

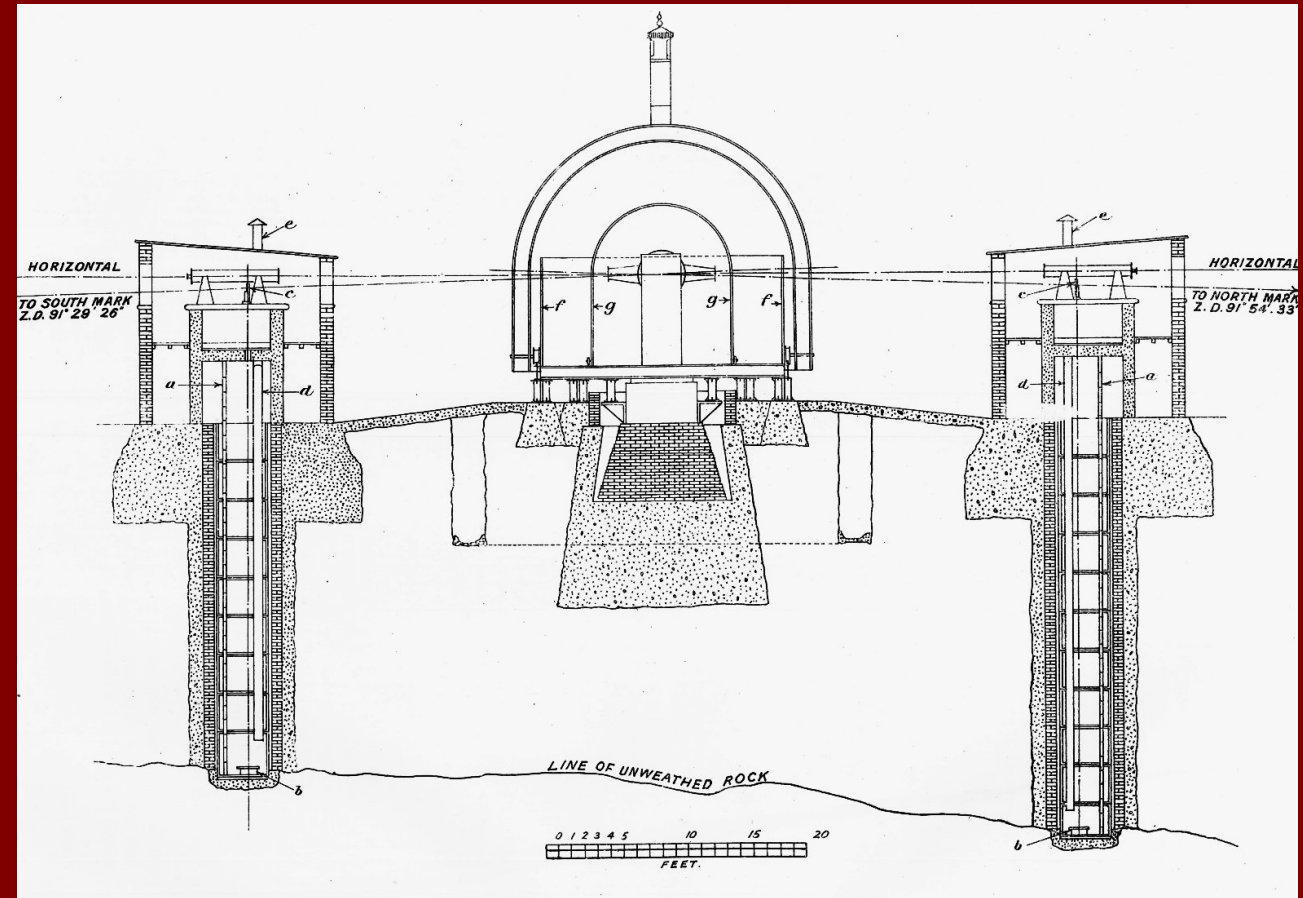
# GILL TRANSIT CIRCLE (1901)

The purpose of a transit circle was to provide extremely accurate measurements of the positions of stars. The observer set the telescope at the approximately correct position and waited for the star to pass the north-south line (meridian). He then refined the pointing of the telescope and read its position scales through numerous microscopes.

The Gill-designed 6-inch Reversible Transit Circle at the Royal Observatory was constructed by Cooke, Troughton and Simms and was the most accurate of its kind made up to that time. It incorporated numerous special features. Thermal stability was achieved by making the building a double one and the piers of the telescope could be filled with liquid to increase their thermal capacity and keep the temperature constant.

Special outer buildings were situated along the north-south line to allow for precise alignment of the telescope. The nearer two were 'collimator houses' and the further ones were 'mark houses'. All measurements were made with respect to the bedrock as much as 10m below the surface.

Measurements commenced in 1905. The instrument was modernised in 1950 and 1960, for example by introducing automatic photography of the scales.



Gill's design had a profound influence on all subsequent Transit Circles and remained the basic standard until the introduction of space astrometry by the Hipparcos satellite of the European Space Agency in the late 20th century. Use of the Gill circle was abandoned about 1980.

