THE LUNAR OBSERVER

A MONTHLY NEWSLETTER FOR STUDENTS OF THE MOON AUGUST 1997

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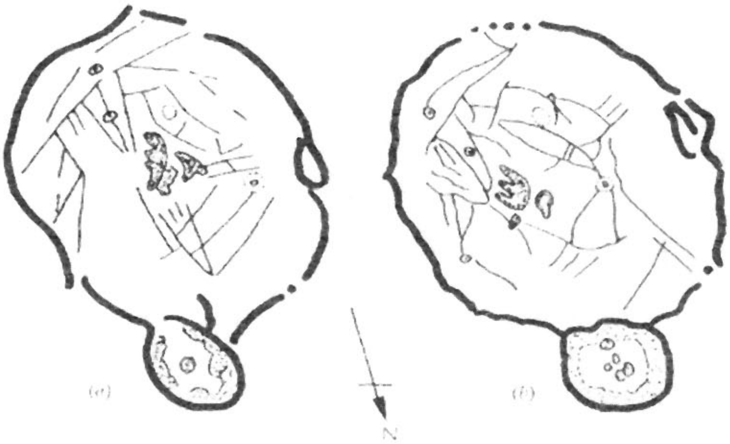
FEATURE OF THE MONTH

GASSENDI (17.5 S - 39.9 W)



SKETCHES: (a) Edmund Neison (b) Phillip Fauth

On the North border of Mare Humorum is Gassendi, one of the Moon's most prominent and beautiful craters. Gassendi has a diameter of 110 km and a 1,200 meter central mountain, but what makes this crater so fascinating is the wealth of detail on its floor. The floor of Gassendi is criss-crossed by numerous clefts, Wilkins & Moore counted 38. The two most prominent clefts run south from the central peak and are easily seen in a small telescope. How many others you might see will depend upon the size of your telescope and the angle of the lighting at the time. So varied are the views of Gassendi that it is often said the "Each man sees his own Gassendi". The above sketches by two of the Moon's most famous observers is a perfect example of the diversity of views of this fascinating crater.

Gassendi is also of great interest to students of lunar transient phenomena. On April 30, 1966 a red event in Gassendi was witnessed by several independent observers including Patrick Moore who wrote:

"This was, in fact, the most unmistakable red event that I have ever seen on the Moon, and it persisted for about four hours. The main feature was a wedge-shaped, reddish-orange streak extending from the wall of Gassendi right across to the central peak."

Gassendi can be found on Map #52 of Rukl's Atlas of the Moon and should be well placed for viewing about 11 days after New Moon. Check it out on several evenings and for several lunations in a row and see how your observations vary with the changing light. Observations will be gladly accepted at the above address.

Determining Lunar Heights

One of the most rewarding pursuits for the amateur engaged in lunar observing is the determination of lunar heights. Once characterized by tedious mathematical calculations, this noble pursuit is now made infinitely more simple and enjoyable by Harry Jamieson's collection of software programs the Lunar Observer's Tool Kit. When using the Tool Kit one need only furnish certain basic information and let the program do all of the number crunching. The data required are as follows:

Location of the observer in degrees and minutes, and elevation in meters. The best source for this information is a geodetic map published by the U.S. Geological Survey. These are often available in sporting goods stores and/or public libraries.

Universal date and time to the nearest minute.

Location of the lunar feature being measured in degrees and minutes of latitude and longitude. The better the lunar atlas used, the more accurate the results. You may, instead, simply enter the feature's name and the Tool Kit will provide the coordinates.

Length of the shadow being cast by the feature. This information may be in kilometers, fraction of the lunar radii, or seconds of arc. Obviously, accuracy is critical here. Several methods of shadow measurement are available to the amateur, the most common being:

ESTIMATING BY EYE: This method is the least accurate and is performed by visually comparing the length of the shadow to a feature of known size. If the shadow length appears to be half the size of a 30 km crater, the value is entered as 15 km.

DRIFT METHOD: Here the shadow is allowed to drift across the reticle of a high power eyepiece, with the clock drive running, while timing its passage with a stop watch. That time is then compared to the time it takes for a feature of known size to drift across the same reticle. As a rule of thumb, the Moon will drift from west to east at the rate of slightly less than 1 kps.

BIFILAR MICROMETER: Probably the most precise method of shadow measurement is achieved with the aid of a bifilar micrometer. Measurements can be made by comparing the length of the shadow to the size of a known feature, or by calibrating the micrometer on a double star of known separation and measuring the shadow in seconds of arc.

GRADUATED RETICLE: Eyepieces with graduated reticles such as Celestron's Micro Guide may be used in the same manner as a bifilar micrometer. Although not as precise, they are less expensive and easier to use.

PHOTOGRAPHIC: Measuring shadow lengths on a photograph is similar in procedure to that of using a graduated reticle eyepiece. Results are comparable but a photograph has the advantage of containing many shadows which can be measured under more controlled conditions, and the measurements are infinitely repeatable.

If you are presently engaged in the determination of lunar heights, or would like to become involved in such a study, please contact the editor. If enough interest can be generated, the A.L.P.O. will sanction a Vertical Studies Program to encourage further research in this most fascinating area.

The Lunar Calendar for August 1997
(All Times UT)

August 3	08:15	New Moon (Start of Lunation 923)
August 6	08:00	Moon 1.5 degrees South of Venus
	14:00	Moon at apogee (405,925 km)
August 11	12:43	First Quarter
August 17	04:00	Moon 4.3 degrees North of Uranus
August 18	10:57	Full Moon
August 19	05:00	Moon at perigee (358,010 km)
August 22	02:00	Moon 0.23 degrees South of Saturn
August 25	02:25	Last Quarter

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Banded Crater Program

Dr. Julius Benton, Jr., ALPO Coordinator of Selected Areas Program, is also in charge of the Banded Crater Program. All inquiries and observations are to be sent to Dr. Benton at the following address:

Dr. Julius L. Benton, Jr.
Associates in Astronomy
305 Surrey Road
Savannah, GA 31410

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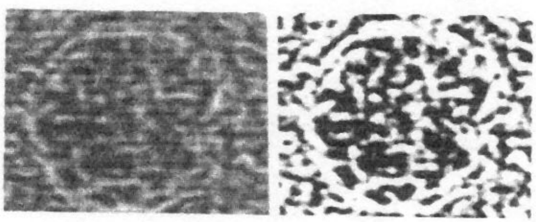
Bands in Plato

Alexey Arkhipov ... Kharkov, Ukraine



Although the changes in light bands on the floor of Plato were discussed in the nineteenth century by C. Flammarion, the features remain virtually forgotten. The low contrast of these features hinders their observation. Fortunately a special algorithm, SAAM, is an excellent fit for these studies as discussed in the January 1997 issue of Selenology. I have used SAAM to process individual images of Plato from the Clementine files. The mosaic image was smoothed and is shown as Figure 1. Increasing the contrast allows one to see the extraordinary complex of fine lines (Fig. 2). The origin of this pattern is a puzzle.