

# Horizontal Sundial: Glasberga, Södertälje Municipality, Sweden

*Annika Petersson, Inscriptorum of Sundborn, Sweden*



## The Site

This unusual horizontal sundial, at 59.1898N, 17.6867E, is set into the asphalt surface of a car park that serves a new school in Glasberga, Södertälje Municipality, Sweden, about 25 miles west-south-west of Stockholm. The sundial was inspired by the time-keeping method used in Ancient Scandinavia; rather than use the shadow of a gnomon or nodus, you simply note the direction of the sun. The photograph, taken in December 2022, shows the newly-placed sundial in the unfinished car park. This site required the levelling of some rocky ground, which exposed the uneven rockface at the back of the car park. A school building can be seen in the top right-hand corner of the photograph.

## A Fantasy

As with many building projects, there was a requirement for a proportion of the budget to be spent on art. It wasn't long before a fantasy yarn was spun: imagine that, long ago, a troll had been buried in the rockface and that, over the years, various finds had come to light. To bring this fantasy to life, it was proposed to enhance the rockface by adding items such as the troll's fossilised feet. In the photograph, the curious boulder decorated with a coloured spiral is another example: could this boulder have been placed by the troll? Fantasy aside, this boulder marks north when standing on the sundial.

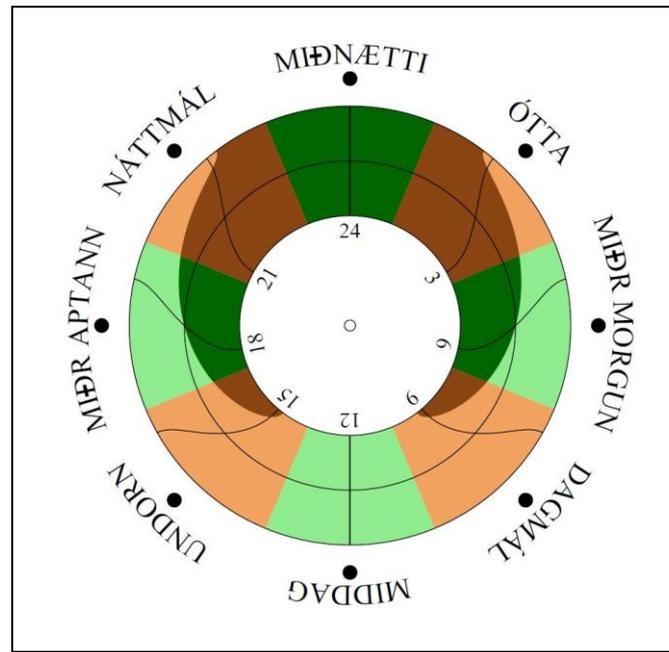
## Inspiration

Annika Petersson, proprietor of Inscriptorum in Sundborn got to hear about this project. She made an important observation. The name of the school is *Solhems förskola* where *förskola* means 'preschool' and the literal translation of *Solhem* is 'Sun Home'. Maybe there was an opportunity for a sundial?

By chance, Frank King had recently published an article on Ancient Scandinavian time-keeping in the *BSS Bulletin* and he had discussed some linguistic details with Annika. Was there scope for a 21st century sundial that is based on Ancient Scandinavian practices?

### Ancient Scandinavian Time-Keeping

Annika had taken a keen interest in one of the figures in the *Bulletin* article. This figure is reproduced below.



Those who lived in ancient settlements determined the time of day by noting the position of the sun relative to eight well-chosen daymarks on the distant horizon. In the figure, the tiny circle in the centre represents a settlement and the eight prominent black spots represent the distant daymarks. A daymark could be a mountain peak, a waterfall, a prominent tree or anything fixed which is readily identified and a long way off.

The chosen daymarks would ideally be close to, or at, the cardinal and sub-cardinal points (N, NE, E, SE...) and each is deemed to be at the centre of a so-called *átt*, an imagined 45° arc of the horizon. Each of the eight *áttir* (plural of *átt*) had an Old Norse name which was used to identify a roughly three-hour period of the day.

In the figure, only the settlement and the eight daymarks correspond to real objects. The Old Norse names would not have been inscribed anywhere; they would have been in people's heads. By contrast, the multi-coloured annulus which dominates the figure is incorporated solely for explanatory purposes...

### The Multi-Coloured Annulus

This annulus is divided into eight annular sectors in alternating brown and green colours; these represent the eight *áttir*. The light and dark portions of the annulus represent day and night. At the winter solstice (inner circle of the annulus) it is dark for about three-quarters of the day and at the summer solstice (outer circle) it is dark for about one-quarter of the day. At the equinoxes (central circle) there is equal day and night.

