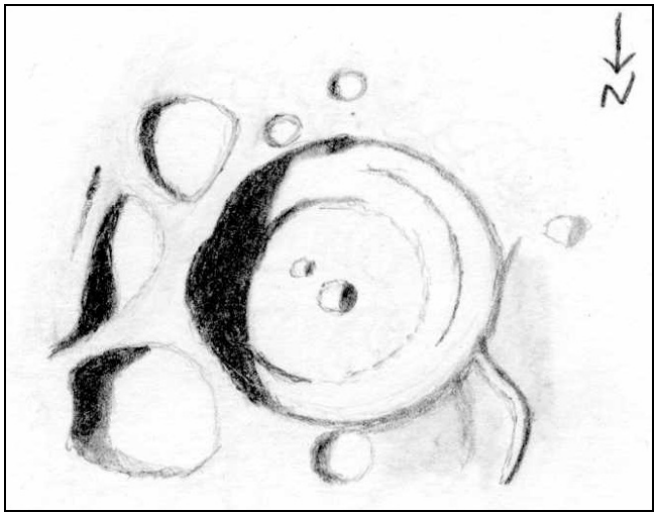
THE LUNAR OBSERVER

RECENT BACK ISSUES: http://www.zone-vx.com/tlo_back.html

A PUBLICATION OF THE LUNAR SECTION OF THE A.L.P.O.

EDITED BY: William M. Dembowski, F.R.A.S. - dembowski@zone-vx.com
Elton Moonshine Observatory - http://www.zone-vx.com
219 Old Bedford Pike (Elton) - Windber, PA 15963

FEATURE OF THE MONTH – AUG. 2008



LEXELL-A

Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA
February 16, 2008 - 02:10 to 02:40 UT
15cm Newtonian - 170x - Seeing: 7-8/10

I sketched this crater and vicinity on the evening of Feb. 15/16, 2008 while watching the moon hide five stars. This crater is southeast of Mare Nubium, and stands out well from its surroundings. (It is associated with Lexell, a ruined crater to its west.) There is a conspicuous central peak and a smaller peak to its southeast. The interior walls of Lexell A show evidence of terracing, and the west rim is noticeably angular or pointed. There is a variety of crater shapes nearby.

The large crater to the northeast is Lexell D; coincidentally, it has a D-shape. Lexell E is the triangular crater to the southeast, and an irregular, elongated depression is between D and E. There is a shallow saucer adjoining the north edge of Lexell A, and two smaller saucers to the south near Lexell E. A narrow, curved ridge is near the west edge of Lexell A, and an isolated peak is near its southern end. The area between this ridge and the northern saucer is noticeably dusky, more so than the surrounding area.

AN INVITATION TO JOIN THE A.L.P.O.

The Lunar Observer is a publication of the Association of Lunar and Planetary Observers that is available for access and participation by non-members free of charge, but there is more to the A.L.P.O. than a monthly lunar newsletter. If you are a non-member you are invited to join our organization for its many other advantages.

We have sections devoted to the observation of all types of bodies found in our solar system. Section coordinators collect and study members' observations, correspond with observers, encourage beginners, and contribute reports to our Journal at appropriate intervals.

Our quarterly journal, **The Strolling Astronomer**, contains the results of the many observing programs which we sponsor including the drawings and images produced by individual amateurs. Additional information about the A.L.P.O. and its Journal can be found on-line at: **http://www.alpo-astronomy.org/index.htm** I invite you to spend a few minutes browsing the Section Pages to learn more about the fine work being done by your fellow amateur astronomers.

To learn more about membership in the A.L.P.O. go to: **http://www.alpo-astronomy.org/main/member.html** which now also provides links so that you can enroll and pay your membership dues online.

LUNAR CALENDAR - AUGUST 2008 (UT)

Aug. 01	10:13	New Moon (Start of Lunation 1059)
Aug. 01	16:00	Moon 1.3 SSW of Mercury
Aug. 02	13:00	Moon 2.1 Degrees SSW of Venus
Aug. 03	10:00	Moon 3.4 Degrees SSW of Saturn
Aug. 04	09:00	Moon 3.6 Degrees SSW of Mars
Aug. 08	20:20	First Quarter
Aug. 10	20:00	Moon at Apogee (404,556 km - 251,379 miles)
Aug. 13	15:00	Moon 2.8 Degrees SSE of Jupiter
Aug. 16	19:00	Moon 0.77 Degrees N of Neptune
Aug. 16	21:17	Full Moon (Partial eclipse of the Moon)
Aug. 18	23:00	Moon 3.7 Degrees NNW of Uranus
Aug. 23	23:50	Last Quarter
Aug. 26	04:00	Moon at Perigee (368,692 km - 229,095 miles)
Aug. 30	19:58	New Moon (Start of Lunation 1060)
Aug. 31	02:00	Moon 3.7 Degrees SSW of Saturn

CALL FOR OBSERVATIONS:
FOCUS ON: Aristoteles to Eudoxus

Focus on is a bi-monthly series of articles which includes observations received for a specific feature or class of features. The subject for the **September 2008** edition will be the area from **Aristoteles to Eudoxus**. Observations of all kinds (electronic or film based images, drawings, etc.) are welcomed and invited. Keep in mind that observations do not have to be recent ones, so search your files and/or add these fascinating features to your observing list and send your favorites to:

Dembowski@zone-vx.com or dembowski@alpo-astronomy.org

Deadline for inclusion in the Wrinkle Ridges article is August 20, 2008

FUTURE *FOCUS ON* ARTICLES:

