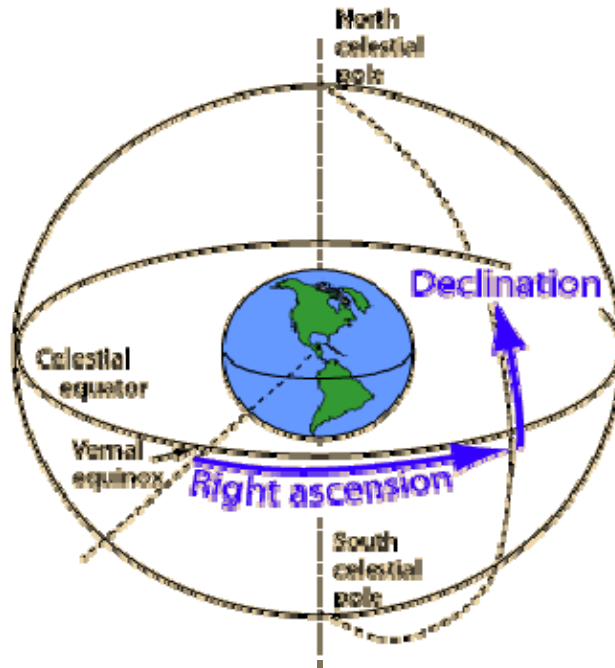


## Transferring Local Sidereal Time to the 24-Inch Telescope by Clif Ashcraft

The location of the movable Right Ascension (RA) Circle can be adjusted relative to the Hour Angle (HA) Circle to make RA readable directly opposite the zero hour mark of the HA Circle.

Right Ascension and Declination (Dec) on the celestial sphere are equivalent to longitude and latitude, respectively, on Earth's globe.



**Definition of Right Ascension and Declination on the celestial sphere..**

Illustration used with permission of HyperPhysics

<http://hyperphysics.phy-astr.gsu.edu/hbase/eclip.html>



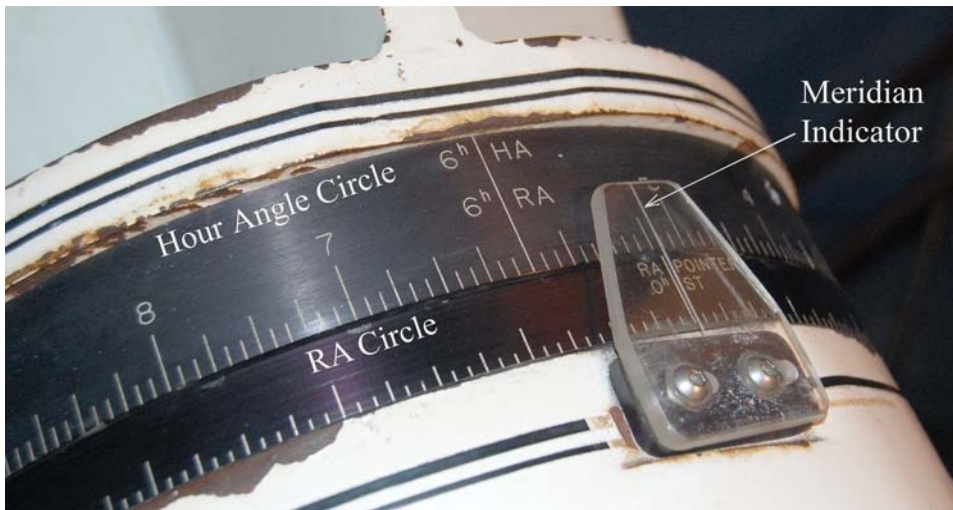
**The built-in Declination Circle on AAI's 24-inch reflector.**

Credit: Clif Ashcraft

The telescope's built-in Declination Circle can always be read directly because Declination is invariant with time.

Right Ascension, of the observatory's meridian, however, cycles through 24 hours from moment to moment each day as the Earth rotates on its axis.

To position the RA circle for direct reading of the telescope's RA, we need to make only one adjustment. We need to set Local Sidereal Time (LST) under the Meridian Indicator. The Meridian is the great circle that goes through both poles and the local zenith (the point directly overhead).



LST is most easily obtained from the Guide 8 planetarium software which is installed on the PC in the 24-inch dome.

Qualified Observers are permitted to access the software on that PC in the "Qualified Observers" account using password, "24inch" (note password is case-sensitive and it contains no blank spaces).

**The Hour Angle (HA) Circle moves with the telescope. The Right Ascension (RA) Circle can be repositioned by releasing an electric clutch. The Meridian Indicator is attached to the pier, and it never moves.**

Credit: Clif Ashcraft

If Guide 8 is not already running, press the Windows logo key and click All Programs. Double-click "Guide 8".

Check the legend in the lower left of the display on the CRT monitor. The time of day uses the computer's internal clock. The legend should also indicate "Sperry Observatory". Obtain help from the Technical Committee or the Computer Services Committee if time of day or Sperry's location are not correct.

Local Sidereal time is also indicated in the legend. Transfer LST to the RA Circle as follows:

1. Press and hold down the blue push-button on the east side of the pier to release the magnetic clutch on the right ascension (RA) circle.
2. Slide the RA circle around by hand until the current LST appears under the hairline of the Meridian Indicator.
3. Release the blue push button to re-engage the magnetic clutch.

The RA of the telescope may now be read off the RA Circle opposite the zero mark on the HA Circle.

To find an object in the sky, move the telescope about the declination axis so that the object's Dec is indicated on the Declination Circle. Move the telescope about the polar axis until the zero mark of the HA Circle is opposite the object's RA on the RA Circle. Note: If the zero mark is hidden on the under-side of the telescope, use the 12 hour mark on the HA Circle and adjust RA by 12 hours.