As finishing touches, eight anachronistic common-hour lines run across the annulus from inside to outside. These are labelled with common-hour times at three-hour intervals. Only the hour lines for midnight and midday are straight. If this diagram were placed on a horizontal surface and oriented

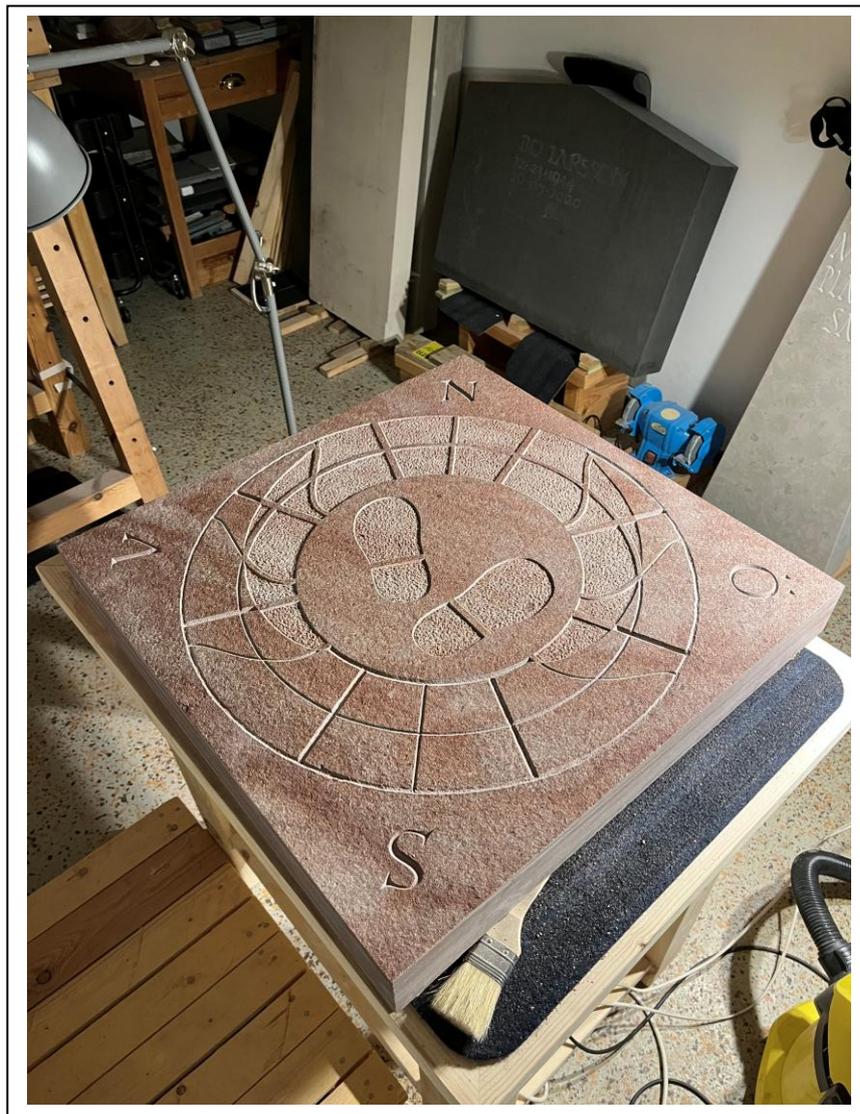
correctly, then, with a little training, a present-day user could determine not only which *átt* was applicable at the time of making an observation, but also the approximate local apparent sun time.

### Realising the Idea in Stone

Annika immediately saw potential in this annulus and considered how best to represent it in stone. There was no prospect of adding colour, but she could separate the *áttir* with eight radial lines, and she could distinguish light and dark by stippling the dark region. It would be impractical to add hour numbers but the hour lines could be shown; they would be thinner to distinguish them from the *áttir* separators and six of them are curved which further distinguishes them.

Annika chose to use a square stone but arranged so that the diagonals (rather than the sides) ran north–south and west–east; this was so that she could cut the Swedish abbreviations N, Ö, S and V (for north, east, south and west) in the spandrels. Noting that the school is for very young children, Annika filled the central space with the shoe prints of a child.

This sundial must cope with cars and feet and harsh winters, so Annika chose Älvdalin Quartzite, which is exceptionally hard and durable. This stone is very challenging to cut. An early attempt to use blasting was unsuccessful so Annika cut the stone by hand. The figure below shows the finished stone in Annika's workshop.



## Education

An assiduous father might invite his young daughter to stand on the shoe prints and look at the boulder decorated with a coloured spiral mark. He could explain that this boulder is north of where she is standing and that is why the letter N is marked on the stone just ahead of her toes. He could explain the other letters, Ö, S and V too. That may be enough for a first lesson!

Around the time of the summer solstice, at the latitude of this sundial, the sun is only a little below the horizon at midnight. If the night is clear, there will be a definite glow in the north. At a second lesson, the father might explain that the boulder with a coloured spiral mark is a *daymark* and shows the direction of the sun at midnight when she will be tucked up in bed. He could note that, in the old days, the word used for midnight was MIÐNÆTTI. This is not all that different from the Swedish *midnatt*.

At a third lesson, the father could explain the sub-cardinal directions. These are not marked on the stone but, for example, halfway between north and east is north-east. He could explain that the school building itself is the north-east daymark and, when the sun is in that direction, the time of day was called ÖTTA. This is the direction of the sun around sunrise in high summer. Annika has identified eight candidate features to serve as daymarks in this rather unpromising setting!

In due course, the father can use the sundial to explain how the lengths of day and night vary during the year and talk about the solstices and equinoxes. Of course, he could explain how to read common hours too.

Perhaps, one day, some of the children will learn all eight Old Norse names. Swedish is closer to Old Norse than English is, so the children are likely to be able to pronounce these names better than those of us living in Britain.

## Summary

This, perhaps inauspicious stone, provides a link to the cultural practices of long ago: how Ancient Scandinavians thought about time and the language they used. There is an explanatory notice in the car park which tells the story of the troll and also includes a section on the sundial. We can only hope that the school appreciates just what an educational resource lies in their car park!