THE LUNAR OBSERVER

A PUBLICATION OF THE LUNAR SECTION OF THE A.L.P.O.
EDITED BY: Wayne Bailey wayne.bailey@alpo-astronomy.org
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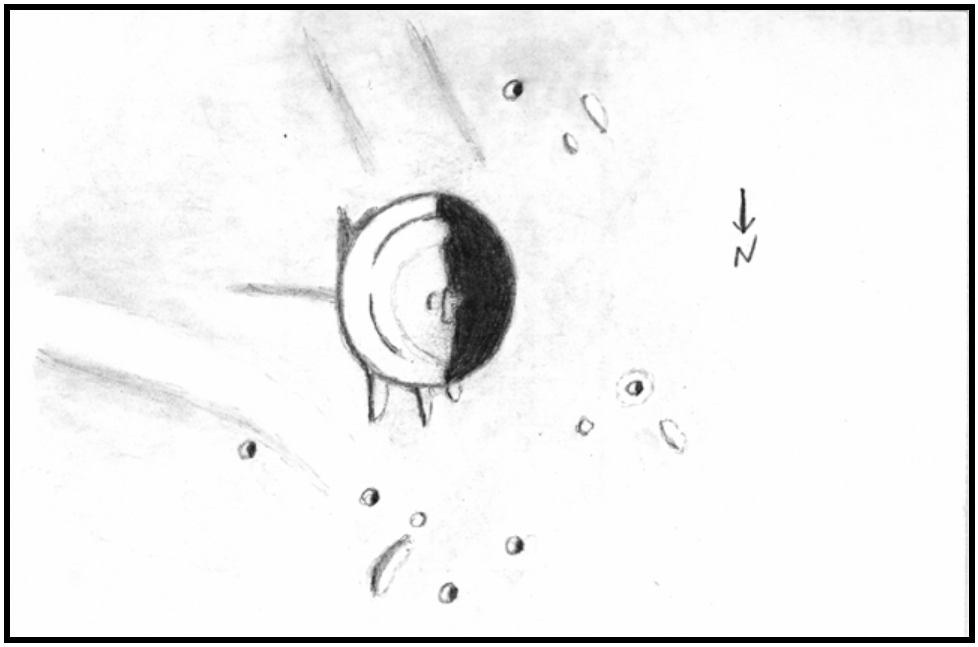
RECENT BACK ISSUES: http://moon.scopesandscapes.com/tlo_back.html

FEATURE OF THE MONTH – JUNE 2010

MADLER



Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA
November 6, 2009 05:32-05:58, 06:09-06:15 UT
15 cm refl, 170x, seeing 7-8

I drew this crater and vicinity on the night of Nov. 5/6, 2009. This crater is just east of Theophilus, and may be overlooked due to its large neighbor. Madler has two modest peaks slightly north of center, and evidence of terracing on its inside wall. Several ridges and strips of shadow extend from its north and east rims. A group of small craters form approximately a right angle north of Madler. The pit farthest north, and the one at the right angle is Madler A. Only one of the others is even shown on the Lunar Quadrant map. The westernmost one has a small halo, and two small peaks are nearby. The pit nearest Madler A to the southeast is noticeably shallower than the others, and a substantial elongated peak is just to its north. An

isolated pit is south of Madler near more small peaks and strips of shadow. A substantial bright streak is north and east of Madler, passing just south of the easternmost pit. It looks like a ray at first, but it is quite shadowed on the side away from Madler. The bright streak must simply be a sunward facing slope. (I have seen this area nearer to the terminator, and the shadowing is more pronounced.)

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LUNAR CALENDAR

JUNE-JULY 2010 (UT)

June 03	15:00	Moon 4.3 Degrees NNW of Neptune
June 03	16:52	Moon at Apogee (404,264 km - 251,298 miles)
June 04	22:13	Last Quarter
June 06	04:00	Moon 6.3 Degrees NNW of Jupiter
June 06	05:00	Moon 5.9 Degrees NNW of Uranus
June 11	01:00	Moon 5.2 Degrees N of Mercury
June 12	11:14	New Moon (Start of Lunation 1082)
June 12	07:06	Extreme North Declination
June 15	04:00	Moon 3.8 Degrees SSW of Venus
June 15	14:55	Moon at Perigee (365,936km - 227,382 miles)
June 17	15:00	Moon 5.4 Degrees SSW of Mars
June 19	04:30	First Quarter
June 19	04:00	Moon 7.5 Degrees SSW of Saturn
June 25	05:06	Extreme South Declination
June 25	20:00	Moon 1.4 Degrees NE of asteroid 1 Ceres
June 26	11:30	Full Moon
June 30	22:00	Moon 4.3 Degrees NNW of Neptune
July 01	10:13	Moon at Apogee (405,035 km – 251,677 miles)
July 03	16:00	Moon 6.0 Degrees NNW of Uranus
July 03	20:00	Moon 6.5 Degrees NNW of Jupiter
July 04	14:36	Last Quarter
July 06	16:54	Extreme North Declination
July 11	19:40	New Moon (Start of Lunation 1083)
July 11	19:40	Total eclipse of the Sun
July 12	23:00	Moon 3.9 SSW of Mercury
July 13	11:22	Moon at Perigee (361,114 km - 224,386 miles)
July 14	22:00	Moon 5.5 Degrees SSW of Venus
July 16	00:00	Moon 5.6 Degrees SSW of Mars
July 16	14:00	Moon 7.4 Degrees SSW of Saturn
July 18	21:59	First Quarter
July 22	11:18	Extreme South Declination
July 26	01:36	Full Moon
July 28	02:00	Moon 4.3 Degrees NNW of Neptune
July 28	23:51	Moon at Apogee (405,954 km - 252,248 miles)
July 30	22:00	Moon 5.9 Degrees NNW of Uranus
July 31	02:00	Moon 6.6 Degrees NNW of Jupiter

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.