In order to provide more lead time for potential contributors the following targets have been selected:

Bullialdus to Kies	**TLO Issue: Nov. 2008**	**Deadline: October 20, 2008**
Albategnius	**TLO Issue: Jan. 2009**	**Deadline: December 20, 2008**

THE LUNAR MARIA

The Moon - A Full Description and Map of its Principal Physical Features

By Thomas Gwyn Elger, FRAS

Quadrant Map of the Moon – T. G. Elger (1895)

As was manifest to the earliest telescopic observers, its visible surface is clearly divisible into strongly contrasted areas, differing both in colour and structural character. Somewhat less than half of what we see of it consists of comparatively level dark tracts, some of them very many thousands of square miles in extent, the monotony of whose dusky superficies is often unrelieved for great distances by any prominent object; while the remainder, everywhere manifestly brighter, is not only more rugged and uneven, but is covered to a much greater extent with numbers of quasi-circular formations, differing widely in size, classed as walled-plains, ring-plains, craters, craterlets, crater-cones, etc. (the latter bearing a great outward resemblance to some terrestrial volcanoes), and mountain ranges of vast proportions, isolated hills, and other features.

Though nothing resembling sheets of water, either of small or large extent, have ever been detected on the surface, the superficial resemblance, in small telescopes, of the large grey tracts to the appearance which we may suppose our terrestrial lakes and oceans would present to an observer on the moon, naturally induced the early selenographers to term them Maria, or "seas" -- a convenient name, which is still maintained, without, however, implying that these areas, as we now see them, are, or ever were, covered with water. Some, however, regard them as old sea-beds, from which every trace of fluid,

owing to some unknown cause, has vanished, and that the folds and wrinkles, the ridges, swellings, and other peculiarities of structure observed upon them, represent some of the results of alluvial action. It is, of course, possible, and even probable, that at a remote epoch in the evolution of our satellite these lower regions were occupied by water, but that their surface, as it now appears, is actually this old sea-bottom, seems to be less likely than that it represents the consolidated crust of some semi-fluid or viscous material (possibly of a basaltic type) which has welled forth from orifices or rents communicating with the interior, and overspread and partially filled up these immense hollows, more or less overwhelming and destroying many formations which stood upon them before this catastrophe took place. Though this, like many other speculations of a similar character relating to lunar "geology," must remain, at least for the present, as a mere hypothesis; indications of this partial destruction by some agency or other is almost everywhere apparent in those formations which border the so-called seas, as, for example, Fracastorius in the Mare Nectaris; Le Monnier in the Mare Serenitatis; Pitatus and Hesiodus, on the south side of the Mare Nubium; Doppelmayer in the Mare Humorum, and in many other situations; while no observer can fail to notice innumerable instances of more or less complete obliteration and ruin among objects within these areas, in the form of obscure rings (mere scars on the surface), dusky craters, circular arrangements of isolated hills, reminding one of the monoliths of a Druidical temple; all of which we are justified in concluding were at one time formations of a normal type. It has been held by some selenologists -- and Schmidt appears to be of the number, -- that, seeing the comparative scarcity of large ring-plains and other massive formations on the Maria, these grey plains represent, as it were, a picture of the primitive surface of the moon before it was disturbed by the operations of interior forces; but this view affords no explanation of the undoubted existence of the relics of an earlier lunar world beneath their smooth superficies.

Leaving, however, these considerations for a more particular description of the Maria, it is clearly impossible, in referring to their level relatively to the higher and brighter land surface of the moon, to appeal to any hypsometrical standard. All that is known in this respect is, that they are invariably lower than the latter, and that some sink to a greater depth than others, or, in other words, that they do not all form a part of the same sphere. Though they are more or less of a greyish-slaty hue -- some of them approximating very closely to that of the pigment known as "Payne's grey" -- the tone, of course, depends upon the angle at which the solar rays impinge on that particular portion of the surface under observation. Speaking generally, they are, as would follow from optical considerations, conspicuously darker when viewed near the terminator, or when the sun is either rising or setting upon them, than under a more vertical angle of illumination. But even when it is possible to compare their colour by eye-estimation under similar solar altitudes, it is found that not only are some of the Maria, as a whole, notably darker than others, but nearly all of them exhibit local inequalities of hue, which, under good atmospheric and instrumental conditions, are especially remarkable. Under such circumstances I have frequently seen the surface, in many places covered with minute glittering points of light, shining with a silvery lustre, intermingled with darker spots and a network of streaks far too delicate and ethereal to represent in a drawing. In addition to these contrasts and differences in the somber tone of these extended plains, many observers have remarked traces of a yellow or green tint on the surface of some of them. For example, the Mare Imbrium and the Mare Frigoris appear under certain conditions to be of a dirty yellow-green hue, the central parts of the Mare Humorum dusky green, and part of the Mare Serenitatis and the Mare Crisium light green, while the Palus Somnii has been noted a golden-brown yellow. To these may be added the district round Taruntius in the Mare Foecunditatis, and portions of other regions referred to in the catalogue, where I have remarked a very decided sepia colour under a low sun. It has been attempted to account for these phenomena by supposing the existence of some kind of vegetation; but as this involves the presence of an atmosphere, the idea hardly finds favour at the present time, though perhaps the possibility of plant growth in the low-lying districts, where a gaseous medium may prevail, is not altogether so chimerical a notion as to be unworthy of consideration. Nasmyth and others suggest that these tints may be due to broad expanses of coloured volcanic material, an hypothesis which, if we believe the Maria to be overspread with such matter, and knowing how it

varies in colour in terrestrial volcanic regions, is more probable than the first. Anyway, whether we consider these appearances to be objective, or, after all, only due to purely physiological causes, they undoubtedly merit closer study and investigation than they have hitherto received.

