



Ani Adigoyzalyan with a slide of the famous ancient leather shoe at her Cambridge talk (photo Aram Arkun)

ARMENIA & KARABAKH ARTS & CULTURE ARCHAEOLOGY PREHISTORY

Discoveries of Prehistoric Shoes, Winery, Neanderthals and More Unveiled at Boston Area Talks

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by **Aram Arkun**

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CAMBRIDGE/BELMONT — Some years ago, when the topic of the prehistory of the Armenian highlands came up, the first things that would come to mind might be the megalithic structures of “the Armenian Stonehenge” — Karahunj or Zorats Karer near Sisian, Armenia, or various petroglyphs (rock carvings).

More recently, Armenia has become famous for the site of the oldest leather shoe and the oldest winery discovered in the world, a cave known as Areni-1.

Furthermore, it seems the Armenian highlands and Georgia contain sites which hold the oldest evidence of humans leaving Africa, and also sites where *Homo sapiens* interacted with Neanderthals.

A Cambridge Science Festival archaeology panel, titled “More than Bones,” at Harvard University’s Science Center on September 23, addressed these topics and more, while Areni-1 was discussed a second time at greater length at a September 26 lecture titled “Treasures of Areni-1 Cave,” at the National Association for Armenian Studies and Research (NAASR) building in nearby Belmont.



Panelists at Harvard: from left, Daniel Adler, Ani Adigyozyan, and Alexia Smith, with skulls brought by Adler on the rear table (photo Aram Arkun)

The initial panel was cosponsored by the Cambridge-Yerevan Sister City Association (CYSCA), Christina Maranci, Mashtots Chair in Armenian Studies at Harvard University and NAASR.

The week-long **Cambridge Science Festival**, an annual celebration of science, technology, engineering, art and

math, is founded and produced by the [MIT Museum](#). The stand-alone lecture was cosponsored by CYSCA and NAASR. Marc Mamigonian, NAASR’s academic director, served as moderator for both events.

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Neanderthals and Homo Sapiens

Daniel S. Adler, associate professor of anthropology at the University of Connecticut, spoke primarily on Neanderthal-Homo sapiens interactions in the Armenian Highlands and South Caucasus. Adler is a specialist of

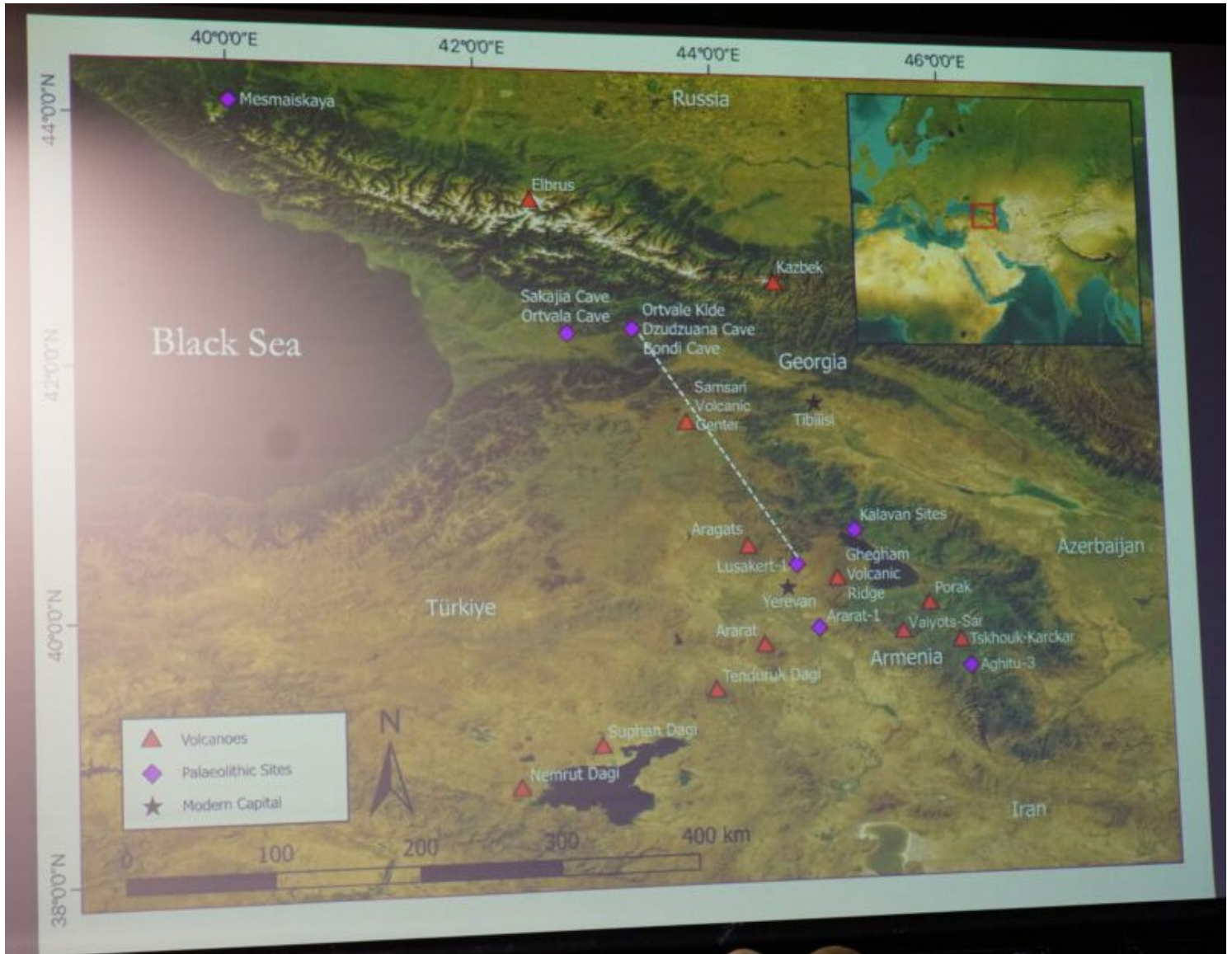
Paleolithic Archaeology who began research in this field in Europe, the Middle East and the Caucasus, and has directed four interdisciplinary research projects in the Georgian Republic between 1995-2006, and since 2008, has done research in Armenia, primarily in the area of the Hrazdan Gorge. Adler first put to rest negative 19th century stereotypes about Neanderthals as stupid, ugly, and brutish. He observed that due both to new research and changing perspectives, Neanderthals are now considered very intelligent, and innovative and creative. They could speak, had families, and could hunt almost anything.



