# Scotland lunar-calendar find sparks Stone Age rethink

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Archeologists have discovered a lunar calendar in Aberdeenshire, Scotland, that is nearly ten thousand years old. Their findings show that the calendar makers (1) thought about time and (2) figured out a means to follow it at a period in history that was still in the Stone Age. The discovery is considered both surprising and important because it now places a calendar nearly five thousand years before what was previously considered as the first formal calendar, created in Mesopotamia 5,000 years ago. But here, a discovery has been made of a calendar construct appearing to track the phases of the moon nearly 10,000 years ago.

Scientists are now calling this discovery in Scotland that seems to mimic the phases of the moon to track lunar months the world's oldest known calendar.

"What we are looking at here is a very important step in humanity's earliest formal construction of time, even the start of history itself," said Vincent Gaffney, professor of landscape archaeology at Birmingham University, who led the team who analyzed the pits and their functions.

Also referred to as the "Warren Field calendar," referring to the land area in Aberdeenshire where the calendar was found, the discovery consists of an array of 12 pits and arc. They appear to represent the phases of the moon, going from waxing and waning to central arc, corresponding to the lunar months of the year.

However, said Prof. Gaffney, because the lunar year does not

correspond to the natural year, the sequence had to be calibrated annually, and the site seems to align along the midwinter solstice, indicating that each year it was calibrated, and kept good time.

The experts believe the site dates back to around 8000 BC. Gaffney and team in their paper on the subject observed that the site "also aligns on the south east horizon and a prominent topographic point associated with sunrise on the midwinter solstice. In doing so the monument anticipates problems associated with simple lunar calendars by providing an annual astronomic correction in order to maintain the link between the passage of time indicated by the Moon, the asynchronous solar year, and the associated seasons."

Although previously excavated back in 2005, geophysical survey teams from several universities have been working to map the sites again and to look for further features. The Warren Field site was first discovered as unusual crop marks spotted from the air by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS).

The pit-creators are identified as a Mesolithic group, referring to a group of cultures between Paleolithic and the Neolithic. The three "lithics" belong to the Stone Age, and the Mesolithic were a transition group who succeeded in adapting to a collecting and fishing as well as hunting economy The question remains, why did these hunter gatherers track the phases of the moon? For hunting purposes? To explore celestial bodies?

One theory comes from project member, Dr Christopher Gaffney, Archeological Science at the University of Bradford:

"For pre-historic hunter-gatherer communities, knowing what food resources were available at different times of the year was crucial to survival. These communities relied on hunting migrating animals and the consequences of missing these events were potential starvation. They

needed to carefully note the seasons to be prepared for when that food resource passed through, so from this perspective, our interpretation of this site as a seasonal calendar makes sense."

**More information:** intarch.ac.uk/journal/issue34/gaffney_index.html