KOUPHOVOUNO 1999

The first season of field-work at Kouphovouno in Lakonia, a synergasia between the British School at Athens and the 5th Ephorate of Prehistoric and Classical Antiquities, took place from 16.8.1999—11.9.1999. Dr Th. Spyropoulos directed the synergasia. William Cavanagh, Christopher Mee and Josette Renard directed the season in the field.

The aims of the project have grown out of the history of previous archaeological work in the region. The trials by von Vacano, published by Renard, indicated a long chronological sequence of occupation, though with certain gaps and uncertainties. Surface survey by Hope Simpson and Waterhouse also pointed to later prehistoric and historic occupation. An initial objective, therefore, was to estimate the chronological span and spatial distribution of the settlement. In methodological terms the techniques pioneered in the Laconia Rural Sites Project were to be applied to a large, multi-period site.

A grid measuring 250 x 250 m was laid out stretching from the dry-river bed which forms the site's boundary to the north, and centred on the summit of the tell. Because of the size of the site and the quality and quantity of the material recovered, two methods were devised for artefact collection, a more intensive treatment for the centre of the site, and extensive sampling for the periphery. The intensive sampling was carried out in 592 squares measuring 5 x 5 m. Extensive sampling proceeded within units measuring 20 x 5 m, that is by combining four adjacent squares. 214 units were recorded in this way. Dr Neil Brodie supervised the geophysical survey. A total of 40 20 x 20 m squares were tested by magnetometry. The variation in magnetic intensity was greatest in the region of the central mound and the core of the prehistoric settlement. There are what appear to be four areas of burnt earth, probably burnt mudbrick or daub. The high visibility of burnt areas cannot be taken to imply an absence of architecture in other parts of the mound area. Resistivity survey was tried but found ineffective in current conditions.

Nine 7.5 cm diameter cores were drilled at positions on the main mound and beyond its edge to the east, west and south. Eight of the cores went 5 m deep, one, on the east margin of the hill, was taken to 10 m. Supervision of the extraction and recording of the cores was the charge of Dr Alison Jones and Dr Peter James. The cores revealed anthropogenic horizons containing sherds, 'brick earth', stone layers and bone, varying in depth from 55—401 cm. The sediment underlying the cultural horizons is predominantly clay, with sand and gravel occurring as beds or lenses. Much of the clay represents deposition in the still water of either a lake or large floodplain. In soil studies sediments exposed in the banks of the deeply incised stream north of the site were described and sampled. Volume magnetic susceptibility at 10 cm depth was measured along north—south and east—west transects, covering both the tell itself and the surrounding plain. Soil was sampled at 20—23 cm depth at 5 m intervals in a north—south transect. From the field observations it appears that Kouphovouno was built on the floor of a drained lake (or lake margin), though a floodplain environment cannot, at this stage, be ruled out. If a lake, then it could well have been large, possibly occupying the breadth of the present Evrotas valley.

Due to the great quantity of pottery finds it was not possible, during the field season, to do more than wash, mark and draw a limited number of sherds. The pottery has not yet been systematically studied. Nevertheless there are indications of the main periods from MN onwards, including some LN/FN, EH, some MH and LH. Evidence of later activity in the Classical and more particularly the Roman period was evident, especially to the west of the site,

where large quantities of tile suggest structures.

Much more detail can be given on the obsidian and flint artefacts thanks to the study carried out by Dr Anna Karabatsoli. In an initial study of 260 of the chipped stone artefacts. 63% of the material studied was made of obsidian and 37% of flint or chert of variable quality and colour. The obsidian objects derive from all phases of débitage. Types of tool found were retouched blades, arrow-heads and pièces esquillées. The various types of flint/chert (light grey, dark grey, honey, white, brown) and chocolate-coloured jasper, are represented by numerous flakes, blades, debris or even cores. Tools made of flint include arrow-heads, denticulated blades, blades à bord abattu, scrapers, sickle elements and pièces esquillées. Certain diagnostic finds permit us to suggest that the phases represented date from the Middle Neolithic to the Early Bronze Age. Systematic study of the other stone artefacts has not yet been possible. Some 44 complete or fragmentary polished stone axes of various primary materials were collected, most commonly of a green stone and a black stone. 21 stone hammers, 8 querns, 6 pounders, 4 grinders, 2 sling-stones, a waisted weight, a whetstone and a number of uncertain ground-stone tools were also identified in the field.

Jean-Pierre Renard and Claude Delhayes recorded every phase of the project on video. An educational film is planned which will illustrate archaeological work of this type.

