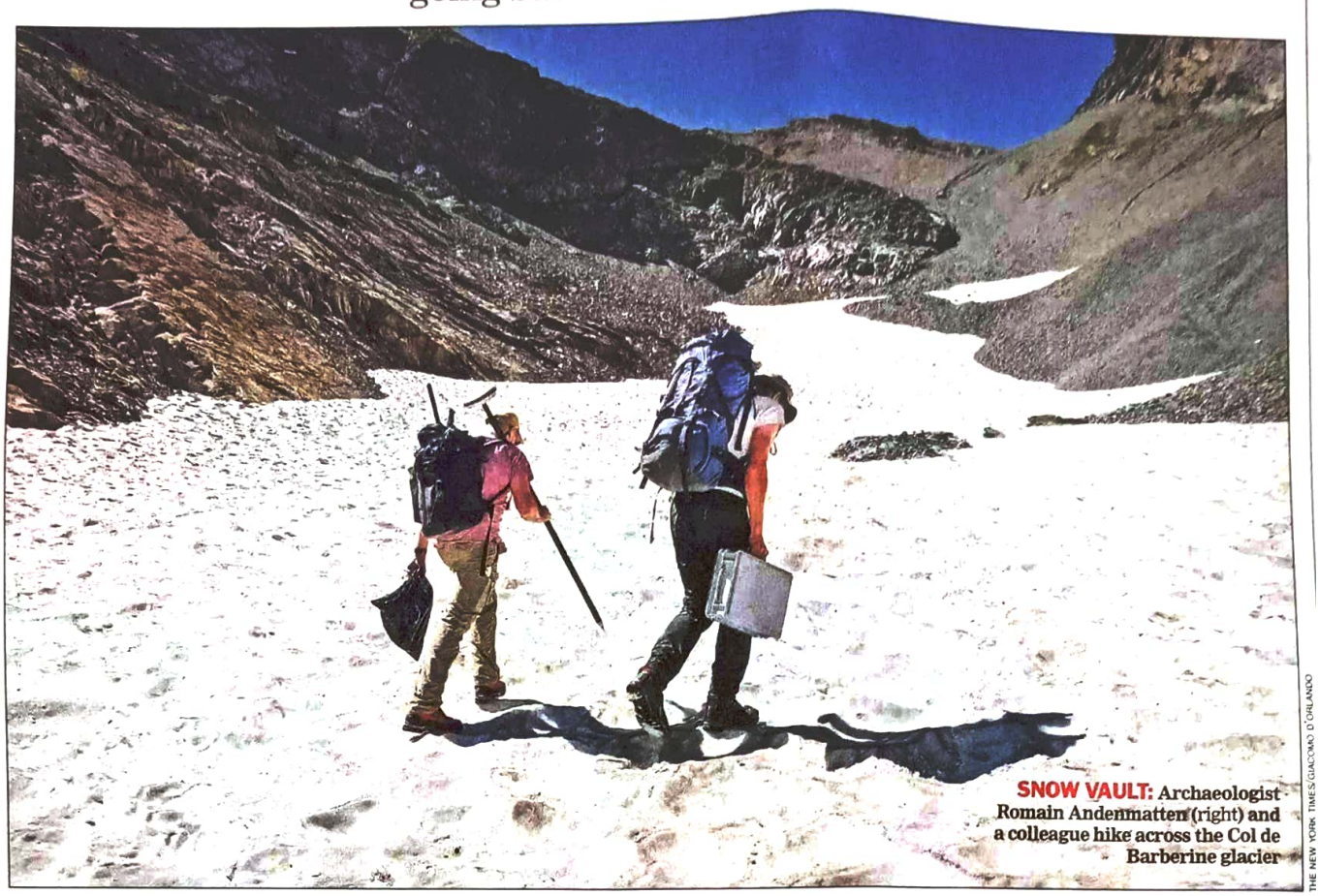
Raymond Zhong on how melting glaciers are revealing tools, garments and human remains, all of which tell a nuanced story going back thousands of years



SNOW VAULT: Archaeologist Romain Andenmatten (right) and a colleague hike across the Col de Barberine glacier

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Secrets of the Alps

The Alps are losing ice faster than almost anywhere on the planet. And, as the glaciers and ice patches disappear, they are releasing secrets that had been locked away for millenniums.

Secrets like an enigmatic, 2,500-year-old ski that melted out of a strip of dying Swiss ice.

