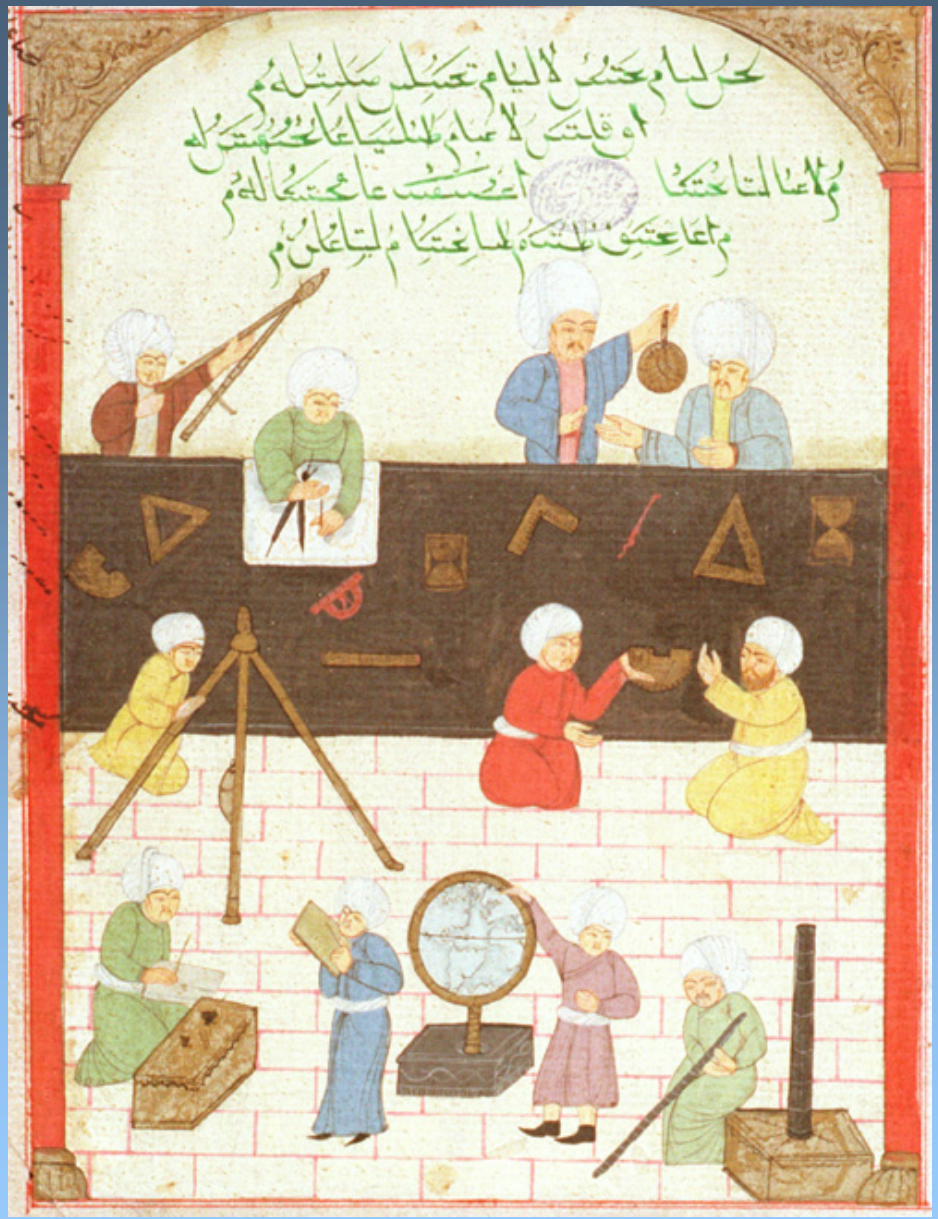
What is an astrolabe?



Ottoman observatory, 1781

Photograph: The Whipple Museum, Cambridge

Observatories

- Some Islamic observatories were huge, with many scholars and instruments and generous funding.
- Others were small groups of scholars, often centred on the muwaqqit (a professional astronomer who made calculations for religious purposes) at a mosque.
- The astrolabe was an important instrument for making astronomical observations.

The astrolabe

•The word ‘astrolabe’ comes from the Greek meaning ‘star holder’. It was an astronomical calculating instrument representing the movement of the sun and the stars.

•The astrolabe became symbolic of astronomy and astronomers in Islamic art.

•Muslim scholars developed and refined the astrolabe with many new innovations.

Astrology

- Although astrology was often frowned upon by religious leaders, astronomers often provided their services as astrologers

- Astrology was important in the practice of medicine and was often used by leaders in making political decisions

