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## **Q&A with Ludovic Slimak, the archeologist who wants to rewrite the history of early humans in Europe**

Nathalie Sauer, Ludovic Slimak

*The French archaeologist Ludovic Slimak has spent the past 30 years rummaging fields and caves from the Horn of Africa to the Arctic Circle, and, of course, his beloved Rhône Valley in France. For the past year and a half, his team of 45 researchers have been on a roll, publishing paper after paper on early humanity's history between 54,000 and 42,000 years ago. All in the scientific community recognises his work's ambition, but some also regard it as controversial. The Conversation caught up with him by phone to his home in the Pyrenees mountains. He talked Homo sapiens, flints and responded to his critics.*

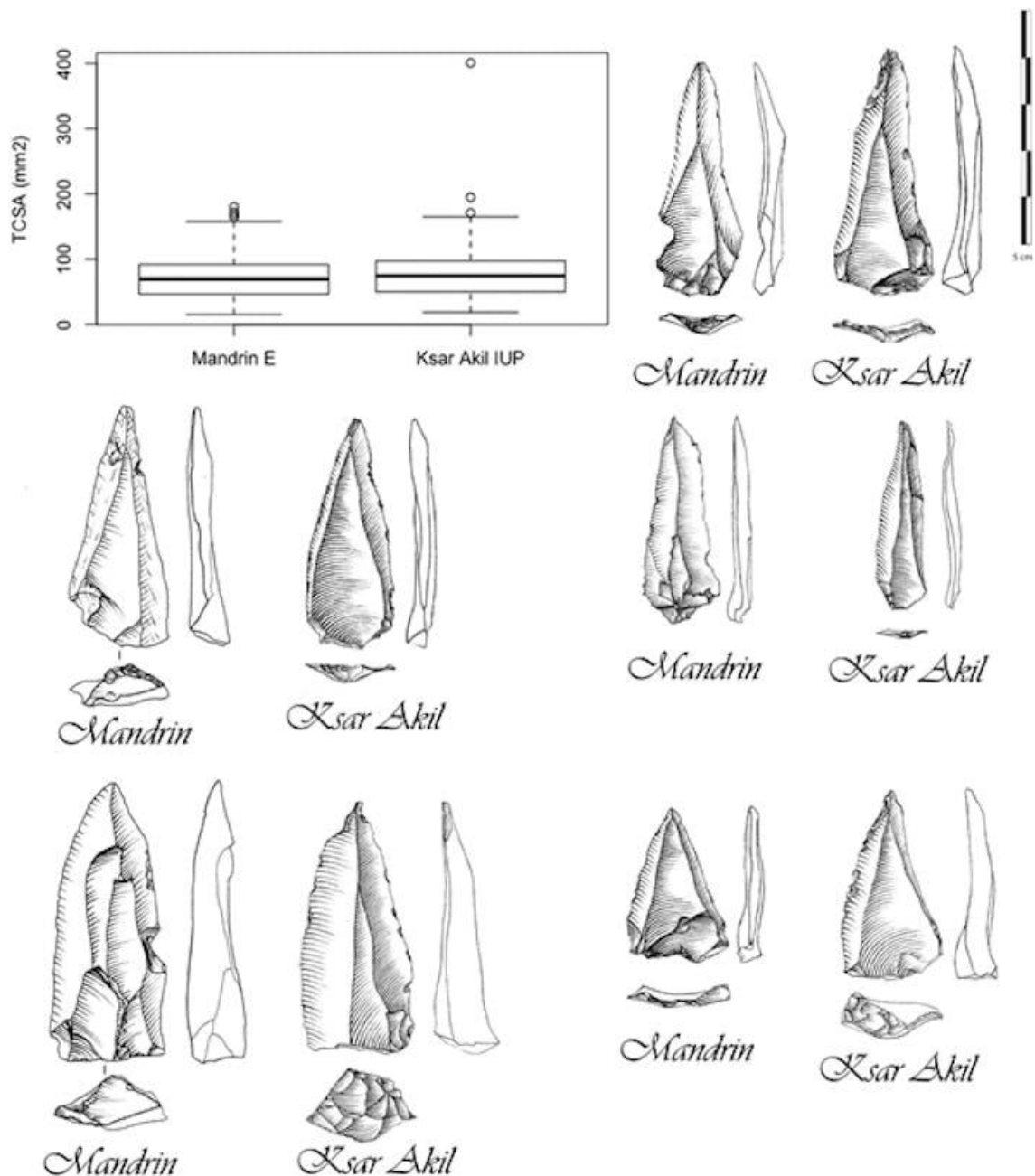


Ludovic Slimak. Laure Metz, Author provided (no reuse)

**Natalie Sauer: In early May, you published a potentially groundbreaking paper claiming that Homo sapiens had not colonised Europe in one, but three distinct waves between 54,000 and 42,000 years ago. According to this viewpoint, each migratory wave yielded its own archeological culture: the Neronian (54,000 years ago), the Châtelperronian (between 45 and 46,000 years ago) and the Proto-Aurignacian (42,000 years ago). Could you start off by unpacking the study's findings, and then situate it within the context of your research in recent years?**

Ludovic Slimak: The [paper of 3 May](#) explains that what we thought to be the first wave of colonisation of Sapiens from the Near East to Europe was in fact the last of three waves. In the process, Homo sapiens interacted intermittently with the Neanderthals over thousands of years. It's a large view of continental Europe till the Eastern Mediterranean coast, which claims that we have missed something huge and what we saw in the Rhône Valley is only the visible tip of misunderstandings on the early Sapiens' presence in the continent.

