



Vikings May Have Used Polarized Crystals to Navigate

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By Corey Binns



Vikings navigated the oceans with sundials aboard their Norse ships. But on an overcast day, sundials would have been useless.

Many researchers have suggested that the on foggy days, Vikings looked toward the sky through rock crystals called [sunstones](#) to give them direction.

No one had tested the theory until recently.

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A team sailed the Arctic Ocean aboard the Swedish icebreaker Oden and found that sunstones could indeed light the way in foggy and cloudy conditions.

Would have worked

Crystals such as [cordierite](#), calcite or turmaline work like [polarizing filters](#), changing in brightness and color as they detect the angle of sunlight.

From these changes, Vikings could have accurately determined where the polarized sky light was coming from and pinpointed the direction of the sun, said biophysicist Gabor Horvath.

"Under foggy or cloudy conditions, a Viking navigator could have guessed the position of the sun hidden by clouds or fog by determining the sky light polarization in two celestial points ... and could have guessed the position of the invisible sun," said Horvath, of Eotvos University in Budapest. "Although all these are pure hypotheses, researchers can test the scientific possibility of such a [polarimetric navigation](#)."

In previous studies Horvath and colleagues demonstrated that Vikings might have required some kind of device, other than just the naked eye, to accurately guess the position of the sun on cloudy days.

Their latest findings, published in the April issue of the journal [Proceedings of the Royal Society A](#), suggest that if Vikings were to have sunstones onboard, the Norsemen could have used them to determine where to go.

Lack of evidence

Unlike with Viking sundials, archaeologists have yet to find any remnants of sunstones.

The sunstone theory was first proposed in 1966 by the Danish archaeologist Thorkild Ramskou. Yet the only hint that Vikings used sunstones comes from a mention in a Viking legend, known as a saga.

"Although there is neither archaeological, nor historical evidence supporting this theory, it is so nice and splendid that it can easily trap the fantasy and imagination of both professional and amateur scientists," Horvath told LiveScience.

Along with Vikings, birds and butterflies are also thought to use polarized light to orient themselves, along with

other cues such as the planet's magnetic field.

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