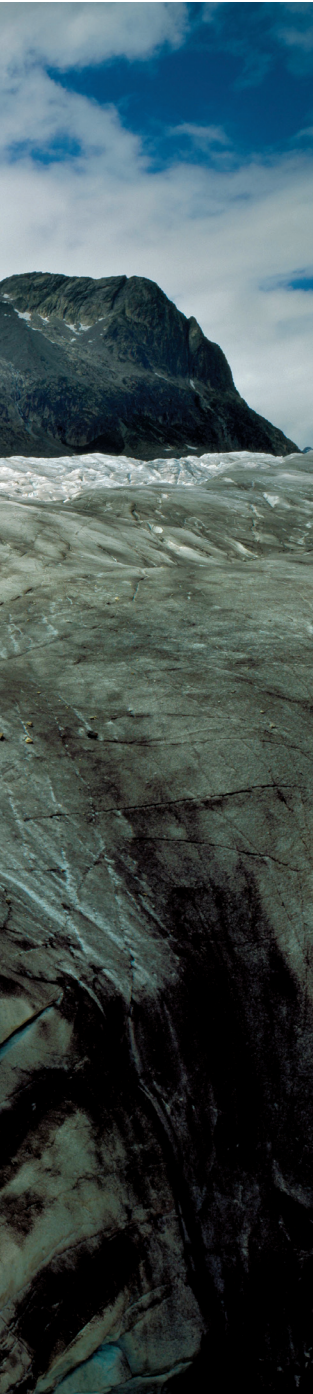




STUART FRANKLIN/MAGNUM PHOTOS

# OUT OF THE FREEZER





As glaciers melt and ice thaws, a hidden and surprising world of ancient human activity is revealed, says Laura Spinney

**T**HE summer of 2003 was the hottest in Europe for 500 years. On the remote Schnidejoch pass, 2750 metres above sea level in the Swiss Alps, an ice patch shrank by half its volume, leaving a wooden object high and dry. When hiker Ursula Leuenberger came across it, she realised it had no business there, so far above the tree line, so she picked it up and handed it over to the local archaeological service. It turned out to be part of a Neolithic arrow quiver, almost 5000 years old.

Since then, archaeologists have found more than 800 artefacts in the vicinity of the pass. Schnidejoch links the Simmental valley to the north with the economically important Rhône valley further south, and the discoveries indicated that humans have used it for at least 6000 years: in the Middle Ages and Roman period, through the Iron and Bronze Ages, and back to the Neolithic. That was a big surprise. “There are several large volumes on prehistory in Switzerland, and they completely exclude the Alpine regions,” says Albert Hafner at the University of Bern, Switzerland. People were not thought to have been at home in the mountains until much more recently.

The Schnidejoch discoveries have prompted a shift in the way archaeologists look at high places. With archaeological material flowing out of melting ice on several continents, not only at high altitudes but also at high latitudes, that shift is picking up speed. Glacier archaeology, as the field is called, has been referred to as the silver lining in the cloud of global warming. Like underwater

archaeology, it is exposing a dimension of humanity’s past that had been almost entirely neglected; one that has the potential to profoundly influence our understanding of our ancestors.

But it is a race against time. As soon as organic material melts out of the preserving ice and is exposed to the elements again, it starts to decay. “It’s like this glimpse into a freezer that’s been left open for a couple of weeks,” says Craig Lee at the University of Colorado, Boulder. “You might find a few jars of fruit that are still viable, but the rest is gone.” The sheer amount of material now in this precarious condition – Swiss glaciers, for example, have lost a third of their volume since 1860 – means that archaeologists simply cannot reach it all in time, not least because it is often inaccessible outside the narrow window of summer at these altitudes. It’s a case of triage, says Lee.

The first inkling that mountains might have more to add to the human story came in 1991 with the discovery of a mummified body, Ötzi, in the Alps between Austria and Italy. Glaciers regularly disgorge human remains but these tend to be just a few centuries old (see “Not so ancient history”, page 38). Frozen for 5300 years, Ötzi was exceptional. Unfortunately, he was also a one-off, and scientists could glean only so much from him about the society to which he belonged.

Ötzi’s extraordinary preservation did provide an important pointer to the nascent field of glacier archaeology, however. He died at the edge of a glacier, rather than in it, where his remains would probably have been torn apart by the inexorably moving river of ice. Researchers realised that if they were to find more evidence of our ancient past, they would need to direct their efforts towards static patches of ice rather than moving glaciers.

You might think that finding an ice patch harbouring hidden treasure would be like finding a needle in a haystack, but aerial imagery can make it fairly straightforward – once you know what kind of ice patch to look for. “It should be flat, ideally in a small depression – a small frozen lake perhaps – about 2500 to 2700 metres above sea level, ➤

Flowing glaciers tend to grind up any human remains within them

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