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PRELIMINARY RESULTS OF THE ALIAKMON PALEOLITHIC/ PALEOANTHROPOLOGICAL SURVEY, GREECE, 2004-2005

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Abstract: Greece lies on the hypothesized migration route of archaic humans into Europe, and its paleolithic record is critical in addressing issues of timing and routes of dispersal of the earliest European colonization. The Aliakmon Paleolithic survey, conducted on the Aliakmon river terraces in 2004-05, is the first systematic survey for this time period in the region. The area preserves Plio-Pleistocene fluvial fossiliferous sediments and has yielded paleolithic artifacts. We confirmed the existence of the terrace systems at previously proposed levels but with more complex dating than originally proposed. Faunal specimens collected include equids, rhinocerotids, suids, bovids, cervids, rodents, canids, proboscideans, and cf. Hippopotamus. Two possible Lower Paleolithic sites were located. Given the scarcity of such sites in Greece, these findings are pivotal in documenting early human presence in the area.

Keywords: Lower Paleolithic, Middle Paleolithic, South-Eastern Europe, European colonization, archaic humans

Résumé: La Grèce se trouve sur la route hypothétique de migration des hominidés archaïques en Europe et son enregistrement paléolithique est crucial en ce qui concerne le temps et les voies de dispersion de la première colonisation de l'Europe. La prospection d'Aliakmon paléolithique, conduit sur les terrasses du fleuve Aliakmon en 2004-2005, est la première prospection systématique pour cette période dans la région. Cette dernière préserve des dépôts fluviaux fossilifères et a livré des artefacts paléolithiques. Nous avons confirmé l'existence du système de terrasses à des niveaux déjà proposés, mais avec un système chronologique plus complexe par rapport à ce proposé originellement. Les restes fauniques récoltés comprennent équidés, rhinocéros, suidés, bovidés, cervidés, rongeurs, canidés, proboscidiens et cf. Hippopotamus. Deux sites possibles du Paléolithique inférieur ont été localisés. Étant donnée la rareté de sites en Grèce, ces trouvailles sont d'une importance décisive pour la documentation de l'ancienne présence humaine dans cette région.

Mots-clés: Paléolithique inférieur, Paléolithique moyen, Sud-est européen, colonisation de l'Europe, hommes archaïques

INTRODUCTION

The Aliakmon Paleolithic/Paleoanthropological survey is a three-year project aiming to locate new paleolithic, paleoanthropological and paleontological sites in the Aliakmon river basin, Western Macedonia, Northern Greece (Figure 2.1). The ultimate purpose of the project is to help test hypotheses about the earliest colonization of the European continent by adding currently lacking evidence from South-Eastern Europe. It is conducted in cooperation between the American School of Classical Studies at Athens and the Ephoreia of Paleanthropology-Speleology of Southern Greece (hereafter EPS) and directed by Katerina Harvati (Max Planck Institute for Evolutionary Anthropology and New York University) and Eleni Panagopoulou (EPS).

The timing, routes of dispersal and identity of the earliest archaic European populations are among the most important unresolved questions of European paleoanthropology. Human remains from Spain and Italy have been dated to approximately 800 thousand years ago (Roebroeks & van Kolfschoten 1994; Bermúdez de Castro *et*

al. 1997; Manzi *et al.* 2001; Roebroeks 2001), and the discovery of 1.6 million years old human fossils in Georgia (Gabunia *et al.* 2000; Vekua *et al.* 2002; Gabunia *et al.* 2002) puts forth the possibility of earlier, as yet undiscovered, ventures into Europe. Early colonizers are commonly thought to have dispersed into the continent by a Levantine corridor through Asia Minor and Greece (Darlás 1995; Runnels 1995, 2001; Bar-Yosef 1998). However, early human fossils in Spain and Italy (Bermúdez de Castro *et al.* 1997; Manzi *et al.* 2001) have suggested the possibility of a direct dispersal from North Africa into the Iberian and Italian peninsulas, a significantly more difficult route (Straus 2001).