These findings could not have been possible without the other papers we have published in the past year and a half. The first one, ["The Modern Human Incursion in Neanderthal Territories"](#), shows that we find Homo sapiens in the Rhône Valley as early as 54,000 years ago, while we thought that for all continental Europe, Homo sapiens would have come by 45 to 42,000 years ago. We published another major paper, ["Bow and arrow technology of the first modern humans in Europe"](#), that gives the technical and cultural context of these societies. Again, we claim the bow and arrow technology emerged 40,000 years earlier in Eurasia than was previously estimated.



Flint points from Grotte Mandrin in France and Ksar Akil in Lebanon. Drawings and measurements by Laure Metz and Ludovic Slimak, Fourni par l'auteur

**You reached those conclusions of the first paper by comparing flints between Grotte Mandrin, France, and Ksar Akil, Lebanon, and chancing upon one very special molar.**

Yes, we researched thousands of lithics that came from both the Rhône Valley and the Levantine region in the eastern Mediterranean coast, the [Ksar Akil site](#).

When I opened the boxes of artefacts from Ksar Akil in Harvard, I realised suddenly that it was precisely what I call the Neronian in the Rhône Valley. All the technical process, all the phases of production of this point, were precisely the same in both sites, in the same chronology. It is the similar phases in tool technologies from both regions that led me to believe they were spread from the Near East to Europe during three distinct waves of

colonisation. This precise community of knowledges and traditions induced that the Neronian was in fact the archeological indication of a very early migration of Sapiens in Europe, far before expected and I published these conclusions in 2017.

Some years later we then analyzed and published the 9 hominin teeth we found over 30 years in Mandrin. They come from different phases of occupations of the cave spanning 42,000 to 120,000 years. At this age, all these teeth should have only been from Neanderthals. But this was not the case. Then one day in 2020, as Clément Zanolli from the French research centre CNRS was halfway through reviewing the data of the collection, the figures from a broken molar jumped out at him: “Oh, this tooth is fascinating,” he thought, “It’s not Neanderthal. It’s an archaic homo sapiens, an ancient of Homo sapiens.”

