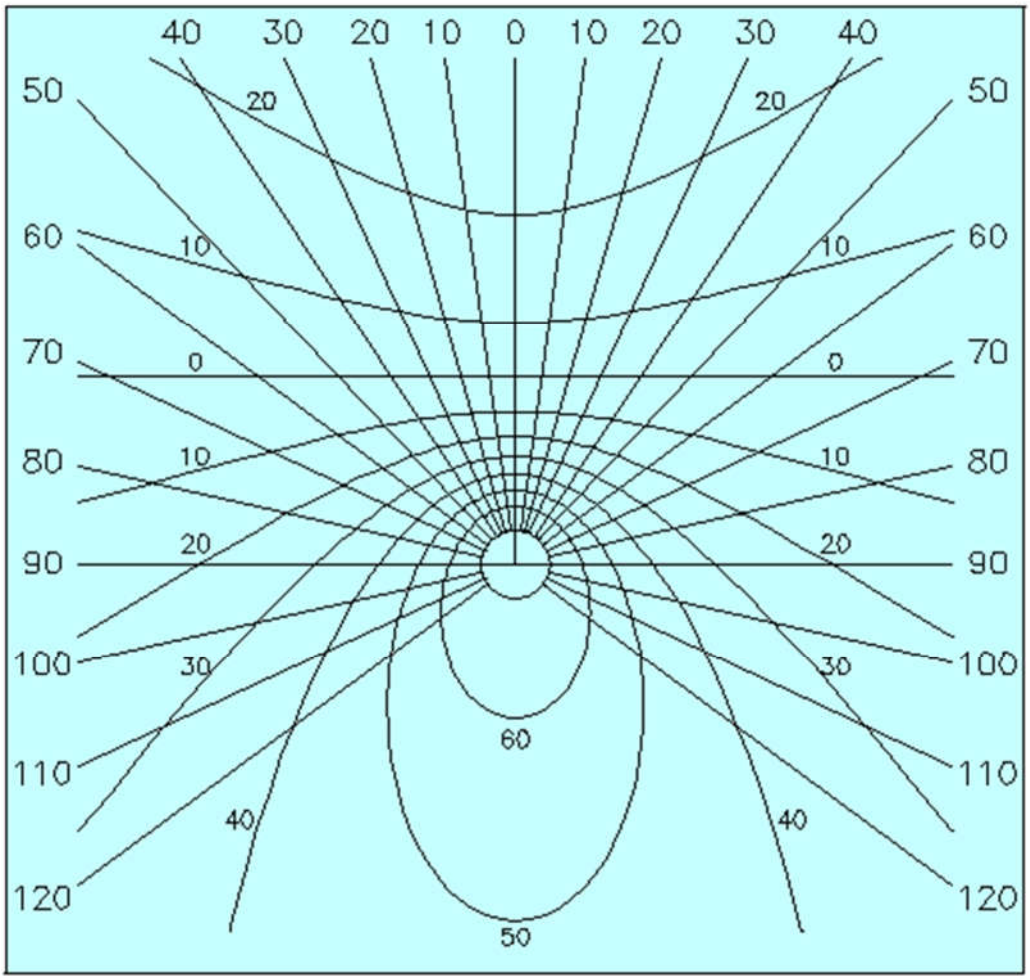
Article of the month April

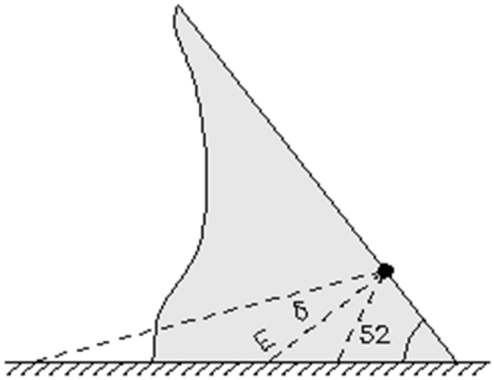
Reusing the pattern

Usually a sundial designates time in hours, but this horizontal sundial indicates the hour angle in degrees.
This example was made for 52 degrees latitude, whether north or south. You just need to know which part is for morning, and which for afternoon hour angles.

