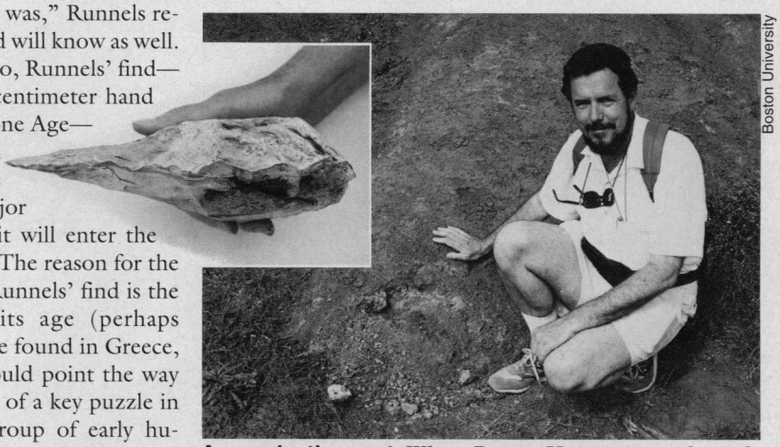
Hand Ax Throws Light on European Prehistory

Found recently by serendipity in Greece, it's filling in gaps in anthropologists' knowledge of how Europe was settled

ONE DAY EARLIER THIS SUMMER BOSTON University paleoanthropologist Curtis Runnels was on his way back to his car to grab a bite of lunch at the site in Greece where he and his team had been surveying when suddenly he noticed something sticking out of the side of a dried-up lake bed. "I knew immediately what it was," Runnels recalls. Soon the world will know as well. In the last week or so, Runnels' find—an immaculate 22-centimeter hand ax from the Old Stone Age—has been splashed across the airwaves and the pages of major newspapers. Next, it will enter the scientific literature. The reason for the excitement is that Runnels' find is the first hand ax of its age (perhaps 200,000 years) to be found in Greece, and its discovery could point the way toward the solution of a key puzzle in prehistory: What group of early humans or human ancestors first moved out of Africa to settle Europe?



Boston University

Ax marks the spot. *Where Boston University anthropologists Curtis Runnels found a 200,000-year-old Acheulean hand ax—the oldest human artifact yet from Greece.*

On that question there are two opposed views. One group of researchers has long held that Europe was settled by a hominid ancestor, *Homo erectus*, beginning about 1,000,000 years ago. But there are few traces of *Homo erectus* in Europe. Which leaves it to a second group of paleontologists to argue that Europe was populated only about 300,000 to 400,000 years ago and by a more advanced form of *Homo* that rapidly evolved into the Neandertals (who were themselves replaced by or interbred with anatomically modern humans coming out of Africa around 100,000 years ago).

One of the principal hurdles in deciding which of these opposed points of view to believe has been that although Greece is logically placed on the route for hominid migrations out of Africa into Europe, few artifacts have been found there that are older than about 100,000 years. As far as the Lower Paleolithic (Old Stone Age) goes, "Greece was previously listed as a 'no-hand ax' place," says Runnels. Then he adds, "Now it needs to be filled in on the map." Indeed, Runnels' ax lends tentative support to those who champion Neandertals as the first Europeans. Says F. Clark Howell of the University of California at Berkeley, the new ax is of the right age to coincide with the origins and development of the Neandertals, whose archeology in southeastern Europe has so far been "a big blank."

The ax's style, known as Acheulean, is the same as that of axes found in abundance in Africa, Western Europe, and the Near East. More specifically, it resembles artifacts in the style called Micoquian, which, says Runnels, have been "firmly dated to at least 200,000 years ago." Micoquian finds are "not known to occur in more recent periods," he adds.

To hand ax connoisseurs, Runnels' find is beautifully flaked on both sides—probably not a conventional ax but an all-purpose tool, good for skinning animals or uprooting woody plants. It is also in pristine condition and, given all these uses, it may seem a pity that it was probably never used. "Sharp and crisp as the day it was made," says Runnels, who thinks its maker dropped the hand ax into the lake before using it and didn't retrieve it. "Somebody was probably very unhappy [that] he lost that ax."

When Runnels found the lost object, part of the pleasure in it was due to the fact that it was so serendipitous: He and his Boston University colleagues weren't even planning to excavate the site. Instead, they were surveying the landscape, hoping to identify the type of site in Greece that might yield Stone Age implements. As a starting point for their work, they chose Nikopolis in northwest Greece, where two well-known and successful British paleontologists, Geoff Bailey and the late Eric Higgs of Cambridge University, had been digging since the early 1960s.

In their work, Bailey and Higgs (who died in 1976) had found tools dating from 40,000 to 70,000 years ago. In fact, the placement of Runnels' ax, in deposits 20 meters below where the newer artifacts were found, gives him confidence that the 200,000 year date is correct. Yet Bailey notes that from the point of view of dating, the site is "difficult," with deposits frequently reworked over time by erosion. In addition, all remains of plants or animal tissues that might have corroborated the date have been destroyed by the acidity of the local soils. As a result of these uncertainties and others, Runnels is being cautious about the significance of his new find. "You can't squeeze all that much significance out of one stone," he says.

But he was excited enough to hold a prepublication press conference, and, in spite of his cautionary notes, the new chopper is raising real excitement in the archeological community. Major figures like Berkeley's Howell are willing to accept the ax's date—in Howell's case, he says, because he has great confidence in the geological analysis performed by team member Tjeerd van Andel.

The find has increased expectations for the overall Boston University project, an ambitious endeavor to use remote sensing methods (see *Science*, 17 May 1991, p. 918) to identify a variety of sites in Greece that might offer Old Stone Age artifacts. Several promising locations have already been selected for further work on the ground. That work could well reveal the presence of other Lower Paleolithic artifacts in Greece—implements that could help fill in the Old Stone Age map of Europe and also perhaps resolve the question of who the first Europeans were.

Not that answers are likely to come as quickly as they did to Runnels. This kind of work can be hard and requires systematic, patient thoroughness rather than sudden flashes of recognition like the one Runnels experienced in June when, on his way to his car, his eye fell on something sticking out of a dirt bank. Indeed, one of the ironies of Runnel's find is that it took far less time than that invested by the craftsman who made the ax. The flint he used is common at Nikopolis, but finding a piece of the right size and shape "might have taken all day." For Curtis Runnels, however, all it took was just one—well-informed—look. ■ MICHELLE HOFFMAN