OUR NEAREST NEIGHBOR, XI

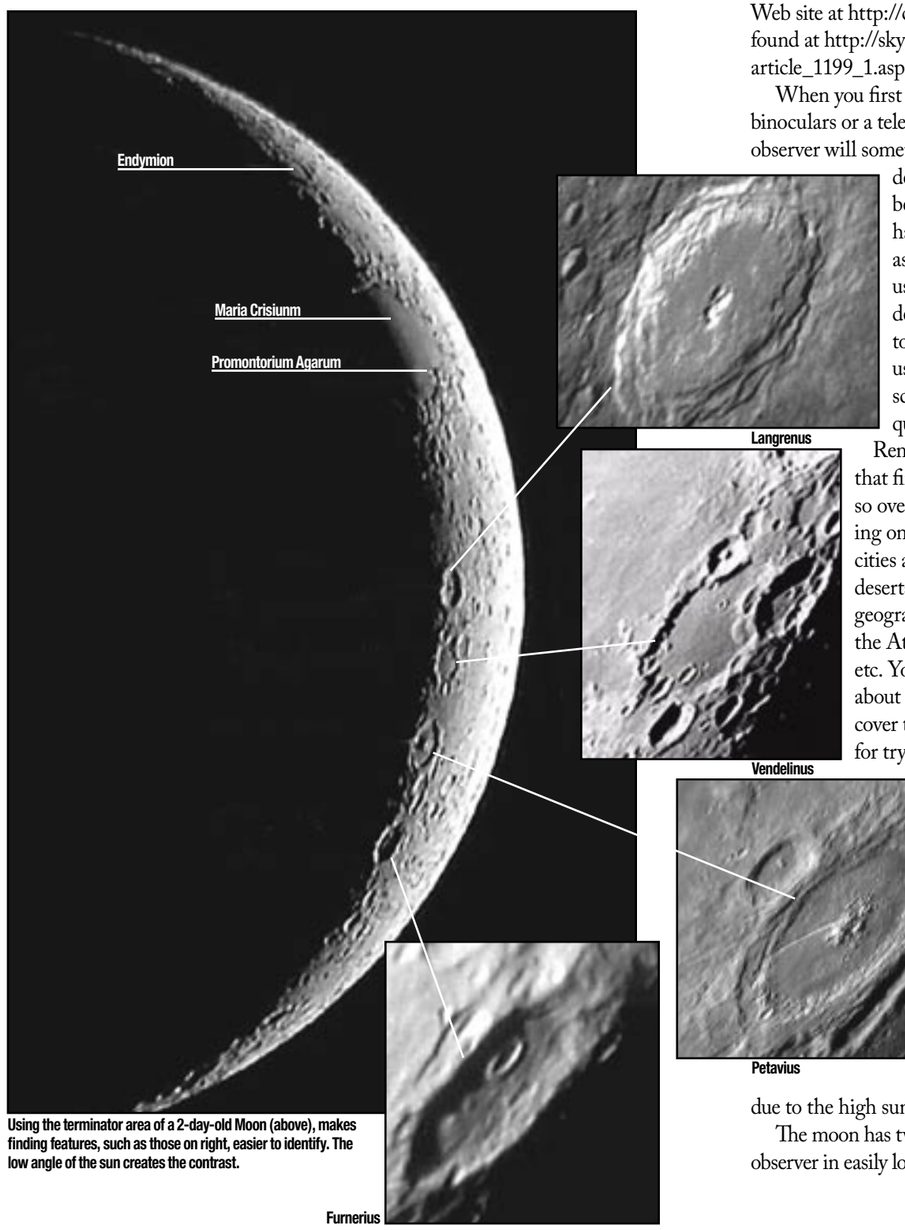
By Walt Robinson

Eventually, some time during your treks through the night sky, you are going to point either a pair of binoculars or a telescope toward the moon. There are many features to be explored, and several ways of going about making your journey enjoyable. You can just grab a map of the moon or a "Rukl Moon Atlas" and start identifying some of the interesting features. If you want to do a more extensive observing program, you can obtain a list of selected features from several of the organizations that provide them.

