

## TIME KEEPING ACCURACY OF SUNDIALS

Any sundial which is properly designed for its location will readily tell the time accurately to a minute or two for the next few centuries. However, before the sundial will show the same time as that indicated on your watch, it is necessary to consider two corrections to the shadow reading.

The first correction occurs because the orbit of the Earth around the sun is elliptical, and the Earth slows down when we are further away from the sun and speeds up when we are nearest it. This correction is called the equation of time.

The second correction occurs because of the difference in time between the Sundial's location and the local time zone longitude, in this case Central Standard Time (CST). A further adjustment is required during the months of Central Summer Time (Daylight Saving).

This sundial incorporates the effects of longitude into the position of the granite used as hour pieces, which the equation of time corrections are built into the central analemma. Correct use of this sundial will ensure accuracy with your watch.

These two corrections are often combined. Here they are displayed graphically on a conventional horizontal sundial which is located to the right of the analemma.



## KINGSTON VISITOR INFORMATION OUTLET

29 Holland Street, Kingston SE  
[www.kingstondc.sa.gov.au/discover](http://www.kingstondc.sa.gov.au/discover)

### Opening Hours

Monday - Friday  
8:30am - 5:00pm

### Saturday - Sunday

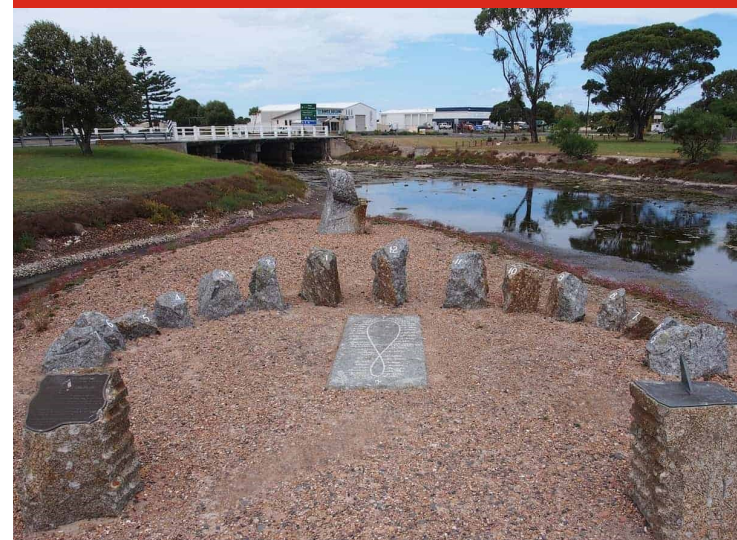
Kingston Foreshore Caravan Park  
34A Marine Parade  
8:00am - 7:00pm

Local Tourism Information  
Regional Tourist Information  
State Tourist Information  
Maps & Directories  
Community Displays  
Free Internet Access  
Current Events & Activities



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## SUNDIAL OF HUMAN INVOLVEMENT



# KINGSTON SE

## THE SUNDIAL OF HUMAN INVOLVEMENT

The Kingston SE Sundial is located on a small island in Maria Creek adjacent to the Apex Park. Correctly known as an Analemmatic Sundial, the work consists of a central analemma and a number of hour pieces in a half circle formation.

The Sundial was designed by Dr Margaret Folkard and Mr John Ward of Sundials Australia in Adelaide. Well known fine art Sculptor Mr Silvio Apponyi produced the pieces which make up the Sundial and the numerous animal, fish and wave works which are featured on and around the Sundial pieces.