Although much analysis remains to be done this first season of work at Kouphovouno has already produced a much fuller understanding of the site, and promises significant results for the future. In particular we would emphasise firstly that we now have a much more objective indication of the overall size of the site. The antiquities covered an extent of at least 5 ha. After closer typological analysis of the pottery we hope to be able to gain an idea of the varying extent of settlement during its various phases of occupation. Secondly the collection of surface artefacts has allowed a much fuller appreciation of the range of periods during which the site was occupied. There appear, on preliminary analysis, to be relatively few gaps during the five or six millennia from MN to the end of the Bronze Age, though the intensity of settlement plainly varied considerably from phase to phase. These findings augur well for the success of stratigraphic soundings. The cores likewise have indicated a considerable depth of archaeological deposit in many areas of the site, even deeper, in some areas, than indicated by von Vacano's trials. The geophysical survey has confirmed both surface finds of burnt mud-brick and the earlier observations from excavation that extensive burnt deposits await excavation, promising good environmental evidence. Especially unexpected was the discovery of the very deep clay deposits underlying the site. They give a completely new insight into the environmental setting favoured by the first settlers, and hold open the promise, still to be confirmed, of extremely valuable new evidence on the early Holocene ecology of Southern Greece. The scientific and methodological aspects of the project will feed into studies of the relationship between surface material and excavated deposits, so important for the interpretation of survey results elsewhere in the region. Moreover useful data for the study of tell formation and erosion have also been accumulated. We hope that this successful season is the first stage of a significant new advance in our understanding of the development of complex societies in Greece.

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Preliminaries

The 1999 season of field-work at Kouphovouno in Lakonia, a synergasia between the British School at Athens and the 5th Ephorate of Prehistoric and Classical Antiquities, took place from 16.8.1999—11.9.1999. We are most grateful to the Ministry of Culture for granting the permit, and to the staff of the 5th Ephorate, Dr Th. Spyropoulos, N. Themos, E. Zavvou and S. Raptopoulou for their assistance and for providing the facilities where the finds could be processed and stored. We thank Dr David Blackman, Director of the British School at Athens, and his staff for their constant help and support. The equipment for coring was hired to us by the Institute for Geological and Mineral Research, Athens. The project was funded thanks to grants from the British School at Athens, the Institute for Aegean Prehistory, CNRS, and the Universities of Nottingham, Liverpool and Bretagne-Sud.

Personnel

Dr Th. Spyropoulos directed the synergasia. William Cavanagh (University of Nottingham), Christopher Mee (University of Liverpool) and Josette Renard (Université de Bretagne Sud) directed the season in the field. Peter James and Alison Jones (University of Liverpool) oversaw the coring and sampled for soil analysis. Neil Brodie (MacDonald Institute, Cambridge) carried out the geophysical survey, and in collaboration with Ian Whitbread (Fitch Laboratory, BSA) has made an initial plan for pottery analysis. Anna Karabatsoli (Université Paris X) studied the chipped stone tools. Estelle Carraud kept house. Jenny Doole (MacDonald Insitute, Cambridge) drew the finds and Mark Southgate (Trent and Peak Archaeological Unit) acted as surveyor. Jean-Pierre Renard (Ministère de l' Education Nationale de la Recherche et de la Technologie, Paris) and Claude Delhayes (CNRS, Paris) filmed the project. The student volunteers were: Sam Inder, Emily James, Matthew Oakey, Emma Walmsley (Liverpool); Nick Kavanagh, Andrew Souter, Ioannis Georganas, Ed Richardson, Helen Pennack (Nottingham); Eric Le Falhun, Catherine Dupoux, Imelda Duplat, Gildas le Goff, Annaïg Frémont, Erle Couturier-Delhureau and Anne-Cécile Pavia, (Lorient).

Introduction

The aims of the project have grown out of the history of previous archaeological work in the region. The trials by von Vacano, published by Renard, indicated a long chronological sequence of occupation, though with certain gaps and uncertainties. Surface survey by Hope Simpson and Waterhouse also pointed to later prehistoric and historic occupation. An initial objective, therefore, was to estimate the chronological span and spatial distribution of the settlement. In methodological terms the techniques pioneered in the Laconia Rural Sites Project were to be applied to a large, multi-period site. In addition to artefact collection this involved geophysical survey, the removal of samples for analysis of soil chemistry and physical characteristics, and drilling cores through the site to gain an impression of depth of stratigraphy and pre-site environment.

Field Procedures

Sampling Strategy
A grid measuring 250 x 250 m was laid out stretching from the dry-river bed which forms the site's boundary to the north, and centred on the summit of the tell. Thus the total area to be sampled was just over 6 ha, though an area of 0.48 ha in the SW and 0.9 ha in the NW could not be treated because of very intensive agriculture. Because of the size of the site and the quality and quantity of the material recovered, two methods were devised for artefact collection, a more intensive treatment for the centre of the site, and extensive sampling for the periphery.