Greece lies on the hypothesized route of migration of archaic hominids from Africa through the Near East into Europe and is the gateway into the continent through which migrant populations have repeatedly passed (Runnels 1995, 2001; Bar-Yosef 1998). The region's fossil human and paleolithic records are therefore critical in addressing these questions. The Aliakmon river basin holds exceptional promise for paleolithic and paleoanthropological research. The region has previously yielded paleolithic artifacts,

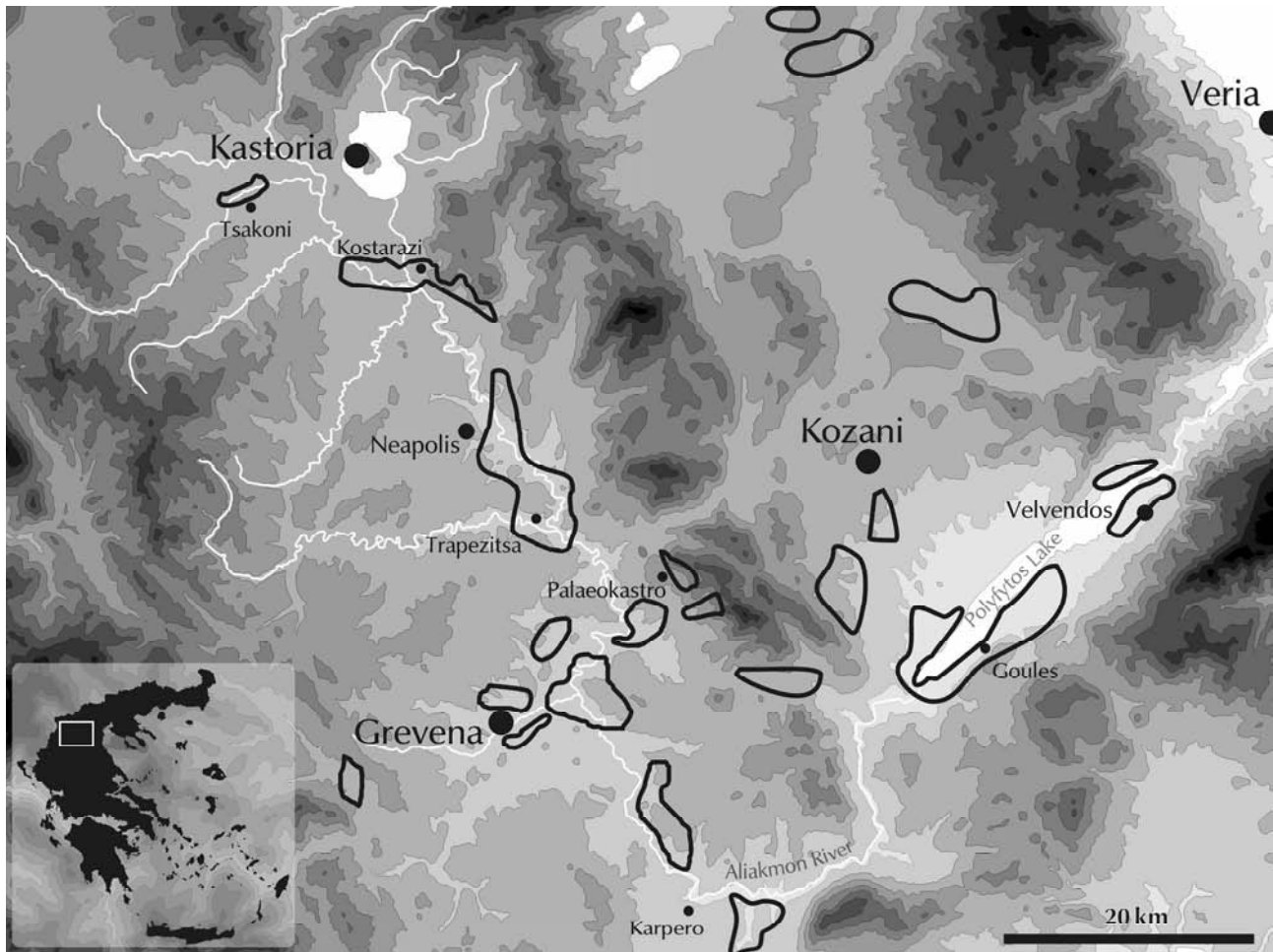


Fig. 2.1. Map of survey area, with localities surveyed outlined in heavy black marker.
Inlet: survey area shown on the map of Greece