Astrological symbols appear on many Islamic astrolabes

The Story Told by the Tailor

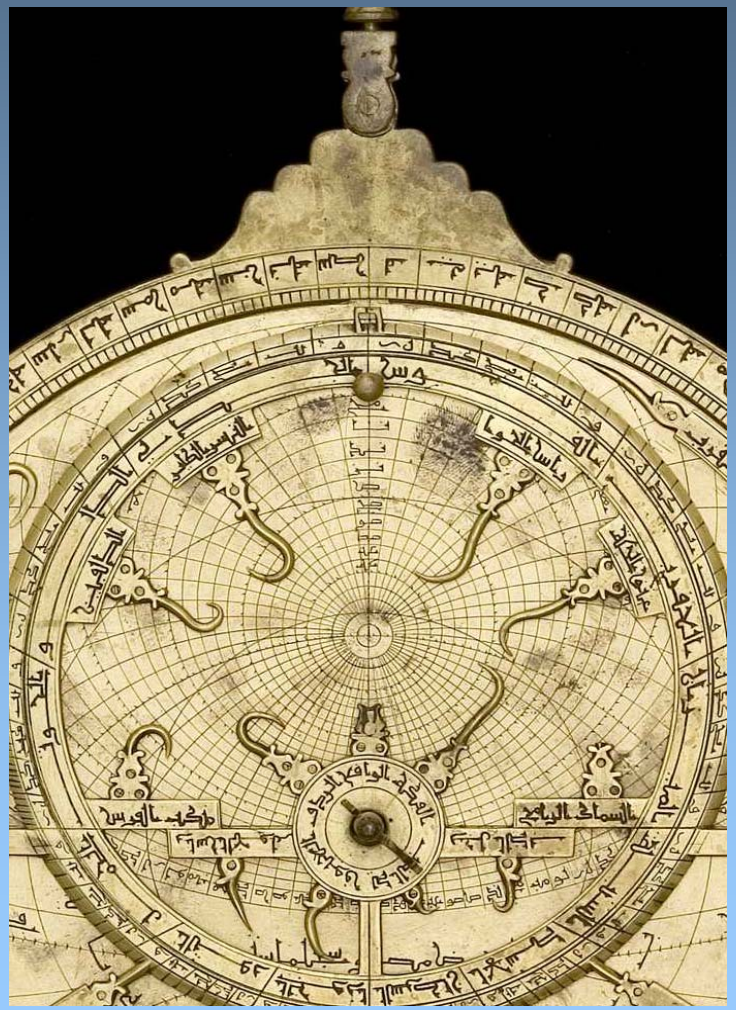
‘So I took the astrolabe, and observed the altitude for him, and found the ascendant of the hour to be of evil omen, and that the letting of blood would be attended with trouble: I therefore acquainted him with this, and he conformed to my wish, and waited until the arrival of the approved hour, when I took the blood from him.’

From ‘A thousand and one nights’