Note: The published images now contain links to the original, full resolution images. Clicking on an image while connected to the internet, will download the original image, which in some cases is significantly higher resolution than the published version.

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)

CALL FOR OBSERVATIONS:
FOCUS ON: Dark-Haloed Craters

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 **July 2010** edition will be Dark-Haloed Craters. A list of some dark haloed craters is in Appendix A of the Selected Areas Program Handbook, available at: http://moon.scopesandscapes.com/sap-hdbk-5.pdf. 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 unusual craters to your observing list and send your favorites to:

Wayne Bailey - wayne.bailey@alpo-astronomy.org

Deadline for inclusion in the Dark-Haloed Crater article is June 20, 2010

FUTURE FOCUS ON ARTICLES:

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

Mare Nectaris Basin	**TLO Issue: Sept. 2010**	**Deadline: Aug. 20, 2010**
Milichius-T. Mayer Area	**TLO Issue: Nov. 2010**	**Deadline: Oct. 20, 2010**

CALL FOR PAPERS
ALPO 2010

The 2010 annual conference of the Assn of Lunar & Planetary Observers will be held Thursday through Saturday, July 29 - 31, at Florida State College at Jacksonville. Participants are encouraged to submit research papers, presentations, and experience reports concerning Earth-based observational astronomy of our solar system for presentation at the event.

Topics

Suggested topics for papers and presentations include the following:

* New or ongoing observing programs and studies of solar system bodies, specifically, how those programs were designed, implemented and continue to function.
* Results of personal or ALPO group studies of solar system bodies possibly including (but not limited to) Venus cloud albedo events, dust storms and the polar caps of Mars, the various belts and Great Red Spot of Jupiter, the various belts and ring system of Saturn, variances in activity of periodic meteor showers and comets, etc.
* New or ongoing activities involving astronomical instrumentation, construction or improvement.
* Challenges faced by Earth-based observers including increased or lack of interest, deteriorating observing conditions brought about by possible global warming, etc.

Submission Format

Please observe and follow these guidelines:

*** Presentations** — The preferred format is Microsoft PowerPoint, though 35mm slides or overhead projector slides are also acceptable. The final presentation should not exceed 45 minutes in length, to be followed by no more than five (5) minutes of questions (if any) from the audience.

*** Research Papers** — Full and final research papers not being presented as described above should not exceed 5,000 words (approximately 8 pages), including figures and references. Important: The results described must not be under consideration for publication elsewhere.

*** Posters** — Posters should not exceed 1,000 words. Posters provide an opportunity to present late-breaking results and new ideas in an informal, visual and interactive format. Accepted poster submissions will receive a one-page description in the conference proceedings. The submission abstract must be no longer than one page.

Acceptance for presentation is contingent on registration for the conference. In the case of multiple authors, at least one must register.

Important Dates

*** June 15, 2010** – Deadline for four- or five-sentence abstracts / proposals for papers, reports, workshops, and posters.
*** March 30, 2010** - Registration opens.
*** July 1, 2010** - Late registration fee begins (late registration via mail accepted up to July 15; then in person at conference afterwards).
*** July 29 - 31, 2010** - ALPO Con 2010.

Contact

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Magnificent Fra Mauro

Fred Corno, May 2010

The formation of the Imbrian basin constitutes a fundamental divide in lunar geological history. The Imbrian basin is the best preserved among the various basins that blot the Earth-facing side of the Moon: according to the equation "better preserved equals to later formed", the Imbrian basin appears to be also the last in a series of mighty blows assessed to our satellite, marking the end of the "late heavy bombardment" period, when large-sized remnants of planets' formation still hit the Solar System bodies.

A correct dating of the event therefore becomes a fundamental tool in describing the rate and the extension of meteoritic bombardment on the Moon and hence across the Solar System. It provides as well a tool suitable to understand dynamics in the early Solar System, both correctly gauging the heavy bombardment and allowing the correlation of crater sizing and density with the absolute age of a planetary surface.

Determining the age of the imbrian basin could not be accomplished by a direct exploration of the basin itself, for the very simple reason of the later emplacement of the lava fill making the Mare Imbrium. On the other side, sampling of material expelled upon basin formation may provide specimens to be radiometrically dated.

Upon the Imbrian impact, the former filling of the present basin was expelled as a far-reaching blanket on the surface. Large blotches of irregular and hummocky terrain can be found across the whole of the Earth facing side, and accurate stratigraphic studies relate them to their Imbrian origin. Among those, one of the most prominent and conveniently emplaced for an Apollo mission to explore is the Fra Mauro Formation.

According to Lunar Geological Map I458 (figure 1), the trio of craters Fra Mauro (95 km across), Bonpland (60 km) and Parry (48 km) is blanketed, as most of their immediate surroundings, of Imbrian ejecta. The Formation has been engulfed afterward in the Procellarum lava flow. The local series of events can therefore interpreted as follows:

1. formation of the three craters on older terrain, as evidenced by crater count and wearing of the trio;
2. blanketing by the Imbrian ejecta to make the Fra Mauro Formation;
3. formation of the rill system, cutting through both the craters' walls between Fra Mauro and Parry and the ejecta blanket;
4. engulfing by Procellarum lava, partially covering the rill system.

