



PROFILE: JOÃO ZILHÃO

Neandertal Champion Defends the Reputation of Our Closest Cousins

Archaeologist João Zilhão and his critics trade charges over who truly invented artifacts at European sites—and whether Neandertals were “modern”

TORRES NOVAS, PORTUGAL—When João Zilhão was 14, he and other young spelunkers from Lisbon began exploring a labyrinth of caves in the cliffs overlooking this sprawling municipality in central Portugal. In those days, it took 5 hours by bus to get here, and there were few hotels in the area—certainly none that they could afford. So Zilhão and his comrades slept in the long, cool passageways of the Galeria da Cisterna.

Zilhão credits those experiences for his success as an archaeologist, for he followed the inner maze of the caves to some of the most important finds of his career. He found 7500-year-old artifacts from Portugal’s earliest known farming community in the Galeria. Then in 1989, he and a colleague climbed up a shaft in the Galeria’s roof through 40 meters of vertical passageways and discovered a hidden back entrance to another cave, the Gruta da Oliveira. There, Zilhão unearthed extensive Neandertal bones and tools, and the cave is now an important example of late Neandertal survival.

Today, Zilhão, 55, is well-known as the Neandertals’ fiercest advocate, taking on any and all suggestions that their mental abilities might have been inferior to those of modern humans. His slender, soft-spoken presence often contrasts with his biting criticisms of others’ viewpoints, especially in print. “Where he passes, scorched earth follows,” says one archaeologist who asked not to be identified.

In June, Zilhão, now at the University of Barcelona in Spain, scored a key point in this debate: He and colleagues reported in *Science* that paintings from at least one Span-

ish cave might predate the modern human occupation of Europe, making Neandertals the possible artists (15 June, p. 1409). For Zilhão, however, “possible” is not enough. The new dating, he insists, “implies a strong probability of Neandertal authorship.”

Such strong statements have become Zilhão’s trademark and make him a formidable foe in what some researchers call the “Neandertal wars,” the scientific debate over Neandertals’ intelligence and taxonomic status. Zilhão’s dogged insistence on the logic of his case makes him “a tough person to argue with, ... the kind of researcher that can be frustrating and even aggravating at times,” says fellow Neandertal defender, paleoanthropologist Erik Trinkaus of Washington University in St. Louis, Danforth.

Even Zilhão’s opponents agree that he is a force to contend with. He is “a top-notch archaeologist,” says archaeologist Harold Dibble of the University of Pennsylvania. Zilhão’s advocacy of close biological and cultural similarities between Neandertals and modern humans “has changed what we have to think about,” says archaeologist Iain Davidson of the University of New England in Armidale, Australia.

Into the caves

Zilhão was born in Lisbon, the son of an engineer father and a psychiatrist mother, and grew interested in history, archaeology, and politics early on. When he was young, Portugal was still in the grips of the fascist dictatorship of António de Oliveira Salazar, and like many of his peers, Zilhão spent his youth protesting against the regime, which

Where it all began. Zilhão found 30,000 years of Neandertal occupation in Portugal’s Gruta da Oliveira.

ended in 1974. He traces his rebellious nature and his sympathy for the underdog to those turbulent days.

At 14, he began visiting caves with the spelunking club at his high school. Because Portugal had no undergraduate archaeology degrees at the time, he studied economics at the University of Lisbon, but soon switched to history and spent summers volunteering on archaeological digs in Portugal and France, biding his time until graduate school at the university. For his 1200-page archaeology Ph.D. thesis, Zilhão synthesized the little-known Upper Paleolithic of Portugal, the heyday of prehistoric modern humans.

Portugal was still “peripheral” to mainstream archaeology in those days, Zilhão says, which gave him independence: “I didn’t have an old man telling me what I had to do and how I had to think.” Zilhão first worked as a professor at the University of Lisbon, where he successfully campaigned against a dam that would have flooded hundreds of rock art engravings in Portugal’s Côa Valley.

Then his team found Neandertal tools, hearths, and fossils dating from 65,000 to 35,000 years ago at Oliviera, making them among the latest surviving Neandertals—consistent with other evidence that Portugal and Spain served as a “refugium” for the last Neandertals.

In 1996, Zilhão entered the Neandertal wars in earnest. For decades, researchers had argued about the authorship of an Upper Paleolithic culture called the Châtelperronian, found largely in France and characterized by personal ornaments made of animal teeth and ivory rings. That year, a team led by anthropologist Jean-Jacques Hublin, now at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, published a pivotal paper in *Nature* concluding that the Châtelperronian had been made by Neandertals. But Hublin’s team concluded that the ornaments were the result of “acculturation” with modern humans, meaning that the Neandertals had either imitated modern human behavior or even gotten the ornaments through exchange or trade.