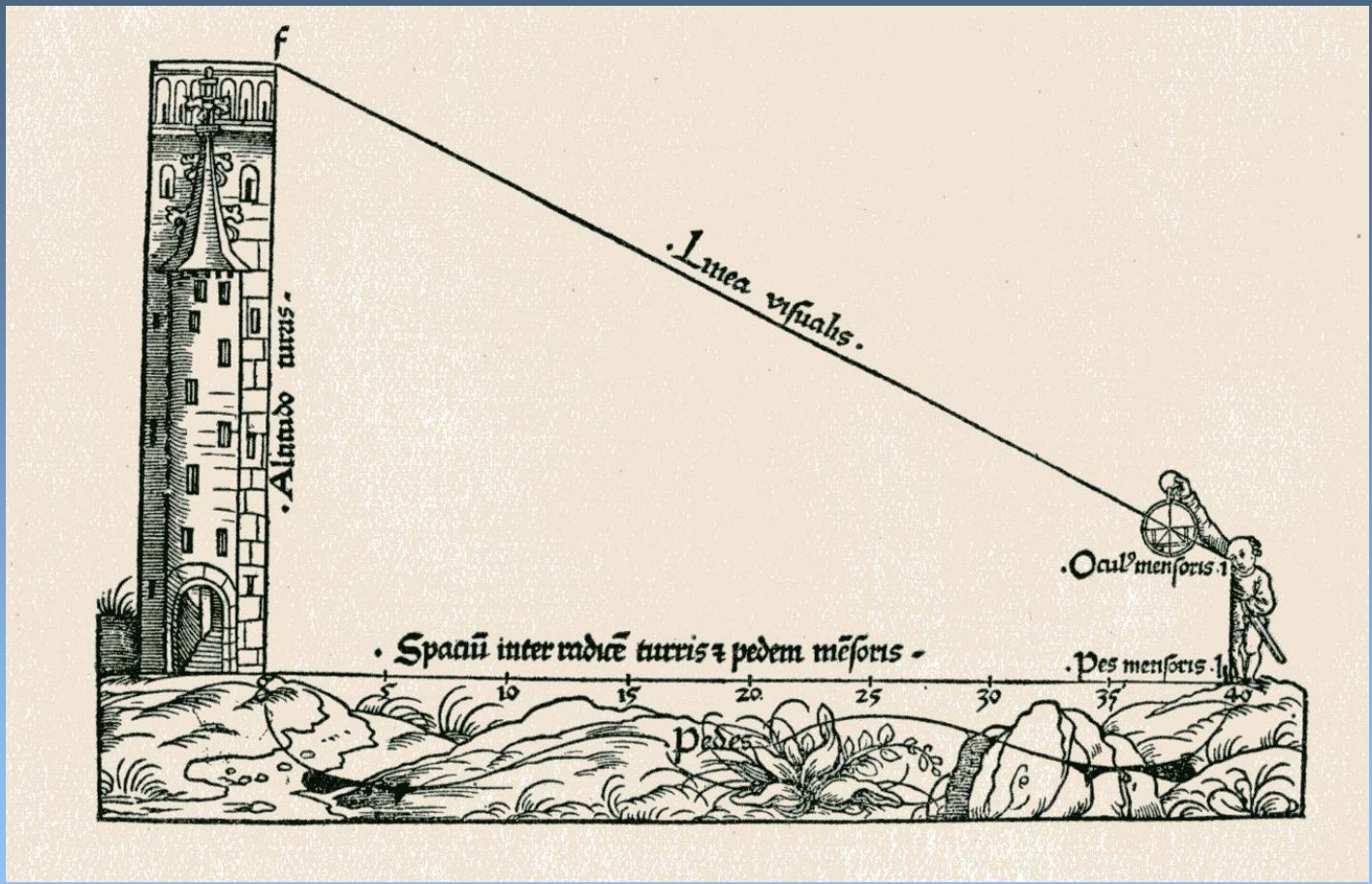
The craft of the instrument maker

- The astrolabe provided instrument makers with great opportunities for design and decoration
- Decoration included calligraphy (decorative writing). These often included religious sayings (‘hadith’) or quotations from the Koran.

An instrument from the museum's collection
Muḥammad ibn Aḥmad al-Baṭṭuṭī , 1733, Morocco



The astrolabe as a surveying instrument

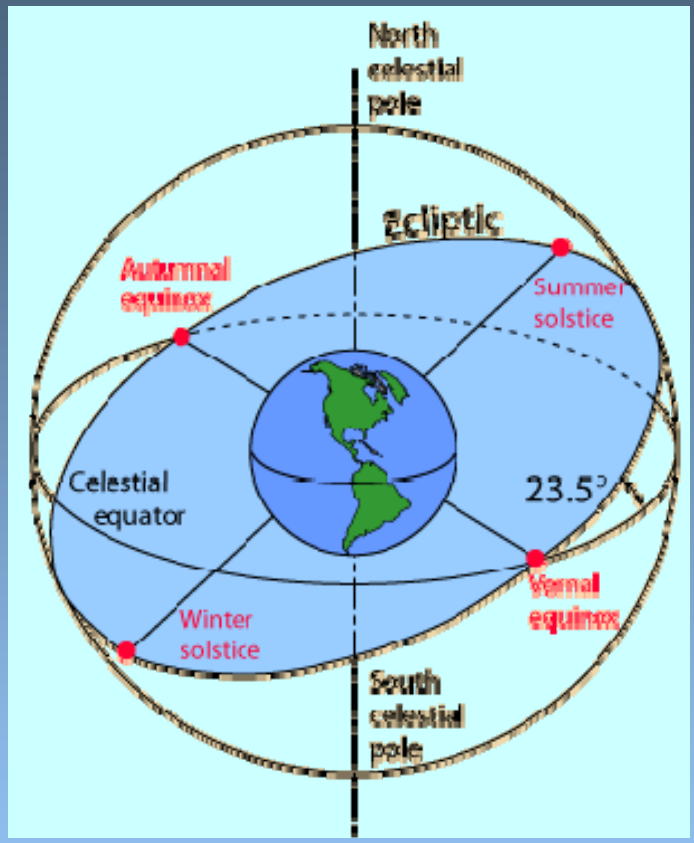


The astrolabe could also be used as a mathematical measuring instrument for surveying purposes. By measuring the angle, the height of a building could be calculated.

What does an astrolabe show?

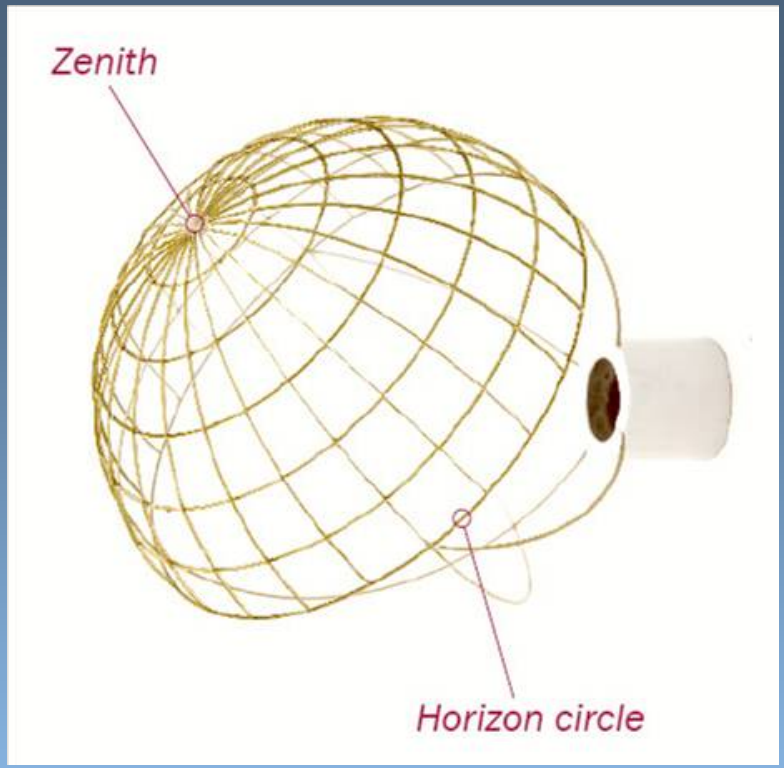
The Armillary Sphere – Ptolemy's model of the universe

In Ptolemy's model of the universe, the earth is placed at the centre.