including one of only two published Lower Paleolithic bifacial stone tools from the country (Dakaris *et al.* 1964; Higgs 1964), and important Plio-Pleistocene faunas (Melentis 1966; Koufos 1977; Steensma 1988; Koufos *et al.* 1991; Koufos & Kostopoulos 1993; Tsoukala 2000).

The present survey is the first systematic survey for this time period in this area. It focuses on the terraces of the river Aliakmon, which preserve Upper Pliocene to Pleistocene fluvial sediments (Brunn 1956; Eltgen 1986; Rassios 2004).

METHODOLOGY

The survey team was divided into two groups that systematically examined the longitudinal profiles of the terraces found in the survey areas, searching for lithic artifacts or fossil remains. Some terrace surfaces were also explored (although their systematic survey was not possible due to intense cultivation) as well as the shore around Lake Polyphytos. GPS coordinates (WGS 84 datum) were recorded for each search area and for each major archeological and fossil find and plotted on 1:5,000

topographic maps. Field observations were logged for each survey area and photographs were taken of all localities. The survey area covered is outlined in heavy black line on the map of Figure 2.1.

GEOLOGICAL FINDINGS

The existence of the Aliakmon terrace systems at the levels proposed previously (Brunn 1956, Eltgen 1986) was confirmed. However, our geological work showed that the dating of the individual terraces is more complicated than originally proposed, predominantly due to the erosional (strath) rather than depositional nature of most terrace deposits (Panagopoulou *et al.* 2006). Whereas elevation above the current river corresponds with geological age in depositional terrace systems, this is not the case for straths, as the latter are cutting into older sediments. The depositional or erosional nature of the terraces was found to vary from locality to locality due to the complex depositional history of the river. Isolated patches of Pleistocene fossiliferous depositional terraces are preserved as pockets within the main erosional system (Panagopoulou *et al.* 2006). The typical terrace sediment-



Fig. 2.2. Faunal specimens from the Livakos and Goules localities.
Top left: Equid femur; Bottom left: Equid metatarsal in 3 pieces; Left: Rhinoceros vertebra

tary sequence observed in most localities consist of superimposed cross stratified pebble-rich layers and sandstones banks that most likely represent bars and channels deposits of a braided-type river. Upwards they grade into a series of brownish or grey paleosols formed on silty overbank deposits.

In addition to the terraces, the shoreline around Lake Polyphytos was surveyed. Polyphytos is a shallow artificial lake formed by the flooding of the former floodplain of the Aliakmon at the southern edge of Kozani basin. The Kozani basin consists of a thick lacustrine sedimentary sequence ranging from the Upper Miocene to the Pliocene. Fresh-water limestone and marl, with intercalated lignite seams give way to Mg-carbonate layers in the upper part (Anastopoulos *et al.* 1980; Calvo *et al.* 1995). The margins of the sequence are bounded by faults and the whole plain is being eroded by a subparallel drainage system that flows into the modern Aliakmon River. The latter is flowing along the southern margin of the plain. Alluvial fans consisting of red beds are developed along the western margin close to the contacts of limestone and ophiolite formations. Along the southern coast of the lake a strath terrace 50 m above the former Aliakmon is developed. Nevertheless, patches of fluvial deposits were identified at the same elevation, usually no more than one hundred meter long. On the northern coast of the lake there are no terrace formations except some remnants of dispersed fluvial gravels found on the top of the soft and highly eroded Neogene lacustrine hills.