Daniel Adler (photo Aram Arkun)

At Dmanisi in southern Georgia, specimens of *Homo erectus* (an extinct species of ancestors of humans) around two million years old have been found, whereas some 60 km. away, across the border in northern Armenia, lies the site of Haghtanak-3, which has archaeological items of about the same age, though no fossils. This region, Adler said, allows exploring various aspects of human evolution and prehistory.

Adler's talk focused on the site of Ortvale Klde in Imeretia, western Georgia, containing archaeological evidence from the period ca. 60,000-21,000 BCE, and Lusakert-1 Cave, from ca. 65,000-45,000 BCE in Kotayk Province of Armenia. Adler did his dissertation work at Ortvale Klde and later worked at Lusakert-1 and Nor Geghi-1 caves. Excavation work at these sites have ceased, he said, but papers continue to be published presenting ongoing research. Ortvale Klde and Lusakert-1 are around 250 kilometers (155 miles) apart, and both Neanderthals and *Homo sapiens* were in evidence there.



Map slide from Daniel Adler's lecture indicating locations of Lusakert-1 and Ortvale Klde (photo Aram Arkun)

Neanderthals evolved in Eurasia and shared a last common ancestor with *Homo sapiens* around 6-700,000 years ago based on DNA evidence, Adler said. During the question period he added that while the scarcity of Neanderthal fossils uncovered so far do not provide specific information on the date at which Neanderthals appeared in the Caucasus, through analogy with neighboring regions with better fossil records, it is possible to guess that it was at least 100,000 years ago, if not earlier.

Homo sapiens appeared at Ortvale Klde and Lusakert-1 around 45,000 years ago. They had very complex new sociocultural, technological and linguistic capabilities, lived in larger populations that were more integrated, and had very widespread and strong social network – something which Adler said Neanderthals probably did not have. Perhaps due to their greater numbers, they didn’t rely simply on language for communication but also used painting on faces or hair styles and adornments for communication at a distance.

The Armenian Mirror-Spectator

Topics: archaeology, prehistory
People: Alexia Smith, Ani Adigyozyan, Daniel S. Adler

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Everything was good for Neanderthals in Armenia and Georgia, Adler related, until *Homo sapiens* came into the same area, which very quickly led to the extinction or absorption of the former population.