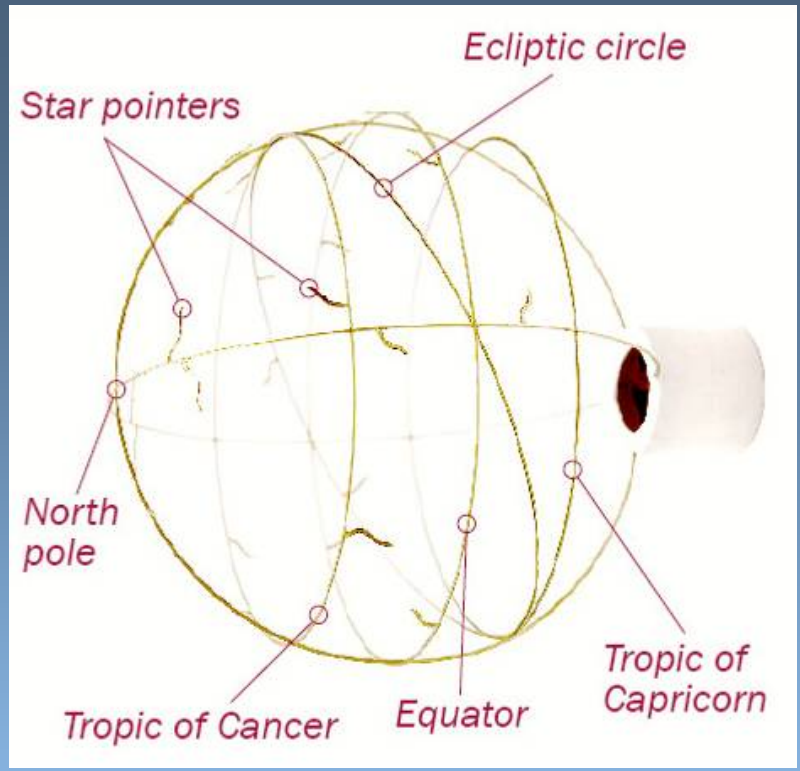


The 'fixed' stars appear to rotate about the earth on the outer edge of a sphere.

The sun appears to follow an annual path along the 'ecliptic' against a background of the zodiac constellations

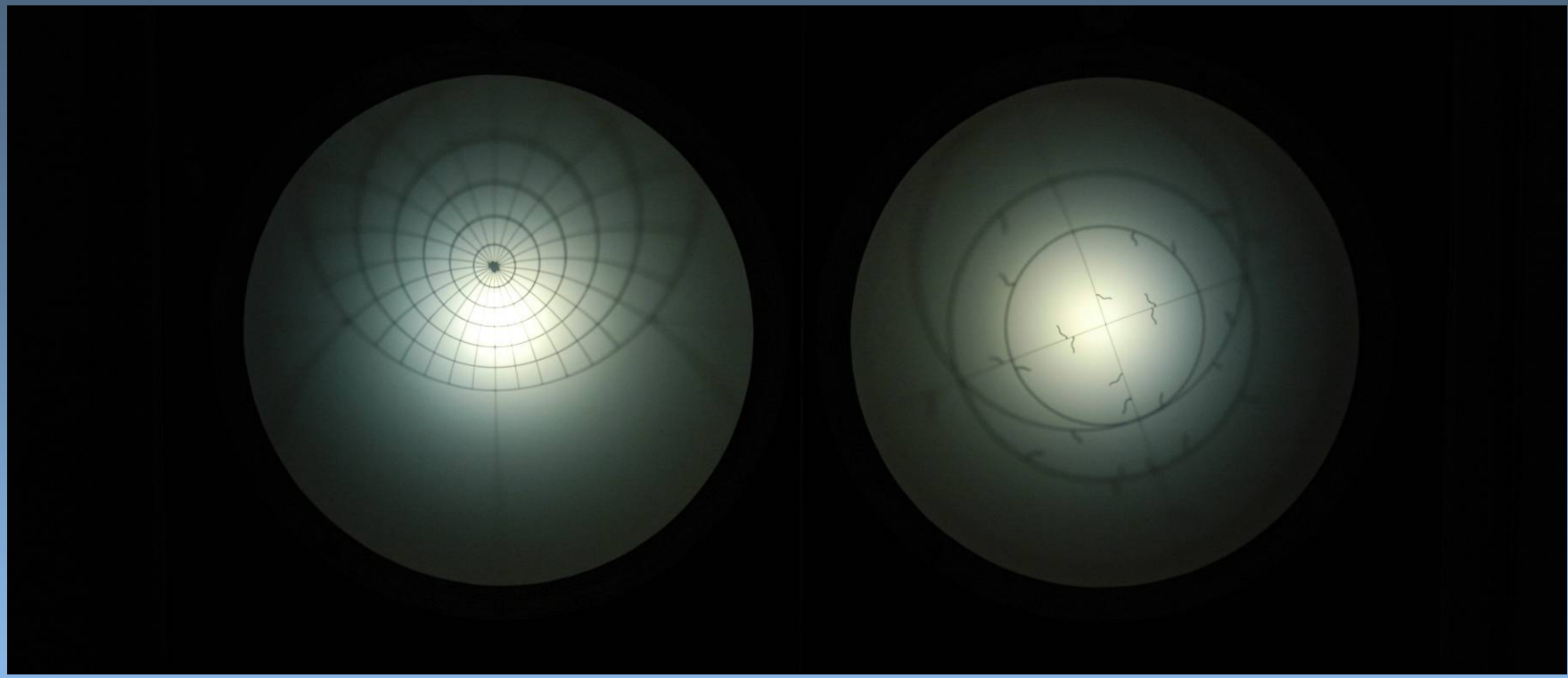


The sky above us rising from the horizon to a point immediately above us (the zenith) is the ‘cage’ of circles which form a co-ordinate system to locate the sun and stars.



