

*A Brief Column for the Beginning Stargazer Introducing a New Astronomical Term Each Month*

**A**stronomy is rich with terminology. This column will help beginning stargazers ease into the world of astronomy by *briefly introducing* a new but *basic astronomical term* (word, acronym or abbreviation) each month. This list, which began January 1999 with the letter *a*, is alphabetical but uses successive letters for each month's entry. (We will return to the letter *a* after twenty-six months.)

(The February 2001 column ended with *z* so this column begins the next cycle of twenty-six terms. An index of all entries covered in the last twenty-six columns appeared at the end of last month's column.)

## Word of the Month for March 2001

**altazimuth mounting** A type of telescope mounting in which two independent axes of rotation allow the instrument to pivot up-down (in *altitude*) around one axis and horizontal (in *azimuth*) around the other axis. An altazimuth mount is the simplest type of telescope mounting and is easier to construct than other types.

However, both axes must simultaneously turn and each must rotate at a different rate to track a celestial object across the sky. In fact, the tracking rates for each axis must also change as the object moves across the sky. In addition, as celestial objects cross the sky, their orientation in the field of view rotates. Finally, graduated circles (*setting circles*), attached to the rotation axes to indicate an object's position on the sky, are useless since the altitude and azimuth of the celestial object will continuously change as the object moves.

Therefore, *equatorial type* telescope mounts are usually preferred since they allow simple hand or motor driven control of the instrument, do not produce field rotation and can be used with setting circles.

(Note: At the poles of the Earth, altazimuth mountings function in the same way as equatorial mountings.)

However, two recent advances have revived the popularity of the altazimuth mounting. First, small,

inexpensive computer systems can now control the movement and setting of telescopes. Thus, most all new, large professional telescopes use the simpler altazimuth mount. Computer controlled mounts are also becoming popular among amateur sized instruments. Likewise, computer controllers on equatorial mounts are popular since they also allow rapid setting of the telescope on celestial objects.

A second advance by John L. Dobson (during the 1960s and 1970s) has now made the altazimuth mount one of the most popular designs for amateur reflecting telescopes. This new type of altazimuth mount, the *Dobsonian* mount, allows construction of low-cost, portable, large aperture reflecting telescopes suitable for visual observing by amateurs. Typically a rotating open-topped box sits on a flat board. The telescope rests in cutout yokes on the sides of the box so it can move vertically. Teflon bearings allow smooth rotation.

Dobsonian telescopes work best for deep sky objects that do not require very high magnifications or resolution but need large apertures for best viewing. High magnification, typical for planets, usually requires constant hand adjustment of the telescope in both altitude and azimuth to keep the object centered, considered a disadvantage by some observers. Also, inexpensive mirrors in some Dobsonian telescopes may not always have the high resolution needed for planetary viewing. Finally, small *focal ratios* found in many Dobsonian instruments require large secondary mirrors that can reduce contrast and resolution. However, computer systems now allow easy pointing of even large Dobsonian telescopes.

Dobsonian telescopes are relatively easy to construct by amateurs. In addition, many manufactures now sell these increasingly popular, inexpensive reflectors in apertures ranging from about 6-inch to 16-inches or more. ✨

References. J. Mitton 1991, *Concise Dictionary of Astronomy* (Oxford Univ. Press); I. Ridpath 1997, *A Dictionary of Astronomy* (Oxford Univ. Press).