The Astronomical League has a Lunar Observer's certificate for those that wish to become familiar with some of the moon's major features. The list contains 100 objects that include maria, craters, mountains and other features. Some of the projects include visual observations, while others require the use of either binoculars or a telescope. The focus of the observing certificate is to find the objects and record a description. There are actually two lists: Lunar 1 and Lunar 2. Lunar 2 is a new program, approved at the August 2005 Astronomical League's annual executive meeting. For more on this observing program, go to http://www.astroleague.org/al/obsclubs/lunar/lunar1.html

The American Lunar Society has a certificate that can be earned. The requirements are to read a short article on the geological processes that created the different features on the list along with a test (obviously this is an "open book" test). There are 100 objects on the list. You only have to observe 90 of the objects. Unlike the Astronomical League's listings, the American Lunar Society has its list grouped into regions of the moon. The objects are grouped in such a way that not only do you locate the objects, but you also gain knowledge regarding the geology that has taken place. For more information on the certificate, visit the ALS Web site at http://otterdad.dynip.com/als/page105.html

There is also third list that was created by Charles Wood, who is a contributing editor for *Sky & Telescope* magazine. The listing is very similar to the list provided by the American Lunar Society, but it is more advanced than either the AL's or ALS's programs. A certain percentage of the objects are difficult to observe and rely on using favorable librations of the moon. It also focuses more on the geological processes that are involved in the formations, rather than just locating them. There is no observing certificate issued for completion of this list. For more on this observing program see Chuck Wood's Web site at http://cwm.lpod.org/ More on Chuck's list can be found at http://skyandtelescope.com/observing/objects/moon/article_1199_1.asp



Using the terminator area of a 2-day-old Moon (above), makes finding features, such as those on right, easier to identify. The low angle of the sun creates the contrast.

When you first start to observe the moon through either binoculars or a telescope, the view can be very daunting. The observer will sometimes become confused because of all the detail that can be seen. It must be remembered that most of the observing lists offered have objects that can be seen with a telescope as small as a 60mm refractor. So if you are using a larger scope, you will see much more detail around the main object you are trying to locate. If the lunar atlas or chart you are using shows north to the top, but your telescope inverts the image, this complicates the quest of trying to identify objects even further!

Remember when you were in grade school and that first look at the map of the United States was so overwhelming? There were 48 (or 50, depending on your generation) states, hundreds of major cities and countless rivers, mountain ranges, deserts and other features. Most generally the geography book was divided into regions such as the Atlantic States, the Midwest, the Southwest, etc. You learned the United States by learning about the details of a region, rather than trying to cover the map "as a whole." The same holds true for trying to learn the Moon.

The moon presents us with a logical way of finding objects, without having to hunt around the surface as a whole. When trying to complete one of these lists, don't try and do the whole list over several nights using a full moon! You are actually cheating yourself of really seeing the true nature of these objects due to the high sun angle which masks the detail.

The moon has twenty-eight different "regions" which aid the observer in easily locating objects. This is due to the different phase angle presented each day through the lunar month. Using the terminator (the area of the moon between night and day), and the high contrast due to a low sun angle (extended shadows and sunlight features) it is then easy to locate objects. Even though objects are grouped for the ALS certificate, it has been found that using the terminator is a much easier way of identifying craters, rilles, mountains, etc. The Astronomical League program tries to follow this method.

So the best way to observe the features is by using terminator charts. The charts show the moon day by day, with the features labeled. By using the corresponding chart to the lunar day, it makes it very easy to identify the objects. If you have to invert the charts to correspond to your view in the eyepiece, they are also easy to read, since the chart is not cluttered with a lot of detail or labeling. I have placed these observing charts in a file located on my Web site on the Moon at http://www.lunar-occultations.com/rlo/articles/lunarobjects.pdf

It should be noted that the lunar terminator charts were specifically designed for the Astronomical League observing program. This is where you should start, since it is the basis and learning guide to the more advanced programs offered by the Astronomical League, American Lunar Society and Chuck Wood's Lunar 100. Just as it becomes natural to find New York, St. Louis, Chicago or Denver on a map, learning the major features on the lunar surface allows you to gain a sense of bearing of where things are located.

Have you done the Astronomical League's lunar observing program yet? Maybe it's time to start. It's educational, relaxing and fun! You don't need to drive to a dark sky site. You don't need to dark-adapt your eyes. You don't need to use a red flashlight. You can complete the program right from the safety of your backyard or driveway. Get to know the moon — it's your nearest neighbor!

Walt Robinson has been a member of the Astronomical Society of Kansas City since 1987. His present duties include Webmaster for the society's Web site. He has presented many programs at the public nights at Powell Observatory and in Bonner Springs, Kan. where he lives.

Walt also runs the "Robinson Lunar Observatory" to spur interest in the moon among amateur astronomers. His recent "lunar light ray" program brought many amateurs together from across the United States and abroad to study and observe these events. An article written in the Astronomical League's Reflector *explained the program, and as a result recruited many more interested amateurs into studying the moon.*