PALEONTOLOGICAL FINDINGS

Dense accumulations of fossil material were found in Livakos and Kostarazi. Other terrace sequences yielded

little or no fossil specimens, probably the result of erratic deposition of the paleo-Aliakmon river. In total, one hundred and sixty-nine fossil specimens were collected, including equids (*Equus* sp.), proboscideans (*Mammuthus* cf. *meridionalis*, *Elephas antiquus*), bovids (cf. *Leptobos* sp.), canids (*Canis* cf. *etruscus*), cervids, rhinocerotids, suids, rodents and possibly hippopotamids (Figure 2.2).

The Livakos area consisted of several localities along the Livakos stream, a small tributary of Aliakmon River. The fauna collected there included equids, bovids/cervids, a suid, a proboscidean, a canid (possibly *Canis etruscus*), and a large rodent, possibly *Castor* or *Hystrix*. These findings are consistent with and augment the previous description of the Livakos fauna by Steensma (1988) as Late Pliocene / Early Pleistocene fauna dominated by *Equus*. The predominance of equids suggests open habitats in close proximity to the river.

The Kostarazi locality probably represents a localized depositional terrace within a larger strath, and likely dates to the Middle Pleistocene. The terrace profile consists of sandy gravels and fine pebbles in overlapping cross-stratified beds preserving a wealth of bivalve shells (*Unio*), which indicate a lake (freshwater) environment. Kostarazi yielded several elements from a partial skeleton of a proboscidean, a large ruminant (possibly *Megaloceros*) and equids.

ARCHAEOLOGICAL FINDINGS

Seventy-four lithic artifacts were collected. However, none were found inside the longitudinal profiles. The lithic material covered a range of technical periods from possibly the Lower to the Upper Paleolithic. It was