There are twenty-three of these dusky areas which have received distinctive names; seventeen of them are wholly, or in great part, confined to the northern, and to the south-eastern quarter of the southern hemisphere -- the south-western quadrant being to a great extent devoid of them. By far the largest is the vast Oceanus Procellarum, extending from a high northern latitude to beyond latitude 10 deg. in the south-eastern quadrant, and, according to Schmidt, with its bays and inflections, occupying an area of nearly two million square miles, or more than that of all the remaining Maria put together. Next in order of size come the Mare Nubium, of about one-fifth the superficies, covering a large portion of the south-eastern quadrant, and extending considerably north of the equator, and the Mare Imbrium, wholly confined to the northeastern quadrant, and including an area of about 340,000 square miles. These are by far the largest lunar "seas." The Mare Foecunditatis, in the western hemisphere, the greater part of it lying in the south-western quadrant, is scarcely half so big as the Mare Imbrium; while the Maria Serenitatis and Tranquilitatis, about equal in area (the former situated wholly north of the equator, and the latter only partially extending south of it), are still smaller. The arctic Mare Frigoris, some 100,000 square miles in extent, is the only remaining large sea, -- the rest, such as the Mare Vaporum, the Sinus Medii, the Mare Crisium, the Mare Humorum, and the Mare Humboldtianum, are of comparatively small dimensions, the Mare Crisium not greatly exceeding 70,000 square miles, the Mare Humorum (about the size of England) 50,000 square miles, while the Mare Humboldtianum, according to Schmidt, includes only about 42,000 square miles, an area which is approached by some formations not classed with the Maria. This distinction, speaking generally, prevails among the Maria, -- those of larger size, such as the Oceanus Procellarum, the Mare Nubium, and the Mare Foecunditatis, are less definitely enclosed, and, like terrestrial oceans, communicate with one another; while their borders, or, if the term may be allowed, their coast-line, is often comparatively low and ill-defined, exhibiting many inlets and irregularities in outline. Others, again, of considerable area, as, for example, the Mare Serenitatis and the Mare Imbrium, are bounded more or less completely by curved borders, consisting of towering mountain ranges, descending with a very steep escarpment to their surface: thus in form and other characteristics they resemble immense wall-surrounded plains. Among the best examples of enclosed Maria is the Mare Crisium, which is considered by Neison to be the deepest of all, and the Mare Humboldtianum.

Though these great plains are described as level, this term must only be taken in a comparative sense. No one who observes them when their surface is thrown into relief by the oblique rays of the rising or setting sun can fail to remark many low bubble-shaped swellings with gently rounded outlines, shallow trough-like hollows, and, in the majority of them, long sinuous ridges, either running concentrically with their borders or traversing them from side to side. Though none of these features are of any great altitude or depth, some of the ridges are as much as 700 feet in height, and probably in many instances the other elevations often rise to 150 feet or more above the low-lying parts of the plains on which they stand. Hence we may say that the Maria are only level in the sense that many districts in the English Midland counties are level, and not that their surface is absolutely flat. The same may be said as to their apparent smoothness, which, as is evident when they are viewed close to the terminator, is an expression needing qualification, for under these conditions they often appear to be covered with wrinkles, flexures, and little asperities, which, to be visible at all, must be of considerable size. In fact, were it possible to examine them from a distance of a few miles, instead of from a standpoint which, under the most favourable circumstances, cannot be reckoned at less than 300, and this through an interposed aerial medium always more or less perturbed, they would probably be described as rugged and uneven, as some modern lava sheets.

A SIMPLIFIED STRATIGRAPHIC DISCUSSION OF MADLER AND ENVIRONS

By Fred Corno – Settimo Torinese, Italy

Stratigraphy is a powerful tool in studying the geologic structure of planets and satellites, and ultimately relies on a simple basic principle: What is most ancient is progressively covered by younger formations.

Stratigraphy has been widely adopted to investigate relationships between different formations on the Moon's surface, where it demonstrated the sequence of events. It is important to note that stratigraphy cannot place formations in an absolute chronology, but only in a relative sequence: A is older than B, which in turn is older than C. The actual dating of formations needs to be accomplished using different techniques, such as isotope analysis or crater density evaluation.

A thorough stratigraphic study requires high resolution techniques to analyze small scale relationships between single units, as well as "wide horizon" views to recognize various large systems across the lunar face. Recent advancements in digital imaging of the Moon will be help greatly in stratigraphic studies open to the amateur.

Some simple examples are so evident that even the "visual-observations-only-please" amateurs may easily interpret them. Among those, Madler represents a fine example. Madler is an otherwise ordinary crater, 28 km in diameter, located at 11.0°S, 29.8°E, just east of Theophilus. Both of these craters lie on the NW of the Mare Nectaris (Figure 1). The Nectarian basin is one of the oldest and worst preserved basins on the Moon. It was formed approximately 3.92 billion years ago and later filled with a dark lava flow. According to the "Geological Map of the Theophilus Quadrangle Map of the Moon", I546, both Theophilus and Madler pierced the Mare Nectaris (belonging to the Procellarum Group) during the Copernican period (starting from 1.2 billion years ago), but it is not specified which of the two formed first.

