

Anaphoric Star Disk History and Design

The Celestial Flyways anaphoric star disk is based on the anaphoric clock. The name derives from the Greek *anaphoros*, which means rising and is specifically applied to the rising of stars. Such a display was particularly useful in the ancient world since much folk astronomy is related to seasons defined by the rising of certain stars just before the sun.

The history of the anaphoric clock dates from before 50 BC. The earliest surviving description of a machine of this type is from the writing of the Roman author and architect, Marcus Vitruvius Pollio (ca. 88 - ca. 26 BC), who in *de architectura* [Book IX, Chap. 8, 8-15] describes a clock (a clepsydra or water clock) in this form. It is almost certain the Tower of the Winds in Athens contained a mechanism of this type. Fragments of similar constructions dated from the first to third century have been found in Salzburg and Grand (Vosges) in northeastern France, so such mechanisms were apparently fairly widespread among Romans. Richard of Wallingford used this form of display for his astronomical clock built in the early 14th century.

Wallingford Astronomical Clock Reconstruction

The anaphoric clock was probably not the first astronomical machine, but it was surely one of the earliest and had enduring influence as a direct precursor of the astrolabe, and possibly the most influential one. The astrolabe was by far the most widely used astronomical instrument before the invention of the telescope.

The content of the anaphoric clock is defined from the stereographic projection which preserves circles and angles in the sky on the projection. All star coordinates, the tropics and ecliptic are precisely projected.