Adler pointed out that there are many different models for what happened when the two interacted: assimilation, disease killing off Neanderthals, competition, or cooperation. However, DNA evidence – in 2010 the Neanderthal

genome was sequenced – shows that there was some integration between species in Eurasia. Today, humans of non-African descent have between 1-5 percent Neanderthal DNA on average.

Adler believes the Neanderthal populations were absorbed, genetically swamped, and thus became extinct. In the South Caucasus and Armenian Highlands, at Ortvale Klde there is a break between 47,000 and 45,000 years. At levels below it, there are Neanderthals, and above it, *Homo sapiens*. This indicates the two could have met during the break period.

Around 1,000 sediment samples containing both Neanderthal and *Homo sapiens* DNA were extracted (both nuclear and mitochondrial DNA) and these samples are still being analyzed to see who was in which layer. There is already clear evidence for interaction, for at certain layers they were together at the same time. This will then allow looking at archaeological evidence to see if technology and social behaviors changed then. Adler stressed that this is the first site anywhere where such analysis can take place. The first human fossil from this site was only found this summer (2024) in a museum in Tbilisi.

Food, Fuel and Farming in Antiquity

Alexia Smith, associate professor of anthropology at the University of Connecticut, lectured about food, fuel and farming in antiquity in southwest Asia. She spoke primarily about Abu Huyrera, Tell Zeidan and Tell Leilan, three archaeological sites in Mesopotamia and the Middle East, which were important for shifts from hunting and gathering to farming, but made some allusions to Armenia as well. She declared that studies of food allow us to explore culture in different ways.



Alexia Smith (photo Aram Arkun)

Abu Hureira is in the Upper Euphrates Valley in northern Syria, and in the Epi-Paleolithic Era (ca. 11,350-9,450 BCE), people basically were hunters and gatherers, with some experimentation with cultivation and tending animals. In the Neolithic period (ca. 8,650-5850 BCE) cultivation and herding intensify and the population increases. Some questions Smith examined were how plants got on site, and what can be learned from the animal

dung found there.

Dung accumulations outside huts suggest tethering and tending of animals some 2,000 years earlier than elsewhere. The animals were not necessarily being domesticated, said Smith, but were being kept to be eaten as meat. Bones found there suggest sheep were the first animals used for this purpose. Bread fragments were found, and human bone deformities, primarily in female skeletons, suggest grinding grain grown for food, she continued.

Part of Smith's work is to look at seeds and the antiquity of food. Though she is not a specialist in bread antiquity, she showed a slide of the world's earliest bread found at Shubayqa 1 (in northeastern Jordan today), at a Natufian hunter-gatherer site around 14,400 years old. Seed data shows that cereal exploitation was not common at that time, but she said that the consumption of bread-like products preceded the emergence of agriculture by at least 4,000 years.

Since there has been no pottery found at that time, Smith was curious how one could cook bread. She and her Boy Scout sons tried an experiment by throwing dough directly on coals. It came out sweet and salty, and when Smith accidentally left the bread out, it turned into hardtack. This could be a way to assure long term storage, in a period without refrigeration, she speculated.

At Tell Zeidan, also in northern Syria, the site is larger. Like in Armenia, dung was used for fuel there, Smith related. It was used in the *tannurs* (clay bread ovens) and for fertilizer, whereas wood was used for heating. She identified different flat breads there, probably using early domesticated emmer wheat for flour, as the transition occurred to the idea of daily bread.

Tell Leilan, in eastern Syria, is one of the sites that controlled the breadbasket of the Akkadian empire, one of the earliest known empires of the world, which extracted taxes. Crops other than wheat were also grown. The Akkadian period, ca. 2,300-2230 BCE, saw the development of urbanism and state control of agriculture. Perhaps as a result of climate change, Smith speculated, Tell Leilan was abandoned at about 2,200 BCE.

Smith also showed a slide about Tell Beydar, a site in northeastern Syria, where largescale bread production took place in the mid-3rd millennium BCE, again in *tannurs*. Produced daily in a centralized fashion, bread turned almost into a currency itself, she said. There were sites as in the ancient city of Ebla in northwestern Syria with enormous rooms where women, probably slaves, ground out grains to produce these breads. Some of the earliest writing in the world used the word *ninda* for bread to form part of the word for food. Smith pointed out that this usage is similar in languages all around the world, as the word for bread is the word for life itself.

