Melting ice and a high altitude dig reveal Viking secrets in Norway

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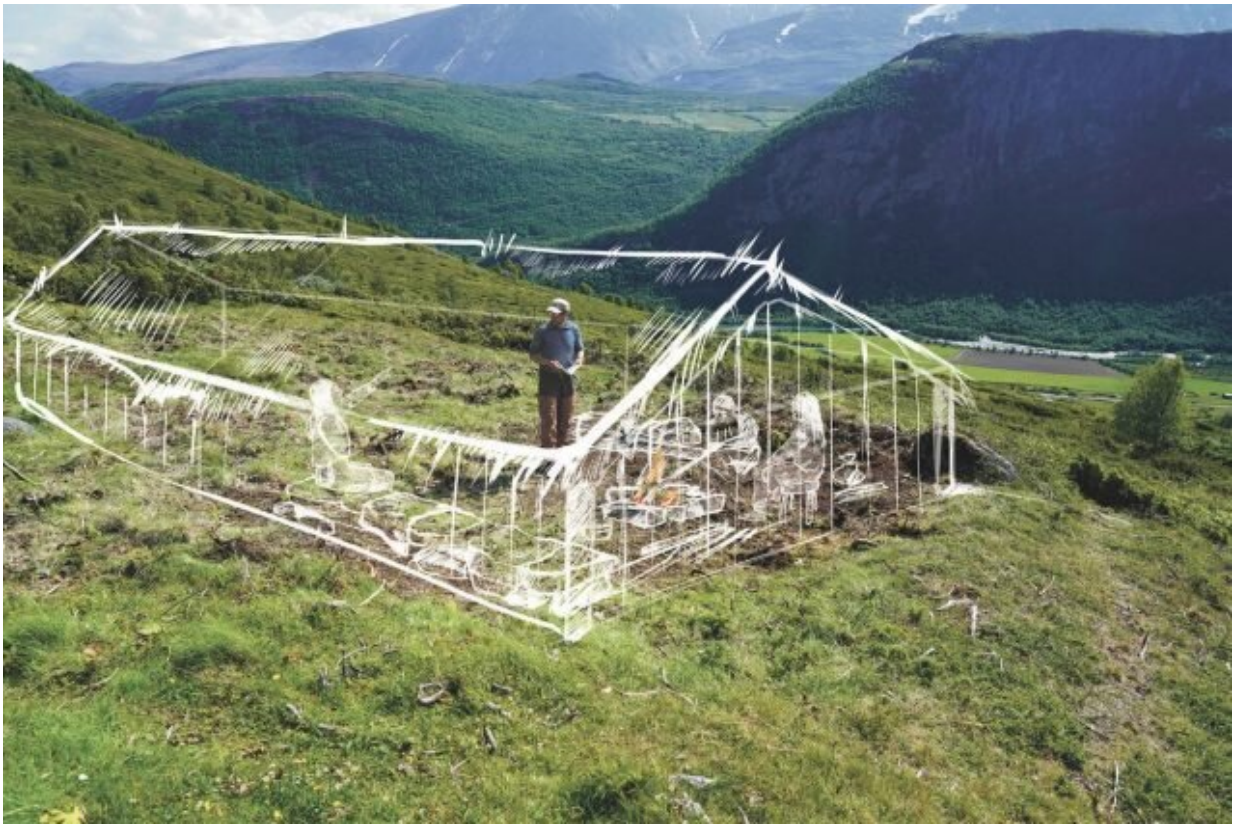

A proposed digital reconstruction of one of the ancient Viking homes, featuring Secrets of the Ice team member Elling Utvik Wammer. Credit: *Secrets of the Ice*. Illustration: Espen Finstad/Hege Vatnaland

The summer of 2011 was unusually hot for southern Norway. Where

high mountain passes had been choked with snow and ice in previous years, surveyors and team members of the acclaimed Secrets of the Ice project found only jumbled talus and meltwater. Picking their way through the boulders that covered the ice-free Lendbreen pass, the crew soon realized they had walked into a vast archaeological treasure, one that had stayed frozen for a thousand years. They began to collect countless tools, artifacts and weapons—items that had once been in the possession of Vikings.

