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UNIVERSITY OF WYOMING

Archaeological evidence reveals prehistoric stories that shed light on our human journey

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“The human past is full of stories,” says Professor James Ahern, head of the Department of Anthropology, “but most of those stories are not recorded history because they took place long before people began to write; thus, it is up to anthropologists to bring these stories to light.”



Photo courtesy of James Ahern

Ahern has been working to bring prehistoric narratives to light since 1992 when, as a first-year graduate student, he spent a summer in Zagreb, Croatia, studying the Neandertal mandibles from Krapina Rockshelter (c. 130,000 years old) and those from Vindija Cave (c. 33,000 to 42,000 years old). When he set off for Croatia to study the Neandertal fossil record, Ahern was admittedly ignorant of the reality he would face when entering a country that had recently declared its independence from the Socialist Federal Republic of Yugoslavia and was in the midst of war. “Although there was a cease-fire in effect by the time I arrived, I was overwhelmed by the human suffering,” notes Ahern. “The war in Bosnia-Herzegovina had just begun, and Zagreb was full of refugees from both Bosnia and many parts of Croatia. Hotels and hostels were full, but, thanks to the generosity of a museum curator, I had a couch to sleep on.” That summer’s research results confirmed that late Neandertals looked much more like modern humans than did earlier Neandertals.

The Transition from Neandertals to Modern Humans

Since his initial visit, Ahern has returned to Croatia more than 25 times, and he remains committed to better comprehend the transition between Neandertals and modern humans that took place in south-central Europe between 30,000 and 42,000 years ago. Ahern and his colleagues believe that the Neandertal-to-modern-human evolutionary transition was complex, both biologically and culturally. Neandertals from Vindija Cave exhibit some modern human features, indicating that genetic contact with modern humans occurred. Also, these last Neandertals appear to have used stone tools, as well as bone tools that generally are associated with the first European modern humans. Almost everyone living outside of Africa today has a small amount of Neandertal DNA in them—a living relic of these ancient encounters.

In the late 1990s and early 2000s, Ahern and his colleagues published their findings, but because their results were based primarily on their discoveries from Vindija, they decided to broaden their research to include additional Croatian sites. They began excavating at both Zala and Bukovac Caves. Unfortunately, the Zala sediments were not old enough to preserve evidence of Neandertals or early modern humans, but at Bukovac, they found that the earliest use of the site by modern humans dated to approximately 31,000 years ago.



At left: Professor James Ahern and Ivor Janković, (Institute for Anthropological Research, Zagreb) excavate Abri Kontija. Above: James Ahern enjoys the detail-oriented work of gathering samples. (Nenad Kuzmanović photo)

Excavating Additional Sites to Expand Research

This work paved the way for two other projects. One focused on the late Neandertal archaeological sites in Dalmatia (the southern part of Croatia), which ended last year; the other, an ongoing project, is in and around the Lim Channel, an unusual geographic feature that cuts through the western coast of Istria. The name comes from the Latin *limitus* for “limit,” referring to the landform’s position at the border of two Roman Provinces, Dalmatia and Italy. Mountains and caves surround the channel water, and, because of the lower salt content and higher concentration of dissolved oxygen and temperature gradients in the channel, the sea flora and fauna are well-developed.

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The entrance to Romualdo Cave. (James Ahern photo)

Historically, fishing in the Lim Channel has always been excellent, and now, in addition to the natural species, farmed mussels and oysters are part of the channel's prolific sea life. "As an anthropologist, I am drawn to the Lim Channel," says Ahern. "The remains of large, prehistoric hill-forts are found on the peaks overlooking the channel, and the walls of the channel, both above and below the water, are pierced with numerous caves and rock shelters that had been occupied in both prehistory and recent times."

For the past three years, Ahern has been part of an international research team that explores prehistoric and human biology and lifeways in the Lim Channel region. Funded by the Croatian Science Foundation, the team is led by Ahern and his longtime collaborator, Ivor Janković (Institute for Anthropological Research, Zagreb). Besides anthropologists, team members include geologists, geophysicists, remote-sensing specialists, divers, and animal bone specialists from the United States, Italy, the United Kingdom, and Croatia. Students from around the world, including many from UW, also have the opportunity to participate in this dynamic exploration. Using a combination of tried-and-true archaeologi-

cal methods, like traditional gridded excavation using hand and surveying tools, and cutting-edge techniques, such as drones and three-dimensional modeling, the team hopes to better understand how Neandertals and early modern humans lived and what their interactions were like.

"Archaeological fieldwork in the Lim region is a mixture of hardship and bliss," Ahern says. "We usually work during the hottest time of the year—July and August—when the temperature frequently stays over 100 degrees Fahrenheit for multiple days." In addition, the combination of the steep slopes of the Lim channel, which are blanketed by *drača* thorn bushes, and regular sightings of *poskoks* (the European horn-nosed viper) makes for treacherous hikes to the site.

Once there, the slow and back-breaking work of careful excavation and documentation begins and continues throughout the hot day. "I get as much bliss out of the fieldwork as I do anything else," Ahern adds. "Yes, the fieldwork is difficult but it is so incredibly rewarding, not just in terms of the research, but personally I find the combined physical and mental labor to be most satisfying."