Dating of the Imbrian event was so important to compel NASA to make two attempts: the first was the unlucky Apollo 13, and the second was the following Apollo 14. Samples returned grouped around two main ages: 3.82-3.85 and 3.87-3.96 billion years ago. Those in the former group (younger) have been interpreted as belonging to an event later than the Imbrian impact, while the latter have been assigned to the rocks underlying the ejecta blanket. Imbrian splats therefore should date in between these two ages, as it has been later supported by Apollo 15 results (best estimate is 3.84 billion years ago).

This crater trio is depicted in my records of the 12th of February 2008 (21.40 UT), of an observation from Settimo Torinese, Italy, at 208x with a 5" apo refractor (figure 2): the trio of washed-out craters of the Fra Mauro group, the rills and the latest small craters are fairly well evident. At the same time, hints of previous craterization of the oldest terrain are discernable to the Eastern junction between Fra Mauro and Parry.

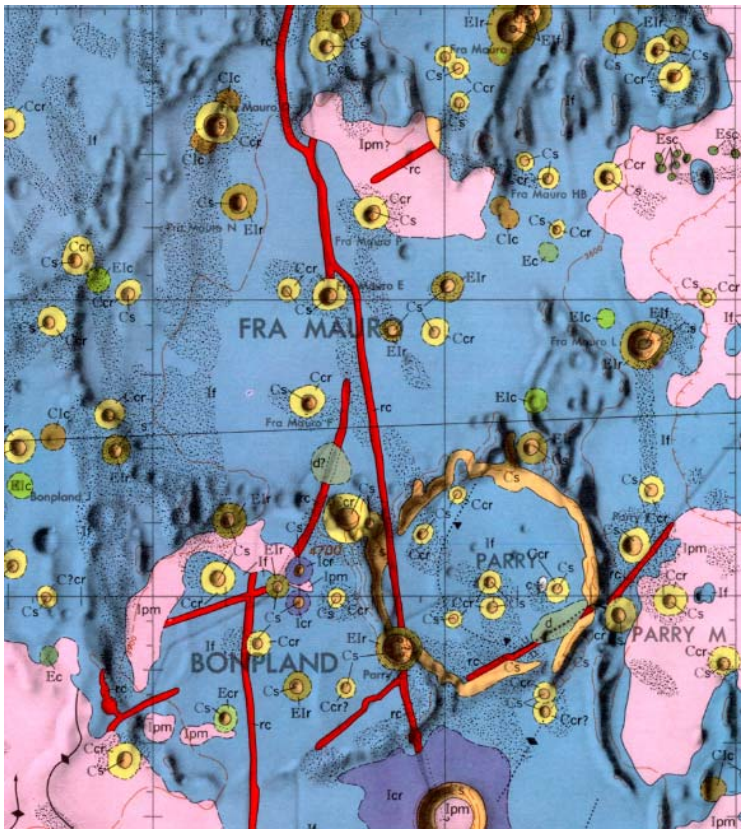

Figure 1: Crop from Geological Map I458: blue hue indicates the ejecta making the Fra Mauro Formation, red the rills and pink the Procellarum lava.

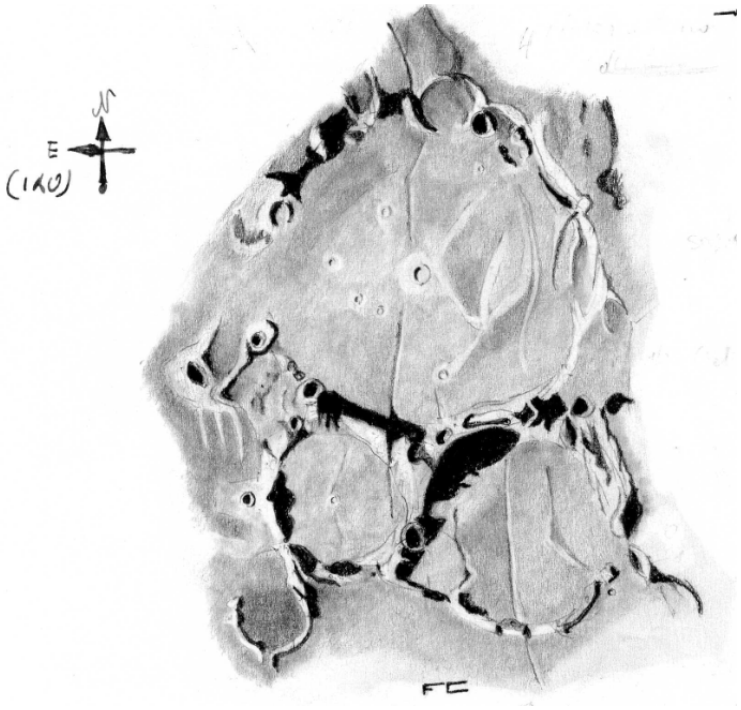

Figure 2: drawing from an observation by the Author on the 12th February 2008: clockwise from top Fra Mauro, Bonpland and Parry. The worn out shape of the crater is fairly distinctive, as are the rills crossing North-South the trio of craters. Compare rill pattern and crater outline and subdued rims with figure 1.