The intensive sampling was carried out in 592 squares measuring 5 x 5 m. Samplers were instructed to collect every artefact they could see within each square. Of course visibility was a very significant factor. In particular some of the squares were covered with thick tall grasses which made it difficult to see the ground surface. Here the collectors were supplied with gloves and sickles and encouraged to cut or brush aside the ground cover. The artefacts from each square were sent for processing and an estimate of the vegetation cover recorded. A count was made of stones, of cobble size or larger, observed in the first square metre in the SW corner of each unit, as this might reflect destroyed walls or building activity. The identity of the collectors, general comments on the sampling, an initial record of chipped and ground stone artefacts and other finds, and observations of characteristics such as burnt mud-brick were also noted on the square record sheets.

Extensive sampling proceeded within units measuring 20 x 5 m, that is by combining four adjacent squares. In this case the team of samplers would sweep, in close order, across the unit, again attempting to recover every artefact that could be seen, but in this case no attempt was made to cope with very dense vegetation cover. No record was made of stone, but otherwise the recording and treatment proceeded as with the intensive squares. 214 units were recorded in this way.

Geophysical Survey
Dr Neil Brodie supervised the geophysical survey. Magnetic intensity was measured using a Geoscan FM36 Fluxgate gradiometer at a resolution of 1nT. Readings were taken at 1 metre intervals along parallel traverses in a series of 20 x 20 m squares. The data were processed using the Geoplot 1.20 software package. A total of 40 squares were tested.

The SW area of the site generally showed little variation in magnetic intensity, but the amount of variation increased in the region of the central mound and the core of the prehistoric settlement.

There are what appear to be four areas of burnt earth or clay where readings as high as ~ 100nT were recorded. These are probably areas of burnt mud-brick or daub architecture. The apparent rectilinear outlines of features are probably misleading. It is not possible to relate them precisely to buried structures without information on the type of architecture and the effects of burning and post-burning disturbance. The high visibility of burnt areas cannot be taken to imply an absence of architecture in other parts of the mound area.

The possible position of von Vacano's central trench was identified. It is an approximately rectangular low intensity feature measuring 20 m NNW—SSE and 10 m ENE—WSW.

Resistivity survey was tried but found ineffective in current conditions.

Cores
Supervision of the extraction and recording of the cores was the charge of Dr Alison Jones and Dr Peter James. Nine 7.5 cm diameter cores were drilled at positions on the main mound and beyond its edge to the east, west and south. Eight of the cores went 5m deep, one, on the east margin of the hill, was taken to 10 m. Sediment stratigraphy was described and samples taken (both archaeological and natural) for chemical, mineral magnetic and mechanical analyses.

The cores revealed anthropogenic horizons containing sherds, 'brick earth', stone layers and bone, varying in depth from 55—401 cm (the latter occurring at 25 m south of the hill summit). The sediment underlying the cultural horizons is predominantly clay, with sand and gravel occurring as beds or lenses. The base of the clay was not reached in five of the 5 m cores, nor in the 10 m core. Gravel underlay the clay in three of the 5 m cores, including that beyond the west flank of the hill.

Much of the clay represents deposition in the still water of either a lake or large floodplain. In several cores the clay has very fine laminae of varying colour; their exact nature should be revealed through laboratory analysis. It is possible that they resulted from varying conditions, perhaps arising from seasonal variations, at the clay-water interface. Charcoal occurred in the upper part of the clay in several of the cores. One sample was taken for possible 14C dating. The clay will be examined for other fossil biogenic material, especially pollen and diatoms.

Soil Studies
Further soil studies were conducted by Dr Peter James who carried out a reconnaissance land morphological and surface soil survey over Kouphovouno, across the surrounding plain and along the course of the river, bounding the site to the north. Sediments exposed in the banks of this deeply incised stream were described and sampled. Volume magnetic susceptibility at 10 cm depth was measured along north—south and east—west transects, covering both the tell itself and the surrounding plain. Soil was sampled at 20—23 cm depth at 5 m intervals in a north—south transect. These samples will be analysed initially for phosphate content and mineral magnetic properties, and, depending on their potential, for various other indicators.

From the field observations it appears that Kouphovouno was built on the floor of a drained lake (or lake margin), though a floodplain environment cannot, at this stage, be ruled out. If a lake, then it could well have been large, possibly occupying the breadth of the present Evrotas valley. In later and post-neolithic times, flood gravels and finer clayey sediments have been deposited on the plain by streams emerging from the Mt Taygetos range. One such large flood in the late 1940s deposited extensive gravels in the region. A bank skirting the east and south of the hill and a less distinctive feature on its west side were evidently cut by flood-waters.