The heavenly sphere appears to rotate about us once every 24 hours. The positions of the stars are indicated by the ‘star pointers’. The sun appears to move along the ecliptic circle through the year.

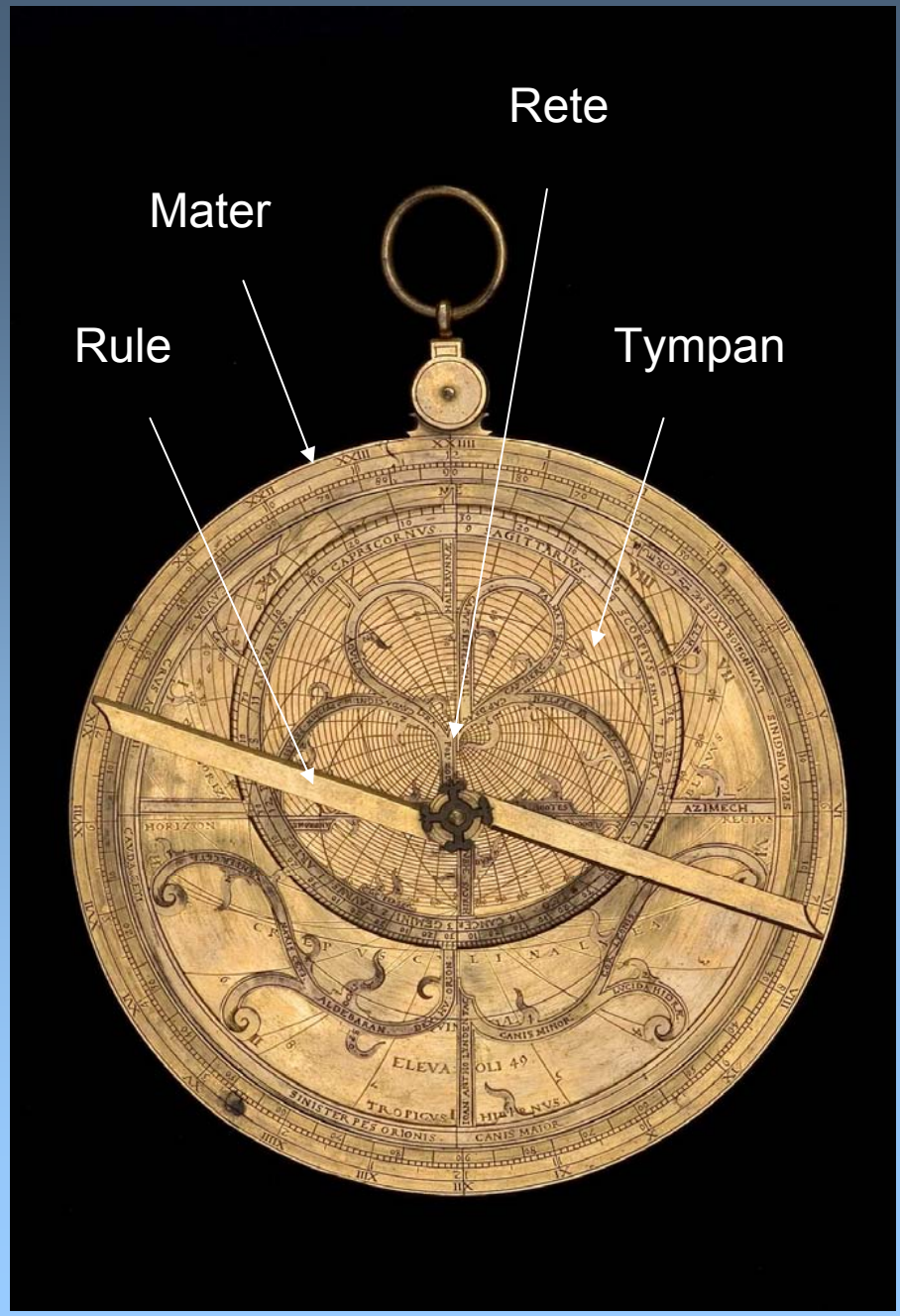
Projection of the heavens on to a plane



The co-ordinate system is projected on to the plane of the astrolabe forming a grid representing the sky above. The bottom line is the horizon line.

The ‘star pointers’ are projected on to a rotating lattice called the ‘rete’. The rete also include a circular zodiac ring (seen off-centre) which is a projection of the sun’s annual pathway along the ecliptic circle.