LUNAR TOPOGRAPHICAL STUDIES

Coordinator – Wayne Bailey - wayne.bailey@alpo-astronomy.org

Assistant Coordinator – William Dembowski - dembowski@zone-vx.com

Website: http://moon.scopesandscapes.com/

OBSERVATIONS RECEIVED

MAURICE COLLINS - PALMERSTON NORTH, NEW ZEALAND. Digital images of 3, 8 (2), 11 day Moon, Aristarchus, Eratosthenes, Guericke, Guericke & Parry, Hadley rille, Marius, Moretus, Pitatus, Plato (2), Rupes Recta, Triesnecker-Hyginius rilles, Tycho. Digital terrain model images of Mare Smythii, South Pole Aitken Basin, Triesnecker rise.

FRED CORNO-SETTIMO TORINESE, ITALY. Drawing of Fra Mauro.

ED CRANDALL – LEWISVILLE, NORTH CAROLINA, USA. Digital images of Copernicus rays (3), Lacus Mortis & Burg, Bessel ray.

HOWARD ESKILDSEN - OCALA, FLORIDA, USA. Digital images of Ariadaeus (2), Aristoteles, Dawes, Descartes, Eudoxus (2), Goclenius, Haemus, Maskelyne, Maurolycus, Maury, Menelaus (2), Messier, Petavius B, Proclus, Rosse, Sacrobosco, Southern Moon, Stevinius, Theophillus. Banded Crater forms for Anaxagoras, Aristarchus, Damoiseau E, Dawes, Maury, Messier, Pytheas, Rosse.

PETER GREGO – ST. DENNIS, CORNWALL, UK. Drawings of Delisle-Diophantus (3), Lassell (4), Plinius.

RICHARD HILL – TUCSON, ARIZONA, USA Digital image of Aristarchus.

PAOLO LAZZAROTTI – MASSA, ITALY. Digital image of Sinus Iridum-Mare Frigoris.

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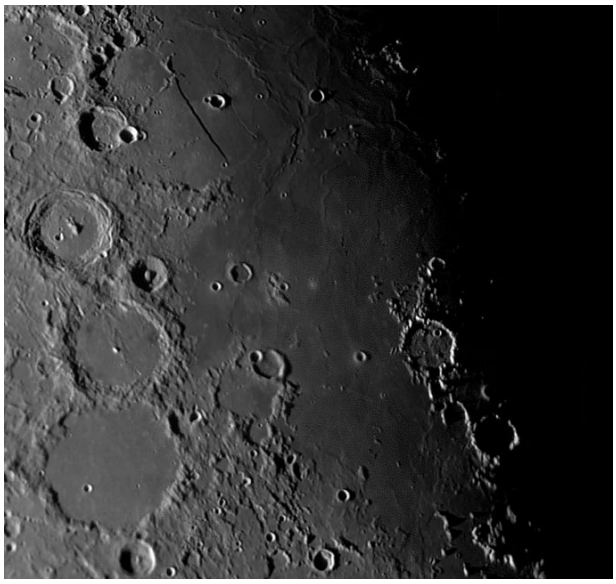
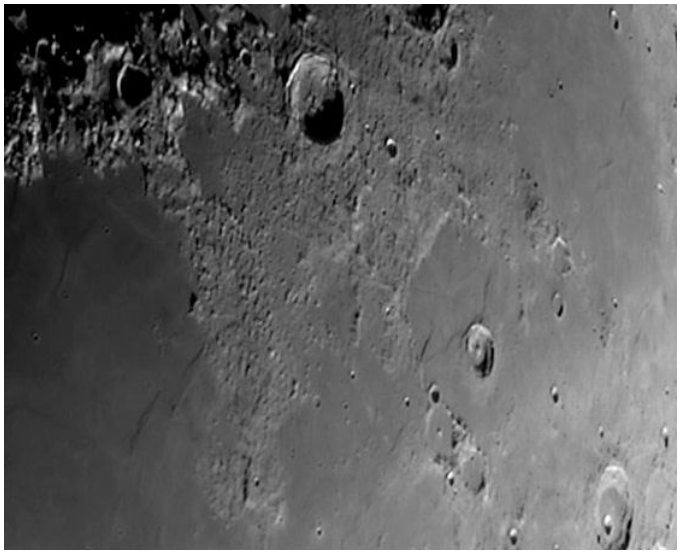
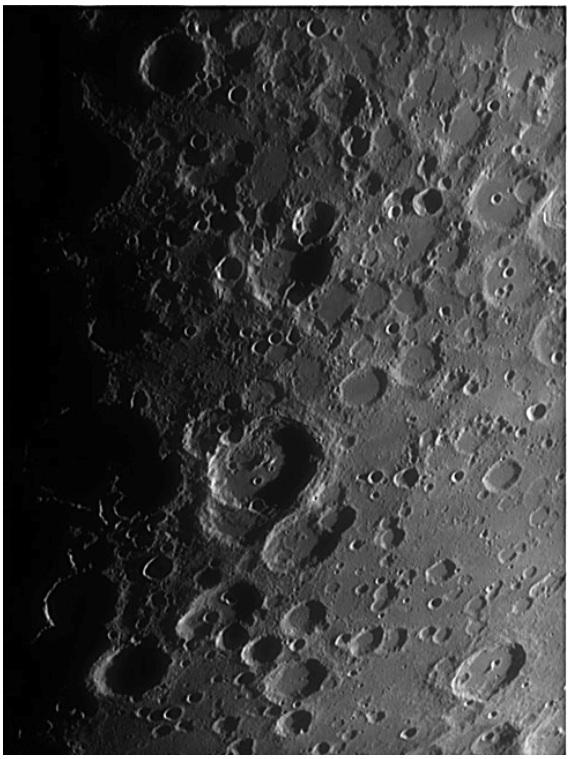
RECENT TOPOGRAPHICAL OBSERVATIONS