## THE ANALEMMATIC SUNDIAL

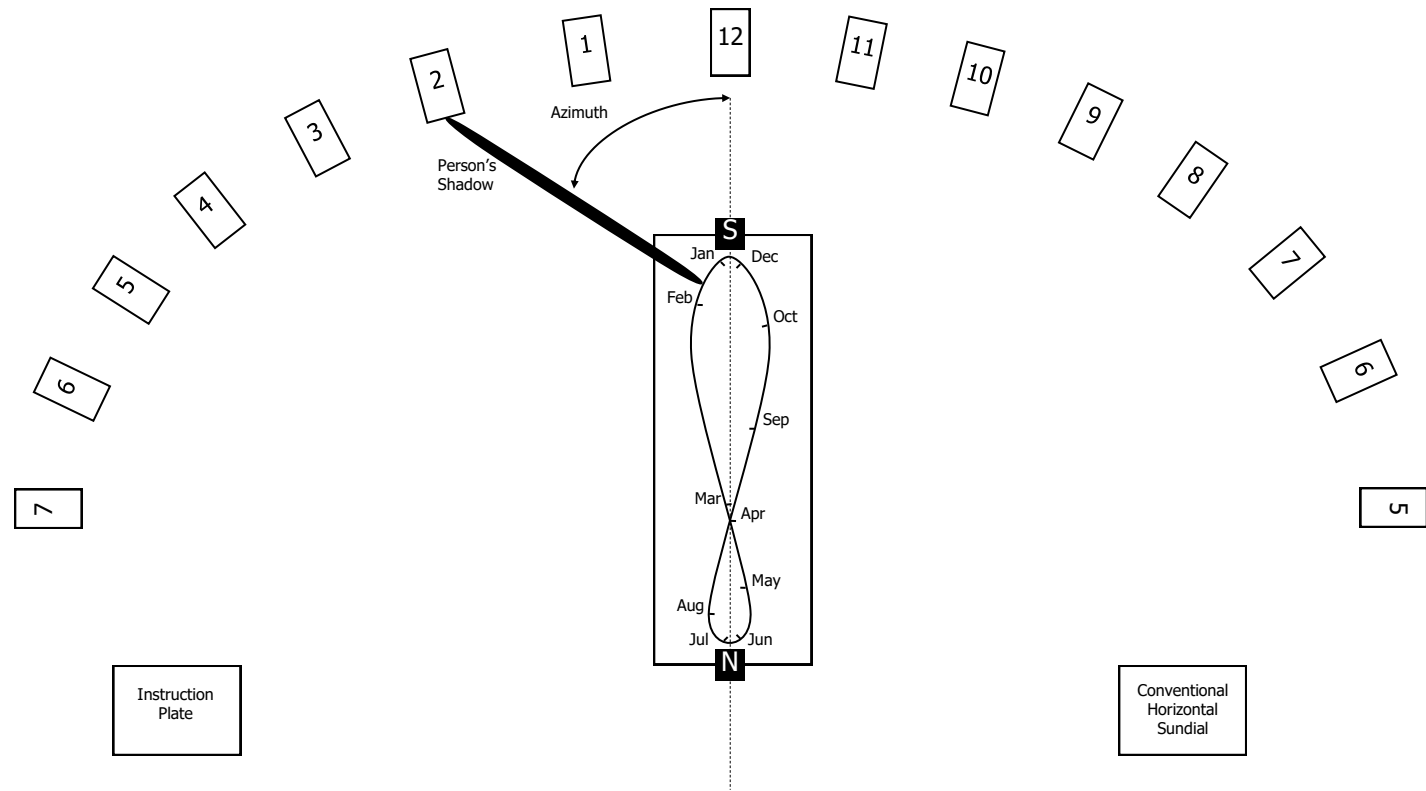
An Analemmatic Sundial is a horizontal Sundial which does not have hour lines marked on it. Instead of hour lines, it has a series of fixed hour points which are located in a half circle pattern around the analemma. A person standing on the analemma will cast a shadow which will pass through the hour markers. This type of Sundial records time with respect to the azimuth of the sun. The azimuth is the angular distance on the horizon plane between the true north-south line and the foot of the perpendicular from the sun to the horizon.

## ABOUT SUNDIALS

During the day the sun appears to move across the sky, causing changes in both the length and position of the shadow cast by any solid object. The height of the sun above the horizon also varies with the seasons which causes further changes in the position of the shadow.

For more than 5,000 years people have used the movement of shadows produced by the apparent movement of the sun for the reckoning of time and for the determination of important days (such as when to plant crops for the following season). Any device which uses either the length of the shadow or its angular position to divide the period between sunrise and sunset into units of time is known as a sundial.

## LAYOUT OF THE ANALEMMATIC SUNDIAL



We are familiar with the conventional horizontal sundials which have beautified gardens for many centuries, and are perhaps also aware of sundials which can be attached to the walls of buildings. These vertical sundials can be placed on walls facing in a variety of directions, and are especially popular in Europe where some towns and villages have become famous because of their wall sundials.

There are many different sundial types and, if designed and used correctly, all types will tell the time quite accurately. The hour markings on almost all accurate sundials depend on the latitude at which they are placed, but not all types are suitable for use everywhere in the world (for example, horizontal sundials used near the Equator, or vertical sundials used near the Poles, are not always accurate).

Another example of a sundial similar to this is located at Mount Annan Botanic Garden the native plant garden of the Royal Botanic Gardens, Sydney.

## TYPE OF ROCK

Known locally as granite the material used is found at various outcrops which straddle the Princes Highway about 18km north of Kingston and on the beach about 20km north-of Kingston at "The Granites".

The rock is of Ordovician geological age (about 450 million years old) and was formed when molten rock material or magma was pushed upwards into overlying older rocks. Various minerals were formed as the magma solidified and the inter-locking crystals give the granite its characteristic texture. The main minerals are quartz, feldspar and biotite. The hardness of the quartz and feldspar minerals make the rock extremely durable.

Geologically the granite is referred to as granodiorite adamellite.