Figure 1: Landscape of Theophilus and the north-western reaches of Mare Nectaris. Madler lies just right of Theophilus (middle-top). Crop from a slide made with Vixen VMC 200L , 26 mm Plossl eyepiece projection, Kodak Elite 100.

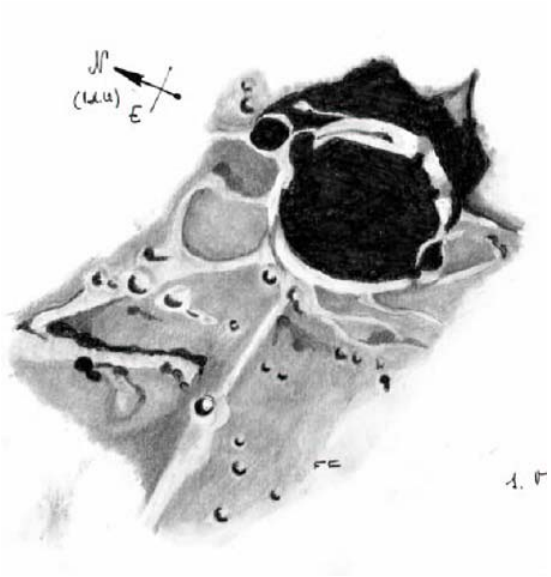


Figure 2: Madler and its most evident rays, stretching to the East. Observation by the author on the 10th of May 2008, 20:00 UT with FS 128 Takahashi, 260x.

A wide angle view of the area is dominated by the bright ray system of Theophilus spreading across the dark surface of the Mare Nectaris. A closer look reveals that the area is also heavily pocked with secondary craters from Theophilus, spreading in all directions from the main crater. The only area free from them is the bowl and immediate hummocky surroundings of Madler. Madler itself is the origin of ray system, smaller but fairly well defined, particularly to the East (Figure 2). The ray blanket spread on the Mare surface is furthermore pierced by two dark haloed craters, a few kilometers in diameter but deep enough to excavate the original Mare blanket and to overlay it on the bright rays of Theophilus and Madler (Figure 3).

Figure 3: Crop from a Lunar Orbiter picture of the Theophilus (left)-Madler (middle) complex. Secondary craters from Theophilus lie within its rays and ejecta mantle. Rays from Madler are superimposed to the right and to the lower left. The two dark haloed craters mentioned in text are at the bottom middle.

The relative chronology of the area can therefore be so reconstructed, from the oldest to the youngest: (1) Formation of the Nectarian Basin, (2) emplacement of the basin filling, (3) formation of Theophilus and related ray system, (4) formation of Madler with the partial obscuring of the previous ray system with a new one, (5) formation of the two small dark haloed craters.

References:

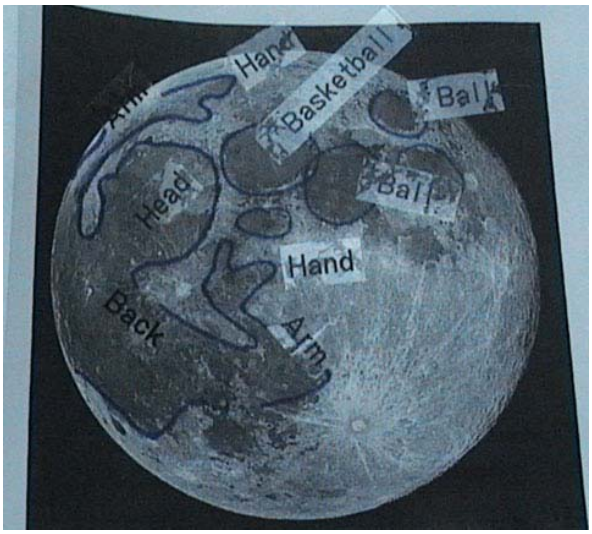
C.J. Byrne "Lunar Orbiter Photographic Atlas of the Near Side of the Moon", Springer
P.T. Wlasuk "Observing the Moon", Springer
T.A. Mutch "Geology of the Moon, a Stratigraphic View", Princeton University Press

ON THE LIGHTER SIDE OF THE MOON

Basketball Player on the Moon

By P. Edward Murray

National Geographic "The Earth's Moon"



Drawing of Basketball Player on photo of the Full Moon

Some years ago, I purchased the re-published National Geographic "The Earth's Moon" map and have had it hanging in my bedroom for years. Now of course, I'm familiar with "The Man in The Moon" and " The Woman" and " The Rabbit" but sometime in the last year I realized that there is another prominent figure too...The Basketball Player or Juggler.

And then, I promptly forgot about it ... until May 12, 2008 when I discovered it again and realized that I should sit down and document the observation.

At first, I thought, someone must have seen this? But after talking to fellow amateur astronomers, doing some research and not finding it, and consulting with Dan Green and The Astronomical League's Lunar Club Co-Chair Steve Nathan and Sky & Telescope's Dr. Chuck Wood, I'm fairly convince I may have been the first person to see the lunar mare in this way.

My Basketball Player, Volleyball Player, Soccer Player or Juggler can be seen a few days before full moon and after. Oceanus Procellarum makes his back with Mare Cognitum his right shoulder and Mare Nubium his right elbow (his arm is crooked just as if he is reaching for the ball) continuing into Sinus Aestuum and Sinus Medii his right hand. His left shoulder and arm begin at Sinus Roris (his left arm is curved reaching for the ball) and continues through Mare Frigoris ending as his left hand around the crater Aristotle. Mare Imbrium makes his head with his left ear as Sinus Iridum. The Basketball is Mare Serenitatis.