GUERICKE-Maurice Collins - Palmerston North, New Zealand. May 22, 2010 07:40 UT. Seeing A-II. C8, SCT, 3x barlow, LPI.
Editor's note: This image also shows Lassell approximately midway between the successive night drawings by Peter Grego below.

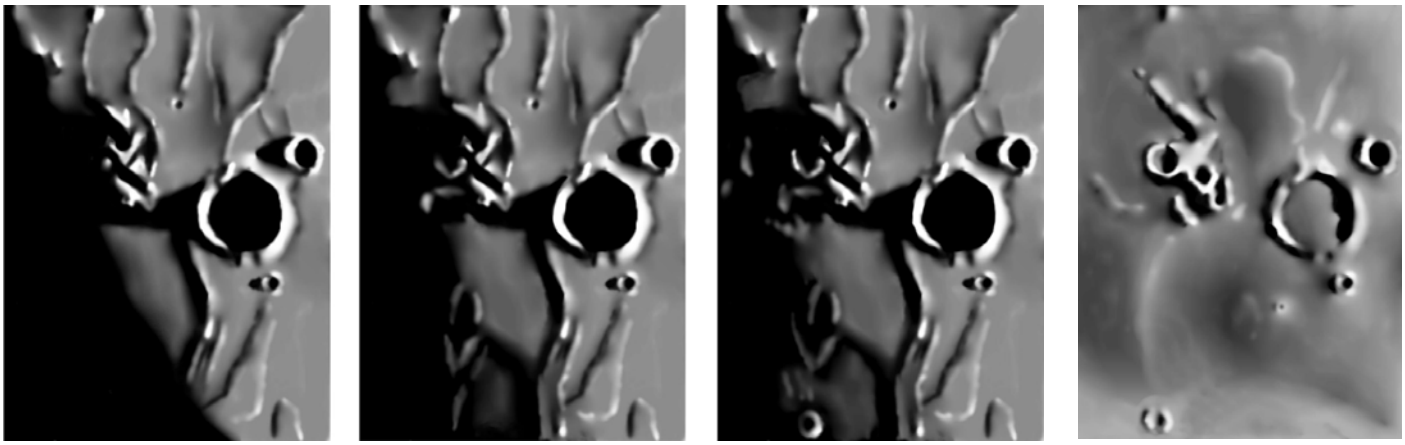


LACUS MORTIS & BURG – Ed Crandall – Lewisville, North Carolina, USA. Feb. 20, 2010 23:26 UT. Colongitude 355º, Seeing AIII. 110 mm f/6.5 APO, 3x barlow, ToUcam.



MAUROLYCUS-Howard Eskildsen-Ocala, Florida, USA. Feb. 20, 2010 23:36 UT. Seeing 8/10, Transparency 6/6. Meade 6" f/8 refractor, 2x barlow, DMK 41AU02 AS, W-8 yellow filter.

RECENT TOPOGRAPHICAL OBSERVATIONS



A **B** **C** **D**

LASSELL-Peter Grego, St. Dennis, Cornwall UK. 200mm f/10 SCT, 250x, integrated light.

A, B & C May 21, 2010, Seeing: AII, good, darkening twilight sky. **A** 20:25-20:50 UT, **B** 20:50-21:00 UT, **C** 21:00-21:20 UT.

Lassell in Mare Nubium, plus a collection of peaks on the sunrise terminator (centred at 17°N, 9°W, captured my attention, and a sequential series of sketches was made over a period of nearly an hour. The interior of Lassell itself was largely full of shadow, its western inner rim brightly catching the sunlight. The western rim of Lassell cast a shadow to the terminator, which was around one Lassell diameter distant at the start of the observational sequence. A prominent ridge and its shadow proceeded south from the shadow cast by Lassell to the terminator, while numerous other ridges, largely arranged in a general north-south orientation, were visible in other areas of the region. A tapering plateau was observed south of Lassell B and stretched towards the direction of Prom Taenarium. The interior of Alpetragius B, just northeast of Lassell, was also largely in shadow, and cast a cone-shaped shadow westwards to reach the northeastern flanks of Lassell's outer wall. The collection of peaks around 17°N, 9°W, cast a broad shadow westward to the terminator; included in the heights are the craters Lassell C, G and K; most of the rim of the largest, Lassell C, had become illuminated by the end of the session. The terminator in the south rolled back to reveal several more wrinkle ridges, and the rim of the crater Lassell T had become illuminated by the end of the session.