The parts of an astrolabe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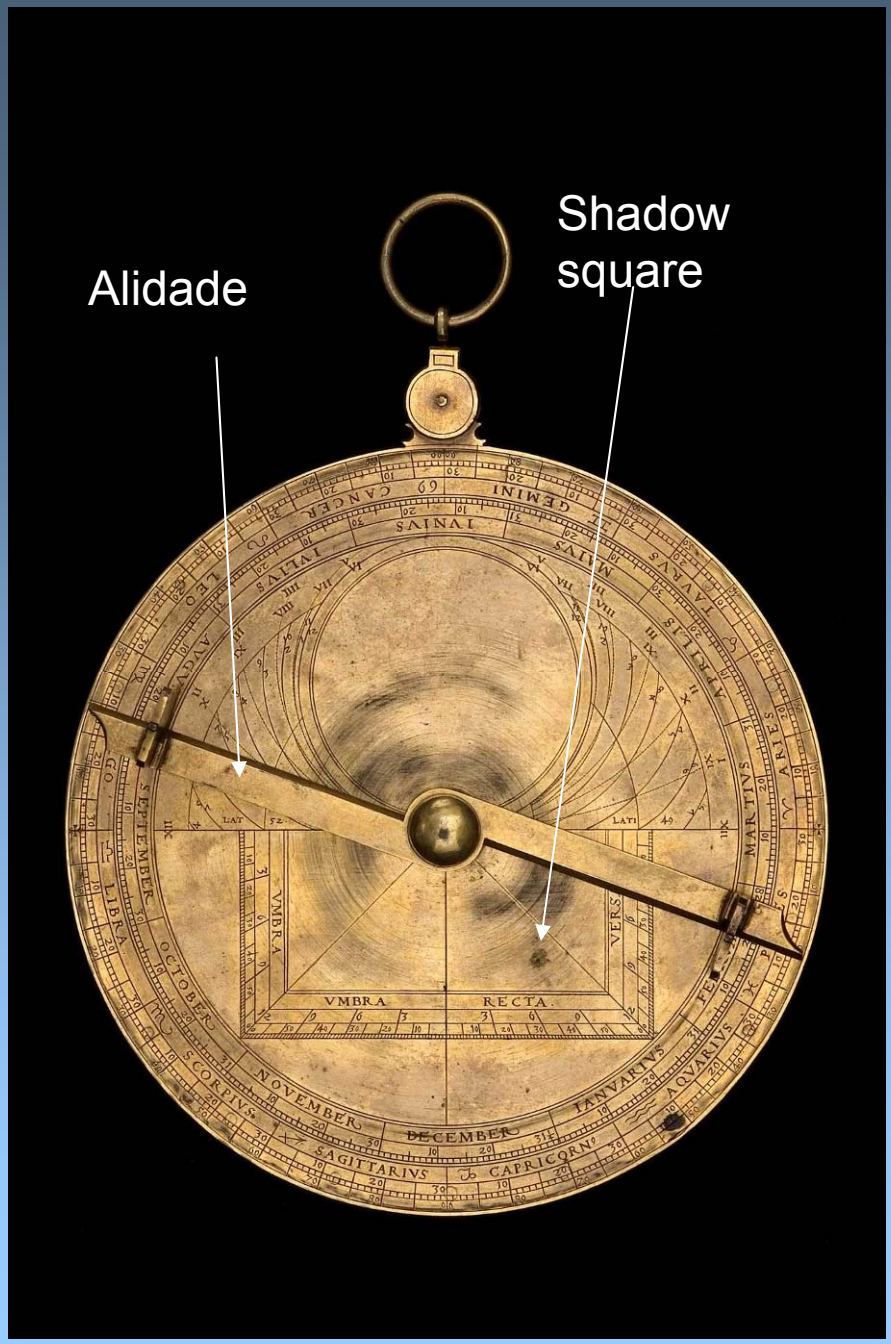
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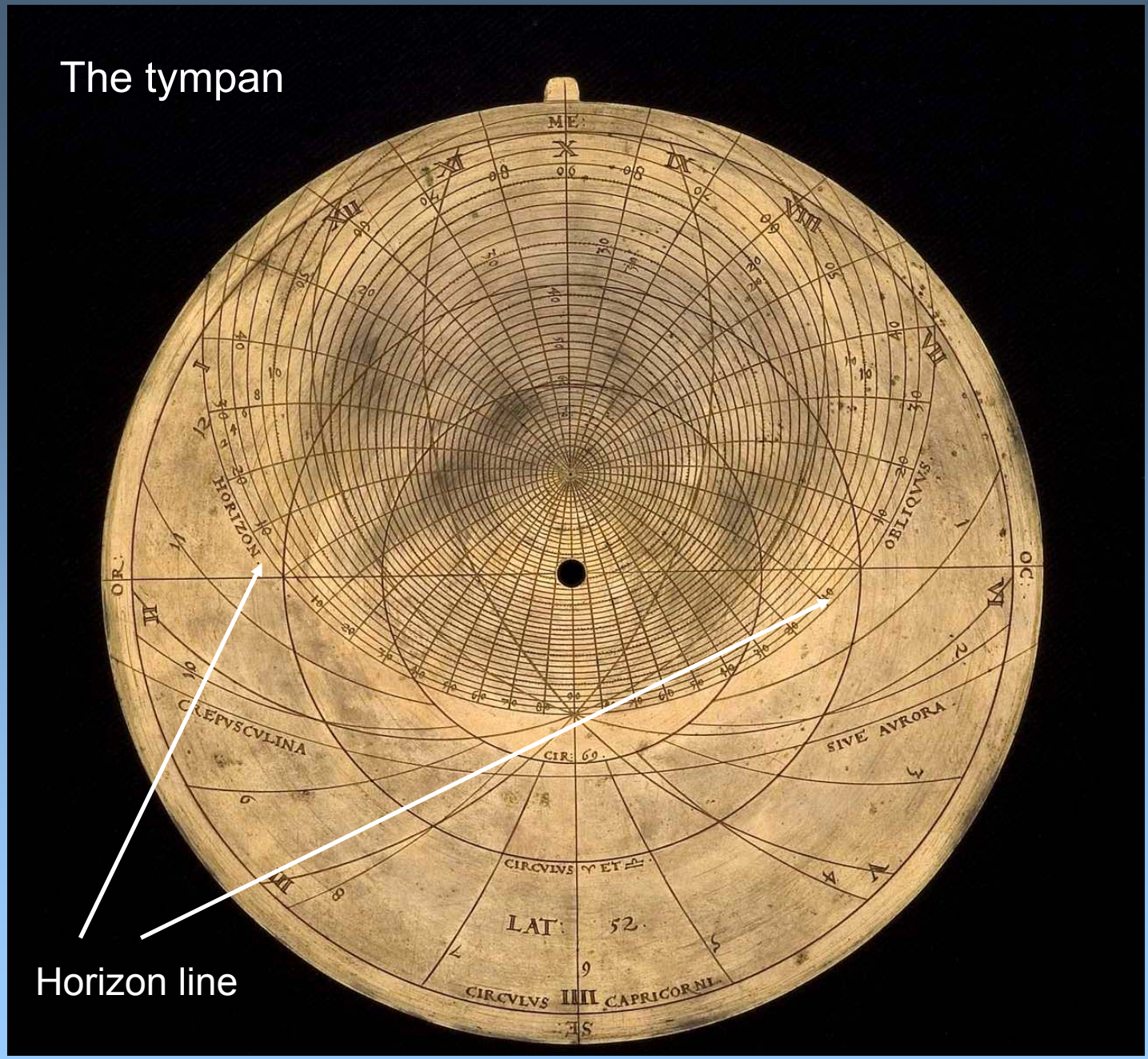