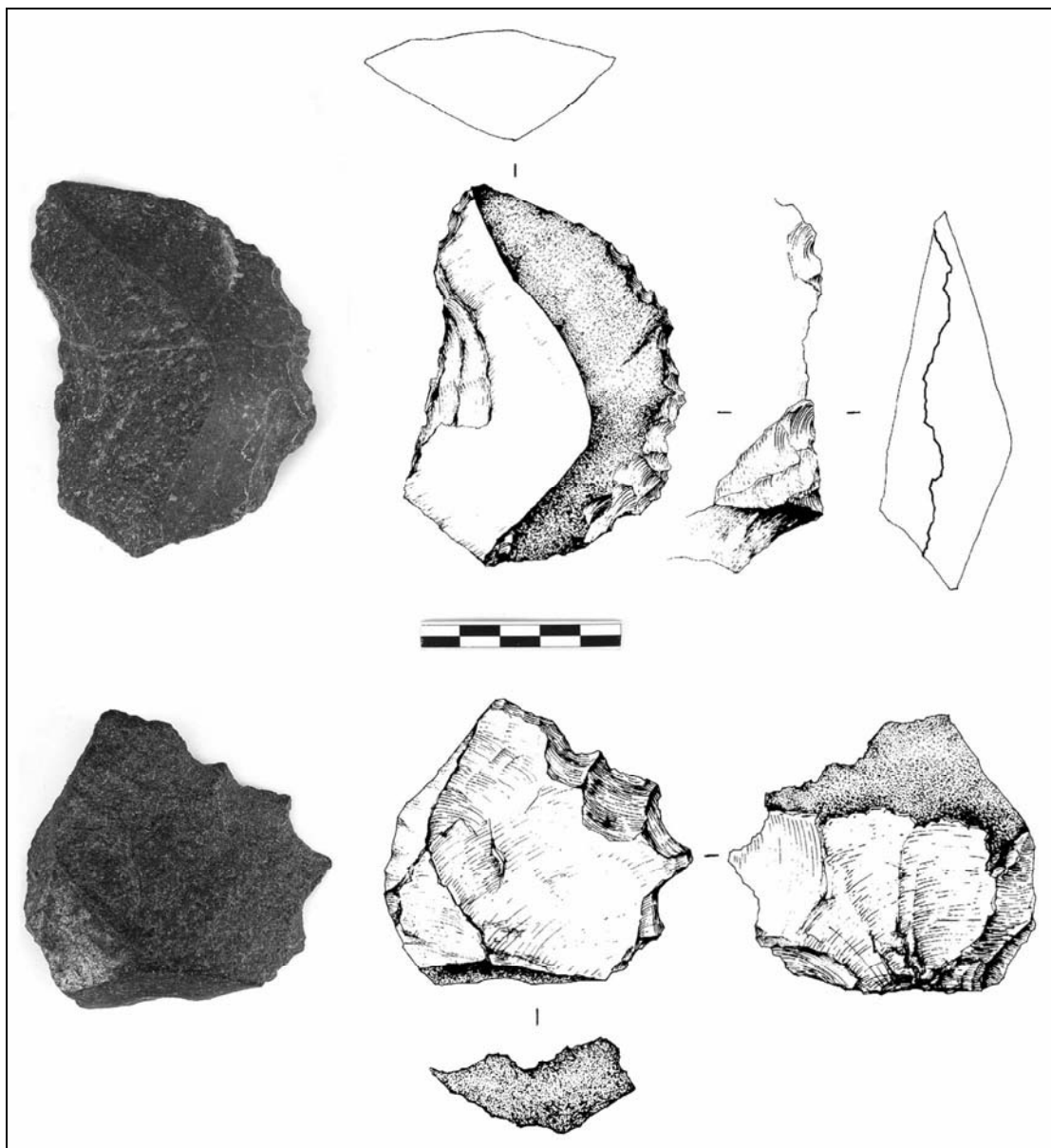


Fig. 2.3. Lithic artifacts from Polemistra

concentrated in two sites, Polemistra and Karpero (Figures 2.3 and 2.4). Both assemblages were surface finds and both probably Lower Paleolithic.

The Polemistra locality is situated on the south-western shore of the Polyphytos artificial lake. In this locality there is a hanging alluvial fill of a stream that flows into the northwestern part of the lake. The fill consists of a sequence of unsorted massive gravelly loams, most likely representing flash floods of hyperconcentrated bedload. Their material derives mainly from erosion of the lacustrine banks of the stream and the hilly area around. Immature brown paleosols separate the different flood episodes of the fill. A total of nineteen lithic artifacts were recovered from the lakeshore among the river pebbles. All lithics were fashioned on river pebbles of a green, coarse-grained volcanic rock. They consisted of large flakes,

several cores, some bifacially worked tools and choppers (Figure 2.3). The type of technology is simple (flakes and chopping tools) and may date to the Lower Paleolithic, although no uniquely characteristic Lower Paleolithic artifacts (such as handaxes) were found.

A second concentration of lithics was found at the Karpero locality, near the future construction site of the new Aliakmon dam. As in most other localities investigated, this locality presented long sequences of cross-stratified pebble-rich layers and sandstone banks (probably bars and channels deposits) grading into a series of brownish or grey paleosols (overbank deposits). Nine artifacts were collected from the terrace surface, comprising several large cores, one chopper and one flake (Figure 2.4). As in Polemistra, the raw material was volcanic pebbles, probably andesite or basalt. The techni-

