

# Ancient Athens under the lens of the modern microscopes

*Apostolos Lakassas talks to Dr Takis Karkanas, director of the Malcolm H. Wiener Laboratory for Archaeological Science in Athens*

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**A**ncient Athens under the lens of the modern microscopes. What was the composition of the ancient population? Were there refugee flows in ancient times? What were the people of Athens eating? Did they suffer from sicknesses? Armed with equipment that reminds us of the cutting edge laboratories of the forensic fiction world of CSI, these questions are being addressed through one of the most significant archaeological studies of human skeletons ever excavated in the area of the Stavros Niarchos Foundation Cultural Centre, in New Phaleron. "There was a cemetery in this area. Phaleron was the port of Athens during that time, before Piraeus," explains Dr Takis Karkanas, director of the Malcolm H. Wiener Laboratory for Archaeological Science in Athens, who is collaborating in the study of the findings with Dr Stella Chryssoulaki, director of the excavation and the Ephorate of Western Attica, Piraeus, and the Islands. An international team comprised of prominent bioarchaeologists, forensic anthropologists and other scientists has been assembled and is being led by Prof. Jane Buikstra of Arizona State University, Director of its Centre for Bioarchaeological Research, and a member of the American Academy of Sciences. Already more than 1,100 skeletons have been transferred and are under investigation in the Wiener Laboratory from a total of more than 1,600 skel-

etons that have been unearthed from the site. Important remains come from the time that led to the birth of democracy, between the 7th century and the beginning of the 5th century BCE.

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Dr Karkanas explains that "archaeologists, often without any sophisticated equipment, are conducting excavation, studying finds, and providing the first basic interpretation of archaeological materials. At the Wiener Laboratory, we are going further into a detailed analysis. We are using state of the art equipment, such as electron microscopes that go up to magnifications of 130,000 times. In addition to the Phaleron research, since 1931, the American School of Classical Studies has been excavating in the area of the Athenian Agora, which was the political and economic centre of ancient Athens. The Athenian Agora Excavations and Study Centre is hosted in the restored Stoa of Attalos in the heart of ancient Athens. Modern archaeology is one of the most sophisticated interdisciplinary fields. It includes studies on ancient DNA, palaeodiet, human skeletons, palaeobotany, palaeolandscape, animal bone, material science, architecture, etc. We are study-

ing bone, plants, seeds, and chemical residues. We are actually studying the garbage of our ancestors".

**Very often people focus on the splendiddness of ancient monuments. What is the significance of such a detailed analysis?**

Indeed, monuments are very impressive. However, how many people collect old objects without any special aesthetic value, only for bringing out old memories of the life of our ancestors? We are very interested in how people in the past were living. Man is a historical being and cannot live without his past. On the other hand, historical monuments are created by the ancient everyday lives of simple people. Those people are the focus of our study. Our research helps to explain the reasons behind all these events. For example, the study of ancient environments and human interaction with the landscape in the past has important implication for the understanding of modern climate. In the same way, one of our research fellows studies microremains left on ground stone tools and, with the help of chemical and physical methods, extracts starch remains of cereals, legumes, and tubers from the pores of these tools in order to understand what people were eating and how they were preparing their food.

People understand the passage of time as a past that they are familiar with



Dr Takis Karkanas, director of the Malcolm H. Wiener Laboratory for Archaeological Science in Athens

(the future is nevertheless unpredictable and thus unknown), that's why it attracts us.

**What kind of equipment you are using in your research?**

We are trying to shine light on the microscopic world of ancient people. The equipment is really impressive, like the electron microscope that magnifies an object up to 130,000 times. Just think a normal microscope usually goes up to 1,000 times in magnification. We are utilising techniques that are analysing the structure of the materials, their chemical, organic, inorganic, and mineralogical composition. Modern archaeological science combines, among others, architecture, GIS, 3-D modelling, biology, geology, physical anthropology, botany, zoology, climatology and environmental sciences. Today, archaeology is a true interdisciplinary subject.

**What are you currently doing in the Malcolm H. Wiener Laboratory?**

We are involved in several projects that are being conducted by our research fellows. For example, there are on-going studies on the techniques used in early agriculture, pottery technology, and the reconstruction of paleodiet. In addition to the study of the findings of the Delta Phaleron, we are also collaborating with the Ephorate of Palaeoanthropology and Speleology in the excavation of the most ancient archaeological site in Greece, 500,000 years old, in the Megalopoli lignite mines. Dr Eleni Panagopoulou, the director of the excavation, and an international team led by Katerina Harvati from the University of Tübingen, are excavating an elephant butchering site. The site comprises remains of other an-

## General Information

Founded in 1881, The American School of Classical Studies at Athens (ASCSA) provides graduate students and scholars from affiliated North American college and universities a base for the advanced study of all aspects of Greek culture, from antiquity to the present day. It also contributes considerably to the dissemination of information about Greek history and archaeology to the Greek public, as well as to the international and Greek scholarly communities.

The Wiener Laboratory, founded at the School in 1992, is an internationally recognised research facility devoted to the application of scientific techniques to the study of archaeological materials in Greece. Opened in 2005, Cotsen Hall is a 352-seat auditorium providing a venue for meetings and scholarly interchange.

## Dr Panagiotis (Takis) Karkanas

The director of the Wiener Laboratory, Dr Panagiotis (Takis) Karkanas holds B.S. and Ph.D. degrees in geology from University of Athens. He has served as Associate Editor for the *Journal of Human Evolution* and currently for the journal *Geoarchaeology*. He has carried out geoarchaeological research in numerous archaeological sites in Greece and has participated in international geoarchaeological projects in South Africa, China, Israel, France, Spain, Hungary, Albania and Cyprus.

imals and stone tools probably used for processing the meat. It is well known that ancient people were targeting and hunting large animals, including elephants.

**Were they eating elephants?**

Yes, of course. Do not be surprised.

**Are you collaborating with other universities and institutes in Greece and other countries?**

The American School of Classical Studies at Athens is a centre for study and research in Greece. Scholars and students from more than 170 sponsoring colleges and universities in North America are working in its facilities. It is primarily an educational institute that introduces professors, qualified scholars, graduate and undergraduate students and high school and college teachers to Greek archaeological sites and monuments during the School's regular and summer programmes. Several of the professors of the American colleges and universities in the fields of classical studies, ancient history and archaeology have participating in some of the high quality educational programmes and excavations of the American School. The Wiener Laboratory is also collaborating with most of the Universities in Greece (Athens, Thessaloniki, Peloponnese, Cre-



te, TEI) as well as abroad, such as the Arizona State University, Arizona University, Boston University, University of Tübingen and the Weizmann Institute of Science in Israel.

