THE LUNAR OBSERVER

AN INDEPENDENT NEWSLETTER FOR STUDENTS OF THE MOON – AUGUST 2003
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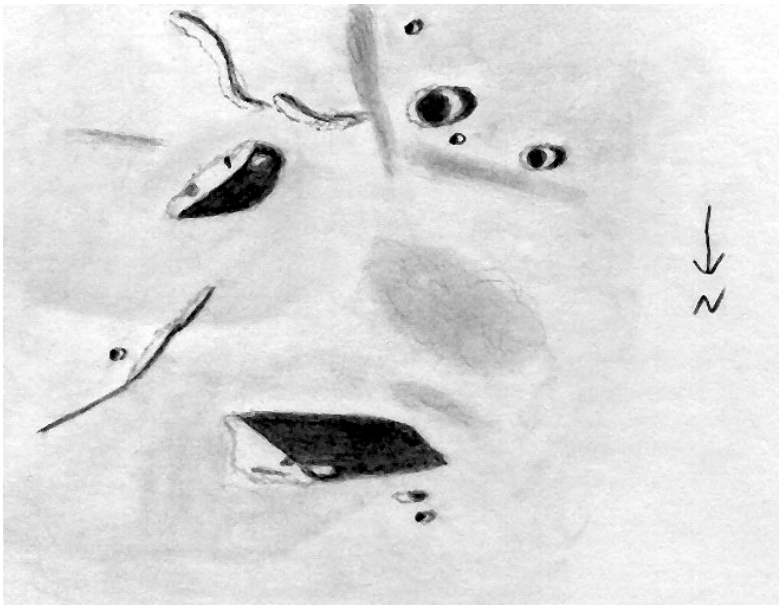
FEATURE OF THE MONTH



MONS PICO (46^{O}N – 9^{O}W)
Sketch by Robert H. Hays, Jr. – Worth, Illinois, USA
January 12, 2003 – 15cm Newtonian – 170x – Seeing 6-8/10

I sketched this area on the evening of January 11/12, 2003 between two occultations. Pico is an isolated peak in northern Mare Imbrium with a variety of features nearby. Pico has a triangular shape with bits of shadow on its sunlit side and an isolated bright dot in its long shadow. I noted a small peak and a craterlet near the end of this shadow. Pico beta is the long, narrow mountain to the south; this peak is about the same size as Pico itself. Pico beta also had a couple of bits of shadow on its sunlit side and a patch of light in its shadow. The shadow of Pico beta was much shorter than that of Pico; this mountain must be considerably lower. A group of four craters lies west of Pico beta, the largest being Pico E. Pico F and EA are small pits south and north of Pico E respectively. Pico D is a larger pit west of EA. I saw some wrinkling near these craters and two curved ridges south of Pico beta. There was another ridge with a kink near its middle between Pico and Pico beta. The small pit Pico K was nearby.

OBSERVATIONS RECEIVED

MICHAEL AMATO - WEST HAVEN, CONNECTICUT, USA
Ray Maps of Kepler, Aristarchus, Proclus, Messier, Menelaus

ED CRANDALL - WINSTON-SALEM, NORTH CAROLINA, USA
CCD Images of Montes Apenninus, Southern craters, South Polar Region, Archimedes to North Pole

DANIEL DEL VALLE - AGUADILLA, PUERTO RICO
CCD Image of Gassendi (2), Atlas & Hercules (2), Aristillus, Walter, Messier Twins, Mee, Palus Epidemiarum, Kepler (2)

WILLIAM ELSBURY – MASON CITY, IOWA, USA
Video Still of Theophilus, Copernicus (2), Cassini Bright Spot, Mare Frigoris, Gassendi, Bullialdus, Montes Apenninus, Timocharis, Mare Fecunditatis (2), Gassendi to South Pole, Mare Vaporum & Hyginus

ROBERT H. HAYS, JR. – WORTH, ILLINOIS, USA
Detailed observations of the total lunar eclipse including four sketches, four photographs, umbra timings, and crater timings.