To confirm this hunch, our team used a very high resolution, micro-CT scan, and then ran statistics on the teeth. According to Clément Zanolli, we are a hundred percent sure that it’s a homo sapiens and not a random Homo sapiens – an archaic Homo sapiens.



The two archeological sites of Ksar Akil (left) and Grotte Mandrin. Photography of Ksar Akil kindly provided by the Peabody Museum, Harvard University, 998-27-40/14628.1.30., Author provided (no reuse)

**Let’s turn to the Grotte Mandrin, one of the key witnesses of Sapiens’ early colonisation of Europe. Could you describe it for us? And as an archaeologist, could you tell us about the first time you stepped into it and what your impressions were?**

Well, we call it Grotte Mandrin, which means cave. But it’s not a cave, it’s a rock shelter. This accounts for its very good preservation. When you are in a cave, you usually struggle with preservation. But in this case... It’s a vaulted rock shelter that opens to the north that

overhangs the Rhône Valley. And what is very important from an archaeological perspective in the Rhône Valley is its very strong, cold, Northern wind - the Mistral.

The Mistral was already blowing in the time period I research. Back then, the climate in Europe was Polar, so there were no trees and very little vegetation. When the Mistral blew, it took the sand and the silt from the river in the Rhône Valley and cast it in the rock shelter, depositing it year after year.

I like to say it's like Pompeii but instead of a catastrophic event, we have sand and silt. And instead of one event, we have 12 events: 12 major archeological periods in the site that range from a climatically very warm period, the last interglacial, to the extinction of Neanderthal 42,000 years ago.

The first time I went there was in 1998. I was a 25-year old young man, and had been invited by the team that had just began to work there. I wanted to devote my PhD to this collection, which stood out because all other archeological sites in the region had been excavated 50 or 100 years before with pickaxes. This coarse excavation method, which was commonly deployed back then, had two effects: on the one hand, it prevented archaeologists from landing upon finer artefacts, such as flint arrowheads and all tiny flint byproducts, essential to understand these ancient crafts. On the other, it also blended distinct materials that had nothing to do together.

The Mandrin site, by contrast, was something untouched and unique - unique from anything I had seen before and anything I have seen since.

**Your research suggests Neanderthals and Sapiens coexisted intermittently for thousands of years. What do you believe their relations were like?**

In the first wave dating back to 54,000 years ago, what we see in Grotte Mandrin is that the Sapiens population must have stayed for one generation, something like 40 years. They are in Neanderthal territories, but they won't stay there for 12,000 years. After that, we will have other Neanderthals. The question of their relation is something fascinating, because when you have a look at the DNA of any early Sapiens in Europe, we see that all these early Sapiens have Neanderthal DNA. But if we focus on the last Neanderthals, we realise that there's not a single Neanderthal with a recent Homo Sapiens DNA.

What happened? Why do we have all Sapiens in Europe with Neandertal DNA and not a single Neandertal have Sapiens DNA? So we know from Claude Lévi-Strauss' *Elementary Structures of Kinship* that the question of the reproduction of societies is not a question of love. It's a question of exchanges and alliances between populations. So that means that when two groups meet, it's very important for them to exchange genes. And we know from DNA how they do it, it's universal for both Neanderthal and Sapiens: through female mobility. That means: "My sister will go in your group, but your sister will come in my group". And like that, we will build an alliance - we call this patri-locality. But if your sister comes in my group, my sister will have to come in yours. I can't have your sister in exchange of flint or 10 horses.

What I explain in [\*I Love You, Me Neither\*](#), is that in the case of the Sapiens and Neanderthals, it's: "You give me your sister, but I don't give you mine". This is rare, but it happens. One possible instance when we see this is when there's a total war between populations, and one

group is going to seek to destroy another group. But in fact, it's not really a genocide, because when that happens, traditionally what they do is that they keep the children and the women, and then they have children with these women.

