

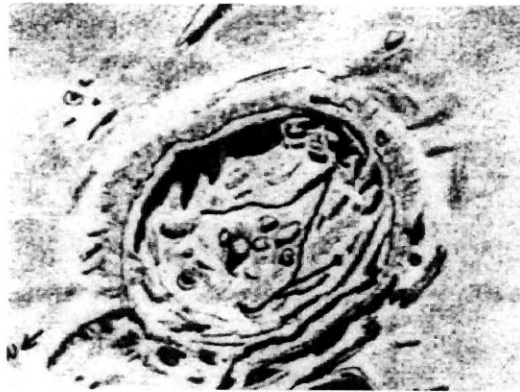
# THE LUNAR OBSERVER

A MONTHLY NEWSLETTER FOR STUDENTS OF THE MOON  
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## FEATURE OF THE MONTH

Atlas - (46.7° N 44.4° E)



Sketch by David J. Lehman - Fresno, CA  
250mm Reflector, 182X

Near the northeastern limb of the Moon lies a magnificent pair of craters Hercules and, this month's feature, Atlas. Atlas has a diameter of 87 km with walls that rise 3,000 meters above its surroundings. The interior is relatively bright and, rather than a major central peak, has a small group of central hills. There are also what appear to be the remnants of a ring concentric to the outer walls.

Of great interest are three systems of rilles that cross the crater's floor. In addition to observing these rilles shortly after sunrise on Atlas, about four days after New Moon, give them a good look about three days after Full Moon. They often present themselves well at this time and three nights after Full Moon is not too late in the evening to catch a good look at the Moon.

Another fascinating feature on the floor of Atlas is its pair of dark spots, one to the north and the other to the south. Both have been reported as being variable in tonality. Large telescopes have revealed the presence of central craters in the dark spots suggesting some volcanic involvement. Plotting the tonality of the spots over time would be a project of great interest.

Thanks to David Lehman for his fine sketch of Atlas. This striking crater can be found on Map #15 of Rukl's Atlas of the Moon. Additional observations of Atlas are, of course, welcomed and invited.

# Lunar Photography - Part Three

## PRIME FOCUS

Up to this point, lunar photography has been discussed only in terms of telephoto lenses, but the same principles apply to photography through a telescope. In fact, a telescope is nothing more than a large telephoto lens. Or, if you prefer, a telephoto lens is nothing more than a small telescope.

All that needs to be done to photograph through a telescope is to remove the eyepiece and attach the camera (without the camera lens) to the scope with one of the many adapters on the market today. This method of photography, without any intervening lenses between the objective and the film, is photography at the prime focus.

Since telescopes will usually have longer focal lengths than telephoto lenses, larger images can be obtained. Longer focal lengths, however, enlarge more than just the image. Motion is also magnified so steadier mounts and shorter exposures are needed to keep sharpness within acceptable limits. Focusing also becomes more critical and extra care must be used to ensure a sharp image.

The distance scale of a telephoto lens can simply be set to infinity and, unless something is seriously wrong with the lens, the Moon will be in focus. Telescopes, however, have no such setting and the point of exact focus is a matter of care and judgement. The focusing screen of your camera can also make a significant difference in the sharpness of the images you obtain. The finer the 'grain' of the ground glass screen, the easier it is to see fine detail and the more precise your focus will be. Focusing magnifiers that attach to the viewfinders of some cameras can be a great help in achieving a well-focused image.

## OTHER ACCESSORIES

Little equipment is required beyond the telescope (or lens), a camera (35mm SLR) and a suitable tripod. In fact, the only other necessary accessory is a cable release. One thing sure to ruin an otherwise good photograph is vibration. A cable release, especially an air release, will prevent vibrations from being transmitted to the camera as the shutter is tripped.

Teleconverters are lenses that can be attached to most 35mm SLR camera bodies to increase the effective focal length of any lens being used. A 2X teleconverter will double the focal length of a 400mm lens and turn it into an 800mm lens, but there is a price to pay. In addition to doubling the effective focal length, the focal ratio is also doubled. A 400mm f/8 lens becomes, therefore, an 800mm f/16 lens and the exposure time must be adjusted accordingly. A quick check of the exposure guide provided in last month's installment shows that this means a four-fold increase in exposure. In some cases, this can cause you to exceed the longest practical exposure recommended for a fixed (undriven) camera. Another word of caution when using teleconverters: Be sure and check your focus carefully. Teleconverters can sometimes cause a shift in the focus of a lens and the infinity mark on your telephoto lens may no longer be the point of best focus.

## WHY PRIME FOCUS?

Some people wrongly believe that only high magnification photographs of the Moon are of any interest or value. Photographs that are taken at prime focus, however, can be quite useful and a lot of fun.

As the Moon moves through the night sky it often comes with a few degrees of some other celestial object. These close approaches, or appulses, are best recorded at prime focus because of the relatively wide field of view provided by this method. Eclipses, as previously mentioned, are also excellent candidates for prime focus photography. When recording your observations of the Moon, with either

sketches or close-up photographs, it is useful to record the position of the terminator with a full disk photo of the Moon. And, for those in search of lunar transient phenomena, Earthshine is a prime hunting ground and a fine subject for prime focus photography.

So, give prime focus photography a try. I'm sure that you will find it a rewarding addition to your observing program.

NEXT MONTH: Eyepiece Projection

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## The Lunar Calendar for November 1997 (All Times UT)

4	06:00	Moon 6.3 Degrees North of Mars
4	11:00	Moon 8.6 Degrees North of Venus
6	14:00	Moon 3.6 Degrees North of Neptune
7	04:00	Moon 4.1 Degrees North of Uranus
7	21:43	First Quarter
12	01:00	Moon Occults Saturn
12	08:00	Moon at Perigee (363,370 km)
14	14:11	Full Moon
21	23:59	Last Quarter
24	02:00	Moon at Apogee (404,684 km)
30	02:14	New Moon (Start of Lunation 927)

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### From the Editor:

Just in case you haven't figured it out yet, the "Feature of the Month" is based on the observations we receive from our readers. So send in your sketches, with or without observing notes. Or send in your observing notes, with or without a sketch. We'll fill in the blanks.

You don't have to be doing cutting edge research to be doing astronomy. The idea is to participate. To belong. To contribute. To make a difference. To share what you have done.

Remember: An observation that is not shared is an observation that is lost!

Clear and steady skies ..... W.M.D.