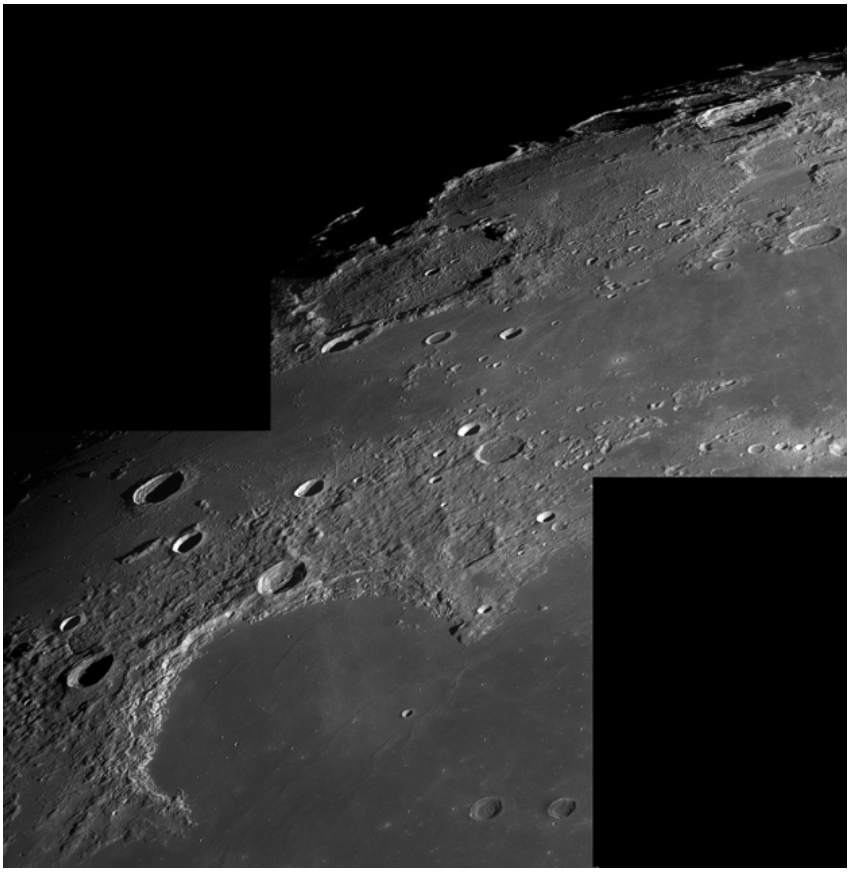
D May 22, 2010 21:30-22:00 UT, Colongitude 22.8º-23.1º. Seeing: AII-III, clear.

Following an observation of the same area on the previous night, I returned to Lassell and observed it under a mid-morning Sun. The observational sketch made on the previous evening was used as a basic template for this study. The shadows had moved on, and much of Lassell's interior was illuminated. Nothing of note was observed on Lassell's floor, which appeared smooth and grey, although there was a slight darkening of the floor along the base of the inner western wall. The interior of Alpetragius B wasstill largely shadow-filled. Most of the wrinkle ridges observed on the previous night were no longer visible. A broad, low plateau appeared to lie north of Lassell, almost as big as Lassell itself. About half of the floor of Lassell C was discernable. Southwest of Lassell there appeared to be a smaller plateau, dome-like in appearance, and just to its east a small unnamed crater.

Editor's note: Maurice Collins' image of Guericke (above), which includes Lassell, was taken approximately midway through the time span of these observations.

RECENT TOPOGRAPHICAL OBSERVATIONS

ARISTARCHUS – Richard Hill – Tucson, Arizona, USA . April 26, 2010 05:02 UT. Seeing 8/10. C14, 2x barlow, f/22, SCT. DMK21AU04, UV/IR block filter.



SINUS IRIDUM-MARE FRIGORIS - Paolo Lazzarotti – P.sso Croce, Lucca, Italy. September 30, 2009 20:39-20:42 UT. Seeing 6-8/10, Transparency 5/6. Gladius CF-315 Lazzarotti Opt. Scope, LVI-1392 PRO experimental camera, Edmund R filter, 0.18 arcsec/pixel.

ADDITIONAL TOPOGRAPHICAL OBSERVATIONS

8 DAY MOON-Maurice Collins - Palmerston North, New Zealand. May 22, 2010 04:22-04:54 UT. Seeing A-II. C8, SCT, LPI.
…this one was from early in the session when it was still daylight with the sun above the horizon, but the sky was quite clear.
Editor's note: Daylight imaging isn't common, but Maurice has shown several times that it can be accomplished.

HADLEY RILLE-Maurice Collins - Palmerston North, New Zealand. May 22, 2010 08:30 UT. Seeing A-II. C8, SCT, 3x barlow, LPI.

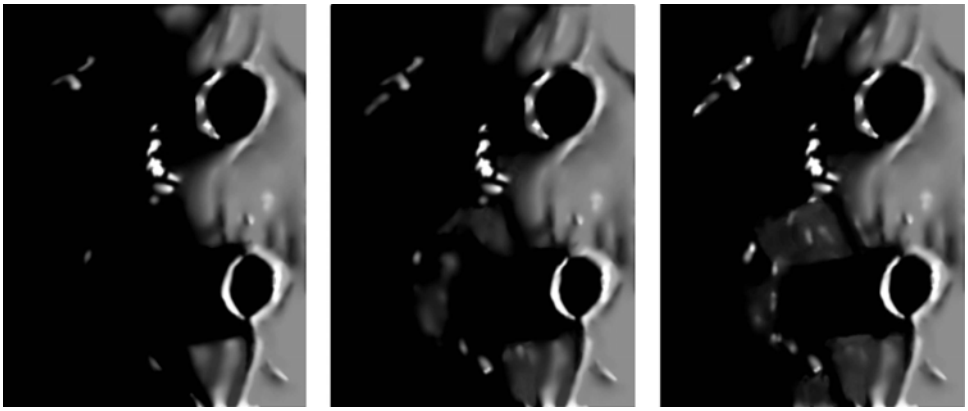
PITATUS-Maurice Collins - Palmerston North, New Zealand. May 22, 2010 09:09 UT. Seeing A-II. C8, SCT, 3x barlow, LPI.

