
Scientists Uncovered Human Brain Dating 6 Thousand Years Back

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In a cave overlooking southeastern Armenia's Arpa River, just across the border from Iran, scientists have uncovered what may be the oldest preserved human brain from an ancient society. The cave also offers surprising new insights into the origins of modern civilizations, such as evidence of a winemaking enterprise and an array of culturally diverse pottery.

Excavations in and just outside of Areni-1 cave during 2007 and 2008 yielded an extensive array of Copper Age artifacts dating to between 6,200 and 5,900 years ago, reported Gregory Areshian of the University of California, Los Angeles, January 11 at the annual meeting of the Archaeological Institute of America. In eastern Europe and the Near East, an area that encompasses much of southwest Asia, the Copper Age ran from approximately 6,500 to 5,500 years ago.

The finds show that major cultural developments occurred during the Copper Age in areas outside southern Iraq, which is traditionally regarded as the cradle of civilization, Areshian noted. The new cave discoveries move cultural activity in what's now Armenia back by about 800 years.

"This is exciting work," comments Rana Ozbal of Bogazici University in Istanbul, Turkey.

A basin two meters long installed inside the Armenian cave and surrounded by large jars and the scattered remains of grape husks and seeds apparently belonged to a large-scale winemaking operation.

Researchers also found a trio of Copper Age human skulls, each buried in a separate niche inside the three-chambered, 600-square-meter cave. The skulls belonged to 12- to 14-year-old girls, according to anatomical analyses conducted independently by three biological anthropologists. Fractures identified on two skulls indicate that the girls were killed by blows from a club of some sort, probably in a ritual ceremony, Areshian suggested.

Remarkably, one skull contained a shriveled but well-preserved brain. "This is the oldest known human brain from the Old World," Areshian said. The Old World comprises Europe, Asia, Africa and surrounding islands.

Scientists now studying the brain have noted preserved blood vessels on its surface. Surviving red blood cells have been extracted from those hardy vessels for analysis.

It's unclear who frequented Areni-1, where these people lived or how big their settlements were. No trace of household activities has been found in or outside the cave.

Whoever they were, these people participated in trade networks that ran throughout the Near East, Areshian proposes. Copper Age pottery at the site falls into four groups, only one of which represents a local product. A group of painted ceramic items came from west-central Iran. Some pots display a style typical of the Maikop culture from southern Russia and southeastern Europe. Still other pieces were characteristic of the Kura-Arax culture that flourished just west of Maikop territory in Russia.

Radiocarbon dating of pottery and other Copper Age finds pushes back the origins of the Maikop and Kura-Arax cultures by nearly 1,000 years, Areshian says.

Additional discoveries at Areni-1 include metal knives, seeds from more than 30 types of fruit, remains of dozens of cereal species, rope, cloth, straw, grass, reeds and dried grapes and prunes.

A hard, carbonate crust covering the Copper Age soil layers, along with extreme dryness and stable temperatures inside the cave, contributed to preservation of artifacts and, in particular, the young girl's brain.

Medieval ovens from the 12th to 14th centuries have also been excavated at the cave's entrance, underneath a rock shelter.

Areshian expects much more material to emerge from further excavations at Areni-1 and from explorations of the many other caves bordering the Arpa River. "One of these caves is much larger than Areni-1, covering about an acre inside," he said, Science News reports.