Another scenario could have been that these two populations had very good relations, where you're happy when you see fresh blood coming because you are very tiny group, very isolated, and suddenly you see a new group and say: "Oh, there's fresh blood coming" - and that's very good news.

And the two populations certainly tried to exchange genes, but we know from DNA that Sapiens and Neanderthal were separated by 300,000 to 500,000 years of genetic distinction and what we call their inter-fecundity was very partial. This means that if they had children, for example, those children could be boys, sterile or not able to survive. So I would say it's very likely that the two populations met and tried to exchange genes in Europe, but that only worked very partially.

**Given that Sapiens boasted technical superiority, notably bows and arrows, why do you think they took so long to take root in Europe?**

Well, I don't know if Homo Sapiens enjoys a technical superiority over Neanderthals, but their tools are certainly more efficient. Objectively, the bow and arrow is more efficient than a spear on many points, and we know that by all data from ethnography.

But I think the question of weapon is not at all the question of why a population is able to stay on a territory. And I think that the main question when a population arrives on a territory is: "What other social relations will I be able to build?"

We are not dealing with a total war between Neanderthal and Sapiens. I think we are dealing with interrelations between humanities that did not work out at the end.

I would also like to add that while Sapiens' tools may be more efficient, Neanderthals' are more singular. If you take crafts from Homo Sapiens, for example, 100 tools or 100 flints from 50 to 100,000 years ago, the 10,000 tools or flints after will be exactly the same. The population has a very clear project in their mind and regardless of the natural geologies, the environment, the climate, they reproduce the same thing. But if you take a Neanderthal tool in comparison, and then you analyze a million after that in the same layer, in the same societies, they are all completely different. Each tool is a specific creation. There's an incredible creativity among Neanderthals. And there's also a total absence of standardization that we find in our ancestors and in our contemporary societies.

Ultimately, what this shows and what I try to show in my two last books, [\*The naked Neanderthal\*](#) and [\*The Last Neanderthal\*](#), is that we have projected all our fantasies on that humanity, saying: "Look, we have been racist, in fact, Neanderthals are just like us". But the 30 years I have spent in caves and the millions of flints I have seen tell a different story. It's not at all a humanity that is like us.

**While your scientific colleagues recognise your research as ambitious, not everyone is convinced. You said that there was 100% certainty about the identification of that broken molar, but others will say that it could also be an shaped tooth of a young Neanderthal. Likewise, some are sceptical that the sophisticated tools that we found in**

**the Grotte Mandrin, the Châtelperronian tools, were the handicraft of modern humans and not the Neanderthals. What is your answer to them?**

The French historian, Emmanuel Todd, once said he was very disappointed when he was young because he thought ideas went on to die in intellectual fights. You know, you have a huge fight and an idea will win and the other will die. In the end, he realised the idea dies with the person who carries it.

So we won't change the ideas of the person who worked for 40 years or 50 years on the question. You know, the structures of the upper Paleolithic (between 50,000 and 12,000 years ago) were last defined by the abbey Breuil in 1906 and so there was no major change for 120 years. I'm not waiting for all researchers to say: "Well, it's fantastic you changed everything".

What is very important to respond to, for example, is the objection that the research is not clear and only based on one tooth. Well, no, it's not only one tooth, it's millions of flints.

And even if we did not have any hominin remains, we would be able to identify these artefacts as Sapiens'. Like, for example, for the Aurignacians (35,000 years ago) or the Proto-Aurignacians (42,000 years ago), we did not have any teeth for years. Now I think we have two or three for all Europe and in the Levant we have two or three very isolated teeth, but before we find these teeth everybody was happy and was saying: "Well, it's clear it's absolutely homo Sapiens because we have this connection with the Near East."

As for what the paper of the three waves tried to explain, we must see that as a very general overview, and at the scale of the Western Eurasia - not something at the scale of the Rhône Valley or of one tooth. It's a major historical event and we must see it at this scale.