Areni-1's Many Firsts

Panelist Ani Adigyozyan spoke about the significant finds at Areni-1 cave. She had participated in the excavations there. Adigyozyan is senior laboratory researcher at the Institute of Archaeology and Ethnography, National Academy of Sciences, Republic of Armenia, and a researcher at the History Museum of Armenia. Born in Armavir, she has a master's degree in archaeology from Yerevan State University. The contents of her two separate talks are presented in an integrated fashion here.



Ani Adigoyzalyan (photo Aram Arkun)

Adigoyzalyan observed that the Armenian Highlands are an important crossroads of human activity and migration, with many caves. Geologists in the Soviet period found 3,000 on the territory of Soviet Armenia (during a search for refuges in case of nuclear war). Among them, she said, is Areni-1 — also known as the Birds Cave — a three-chamber cave formed in sedimentary marine limestone formations on the left bank of the Arpa River. It has many archaeological and cultural layers, starting with the Neolithic period (6,400-6,200 BCE) and extending to the Middle Ages (4-18th centuries CE), but the most important artifacts are from the Chalcolithic era (5,200-3,400 BCE).

She said that each part of the cave was used for different purposes, with the inner part the site of ritual and ceremonial activities, and the outside dedicated to household and production activities. As the climate was very dry and stable, this helped preserve organic materials, along with a thick layer of animal dung that served as a sealant.

Excavations at Areni-1 began in 2007 and continued till 2014, led by Boris Gasparyan from Armenia and various specialists from abroad. The excavations went down as far as 1.5 meters from the surface and did not extend more than 10 meters inside the cave.

Trench 1 of the excavations revealed the world's oldest winemaking complex (4,223-3,790 Cal. BCE) as well as funerary jars and human remains. Adigoyzalyan speculated that complex rituals were conducted here, possibly including human sacrifice and the use of wine. Much pottery from the Neolithic and Chalcolithic periods were found. Those from the Chalcolithic period have much ornamentation, she indicated through slides, including models of the sky and of the earth. These are painted vessels or pitho-karas. Many bone tools were also found.

Trench 2, also inside the cave, has many of the same clay structures and cremations.

Trench 3 is at the entrance of the cave. This is where the world's oldest leather shoe, carbon dated to 5,500 years old, was found (US size 6.5), filled with grass, which either was to maintain its shape or make it more comfortable. This was a right shoe, made of a single piece of cowhide, while the left one of the pair has not been located. There are leather laces pulled through 15 holes in the upper front part and four holes from the back part. Adigoyzalyan said that it is similar to a type of footwear called “pampooties” from Western Ireland that was used until the 20th century. The right shoe is now on display at the History Museum of Armenia.

Two leather fragments even older than the shoe were also found in the same area but it is not known for what purpose they were to be used. There is also a wine production complex dating from 4,000-3,800 Cal. BCE there, where grapes were pressed, and the juice was stored in jars.

Trench 3, Adigoyalyan continued, is where the largest amount of archaeological materials were found, and where a huge area has been excavated. The stratigraphy is very complex here, she said, as medieval layers cut Chalcolithic ones and damage them with their dwellings and other structures. A linen fishing net fragment found in Trench 3 dates to 3,520-3,360 Cal. BCE, while late medieval fragments of carpet found there were carbon dated to AD 700-890 (Cal. CE). A fragment probably of a belt was found too.

The fact that Chalcolithic era textiles were discovered in the cave provide evidence that people were weaving with looms. Matts, ropes and baskets were also found. Weapons and tools found at Areni-1 date from the late 5th to the mid-4th millennia BCE. The earliest metal production began in the Chalcolithic period.

Adigoyalyan showed a video of a virtual tour of the cave both at the panel discussion and later at her own lecture at NAASR. She noted that excavations outside the cave continued in 2023 and she said when she returns to Armenia she will probably begin work on Trench 5.

In response to a question after her formal talk at NAASR, Adigoyalyan said that DNA analysis of the human remains shows that the people in the Areni area were the ancestors of today’s Armenians. She also noted that there is no climate control or protections in place against the large numbers of tourists who come to visit, as it requires a lot of money to simultaneously continue excavations and make the site accessible to tourists.

A video of her NAASR talk is available online at https://www.youtube.com/watch?v=mETs_En2_QM.

After the question-and-answer session at the Cambridge panel, guests could come up and see various skulls, tools, bread and a model of the ancient leather display, all brought by the panelists.

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