If you choose to see him as a juggler of course Mare Serenitatus is a large ball with Mare Tranquilitatus, Mare Nectaris, and Mare Crisium being smaller balls. As I said before, he could additionally be a Volleyball or Soccer Player.

ON THE LIGHTER SIDE OF THE MOON

Howard Eskildsen – Ocala, Florida, USA

NOTE: I took this photo as we were leaving Sanibel Island over Memorial Day weekend. It is actually two, first one focused on the palms, the second on the moon and then combined the focused moon with the focused palms with Photoshop Elements. The moon is fun to observe even without a telescope.

Mike Mattei – Littleton, Massachusetts, USA

ON THE LIGHTER SIDE OF THE MOON

"CHECKMARK" ON THE MOON
Digital image by Mike Boschat – Halifax, Nova Scotia, Canada
June 26, 2008 – 07:44 UT – Seeing: 7/10 – Transparency: 4/6
Runibar 10cm f/10 Maksutov – Magnification 45x
Centrios 3.0 MP DSC-3020 - Afocal

NOTE: Can you see the "checkmark" on the Moon? (Hint: Straight Wall)

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A.L.P.O. LUNAR COORDINATORS

Dr. Anthony Cook – Coordinator, Transient Lunar Phenomena atc@aber.ac.uk

Brian Cudnik – Coordinator, Lunar Meteoritic Impact Search cudnik@sbcglobal.net

David O. Darling – Asst. Coordinator, Transient Lunar Phenomena DOD121252@aol.com

William M. Dembowski – Coordinator, Lunar Topographical Studies & Selected Areas Program Dembowski@zone-vx.com

Marvin W. Huddleston – Coordinator, Lunar Dome Survey kc5lei@comcast.net

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LUNAR TOPOGRAPHICAL STUDIES

Coordinator - William M. Dembowski, FRAS
dembowski@zone-vx.com

OBSERVATIONS RECEIVED

WAYNE BAILEY - SEWELL, NEW JERSEY, USA
Digital images of Aristoteles & Eudoxus (8)

Banded Crater Report Forms with digital images of Hercules-G (3)

MICHAEL BOSCHAT - HALIFAX, NOVA SCOTIA, CANADA
Digital image of Clavius to Aristarchus (First Quarter)

MAURICE COLLINS - PALMERSTON NORTH, NEW ZEALAND
Digital images of 3-day Moon, 4-day Moon, 5-day Moon, First Quarter Moon (2), Aristarchus, Copernicus & domes (2), Schickard to Gassendi

ED CRANDALL - WINSTON-SALEM, NORTH CAROLINA, USA
Digital images of Eudoxus region, Aristoteles & Eudoxus, Eudoxus interior, Aristoteles region

HOWARD ESKILDSEN - OCALA, FLORIDA, USA
Digital images of Bullialdus (2),

Banded Crater Report Forms with digital images of Agatharchides-A, Aristarchus, Bessarion, Brayley, Damoiseau-E (2), Kepler, Milichius, Pytheas, Maury, Messier, Guericke-B

ALEXANDROS FILOTHODOROS - SAMOS, GREECE
Digital images of Copernicus-Kepler-Aristarchus rays (2)

PETER GREGO – ST. DENNIS, CORNWALL, ENGLAND
PDA drawing of Maurolycus

ROBERT H. HAYS, JR. - WORTH, ILLINOIS, USA
Drawings of Lexell-A, Mutus

RIK HILL - TUCSON, ARIZONA, USA
Digital images of Ariadaeus to Triesnecker, Aristoteles to Burg (2), Aristarchus (3), Torricelli

ANDREW MARTIN - ROCKVILLE, MARYLAND, USA
Written observations of the ray systems of Aristarchus (2), Kepler (2), Olbers-A (2), Proclus (3)

RECENT TOPOGRAPHICAL OBSERVATIONS

COPERNICUS & DOMES
Digital image (mosaic) by Maurice Collins – Palmerston North, New Zealand
July 13, 2008 – 08:28 to 08:45 UT
Celestron 8 inch SCT – Meade LPI - Autostitch

MAUROLYCUS
PDA Drawing by Peter Grego – St. Dennis, Cornwall, England
June 24, 2008 – 02:40 to 03:00 UT
Celestron NexStar 102 – 250x

RECENT TOPOGRAPHICAL OBSERVATIONS

TORRICELLI
Digital image by Rik Hill – Tucson, Arizona, USA
June 10, 2008 – 03:50 UT – Seeing 8/10
Celestron 14 inch SCT – 2x Barlow – UV/IR Blocking Filter
SPC900NC Camera – 200/2000 images

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When submitting observations to the A.L.P.O. Lunar Section

In addition to information specifically related to the observing program being addressed, the following data should always be included:

Name and location of observer
Name of feature
Date and time (UT) of observation
Size and type of telescope used
Orientation of image: (North/South - East/West)
Seeing: 1 to 10 (1-Worst 10-Best)
Transparency: 1 to 6
Magnification (for sketches)
Medium employed (for photos and electronic images)

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BRIGHT LUNAR RAYS PROJECT

Coordinator - Willliam M. Dembowski, FRAS

Bright Lunar Rays Project Website:

http://www.zone-vx.com/alpo-rays.html

Letter to the Coordinator on Rays Project

Its a pleasure to do these kinds of observations. I do have a word of advice to the "readership" that might help, choose a small number of targets to observe (like three or so) and three objectives of the study. I find it much easier to do the observations when I am focused on trying to discern information from a limited array of targets and objectives.

