THE LUNAR OBSERVER

A MONTHLY NEWSLETTER FOR STUDENTS OF THE MOON DECEMBER 1997

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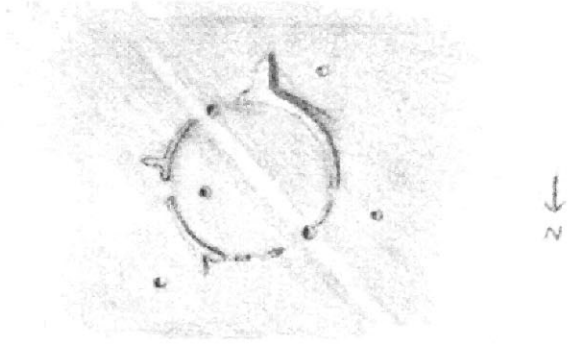
FEATURE OF THE MONTH

Kies - (26.3° S 22.5° W)



Sketch by Robert H. Hays, Jr. - Worth, Illinois

150mm Reflector, 170X

Near the southern shore of Mare Nubium, just south of the magnificent crater Bullialdus and the less than magnificent Konig, lies the flooded crater Kies. About 44km in diameter, Kies has walls that rise no more than 380 meters above the surroundings. Still, it is an eye-catcher under the right lighting conditions. Observer Robert Hays of Worth, Illinois sketched Kies and submitted the following report:

"On the evening of September 11/12, I sketched this ruined crater and immediate vicinity after timing the occultation of an 8th magnitude star. It looked like a simple little thing but, as is often the case, it had its own complexities. There was a very large peak at the south end, and two smaller ridges protruded from the east and north ends. Two small craters were in large gaps in the southeast and northwest. One small crater was on the floor and three others were nearby. The floor of Kies was otherwise very smooth. There was a straight, narrow ray, probably from Tycho, that crossed the crater, passing slightly southwest of its center. The two small craters on Kies' rim were on, or very close, to this ray."

Also, for those interested in low profile features, there is a system of wrinkle ridges to the west and a perfect example of a lunar dome to the east. The dome, Kies Pi, is a very prominent one that also exhibits a summit crater. Thanks to Robert Hays for the fine sketch and accompanying written observations. Kies, and its surroundings, can be found on map #53 of Rukl's Atlas of the Moon and should be in good position for viewing about 10 days after New Moon.

Lunar Photography - Part Four

Photography of the Moon at prime focus can be a very enjoyable and useful pursuit but it is close-up photography that presents the greater challenge and rewards. The size of the lunar image on film is in direct proportion to the focal length of the optical system used. A typical 8-inch SCT has a focal length of 2,000 mm which will produce a lunar image approximately 18mm in diameter at the prime focus. Enlarged four times (standard for photofinishers), the image is still less than three inches across. A "respectable" close-up of the Moon would need to be three or four times that size, but how does one acquire a telescope with a focal length of 6,000mm or more?

The answer is, of course, that you don't need to buy a telescope with a longer focal length you simply need to extend the focal length of the instrument that you already own. The method of increasing the focal length and, therefore, the image size is the same for photography as it is for visual work. You simply add an eyepiece.

STANDARD EYEPIECE PROJECTION

Eyepiece projection is achieved by coupling the camera body (less lens) to the telescope (with an eyepiece in place) by way of a photo adapter tube. The focal lengths obtained by this method can be calculated in the following manner: With all components in their proper positions (eyepiece, adapter tube, and camera) measure the distance from the eyelens of the eyepiece to the film plane of the camera. Divide this distance (in millimeters) by the focal length (also in millimeters) of the eyepiece you are using. The number obtained is a magnification factor which can be applied to the original focal length of the telescope to give the new focal length. This factor can also be applied to the original focal ratio to obtain the new focal ratio of the system.

For example: If the eyelens to film plane distance is 150mm, and you are using a 25mm eyepiece, the magnification factor is 6. If your telescope is a six inch reflector with a focal length of 1200mm (f/8), your new focal length will be 1200 x 6 = 7200mm and your new focal ratio will be f/8 x 6 = f/48.

The distance from eyelens to film plane will vary with the design of your eyepiece and the type of adapter you purchase. Some adapters, in fact, are of variable length. If you want to calculate the potential capabilities of your telescope, but do not yet own an adapter, use a distance of five to six inches. This is typical of most adapters and will work well enough for rule-of-thumb calculations.

NEXT MONTH: The afocal method

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Observations Received During the Month

Robert H. Hays, Jr. - Worth, Illinois: Sketch of Pitatus

Sketch of Kies

Sketch of Taruntius

Written account of occultation of Saturn by the Moon

William O'Connell - Whitman, MA: Electronic image of Plato

The Lunar Calendar for December 1997

(All Times UT)

3	04:00	Moon 5.5 Degrees North of Mars
5	06:00	Moon 2.2 Degrees North of Jupiter
7	06:10	First Quarter
9	06:00	Occultation of Saturn (West of Rockies)
9	17:00	Moon at Perigee (368,864 km)
13	05:00	Moon 0.5 Degrees North of Aldebaran
14	02:37	Full Moon
21	21:44	Last Quarter
21	23:00	Moon at Apogee (404,251 km)
28	03:00	Moon 2.1 Degrees North of Mercury
29	16:56	New Moon (Start of Lunation 928)
31	05:00	Moon 3.1 Degrees North of Neptune

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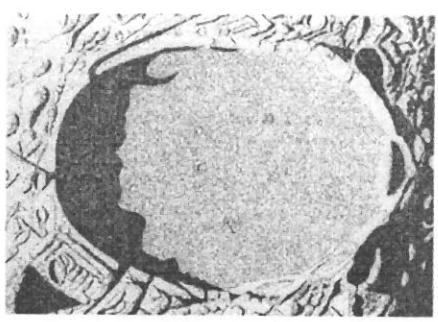
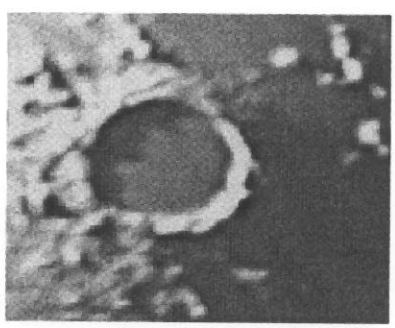
By George, I think he's got it!!



Sketch by Patrick Moore



CCD Image by William O'Connell

On February 16, 1997 at 1:01 Universal Time Bill O'Connell of Whitman, Mass. captured the elusive "Plato's Hook" while working on the ALPO Selected Areas Program. He used a CCD camera mounted on an 8 inch SCT operating at f/20. The selenographic colongitude at the time was 13.01, seeing was 6/10, with transparency at 6.

Bill comments: "The hook is not as pronounced as in Moore's drawing - it almost looks as if just the tip is "bent" - but it is in just the right position, near the deep valley in Plato's outer wall."

Nice job Bill .... and keep those images coming!