Astrolabe Encyclopedia Article

Astrolabe

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Astrolabe

The astrolabe is an ancient astronomical instrument, dating back more than 2,000 years, used to observe the positions of the stars. With modifications it has also been used for time-keeping, navigation, and surveying.

Astrolabes depict the visual reference points of stars on the night sky as a function of time. As such, an observer can also set the time to predict the visible star pattern expected. The most common type of astrolabe, the planispheric astrolabe, consists of a star map (the rete) engraved on a round sheet of metal. With regard to the rete, only the angular relationship of the stars needs to be accurate to ensure proper functioning of the astrolabe. A metal ring is moved across the map to represent the position of the local horizon. An outer ring is adjusted to allow for the apparent **rotation** of the stars around the North Star, using prominent stars as reference points.

Astrolabes were forerunners of mechanical clocks, and looked somewhat like watches. With a set of tables, the observer could determine the day and hour for a fixed location by the position of the stars. With the addition of a sighting-rule, called an alidade, an astrolabe could be used as a surveying instrument. The rule could be moved across a scale to measure elevation. Navigational astrolabes marked celestial altitudes (the altitude in degrees above the horizon).

Although there is evidence to support the assertion that ancient Greek culture had astrolabes, it is certain that the Arabs perfected and made regular use of the astrolabe. With the clear **desert** sky at their constant disposal, the Arab people excelled in **astronomy** and used the stars to navigate across the **seas** of **sand**. Regular use of astrolabes continued into the 1800s. The newer prismatic astrolabe continues to be used for precision surveying.

Modern versions of stellar charts and bowls with adjustable time and date markings on sliding rings are based upon earlier astrolabe construction and design principles.

See Also

Celestial Sphere: the Apparent Movements of the Sun, Moon, Planets, and Stars; History of Exploration I (Ancient and Classical); History of Exploration Ii (Age of Exploration)