Also it may help to have targets that are opposing in direction; one in the east and one in the west so you can do more observations over time. Limiting myself to just the eastern section limits my viewing times. But then again, my general viewing schedule sort of limits me more to the eastern section of the moon. Adding a western group means getting up much earlier in the morning before going to work.

Andrew Martin SFO

RECENT RAY OBSERVATIONS

Name: Andrew Martin SFO
Location: Rockville MD (77° 8' 22" W, 39°4' 50" N, elevation 128 meters)
Date: July 11th, 2008
Time: 23:16:04 UT to 00:28:10 UT

Ephemeris for 23:16:04 UT
Distance: 400535 km
Colongitude: 16.1°
Lunation: 8.87 days
Phase: 69.9°
Illumination: 67.2%
Solar Inclination: 0.8°

Telescope used: 150mm Celestron C6-S SCT (XLT) f/10
Lens used: Celestron Plossl 20mm and GTO x2 Barlow (magnification 150x).
Seeing: Unable to determine with star method due to sun being up. Clear Sky Chart estimated 3 out of 5, but based on observations of moon directly I would say 2-3 out of 10.
Transparency: Clear Sky Chart estimated above average. I would say 3 out of 6.
Weather: Mostly clear with a few clouds and haze in the sky. Surface temps were about 84°F. Humidity was 48%.

Name of Feature: Proclus (46.8°E, 16.1° N)

Observation: Seeing and transparency made things difficult to see. The crater was white rimmed like July 10th. The two legs of the "V" notch could be made out stretching about the same as July 10th. A faint sunburst pattern could be seen from time to time stretching towards Mare Crisium. The projection to cater Peirce could be seen from time to time as well as a projection between Peirce and Picard. The ray system overall appeared less pronounced and ghostly. The terra was also muted. Emanation and distribution was the same as previous observations. Carmichael and Hill could be seen as two white rimmed craters.

Filter Observation: Celestron #47 - no details except a faint limb of the moon could be seen. GTO #80A- crater and ray system was much more visible. Image appeared easier on eye and more details of crater and terra could be seen. GTO #82A- details were exactly like observation without a filter, except that the image was easier on the eye.

Name of Feature: Langrenus (60.9°E, 8.9°S)

Observation: The crater appeared very flat. A white peak could be seen in the middle of the crater, but floor details were difficult to make out. Like July 10th the crater appeared to be whiter than the surrounding area. From time to time very faint rays could be seen on the Mare Fecunditatis in a SW direction from the crater. Langrenus M could be made out to the east as a white rimmed crater.

Filter Observation: Celestron #47- no details could be made out except faint limb of moon. GTO #80A- crater is more visable and floor details are bit enhanced. The floor appeared more broken. The same very faint rays could be seen occasionally. GTO #82A- details could be seen just as observations without a filter like Proclus.

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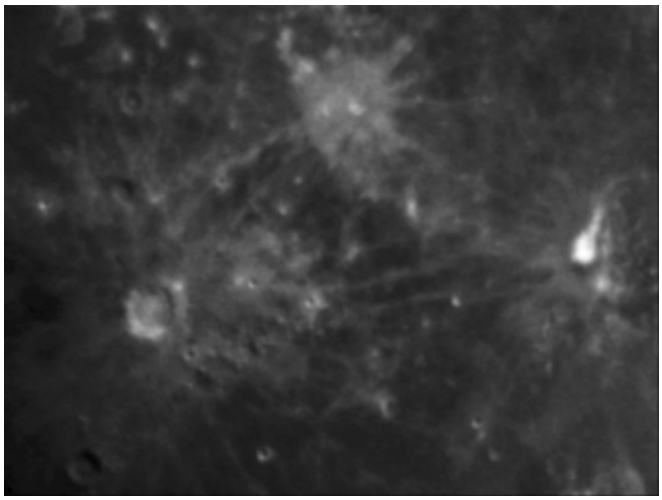


COPERNICUS-KEPLER-ARISTARCHUS
Digital image by Alexandros Filothodoros – Samos, Greece
June 25, 2008 – 00:43:44 UT

BANDED CRATERS PROGRAM

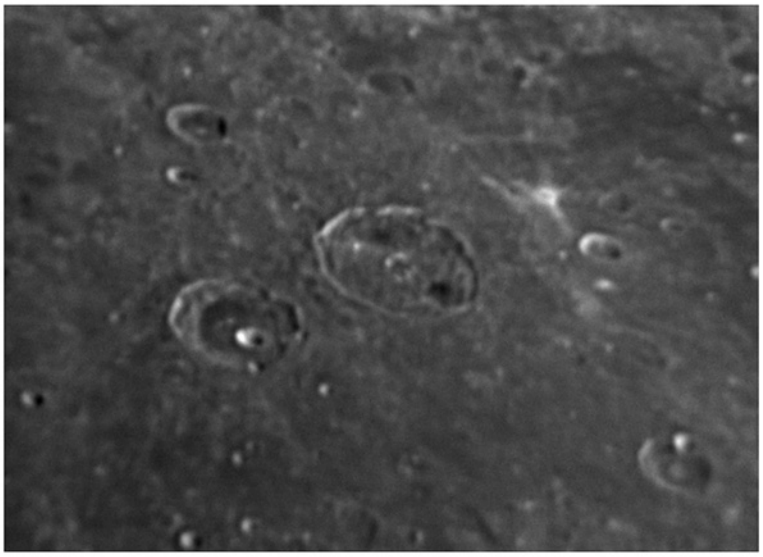
Coordinator - Willliam M. Dembowski, FRAS

