used, possibly for months at a time, over many generations and perhaps by family groups, rather than by hunters alone. The pottery, all of which was highly fragmented, is likely to have been brought to Kokkinorotsos along with agricultural produce and other supplies from a larger, permanent agro-pastoral settlement or settlements. Other finds include several terracotta anthropomorphic figurine fragments, sherd disks of uncertain purpose, shell beads, worked antler and bone tools.

Understanding Kokkinorotsos

The limited extent of occupation, the absence of substantial structures and burials, the lack of agricultural and timber-working tools and the spring/summer exploitation of animals suggest that Kokkinorotsos was only used in the warmer months, and the exclusive presence of wild animals and a chipped stone toolkit associated with butchery suggest that hunting was the main activity. The site is therefore best understood as a seasonal hunters' camp: used for forays into the surrounding woodland and for preparing meat, hides, antler and other products from the resulting quarry. That other activities also took place at the site is, however, demonstrated by the presence of storage vessels, spouted jars and bowls and fine ware eating and drinking vessels, as well as domesticated cereals and cereal grinding equipment. These clearly indicate the storage and consumption of food and drink at the site and possibly some form of feasting. The earth oven may point in the same direction. Earth ovens are rare in Cyprus and have elsewhere been associated with the preparation and consumption of special foods (notably meat) and with public display and feasting. The figurine fragments and several fragmentary zoomorphic vessels hint at a more formal ritual dimension. The zoomorphic vessels in particular raise the possibility of rituals explicitly associated with hunting.

Kokkinorotsos appears then to have been a special-purpose site – perhaps one component within a broader economic and settlement system involving permanently occupied agro-pastoral villages and seasonally used outstations. In the absence of comparative evidence, it is not possible to know whether the Kokkinorotsos data suggest an increased emphasis on hunting

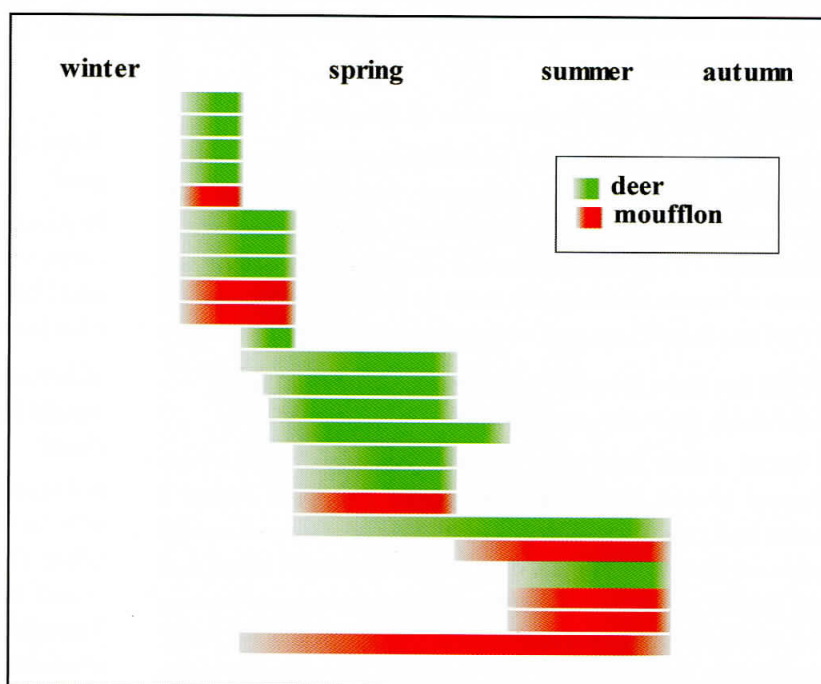
on Cyprus in the period between 2900 and 2700 cal BCE. It is likely, however, that fallow deer were always a highly ranked resource on the island, yielding more meat than any feral competitors without the higher energy inputs associated with the husbandry of domesticates. Kokkinorotsos, although the only non-village site known for the Chalcolithic period, thus opens up the possibility of a complex and variable cultural system on Cyprus during the first half of the third millennium BCE, with community territories made up of a series of sites, each the focus of particular activities appropriate to their ecological setting.

While initially disappointing and certainly not the site we expected to find, Kokkinorotsos has added significantly to our understanding of Chalcolithic Cyprus. The odontochronological analyses pioneered by Anne Pike-Tay and applied here to Cypriot data for the first time provide exciting confirmation of our interpretation of the site and have great potential to address similar issues of seasonality on other sites in Cyprus and elsewhere.

Acknowledgements

Studies by Paul Croft, Carole McCartney and Anne Pike-Tay were crucial in providing the basis for our understanding of Kokkinorotsos. Funding for this research was provided by the Australian Research Council and the Archaeology Program, La Trobe University.

The excavations were published in J.M. Webb, D. Frankel, P. Croft & C. McCartney 2009. Excavations at Politiko Kokkinorotsos: a Chalcolithic hunting station in Cyprus. *Proceedings of the Prehistoric Society*, 75: 189–238. The odontochronological data discussed here are presented in D. Frankel, J.M. Webb & A. Pike-Tay 2012. Seasonality and site function in Chalcolithic Cyprus. *European Journal of Archaeology*, in press. □



Results of the odontochronology study on deer and moufflon teeth showing the season of the animal's death.