

History of Sundials

- The earliest record of the sundial dates back as early as 3500 BCE.
- At this time the ancient Egyptians were building tall, slender monuments from stone, called obelisks, which cast shadows that functioned like a sundial.
- Obelisks enabled people to divide the day into morning and afternoon, and they also showed the longest and shortest days of the year when the shadow they cast was longest or shortest at noon.
- Later on, additional markers were added around the base of the obelisk to indicate further subdivisions of time.
- Possibly the first portable timepiece came into use around 1500 BCE. Still a sundial, this was another Egyptian invention and it divided the day into ten parts plus two “twilight hours” in the morning and evening; was this the origin of the “twelve hour day” that we know today?
- Around 600 BCE the Egyptians came up with another invention, the *merkheth* (the oldest known astronomical tool), which allowed them to tell the time at night when there was no sun to cast a shadow.
- The *merkheth* worked in a similar way to a sundial: you would line up a pair of them in a north-south direction using the Pole Star, and then as certain stars crossed that line you would be able to tell what time it was.
- In the pursuit of year-round accuracy sundials gradually developed from their original shape, of a flat or vertical plate or surface, to much more elaborate forms.
- One version was a bowl-shape, cut into a block of stone, with a central vertical pointer (gnomon) whose shadow fell on lines marking sets of hour lines for different seasons.
- Around 300 BCE this idea was developed further into a half-bowl shape, cut into the edge of a squared block and called the ‘hemicycle’.
- In the 2nd century BCE the mathematician and astronomer Theodosius of Bithynia was said to have invented a universal sundial that could be used anywhere on Earth.
- By 30 BCE Vitruvius, a Roman writer, architect and engineer, was able to describe 13 different types of sundial in use throughout Greece, Asia Minor (Turkey) and Italy.
- By the 16th century astronomers were publishing treatises on sundials, explaining how they worked, how to manufacture them and how to set them up either vertically or horizontally.
- Sundials have to be lined up in certain directions, depending on what hemisphere you are in and according to the axis of the Earth’s rotation: that is, the end of the gnomon should point north if you are in the northern hemisphere (where Britain is), or south if you are in the southern hemisphere.