Banded Craters Program Website: http://www.zone-vx.com/alpo-bcp.html

A.L.P.O. Lunar Section: Selected Areas Program Banded Craters Observing Form

Crater Observed: Hercules G
Comments:
Observer: Wayne Bailey Observing Station: Sewell, NJ
Mailing Address: 17 Autumn Lane, Sewell, NJ 08080
Telescope: Celestron SCT 28 cm f/20
Imaging: Skynyx 2-1M Filters: Schuler IR72
Seeing: 4/10 Transparency: 5/6
Date (UT): 2008/06/13 Time (UT): 03:56
Colongitude: 23.8 Latitude: +1.4
Position of crater: Selen. Long. Selen. Lat.
39.2° East 46.4° North
Lunar Atlas Used as Reference: Rukl, Atlas of the Moon, Revised Updated Ed.

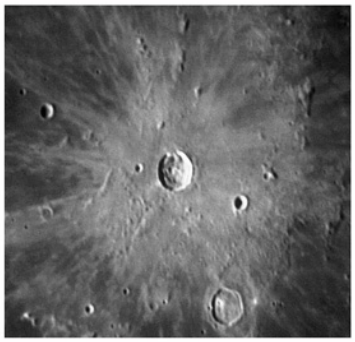
Image (North up): (East right):



A.L.P.O. Lunar Section: Selected Areas Program Banded Craters Observing Form

Crater Observed: Kepler
Observer: Howard Eskildsen Observing Station: Ocala, Florida
Mailing Address: P.O. Box 830415, Ocala, Florida, 34483
Telescope: Meade Refractor 15.2 cm f/8
Imaging: Orion StarShoot II, 2X Barlow, Filters: None
Seeing: 8/10 Transparency: 4/6
Date (UT): 2008/05/28 Time (UT): 10:02
Colongitude: 192.0°
Position of crater: Selen. Long. Selen. Lat.
38.0° West 8.1° North
Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1 2004-11-07

Image (north up): Comments:



Very complex crater floor visible with the breach in the northern crater rim visible.

LUNAR TRANSIENT PHENOMENA

Coordinator – Dr. Anthony Cook – atc@aber.ac.uk
Assistant Coordinator – David O. Darling - DOD121252@aol.com

LTP NEWSLETTER - AUGUST 2008

Dr. Anthony Cook - Coordinator

Observations for Jun 2008 were received from the following observers: Maurice Collins (New Zealand), myself (Aberystwyth and Newtown, UK), Marie Cook (Mundesley, UK), and Peter Grego (Birmingham, UK). June is traditionally a lean month for observing with short nights, a low altitude Moon (in the northern hemisphere) and also many observers were away on vacation. On the plus side, early morning observations have the Moon at a high altitude and in August there are excellent opportunities to study the Moon's Earthshine, although no major meteor showers occur when Earthshine is visible.

I have now completed the revamped software to generate predictions (see below) for repeat illumination/libration times for when features appear as they did when LTP were seen in the past. This is a more personalized service than we have had before. If observers want me to include their geographical location for when to observe the Moon, and what to see, then please email or write to me and I will add them to the list. In addition I have now inter-mixed dates/times in which to search for impact flashes from sporadic and shower meteors. Typically sporadic impact flashes occur at a rate of about one per ten(s) of hours. To give you an idea of likely rates on the Moon I have included an Earth-based ZHR value as a guide. Sporadics have a ZHR of 5-15, so you can gauge from shower ZHRs how your chances may increase of detecting an impact flash above background rates. However the brightness of a flash depends upon the kinetic energy of the impactor, so either large meteors or fast meteors will enhance your chances of detection. As yet I have not built in any information as to which part of the hemisphere to look at, however the hemisphere views and further information about observing impact flashes can be found on Brian Cudnik's web site at: http://alpo-astronomy.org/lunar/lunimpacts.html

LTP Repeat Illumination/Libration and Earthshine predictions for: USA FL Boca_Raton
Ill is percentage illumination of the Moon
*Indicates a repeat illumination and libration event to within +/- 1 deg for both
A non-* indicates just repeat illumination to within +/-0.5 deg

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2008-Aug-05 UT 00:31-00:37 Ill=15% Earthshine: sporadic meteors
2008-Aug-06 UT 00:30-01:06 Ill=23% Earthshine: sporadic meteors
2008-Aug-07 UT 00:29-01:34 Ill=33% Earthshine: sporadic meteors
2008-Aug-08 UT 00:29-02:02 Ill=42% Earthshine: sporadic meteors
2008-Aug-08 UT 23:59-00:19 Ill=52% Abulfeda observed by Foley_PW on 1985-5-26
2008-Aug-13 UT 02:53-04:34 Ill=86% Aristarchus observed by Bartlett on 1967-10-15
2008-Aug-14 UT 02:41-04:38 Ill=92% Plato observed by Cook_AC on 1982-7-3
2008-Aug-15 UT 00:39-03:34 Ill=97% Eratosthenes observed by Bartlett on 1954-7-14
2008-Aug-16 UT 05:10-06:28 Ill=99% Aristarchus observed by Cook_AC on 1984-12-7
2008-Aug-17 UT 01:36-01:55 Ill=100% Aristarchus observed by Bartlett on 1958-5-4
2008-Aug-18 UT 07:44-09:27 Ill=98% Aristarchus observed by Bartlett on 1954-12-12

Observed by Bartlett (Baltimore, MD, USA, 5" reflector x180) "Strong violet glare on E. rim, changing to brown. At 0220 dark viol. in nimbus, at 0235 viol. changed to brown. At 0255 viol. suddenly reappeared, but faded to invis. at 0300. Again at 0308 reapp. Only time he ever saw such color changes." NASA catalog weight=4 (high). NASA catalog ID 583.

