

## Stonehenge and Timekeeping

Something we have not talked about much in the Threads is the fact that the position of the sunrise on the horizon changes during the year. This is because of the tilt of the Earth. In the Summer months, the Sun scoops out a larger arc on the sky, rising and setting further in the North (in the Northern Hemisphere) than it does in Winter.



The Neolithic cultures of the British Isles were aware of the changing sunrise positions throughout the year. From as long ago as 3100 B.C., these people were using their experiences about the Sun to tell time. Before they learned to farm and keep cattle, they were nomads, following herds and gathering whatever grains and vegetables they could find. With farming came the responsibility of knowing when to plant and harvest. It became necessary to keep a rough calendar that everyone could use easily and quickly to find out when to plant their crops.

The Neolithic people in the British Isles constructed enormous monuments across Ireland, Scotland and England. The monuments vary in size and roughly in shape, but many incorporate a solar time keeping device in their design. One of the best examples is Stonehenge, near Salisbury in England, which incorporates a certain special date into its design. How was it done? The idea is that you stand in one place and watch the sunrise from that place on the special day. You place a big station stone in a deep hole where you are standing. As the Sun is rising, you call to someone to place a stone a little further away from where you are standing but along your line of sight of sunrise. The two stones will always line up with the sunrise only on that special day.

If you look at a photograph of Stonehenge, you will see there are far more than just two simple stones in the monument. Some say that the circle design was for festivals or meetings. Others say that stones on one side of the circle can be used to line up with others across the circle to mark celestial events on the horizon.



Although there are many theories and ideas about why Stonehenge was built, we do know that the people who built it did indeed keep track of one special date: The Summer Solstice! What happens to the sunrise position on this date? It is farthest to the north. The Neolithic farmers would watch the sunrise from the station stone every so often to see how close the sunrise was getting to the line. They would have other clues about the time of year, right? So, they wouldn't have to check every single day!

Imagine now that you are a farmer from thousands of years ago. You are trying to set-up a device to keep track of time, and you have figured out the Sun changes its rising position in a year. With what would you build your device? What shape would you choose? How big would you make it?

Pick a special date to make your device/monument. What does your idea look like on paper? Can you build a model out of clay? Where is North? Where is the Sun going to rise? Where do you have to stand to wait for the special date.