MASKELYNE-Howard Eskildsen-Ocala, Florida, USA. Feb. 20, 2010 23:54 UT. Seeing 8/10, Transparency 6/6. Meade 6" f/8 refractor, 2x barlow, DMK 41AU02 AS, W-8 yellow filter.

ADDITIONAL TOPOGRAPHICAL OBSERVATIONS

PROCLUS-Howard Eskildsen-Ocala, Florida, USA. Feb. 21, 2010 00:08 UT. Seeing 8/10, Transparency 6/6. Meade 6" f/8 refractor, 2x barlow, DMK 41AU02 AS, W-8 yellow filter.

DELISLE-DIOPHANTUS-
Peter Grego, St. Dennis, Cornwall UK. May 23, 2010. Seeing AIII, darkening twilight. 200mm f/10 SCT, 250x, integrated light.



	21:10-21:30 UT	21:50-22:00 UT	22:20-22:30 UT
Colongitude	34.7-34.9º	35.1-35.2º	35.3-35.4º

Further to previous studies of this area, an observational sequence of Delisle and Diophantus and Mons Delisle at sunrise over a period of an hour and twenty minutes. Both interiors of Delisle and Diophantus were almost completely shadow-filled, except for their upper western inner rims. Delisle's inner rim appeared banded in three places. Mons Delisle was on the terminator, its eastern flanks abutted with the shadow cast by Deslisle's western rim. A linear shadow, much like a rupes, later became a prominent feature, linking southern Mons Delisle with northwestern Diophantus. Further west of Delisle was a group of peaks catching sunlight – the group is centred at around 33°N, 38°W – which brightened and expanded as the session proceeded. In the first observation Diophantus cast a broad shadow which joined the terminator, but in the following observations the end of the shadow became visible, along with faintly illuminated mare and a number of low elevations; the brightest of these, west of Diophantus, was likely the outer flanks of the small crater Artsimovich. North of Diophantus was a small elevation and a small bright spot, the latter I suspect was the bright collar surrounding the tiny crater Louise. Among various ridges in the vicinity, one appeared from the shadows northwest of Delisle, and another ran from southern Diophantus to the edge of the area depicted.

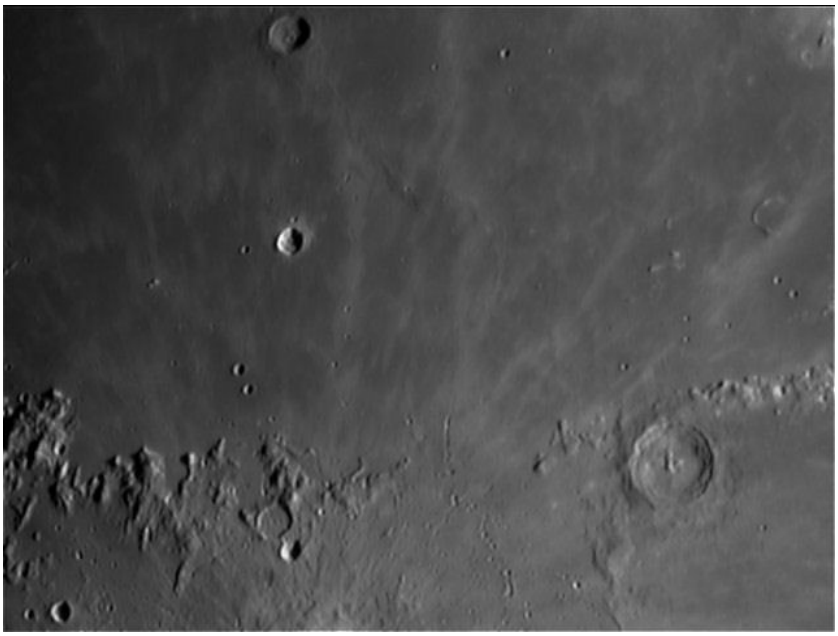
BRIGHT LUNAR RAYS PROJECT

Coordinator – Wayne Bailey – wayne.bailey@alpo-astronomy.org

Assistant Coordinator – William Dembowski – dembowski@zone-vx.com

Bright Lunar Rays Website: http://moon.scopesandscapes.com/alpo-rays.html

RECENT RAY OBSERVATIONS



COPERNICUS RAYS – Ed Crandall – Lewisville, North Carolina, USA. Oct. 29, 2009 00:10 UT. Colongitude 35.5º, Seeing AIII. 110 mm f/6.5 APO, 3x barlow, ToUcam.

COPERNICUS RAYS – Ed Crandall – Lewisville, North Carolina, USA. Oct. 29, 2009 00:13 UT. Colongitude 35.5º, Seeing AIII. 110 mm f/6.5 APO, 3x barlow, ToUcam.

RECENT RAY OBSERVATIONS

GOCLENIUS-Howard Eskildsen-Ocala, Florida, USA. Feb. 21, 2010 00:02 UT. Seeing 8/10, Transparency 6/6. Meade 6" f/8 refractor, 2x barlow, DMK 41AU02 AS, W-8 yellow filter.

