Discarding Old Theories On The Path To Finding The First Humans Outside Africa

Deborah Barsky

03-06-2024 ~ *Spectacular archeological finds reveal the true past of the first Europeans.*

When I began studying human prehistory in the mid-1990s, little did I know that I would witness a paradigm shift in our understanding of when the first humans settled in Western Eurasia firsthand. At the time, I was preparing my master's thesis about the stone tools from the Caune de l'Arago cave, an Acheulian site situated in the picturesque wine-producing village of Tautavel in southwestern France.

On a main road leading into the village, travelers encounter a road sign for Tautavel's Prehistory Museum that reads: "*L'Homme le plus ancien de l'Europe*" (French for, The oldest Man of Europe). Excavations in the cave in 1971 yielded a semi-complete cranial fossil attributed to *Homo erectus tautavelensis* (a subspecies of *H. erectus*), estimated at 450,000 years old.

In 1995, I was invited to attend the International Congress of Human Paleontology that was held in the Andalusian town of Orce, Spain, where some very important archeological discoveries had recently been brought to light.

Unbeknownst to me, the visit would not be my last.

An influential theory, known as the Short Chronology, published just one year prior to the congress in Orce, proposed that early humans only durably occupied Western Europe after around 500,000 years ago. The theory was published after the proceedings of a conference held in Tautavel in 1993: *The Earliest Occupation of Europe*, during which distinguished researchers reviewed and discussed the archeological evidence for the first sustained human presence in Europe. Even as the Short Chronology hypothesis took hold against the proponents of a Long Chronology (proposing that hominins were in Europe as early as 2 million years ago), it rapidly had to be revisited in light of a series of groundbreaking discoveries that would indelibly change the chrono-geographical setting of the first humans "out of Africa."

From the 1980s, the UNESCO World Heritage site of Dmanisi, located in the Republic of Georgia between the Black and Caspian seas, began to report spectacular fossils of extinct animal species and then Oldowan stone tools. These findings were unearthed below the ruins of the Medieval town of Dmanisi in a volcanic sedimentary context dated to around 1.8 million years old. The vast open-air site, already well-known for its human settlements since the Bronze Age, continues to yield far earlier Paleolithic findings like those first exposed during excavations of the Medieval cellars. In 1991 a human mandible was discovered, beginning an astonishing series of finds that continue to contribute precious data about this little-known period of human prehistory. Ongoing excavations at Dmanisi have unearthed exceptionally well-preserved and diverse faunal remains (including extinct species of deer, horse, rhino, giraffe, and ostrich, as well as carnivores like saber-toothed cats, and giant cheetahs), along with stone tools attributed to the Oldowan cultural complex. In addition, the site has provided an unprecedented assemblage of fossil hominin remains that display a variety of anatomical features that led paleoanthropologists to create a distinct denomination for them: *H. georgicus*.

Prior to these discoveries, which are close to 2 million years old, only a few prehistorians had seriously considered the possibility that hominin groups were thriving outside of Africa even 1 million years ago. Their postulate was based in part on findings of primitive stone tools, often in agriculturally disturbed open-air contexts that are difficult to date with any precision, while few cave sites had produced convincing evidence. Indisputably, the exceptionally abundant, well-

dated, and exquisitely preserved finds from Dmanisi provided irrefutable proof that hominins were indeed living "at the Gates of Europe" far earlier than previously believed. With the evidence from the Early Acheulian 'Ubeidiya site in the Jordan Rift Valley (one of the earliest known *H. erectus* sites dating to around 1.5 million years ago), Dmanisi pushed back the date for the arrival of hominins in Eurasia, raising important questions, in particular, about which hominin was the first to successfully settle in lands situated outside of Africa.

The upheaval that followed in the wake of the Dmanisi discoveries—and those that would quickly follow—tells the story of how our own sociohistorical contexts influence what we think or what we believe when faced with hard evidence from the archeological record. There is no doubt that the extreme antiquity of the Dmanisi hominins created a paradigm shift within the scientific community that required rethinking the ideas entrenched in the dominant academic mindset. In retrospect, it demanded a total reconfiguration of the widely accepted scenario in which *H. erectus* was lauded as the first "colonizer" (a term clearly unfitting to describe ancient population dynamics and whose connotations anachronistically denote the modern concept of borders) of virgin territories outside of Africa. According to this scenario, *H. erectus* was put forward as the most likely candidate for undertaking such an achievement because it was doted with a larger brain and longer legs than its predecessors, and because it possessed a more advanced (Acheulian) toolkit, and even mastered fire making. Today, paleoanthropologists are still debating whether the Dmanisi hominins might have had some relationship with the African *H. habilis*, or if they were more closely related to the *H. erectus*.