JACK KRAMER – LIBERTYVILLE, ILLINOIS, USA
CCD Image of Gassendi

NIGEL LONGSHAW – CHADDERTON, LANCASHIRE, ENGLAND
Sketches of Atlas, Harpalus

K. C. PAU – HONG KONG, CHINA
CCD Image of Mons Penck, Mare Nectaris (2), Rupes Cauchy, Posidonius, Rupes Altai, Dorsa Smirnov Messier, Janssen, Atlas & Hercules, Albategnius, Mare Imbrium & Sinus Iridum

RODRIGO VIEGAS – MONTEVIDEO, URUGUAY
Sketches of Campanus & Mercator, Cassini & Aristillus, Cauchy and Environs (2), Copernicus & Reinhold, Eratosthenes (2)

ROBERT WLODARCZYK - CZESTOCHOWA, POLAND
Sketches of Herschel & Flammarion, Reinhold & environs

From the Editor:

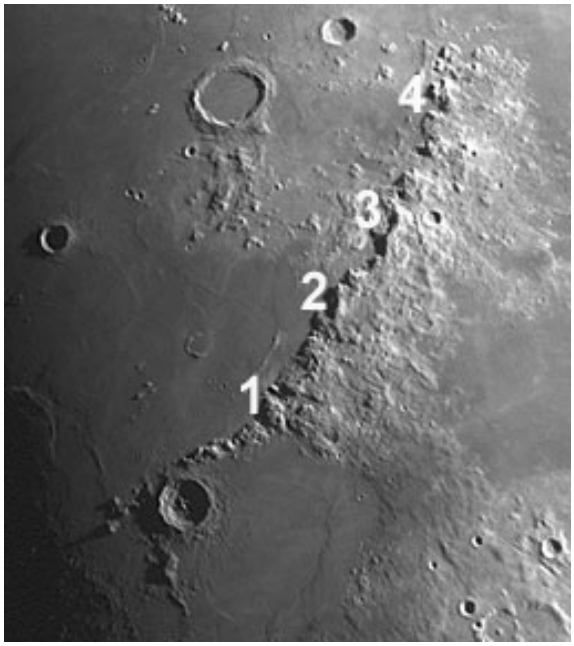
This is just a reminder that observations submitted for publication are best if they include the following:

Name and location of observer
Date and time (UT) of observation
Magnification (for sketches)
Name of feature
Size and type of telescope used
Medium employed (for photos and electronic images)

Clear and steady skies ….. WMD

Just as deep sky observers look for interesting objects between the stars,
lunar observers can find many treasures

BETWEEN THE CRATERS



MONTES APENNINUS
CCD Image by Ed Crandall – Winston-Salem, North Carolina
July 8, 2003 – 02:19 UT
10 in. Newtonian – Starlight Xpress HX-516

This month's subject is the spectacular mountain range, Montes Apenninus, which many consider to be the most beautiful feature of its type on the Moon. Lunar mountains were not created by tectonic forces as are those on Earth, but by impact events. An indication of the Apennines true nature is the fact that they present a much steeper angle on the side facing Imbrium than they do on the side which faces in the opposite direction. This is a universal characteristic of impact crater walls. Montes Apenninus extends from near Eratosthenes in the south, through a sweeping arc to the juncture of Mare Imbrium and Mare Serenitatis in the north; a distance of about 650 km (400 miles). Points of interest along the way are the major peaks:

[1] Mons Wolff near the southern end of the Apennines measuring about 3600 meters (12,000 ft.).
[2] Mons Huygens about halfway up the range. It is the highest peak at 5,400 meters (18,000 ft.).
[3] Mons Bradley at 4,200 meters (14,000 ft.)
[4] Mons Hadley in the northern extreme at 4,500 meters (15,000 ft.).

