

The Circumferentor

The word 'circumferentor' was used consistently in surveying textbooks and makers' catalogues from the seventeenth to the twentieth century to describe a surveying compass - a magnetic compass equipped with fixed sights, the reading being noted from where the needle rested on a divided circle. The modern use of 'circumferentor' to refer to the simple theodolite has no basis in the primary literature, though some relatively recent catalogues refer to a graphometer as a 'semi-circumferentor'.

Rathbourne and Leybourn both use the word to refer to a surveying compass. By the early eighteenth century a standard pattern had emerged, with the sights mounted on fixed arms extended on opposite sides of the compass box. This design may have evolved from a plane table alidade with a fitted compass.

Circumferentors illustrated in G. Adams, *Geometrical and graphical essays*, 3rd edn, London 1803, and in I.O. Baker *Engineers' surveying instruments*, New York and London, 1906.

The circumferentor, while admittedly less accurate than the theodolite, was useful in new territories where the landscape was not marked out by man-made landmarks. Here the compass was invaluable. The same was true of mine surveying, so that the circumferentor not only survived in its basic form (it is illustrated in twentieth-century catalogues) but also spawned a number of adaptations designed for mining or colonial surveying.

A plane table alidade mounted on a staff, to form a circumferentor, from J.F. Penther, *Praxis geometriae*, Augsburg, 1732. Leybourn also suggested this arrangement.