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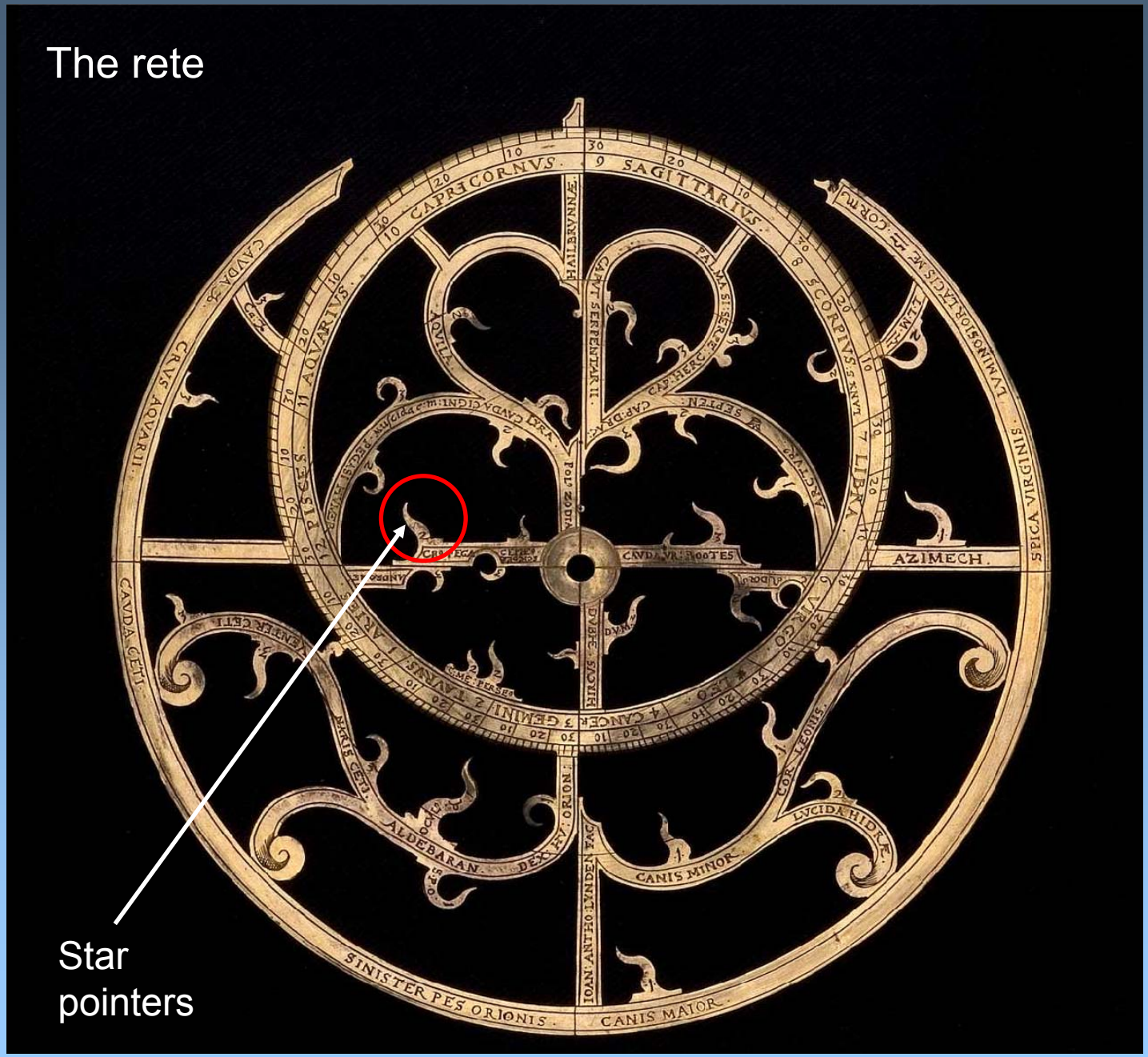
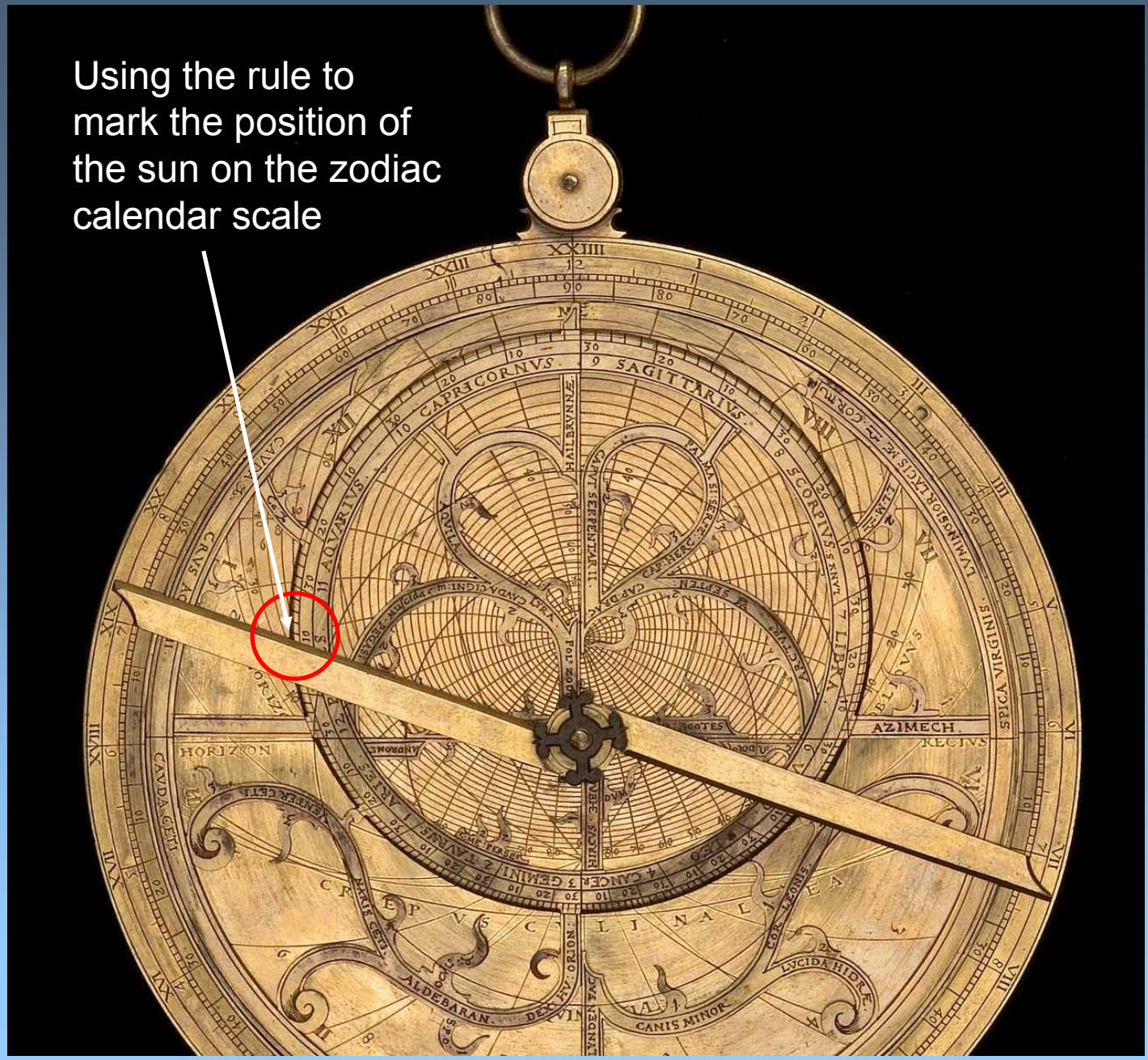
The rete



Star pointers


Using the rule to mark the position of the sun on the zodiac calendar scale
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SAGITTARIVS
SCORPIVS
LIBRA
AZIMECH.
REGIVS
HORIZON
CANDA CETI
ALDEBARAN.
CANIS MINOR.
LYCIDA HIDRÆ.
SPICA VIRGINIS