Zilhão was outraged. “This was an extraordinary conclusion,” he says. He saw it as a sign of bias against the Neandertals, an assumption that they were not capable of inventing the ornaments themselves. In 1998, Zilhão, archaeologist Francesco D’Errico of the University of Bordeaux in France, and others published a long paper in *Current Anthropology* challenging

the acculturation model and arguing that Neandertals had invented the Châtelperronian independently.

The paper rekindled a fierce and long-standing controversy over just how different Neandertals and modern humans really are, a debate whose flame has not yet dimmed. “This is an old debate and quite cyclical,” Dibble says. “At times the Neandertals have been considered to be a branch of stupid, stoop-shouldered hominins. ... Then the pendulum swings and they are considered to be exactly like us.”

Zilhão has continued to try to push the pendulum back, arguing vehemently against the acculturation model and insisting that Neandertals and modern humans are the same species and that they intermixed extensively. For example, in a 2010 paper in the *Proceedings of the National Academy of Sciences*, Zilhão and Trinkaus argued that the teeth of a child from the Lagar Velho rock shelter in Portugal show hybridization between moderns and Neandertals. Recently, the two have argued that the oldest undisputed modern human fossil in Europe, a roughly 40,000-year-old skull from Romania, bears some Neandertal features.

Zilhão sees the recent finding that many living people harbor between 1% and 4% of Neandertal DNA as vindication of this position. “That doesn’t mean that there was only 1% to 4% admixture back then,” he

Although some consider Zilhão biased, he accuses others of prejudice against Neandertals, recently commenting that some colleagues are on a “mission from God” to give modern humans credit for the Neandertals’ cultural accomplishments (*Science*, 1 June, p. 1086). And he insists that his viewpoint is gaining ground. “Twelve or 15 years ago, people like myself ... were in the minority, but now ... I don’t know a single individual actually involved in [Neandertal] research in Spain, Portugal, or France who thinks Neandertals were dumb or had inferior cognition to modern humans.”

Straw man?

But Zilhão’s critics are not swayed. They counter that Zilhão and his colleagues have created something of a straw man, because few serious researchers argue that the big-brained Neandertals were stupid. Neandertal



Symbolic species. Neandertals made this 40,000-year-old painted jewelry from the Antón rock shelter of Spain.

is less sophisticated than that of moderns. He and others see Neandertals and moderns as distinct species that were separated for hundreds of thousands of years. “Denying any form of biological differences [between them] is a sort of creationism,” Hublin says, an argument that “rejects the very phenomenon of evolution.”

And Hublin insists that Zilhão is the one who seems to be on a mission. “Those who are on a mission from God ... are those who try to deny any evidence not matching with their personal crusade,” Hublin says. “The latest debates on Neandertal abilities are one of the worst examples in which ideological issues have overshadowed scientific evidence.”

Dibble questions what he sees as an implicit tenet of Zilhão’s position, “the belief that it would be somehow insulting to the Neandertals to conclude that their behavior is not like ours.” Rather, he says, they used different kinds of adaptations to survive. “Neandertals were around for 250,000 years. That’s pretty successful, and better than we’ve done so far.”

Trinkaus says that both he and Zilhão have been “repeatedly accused” of being “politically correct” where Neandertals are concerned—treating them as a Stone Age minority group in need of affirmative action. But that’s a charge he rejects. “João is, and will remain, controversial,” Trinkaus says. “But over the past decade he has contributed more of substance, and more ideas, to [Paleolithic] archaeology than any other active participant. His legacy is already being felt, and he has many years ahead of him.”

—MICHAEL BALTER



Just like us? Zilhão and like-minded colleagues argue that Neandertals and modern humans belonged to the same species and were equally smart.

argues, “but it’s 1% to 4% of our genes today, 40,000 years after the fact.” He also argues that he already has produced the smoking gun on Neandertals’ symbolic abilities: jewelry, including ochre-painted shells, from sites in Spain dated as early as 45,000 to 50,000 years ago, earlier than the first accepted dates for modern humans in Europe (*Science*, 15 January 2010, p. 255).

acculturation during the Châtelperronian had “nothing to do with inferiority,” Hublin says. Cultural diffusion between groups “is one of the most common and well-documented phenomena in the ethnographic and historical record.” He and others see key differences in the skeletons and archaeology of Neandertals and modern humans—for example, Hublin says, the claimed Neandertal jewelry