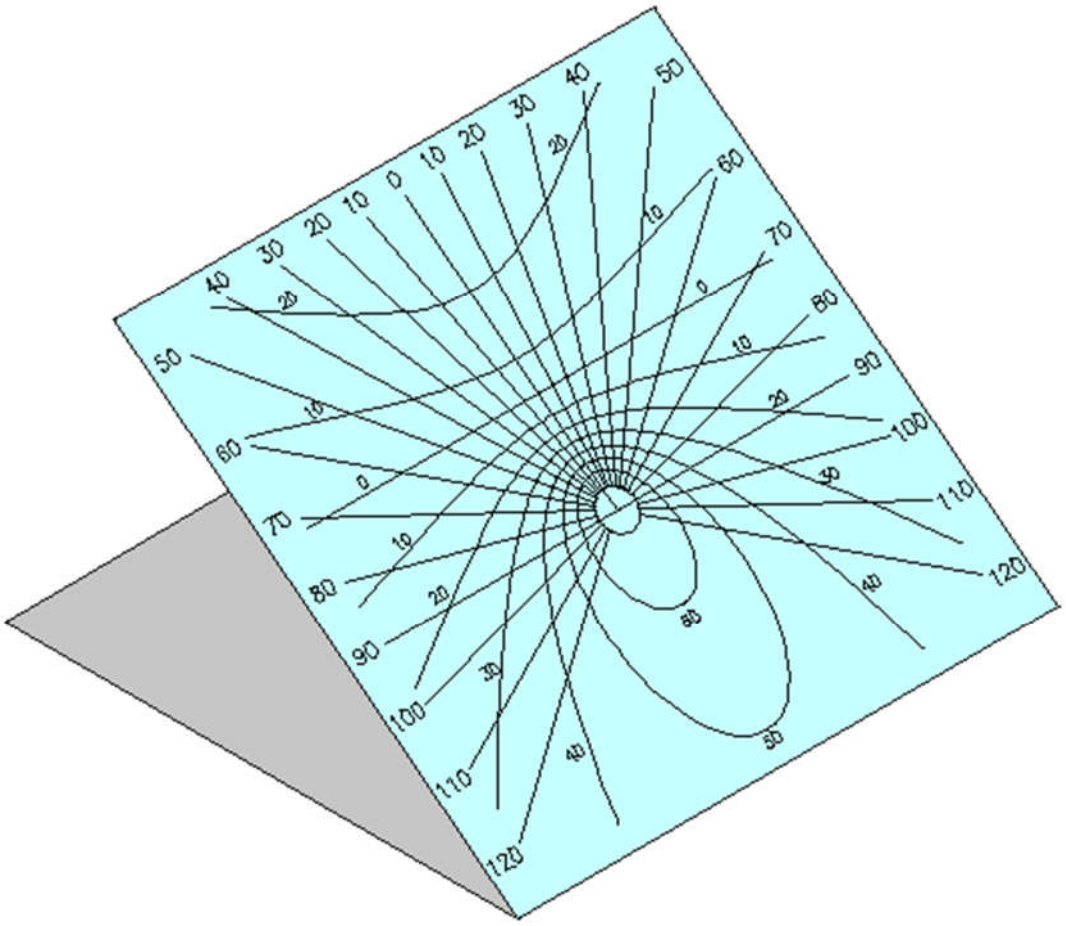
Moreover, declination lines were provided, also marked in degrees.
The range is much larger than which the sun can ever occupy, but that does show nicely how the shape of declination or date lines can change from hyperbola to parabola and ellipse.
Pay attention to the season for which the declination lines are valid.



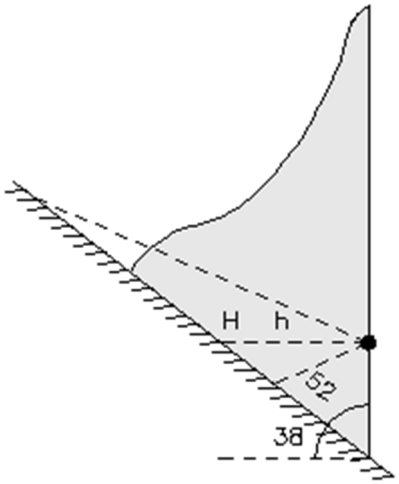
A style triangle for this horizontal sundial may look like the figure below.
An index on the pole style serves for the readout of the declination of the sun.



This sundial is now rotated about the East-West line through an angle of 90 – 52 = 38 degrees, after which it looks like this:



The position of the style triangle is now thus:



The result is that the original pole style is now vertical, and that the sundial now indicates azimuth and altitude of the sun.

This game also teaches us that, mathematically speaking, hour lines and declination lines are shaped similarly to azimuth and altitude lines.

A historical sample of a sundial with such hour angle and declination lines is in Maassluis.
A description is in "Sundial of the month, January 2004."

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Last Modified 09/19/2021 18:07:41
English translation: RH