Be on the lookout also for some nice rilles adjacent to the Apennines, particularly between Mons Bradley and Mons Hadley. The Hadley Rille/Apennine region was the area explored by the crew of Apollo 15 which landed there in 1971. For more information on that mission go to http://nssdc.gsfc.nasa.gov/planetary/lunar/apollo15info.html

BRIGHT LUNAR RAYS

Although they are some of the most extensive features on the Moon, bright lunar rays are still among the most understudied. Therefore, the Association of Lunar & Planetary Observers, the American Lunar Society, the British Astronomical Association, the Society for Popular Astronomy (England), and dedicated independent observers have embarked upon a study of these beautiful and intriguing splash patterns. In addition to basic mapping of the location, size, and extent of lunar rays there are many things yet to be learned about them. It is the aim of the project to answer the following questions:

DISTRIBUTION OF RAYS:

Do rays occur mainly in the highlands or marial areas?
Do rayed craters form any noticeable groups or clusters?
Are there indications that any of the rays emanate from the Moon's far side?

RAY STRUCTURE:

Are the rays distributed evenly around their parent crater?
If rays emanate from a crater do they start from its center, edge, or some distance from the rim?
What is the start and end point of individual rays and ray systems?
What is the width of individual rays?

APPEARANCE OF RAYS:

How does the brightness of a ray change during the lunation?
Does the brightness of a ray change over its length?
When do individual rays or ray systems first become visible at sunrise or are lost at sunset, including colongitude and solar altitude?
Are the rays brightest at Full Moon, when the sun is overhead at their location, or at any other time during a lunation?
Are the parent craters consistently brighter than their rays, or do any of the rays exceed the brightness of their parent?
Does the appearance of the ray change with the use of color or polarizing filters?

INTERACTION OF RAYS WITH LOCAL FEATURES:

Do rays appear to be deflected, interrupted, or obscured by surface features?
Do the rays of different systems overlap?
Is there any sign of disruption where systems overlap?
Is it possible to determine which system is younger?
When a ray is not visible, is there evidence of its presence on the lunar surface; differences in color, texture, etc.?
Are there local features which mimic rays (rilles, ridges, crater chains, etc.)?

Those interested in participating in the Project, or simply learning more about Rays, should visit a new newsletter dealing exclusively with these features. It, *THE IMPACT RAY OBSERVER*, is available online at: http://users.adelphia.net/~dembowski/tiro.pdf or via a link on the website of the Elton Moonshine Observatory at http://users.adelphia.net/~dembowski/ (not a bad place to visit in any event). Please note that you DO NOT have to be a member of any organization in order to participate.

William M. Dembowski, FRAS – Coordinator, International Bright Lunar Rays Project

LUNAR CALENDAR - AUGUST 2003 (UT)

05 . . . 07:28 . . . First Quarter

06 . . . 14:00 . . . Moon at Perigee (229,555 miles – 369,423 km)

12 . . . 04:47 . . . Full Moon

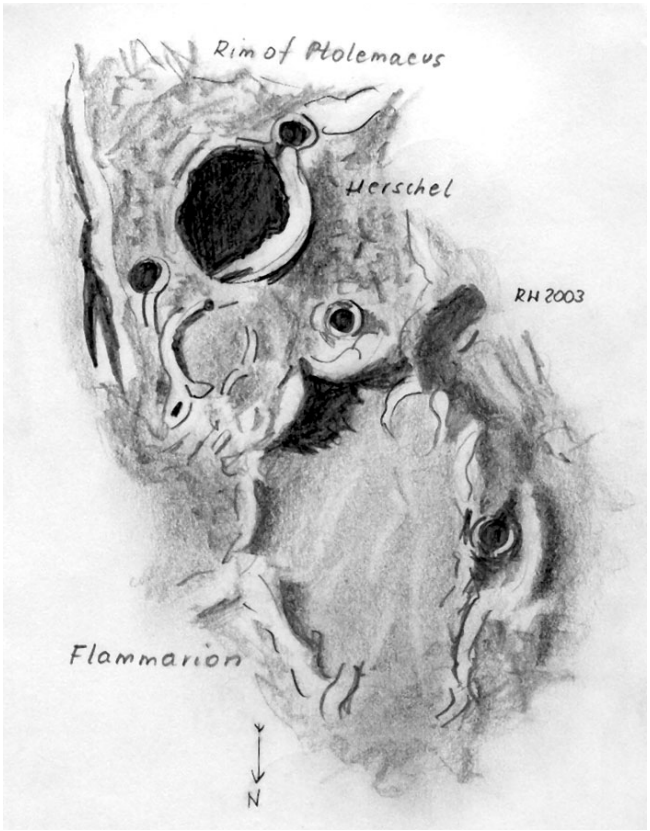
19 . . . 14:00 . . . Moon at Apogee (251,097 miles – 404,090 km)