Finds Processing

Pottery
Due to the great quantity of pottery finds it was not possible, during the field season, to do more than wash, mark and draw a limited number of sherds. The pottery has not yet been systematically studied. Nevertheless there are indications of the main periods from MN onwards, including some LN/FN, EH, some MH and LH. Evidence of later activity in the

Classical and more particularly the Roman period was evident, especially to the west of the site, where large quantities of tile suggest structures.

Chipped Stone
Much more detail can be given on the obsidian and flint artefacts thanks to the study carried out by Dr Anna Karabatsoli. In an initial study of 260 of the chipped stone artefacts, each piece has been catalogued with details of the primary material (quality, colour) presence or absence of cortex from the original nodule and of the patina, the dimensions of the artefacts, technological details (base type, butt-form, form of secondary products, phase of débitage) and typological information (type of tool, retouch, traces of use and gloss). A proportion of the material (pieces typical of the various phases of débitage, and all tool-types) have also been drawn.

63% of the material studied was made of obsidian and 37% of flint or chert of variable quality and colour. The obsidian objects derive from all phases of débitage. No nodule of primary material was found, but there are numerous products from the phase of reduction, with cortex, and also products from the preparation of the nucleus (preparation flakes, crested blades). There are certainly some blades from fully prepared cores, products from core renewal (blocks or blades for improving the striking platform), cores abandoned once they had been fully used, as well as much debris. The following types of tool were found: retouched blades, arrow-heads and pièces esquillées.

The various types of flint/chert (light grey, dark grey, honey, white, brown) and chocolate-coloured jasper, are represented by numerous flakes, blades, debris or even cores. Certain materials are present only in isolated examples, whereas others, such as the chocolate jasper, are represented in products from various phases of débitage. In the majority of cases the work is meticulous (carefully worked tools, but also débitage indicating careful production), especially in the case of primary materials of high quality (chocolate jasper, grey and honey flint). Tools made of flint include arrow-heads, denticulated blades, blades à bord abattu, scrapers, sickle elements and pièces esquillées.

Certain diagnostic finds permit us to suggest that the phases represented date from the Middle Neolithic to the Early Bronze Age. Further study of the material will allow a more precise dating and lead to a more detailed technological study.

Polished Stone and Other Artefacts
Systematic study of the other stone artefacts has not yet been possible. Some 44 complete or fragmentary polished stone axes of various primary materials were collected, most commonly of a green stone and a black stone. 21 stone hammers, 8 querns, 6 pounders, 4 grinders, 2 sling-stones, a waisted weight, a whetstone and a number of uncertain ground-stone tools were also identified in the field.

Fragments of three clay animal figurines and a Roman coin were also recovered.

A study of the remaining untreated artefacts is planned for spring 2000.

Filming
Jean-Pierre Renard and Claude Delhayes recorded every phase of the project on video. An educational film is planned which will illustrate archaeological work of this type. The development of the project was followed through from the laying out of the survey grid using

the EDM, the development of the different sampling strategies, collection of artefacts in the field, resistivity and gradiometry survey, the drilling of the cores, soil-sampling and the processing of the artefacts at the offices of the Ephoreia of Prehistoric and Classical Antiquities at Sparti.

Concluding Remarks

Although much analysis remains to be done this first season of work at Kouphovouno has already produced a much fuller understanding of the site, and promises significant results for the future. In particular we would emphasise firstly that we now have a much more objective indication of the overall size of the site. The antiquities covered an extent of at least 5 ha. After closer typological analysis of the pottery we hope to be able to gain an idea of the varying extent of settlement during its various phases of occupation. Secondly the collection of surface artefacts has allowed a much fuller appreciation of the range of periods during which the site was occupied. There appear, on preliminary analysis, to be relatively few gaps during the five or six millennia from MN to the end of the Bronze Age, though the intensity of settlement plainly varied considerably from phase to phase. These findings augur well for the success of stratigraphic soundings. The cores likewise have indicated a considerable depth of archaeological deposit in many areas of the site, even deeper, in some areas, than indicated by von Vacano's trials. The geophysical survey has confirmed both surface finds of burnt mud-brick and the earlier observations from excavation that extensive burnt deposits await excavation, promising good environmental evidence. Especially unexpected was the discovery of the very deep clay deposits underlying the site. They give a completely new insight into the environmental setting favoured by the first settlers, and hold open the promise, still to be confirmed, of extremely valuable new evidence on the early Holocene ecology of Southern Greece. The scientific and methodological aspects of the project will feed into studies of the relationship between surface material and excavated deposits, so important for the interpretation of survey results elsewhere in the region. Moreover useful data for the study of tell formation and erosion have also been accumulated. We hope that this successful season is the first stage of a significant new advance in our understanding of the development of complex societies in Greece.

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