2008-Aug-19 UT 09:44-10:02 Ill=93% Aristarchus observed by Bartlett on 1956-6-26
2008-Aug-19 UT 09:44-10:02 Ill=93% Proclus observed by Bartlett on 1956-6-26
2008-Aug-21 UT 05:57-09:23 Ill=79% Aristarchus observed by Bartlett on 1956-6-28
2008-Aug-22 UT 08:11-08:42 Ill=68% Aristarchus observed by Bartlett on 1956-6-29
2008-Aug-24 UT 06:03-10:35 Ill=45% Earthshine: sporadic meteors
2008-Aug-25 UT 07:03-10:35 Ill=33% Earthshine: (radio) Gamma Leonids: ZHR=low
2008-Aug-26 UT 08:46-10:31 Ill=23% Aristarchus observed by Bartlett on 1976-10-18
2008-Aug-26 UT 08:07-10:36 Ill=23% Earthshine: sporadic meteors
2008-Aug-27 UT 09:12-10:36 Ill=14% Earthshine: sporadic meteors
2008-Aug-28 UT 10:17-10:37 Ill=7% Earthshine: sporadic meteors

Fig 1 Trial output of new TLP observing time prediction software

At the time of writing I was still working on the database/directory structure and so this explains the lack of features to observe in August in Fig 1. There is only one TLP description included in Fig 1, as a token demonstration of what will eventually fill each TLP entry. However this will be updated in the on-line version in due course. You can check my progress on a demo version on: http://users.aber.ac.uk/atc/tlp/Test/trial.htm Eventually this new style will replace the current format of predictions.

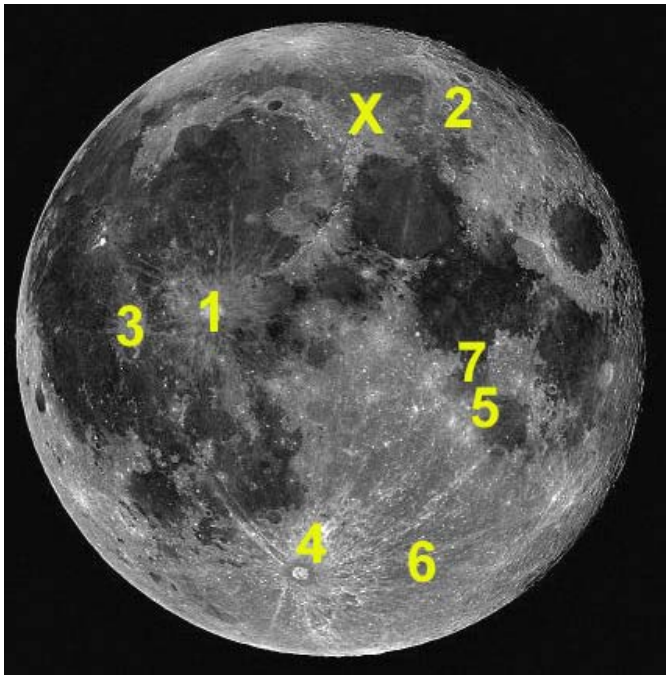
Lastly, on 28th June 2008, I attended the British Astronomical Association Exhibition Meeting, held at the Space Centre (museum) in Leicester, UK. My thanks to Peter Grego for printing out and bringing along the TLP sub-section posters. I also took along the electronic Moon blink device and showed some video through this as well as some examples of impact flashes on the Moon and a rare piece video of ducks(?) flying past the Earthshine region of the Moon! Underneath in Fig 2 is a snapshot of some of the attendees.

Fig 2. BAA Exhibition Meeting – Lunar Section stand – BAA Lunar Section director Alan Wells is in the background

Repeat illumination/libration predictions, including the more numerous illumination only events can be found on the following web site: http://users.aber.ac.uk/atc/tlp/tlp.htm . For members who do not have access to the internet, please drop me a line and I will post predictions to you. If you would like to join the LTP telephone alert team, please let me know your phone No. and how late you wish to be contacted. If in the unlikely event you see a LTP, please give me a call on my cell phone: +44 (0)798 505 5681 and I will alert other observers. Note when telephoning from outside the UK you must not use the (0). When phoning from within the UK please do not use the +44!

Dr Anthony Cook, Institute of Mathematical and Physical Sciences, University of Wales Aberystwyth, Penglais, Aberystwyth, Ceredigion, SY23 3BZ, WALES, UNITED KINGDOM. Email: atc@aber.ac.uk

KEY TO IMAGES IN THIS ISSUE



1. Copernicus
2. Hercules
3. Kepler
4. Lexell-A
5. Madler
6. Maurolycus
7. Torricelli

X = Aristoteles & Eudoxus
Next *FOCUS ON* target