After receiving international attention for their discovery, the crew decided to return to Lendbreen this summer in search of deeper answers. Questions remained, such as what purposes had occupied these alpine travelers and where they had been traveling. In search of understanding, team members ventured across and beyond the Lendbreen pass, which over the years has revealed clothing, household items, sleds and animal remains, among other artifacts. Ancient cairns, which marked a trail down the mountainside from the pass, figured in folk legend—18th century lore told of much older settlements on this hillside, homes that predated the available records of history even 300 years ago. With persistent searching came the breakthrough. Cutting through dense bushes, the team discovered multiple stone foundations that had once supported wooden dwellings many centuries ago. Radiocarbon dating placed these homes between the years 750-1150 CE.

Lars Pilø is a glacier archeologist who spearheads the Secrets of the Ice project, a cooperation between Innlandet County Council and the University of Oslo. Speaking to GlacierHub, Lars noted how there is still little knowledge of how the Vikings used these high mountain passes and whether their main purpose was herding livestock, travel or trade. "The artifacts melting out of glacial ice are a new and very important source of data to shed light on these issues. They show that the high mountains of southern Norway were not remote areas, devoid of outside contact." The truth is quite the opposite—the evidence collected by Secrets of the

Ice team shows that the ancient people using these alpine passes had contact with the wider Viking world.

The team performed small excavations within some of these stone foundations below Lendbreen and found charcoal in the center of each footprint—evidence of hearths containing carbon-rich material that allowed the homes to be accurately dated. Evidence recovered from melting ice at higher elevations was even more varied: the expansive list from the nearby Digervarden ice patch in Reinheimen National Park included arrowheads from both the Iron and Bronze Ages, indicating the continued importance of hunting in this period of raising crops and herding livestock, as well as a wooden ski from the 8th century CE with its binding intact (one of two such prehistoric items to ever have been found).

The acquisition of this evidence also holds grim implications, since such discoveries are enabled by climate change and the rapidly melting ice that is now relinquishing these ancient artifacts. According to the Center for International Climate Research (CICERO), 326 square kilometers of Norwegian glaciers have disappeared since the mid-1980s, with the total area covered by glaciers decreasing by 11% in the last 30 years.

Archaeologist Runar Hole holding the 8th century Digervarden ski. Credit: *Aud Hole, Secrets of the Ice*

Mark Aldenderfer, a recognized expert in high-altitude archeology and distinguished professor emeritus at UC Merced, spoke to GlacierHub on the implications climate change holds for these unique sites. "I think that for the foreseeable future the ice will be melting at an increasingly rapid rate, and that archaeology should take advantage of this," he noted. His argument for investigation instead of avoidance is predicated upon the unfortunate truth that limited conservation efforts exist that would be effective in keeping these small patches from melting. He added that "we can only hope that governments and others will work to stabilize greenhouse gas emissions for the sake of the entire planet."

Pilø echoes this stance, asserting that "our job is to try to rescue the archaeological finds that emerge from the melting ice." In fact, the time frame for recovering these artifacts is highly limited. Their organic composition makes them vulnerable to disintegration and decomposition, meaning that if items are not found soon after they are freed from the ice they will likely be lost forever.

The work is not without its emotional toll, and he emphasizes that it makes a "deep impression" to witness such rapid melting of mountain ice and glaciers. "Collecting pieces of human history as they appear in a reverse time order from the retreating ice is a job one cannot do without a deep sense of foreboding." He added that they keep the carbon footprint of the program low, which often means avoiding the use of helicopters and transporting heavy equipment to higher altitudes on foot (though sometimes with the aid of pack horses).

With a total of 63 sites as of 2021, and about 100 additional candidates, the Secrets of the Ice program is not slowing down. All of these locations are ancient reindeer and caribou hunting grounds and two of them are lofty mountain passes, one of which is Lendbreen. The fact that prehistoric communities lived and hunted in these areas combined with lingering ice that preserved their lost artifacts gives the sites significant archeological potential.

According to the Norwegian Centre for Climate Services (NCCS) Climate in Norway 2100 report, large glaciers are projected to lose a third of their total area and volume by the end of this century. Smaller glaciers are anticipated to disappear entirely, except at the very highest altitudes. Pilø is grimly unfazed. "There is still a ton of work to do."

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