On a bright morning, Romain Andenmatten, a 42-year-old archaeologist, was exploring the paltry remains of the ice at a mountain pass called Col de Barberine when he spotted a three-foot-long slat of greyish wood, nestled between rocks.

Three years ago at this same pass — elevation 2,481 metres — Andenmatten found a similar plank, also with a tapered end suggesting a ski or snowshoe. Carbon dating revealed it to be from the fifth century BC, when, on a certain day in the Iron Age, its owner might have lost his footing. Now Andenmatten wondered whether he'd found the second of the pair. It would be the latest in a growing trove of tools, garments and human remains that archaeologists have recovered from the Alps' shrivelling ice.

Between a winter of little snow and a summer of broiling heat, this year has been another devastating one for Switzerland's glaciers. They have shed nearly 20 per cent of their volume over the past five years, scientists said last month. At the current pace of global warming, 97 per cent of today's glaciers in the Alps could be gone by this century's end, posing big challenges for the millions of Europeans for whom that ice is a vital reserve of water in dry years.

In much of the world, it's mostly stone, metal and pottery that survive from ancient times. Not in the Alps, where the ice has preserved organic materials — leather, wood, textiles, body parts — that can tell a richer, more human story about the past.

"The Stone Age was not really a stone age," said Regula Gubler, an archaeologist for the Swiss canton of Bern. "Most of what people used and wore was made out of organic materials," she said. To find the leather shoes that protected their feet, the baskets of woven lime bark they carried into the mountains, "that's just really special", Gubler said.

The objects that have welled up out of Switzerland's ice span the ordinary to the beguiling.

> The icy mountain passes apparently bustled with traffic: hunters, herdsmen, traders bearing barrels of wine on mules

A fragment of an elm wood bowl from the fifth millennium BC, long before the pyramids of Egypt and Stonehenge. A birch bark quiver with two flint arrowheads tucked inside, from around 2,800 BC. A two-foot statuette sculpted from larch, with a human figure at one end and a sharpened point at the other from the last two centuries BC, its purpose unknown.

Such discoveries are challenging old ideas about how early societies interacted with the alpine environment. Far from being forbidding, off-limits zones, the icy mountain passes apparently bustled with traffic: hunters, herdsmen, traders bearing barrels of wine on mules. Nor, evidently, did early populations limit themselves to the gentlest routes. Their preferred paths between valleys seem to have been the shortest ones, never mind the steepness or the elevation.

There's an urgency to the archaeologists' work. Once organic materials are defrosted and exposed, they decompose quickly, or are snatched up by private treasure hunters. In 2024, police and archaeological authorities in the canton of Valais seized a collection of 11,000 artefacts, including coins, tools and decorative objects from as far back as the Bronze Age, and questioned a man for using a metal detector to scavenge them without permission.

Archaeologists in Valais are maximising their eyes on the ground with an app, IceWatcher. Anyone — hikers, shepherds, crystal collectors — can use it to report potential finds.

It was through IceWatcher that Andenmatten, an archaeologist for Valais' cantonal government, heard in 2024 about some fragments of wood in an ice patch. He hiked up to a crossing called Restipass and collected some pieces that he later dated to the Bronze Age, making them perhaps 3,000 years old. Some might have been stakes in the ice that marked paths for travellers and warned of crevasses. Others might have been pieces of a sled or scraps of firewood.

Now, he and a colleague, David Gucker, were going back to see what this year's sweltering temperatures had uncovered.

They drove up switchback roads and hiked for two hours through steepening alpine meadows. Finally, they clambered up to the pass and got a shock — the ice was all but gone. When Andenmatten was here two years ago, it had carpeted the slope where they stood. Now it was barely an icy area rug, leaking streams of water. He and Gucker scoured the gravel and stones. They were well above the tree line, so any wood here had to have been brought by humans. The question was when: five years ago or 5,000?

Something caught Andenmatten's eye: two slender pieces of wood, with smooth, squared-off edges. Delicate tree rings ran through them like flaky layers of mille-feuille pastry. He rotated the pieces this way and that. It wasn't obvious that they'd fit together. But miraculously, they did, and with that they transformed from lifeless fragments into an implement, made by human hands. "Really nice, this piece," Andenmatten said, before tucking it into a plastic bag.

The next day, Andenmatten hiked into the mountains again, to Col de Barberine. There, he found the possible second ski. "The thing that is for me spectacular is that it's conserved," Andenmatten said — that an accident of nature has allowed this modest object to speak across the ages.

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