Discoveries made in the 1990s at two sites in Orce; Barranco León and Fuente Nueva 3, would play a pivotal role in changing our ideas about the first peopling of Europe. The sites are situated in the Guadix-Baza Basin in northeastern Granada, an area long known for its extraordinarily preserved archeo-paleontological treasures dating to different periods. Today, Orce is a prominent site in the UNESCO Granada Global Geopark. Located nearly 1,000 meters above mean sea level, Orce currently offers a unique and arid landscape shaped by millions of years of accumulated geological deposits and erosion that fashioned a deeply faulted landscape, interspersed with vast badlands and surrounded by mountains. The scenery was very different more than 1 million years ago, however, when much of the area was occupied by a large saline lake and fresh

water rushing forth from the surrounding mountains and the natural springs that still characterize the zone. The age of these two sites has been evaluated by a combination of dating methods to, respectively, 1.4 million and 1.3 million years ago.

Systematic excavations that are still ongoing began at the sites after indisputably human-made stone tools knapped from local flint and limestone were discovered in the early 1990s, in association with a broad range of faunal remains, including a huge species of mammoth (*M. meridionalis*), rhinos, horses, bison, and hippopotamus, as well as carnivorous predators like hyenas, wolves, saber-toothed cats, and wild dogs. Unsurprisingly, the anthropic nature of such ancient stone tools was a hotly debated topic during the Orce congress in 1995. These multilayered open-air sites, situated on the fluctuating lake margin in a swampy environment frequented by many animals, provided an attractive scenario for the hominins who used their stone tools to create their own niche, even withstanding changes in climatic conditions more than 1 million years ago. Their presence predates the oldest documented Acheulian-producing hominins in Europe, demonstrating the efficacy of Oldowan toolkits and underpinning the need for changes in the dominant paradigms about the first inhabitants of Europe.

Buttressing the indisputable evidence emanating from these well-dated and systematically excavated sites came the announcement of groundbreaking discoveries from level TD-6 of the Gran Dolina site at the Sierra de Atapuerca in Burgos, Spain, where a new set of hominin remains, stone tools and fauna was published in 1995. The spectacular hominin fossils, some 0.9 million years old, presented a distinct set of anatomical traits, justifying the naming of a new species: *H. antecessor*, finally putting to rest any remaining skeptics questioning the veracity of the great antiquity of the arrival of the genus *Homo* in Europe.

Since these pioneering discoveries were made known, the number of excavated sites with stone tools attesting to a hominin presence predating 1 million years ago continues to increase, in particular, around the Mediterranean basin. While we still know relatively little about the hominins responsible for these accumulations, the fossil record is steadily increasing in pace with continued discoveries and excavations in some of the key areas. In 2008, a new set of hominin remains, stone tools, and fauna was published from level TE-9 of the Sima del Elefante site in the Sierra de Atapuerca, with an age of around 1.2 million years old. Then, in 2013, the discovery of a human deciduous molar was

published from Orce's Barranco León site in a level dated close to 1.4 million years old. Meanwhile, at the Eastern end of Eurasia, a growing body of evidence from China suggests that hominins were present there nearly 2 million years ago.

Archeology is teaching us that in order to truly understand how humans came to expand across the globe during the Lower Paleolithic, we need to keep our minds open and embrace the science—even if it means modifying or even discarding the long-held ideas that are shaping our own historical moment.

By Deborah Barsky

Author Bio:
Deborah Barsky is a writing fellow for the Human Bridges project of the Independent Media Institute, a researcher at the Catalan Institute of Human Paleoecology and Social Evolution, and an associate professor at the Rovira i Virgili University in Tarragona, Spain, with the Open University of Catalonia (UOC). She is the author of *Human Prehistory: Exploring the Past to Understand the Future* (Cambridge University Press, 2022).

Source: Human Bridges

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