

SHADOWS OF TIME

Anita Chapman

Have you ever seen a child discover shadows for the first time? Magical, and the shadows on sundials have fascinated me since I was a child trying to tell the time by looking at the sundial on its pedestal in my grandmother's garden.

Using sundials as garden ornaments dates from Roman times. They were mounted on stone pedestals to catch the shadow of the sun god, Sol, as he drove his chariot across the sky. Their history, however, is truly ancient, with the first simple use of an object casting a shadow dating back to 5,000 BC. Until mechanical clocks came into use in the 1300s, sundials were one of the most common ways of marking the passing of time, although the early mechanical clocks were not very accurate and people still used to check them against sundials!

Sundials, like any sort of timepiece, can vary significantly in their accuracy, depending on their calibration, the precision of the marker, and their size. Early sundials were not accurate, but with a growing understanding of latitude and longitude and how they affected the angle of the sun's rays, it became possible to build more elaborate dials which were accurate for their location. Calculating the angle of the gnomon (the technical name for the pointer whose shadow marks the hour), and then accurately engraving the lines marking the hours, was the key. Bigger gnomons are more accurate than smaller ones, since the change in shadow length over the course of the day is larger.

There are many types of sundial, some more complex than others. The simplest are pedestal dials (known as horizontal dials) and wall dials (known as vertical dials) but there are a whole range of other types of dial. Vertical dials, if they do not face due south, are known as 'declining dials'; horizontal dials, if not flat, are 'reclining dials'. Then there are armillary dials, polar dials, analemmatic dials (where the pointer is vertical), and even small, portable dials that,



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Analemmatic dial with human gnomon

unsurprisingly, are highly sought-after collectors' items. Also known are stained glass or etched-into-glass sundials, which may be viewed from either side, though I have not seen one in the UK as yet. There are even very rare moondials, which are only of use when the moon is almost or completely full. Analemmatic dials, by the way, can be laid out in a garden so that a human can stand and act as the gnomon.

Telling the time by sundials on churches and public buildings was the usual way of telling the time for centuries, but with the coming of railways the need for precise timekeeping

became crucial, especially as mechanical clocks were still not accurate. This was solved in 1906, when George James Gibbs patented a heliochronometer; essentially the same thing as a sundial but potentially accurate to the nearest minute. They were used to set railway clocks accurately in the UK until the First World War. There is one at Bodnant in North Wales, and a beauty at

Holehird in the Lake District. The latter is complete and still in full working order. If you visit Holehird and it isn't on view, do ask, as it is put away for safekeeping sometimes.



The heliochronometer at Holehird. The inscription reads:
*'A clock the time may wrongly tell
I never if the sun shines well'*



Sundial at RHS Rosemoor in Devon. Due to the sun's variable elevation, the top section is used from 21st December to 21st June and the lower section from 21st June to 21st December

The range of types of sundial seems to be limitless. All depend on their makers' design ingenuity and their understanding of the science of telling the time by the sun. Most of the old sundials you will see in public places are on walls, often those of churches and public buildings, placed so people could tell the time, especially for church services. These may be made of metal, mounted on the wall, or sometimes they may be carved into the wall itself.

Set in such public places, the sundials often had mottos on them; sometimes serious, sometimes humorous, and often in Latin, the language of the church. Two of my favourites are:

All the flowers of all the tomorrows are in the seeds of today

and

Time is nature's way of making sure that everything doesn't happen at once.

In gardens, sundials have never been out of fashion. Setting a sundial on a stone plinth creates a centre for the garden and allows the shadows to mark the hours you spend weeding! So carry on the age-old tradition of placing a sundial in a sunny spot in your garden, and catch the shadow of the sun god, Sol.

PS While checking facts for this article, I came across the website for the Horniman Museum and Gardens in Forest Hill, London. They have a sundial trail which includes a stained glass dial mounted in their conservatory, a ceiling dial and a tea time dial. Further information can be found at:

www.horniman.ac.uk/collections/stories/sundial-trail

❧ First published in the Correspondents Group Newsletter, June 2016 ❧