Ahern analyzes human remains found at Romualdo Cave. (Ivor Janković photo)

Many of us would identify the bliss part as at the end of the work day when the team goes back to rented apartments in the once-fishing-now-tourist village of Vrsar, which comprises a spectacular coastal landscape. "Unlike a lot of archaeological fieldwork done by my colleagues at Wyoming sites," notes Ahern, "we are blessed with showers and actual beds at the end of a day of fieldwork. The local cuisine is an exquisite blend of Italian and



Former anthropology students Rory Becker (Ph.D. 2010), Fallon Judkins (B.A. 2016), and Deanna Traczek (B.A. 2016) trek to Rovinjnsko Selo Cave. (James Ahern photo)



Soil samples laid out to dry at Abri Kontija. Coloration, composition, and grain size can help distinguish different stratigraphic levels and thus different time periods. (James Ahern photo)

Croatian, and the long hot days often end with a swim in the Adriatic with the sound of German folk music emanating from a nearby *campplatz*."

Most discoveries at the Lim Channel will be revealed in the future, as researchers analyze collected data; however, they already have some ideas about how ancient inhabitants of the Lim region lived. "We know that Neandertals occasionally occupied Romualdo Cave, where they made stone tools and processed animals for food. They were succeeded by early modern humans at Romualdo, who engaged in similar activities" notes Ahern. "We also know that early modern humans heavily occupied another one of the sites at Abri Kontija, making and discarding numerous stone tools and animal remains, including those of a wild horse." Other findings show that, at the end of the ice age when sea levels rose, Lim Channel inhabitants caught and cooked large amounts of shell fish.

This information helps Ahern and his colleagues piece together those prehistoric stories that otherwise would never be known. "The history of human interactions with their environments and with each other go tens of thousands, even hundreds of thousands of years," explains Ahern. "By understanding the diversity of these interactions, we can better understand ourselves and how our own interactions shape our world today."

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The view looking out from Abri Kontija. (James Ahern photo)

Based on Anthropological Findings, We Can Imagine the Past

Romualdo Cave, Lim Channel, Croatia. 40,000 years ago

The cold crept through their wrapped furs. After climbing up a steep slope, made slippery by the fresh snow, the small group entered a small opening in the rock. Inside, the chamber was warm but not warm enough, and the group was uncomfortable as they waited in the moist cave. Finally, one of them returned from the cave mouth with a burning bundle in hand. Another came in with some scraps of wood, and soon the warm glow of a fire lit up the chamber and the faces of the people there. Blue and green eyes twinkled on the faces shining in the firelight—large faces with large brow-ridges and projecting jaws and noses. One, a woman who had seen an amazing thirty winters, began to sing. The others went silent. A younger man unwrapped a leather pouch to reveal pieces of shiny, angular stone. He and another began to carefully hit the stones together and, at times, worked the stone with a piece of well-worn bone from the pouch. Small flakes of stone fell onto the muddy cave floor. The singing continued. Some laid by the fire and slept. Others chewed on old scraps of meat and bone.

Abri Kontija Rock Shelter, Lim Channel, Croatia. 24,000 years ago

The sun rose over the ridge and illuminated the valley below. The summer had been hot but wet enough to make the valley green, and animals were plentiful. The hunt today had gone well, and all of the members of the small group were carrying parts of the horse that they had killed. The climb up the steep slope was arduous but usual for these people. This valley was their home. As they climbed, they could see smoke rising out from under a rocky overhang above. The others were waiting and expecting. The climbers finally arrived and joyfully announced the success of the hunt. Some of the others smiled and greeted the climbers, but others were gathered around a small boy who lay, lifeless, in the shadow of the overhang. The joy of the hunters waned as they remembered the boy's plight. He had fallen while playing. The cuts were large and

recently had become infected. Now, the boy was present, but he was not here. An older woman was busy smearing red ochre on the boy's chest. One of the hunters cried and ran toward the boy, dropping the horse's head onto the dusty floor. The others looked with concern and whispered with each other as they began preparing the horse meat for cooking. Hungry stomachs could not wait.

Lim 002 Rock Shelter, Lim Channel, Croatia. 9,000 years ago

The sun sparkled on the water below. The searing heat of the fire was almost too much for the two men. The smell of smoke and sea filled their lungs. The shells gave a hissing sound as they opened in the fire. One of the men dragged the opened shells out of the heat with a stick and laid them in the dust to cool.

Romualdo Cave, Lim channel, Croatia. 3,000 years ago

The procession began at the town's earthen walls. It was a solemn occasion. The one they carried had been a father, a craftsman, and a warrior. The procession made its way down the well-worn trail to the sacred place. Into the earth and under the town he would go. When they arrived at the hole in the rock, the priest led them in a prayer to the gods before the man's kin carried his body into the hole and laid him down upon the mud as bats flew around their heads. Tears were shed, but all knew that he would be with them always. Like all of their ancestors, he had become part of the foundation of their home.

Scenarios constructed by Professor James Ahern