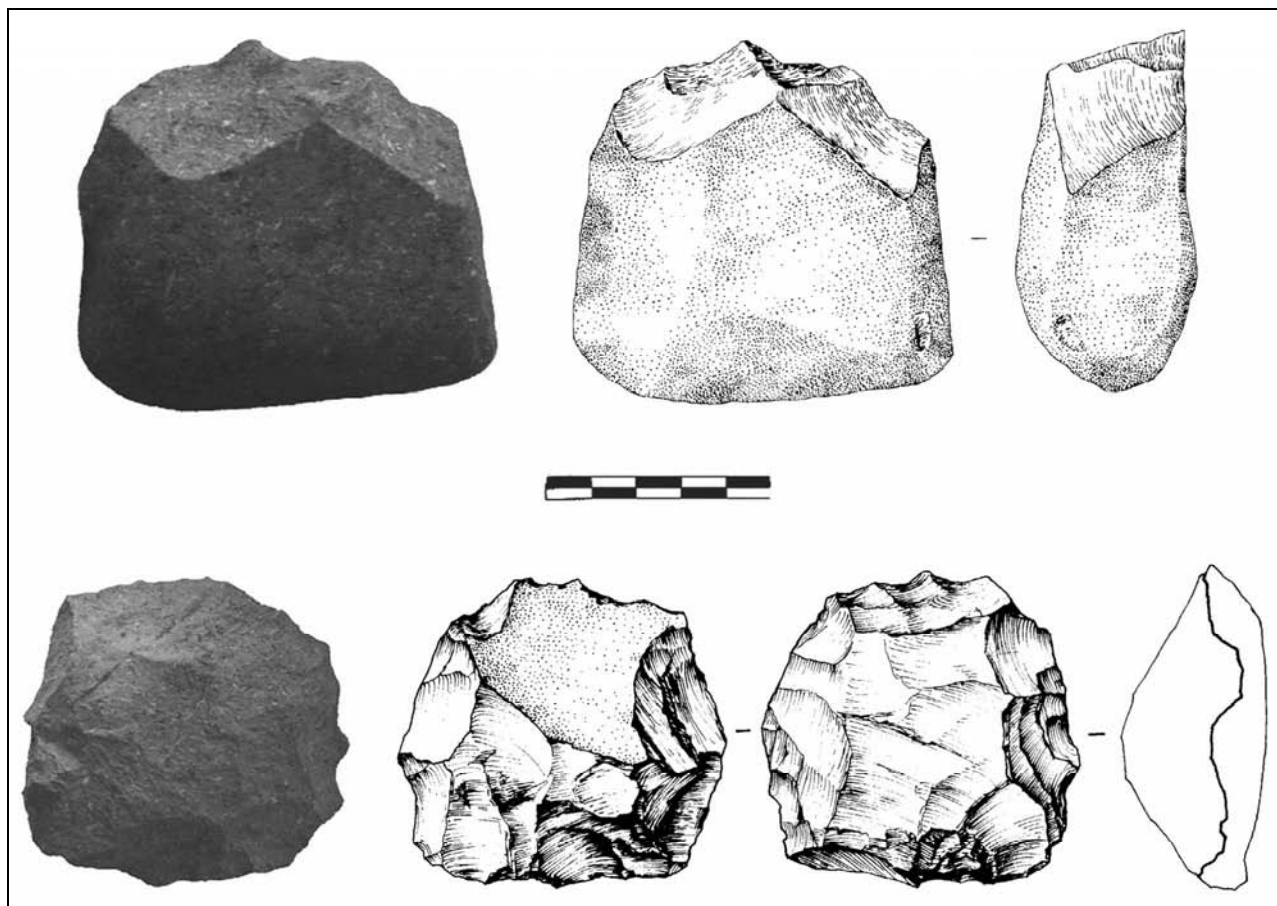


Fig. 2.4. Lithic artifacts from Karpero

cal features again suggest an early age for this assemblage, although no characteristic Lower Paleolithic tool types were found.

FUTURE DIRECTIONS

Given the scarcity of documented Lower Paleolithic sites in Greece, our findings are pivotal in documenting early human presence in the area. Our immediate goals for the coming year and for the final field season include a pilot study of paleomagnetic and Electron Spin Resonance dating analysis of some of the Aliakmon terraces to help resolve the dating of the terrace system. In the field season of 2006 we will survey the normally submerged expanses of the former river bed exposed in the late fall, in order to retrieve additional artifacts and to improve our understanding of the Polemistra site formation processes. More extensive survey will also be conducted on the terrace surfaces at and around the Karpero locality, in order to locate additional possible sites and at the rich fossiliferous sites of Livakos and Kostarazi. Finally, as a long term goal of this project we plan the comparative study of the lithics recovered from this survey in conjunction with previously collected, probably Lower Paleolithic, material from this area.

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