20 . . . 00:49 . . . Last Quarter

27 . . . 17:25 . . . New Moon (Start of Lunation 998)

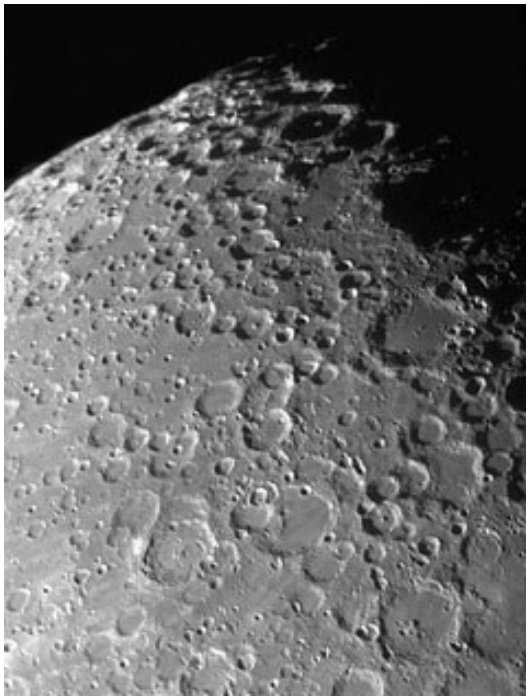
31 . . . 19:00 . . . Moon at Perigee (228,618 miles – 367,915 km)

TOPOGRAPHICAL STUDIES

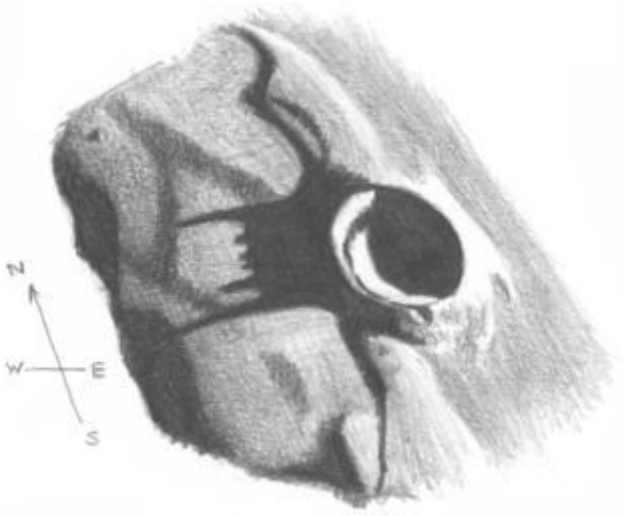


HERSCHEL & FLAMMARION
Sketch by Robert Wlodarczyk – Czestochowa, Poland
June 7, 2003 - 150mm Newtonian – 112x

TOPOGRAPHICAL STUDIES



SOUTH POLAR REGION
CCD Image by Ed Crandall – Winston-Salem, North Carolina
July 8, 2003 – 10 inch Newtonian – Starlight Xpress HX-516



BURG
Sketch by Rodrigo Viegas – Montevideo, Uruguay
January 29, 2001 – 114mm f/7.9 Refractor