PETAVIUS B-Howard Eskildsen-Ocala, Florida, USA. Feb. 21, 2010 00:05 UT. Seeing 8/10, Transparency 6/6. Meade 6" f/8 refractor, 2x barlow, DMK 41AU02 AS, W-8 yellow filter.

BANDED CRATERS PROGRAM

Coordinator – Wayne Bailey – wayne.bailey@alpo-astronomy.org

Assistant Coordinator – William Dembowski - dembowski@zone-vx.com

Banded Craters Program Website: http://moon.scopesandscapes.com/alpo-bcp.html

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

Crater Observed: Anaxagoras
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: DMK AU02.AS, 2X Barlow,Filters: W-8 Yellow Filter
Seeing: 7/10 Transparency: 4/6
Date (UT): 2010/02/27 Time (UT): 02:47
Colongitude: 70°
Position of crater: Selen. Long. Selen. Lat.
10.1° West 73.4° North
Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1 2004-11-07

Images (north up):

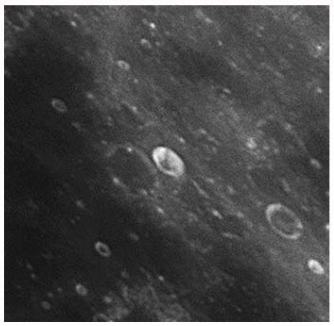
Comments:

Bright bands visible NW crater margin and both markings extend beyond the rim.

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

Crater Observed: Maury
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: DMK 41AU02.AS, 2X Barlow, Filters: None
Seeing: 8/10 Transparency: 5/6
Date (UT): 2010/28/17 Time (UT): 01:16
Colongitude: 64°
Position of crater: Selen. Long. Selen. Lat.
39.6° East 37.1° North
Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1 2004-11-07

Image (north up):



Comments:

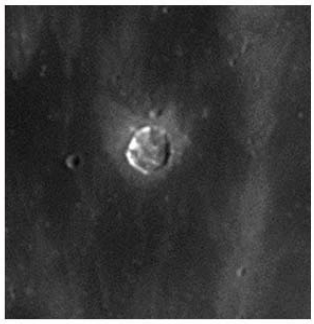
Interesting dark bands radiate from the floor of this beautiful little crater.

ADDITIONAL BANDED CRATER OBSERVATIONS

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

Crater Observed: Pytheas
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: DMK 41AU02.AS, 2X Barlow, Filters: None
Seeing: 8/10 Transparency: 5/6
Date (UT): 2010/01/28 Time (UT): 01:09
Colongitude: 64°
Position of crater: Selen. Long. Selen. Lat.
20.6° West 20.5° North
Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1 2004-11-07

Image (north up):



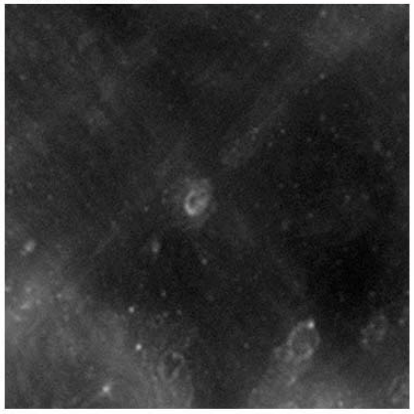
Comments:

Again, complex markings are visible on the crater floor and extend towards the western and northern walls.

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

Crater Observed: Rosse
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: DMK 41AU02.AS, 2X Barlow, Filters: None
Seeing: 8/10 Transparency: 5/6
Date (UT): 2010/01/28 Time (UT): 00:50
Colongitude: 64°
Position of crater: Selen. Long. Selen. Lat.
35.0° East 17.9° South
Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1 2004-11-07

Image (north up):



Comments:

There are curious dark markings on the crater interior. I wonder if they are real or partly artifact of processing.

LUNAR TRANSIENT PHENOMENA

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

LTP NEWSLETTER – JUNE 2010

Dr. Anthony Cook - Coordinator

Observations for April 2010 were received from the following observers: Jay Albert (Lakeworth, FL, USA), Raffaello Braga (UAI, Italy), Maurice Collins (New Zealand), myself (Aberystwyth University, UK), Marie Cook (Mundesley, UK), Peter Grego (Cornwall, UK)., and Nigel Longshaw (Oldham, UK). Jay, Marie and Maurice in particular have observed lots of features during April.

News: One of our BAA Lunar Section members from the 1960s era who has become active in this field again, Jill Scambler, has been taking a close look at evidence for LTPs correlating with Sunspot activity. Although my own research has not branched into this area, as I had suspected that this had been covered thoroughly by Middlehurst and Cameron, Jills latest graphs certainly do show why there had been considerable interest in this suspected correlation. More about this in a later newsletter as I have encouraged Jill to write up her latest findings as a short paper.

My own analysis of LTP reports is going well. Here at Aberystwyth we are having discussions with mathematicians in the Maths group in our institute over the best way to go about studying the statistics of LTP. For example we can test the out the hypothesis that LTP reports crop up more for some craters than others simply because some craters e.g. like Aristarchus are more aesthetically pleasing and attractive to observe. I do not wish to discuss results on specific features until the study is completed and published, however whilst some craters appear to be significantly LTP active, compared to the number of routine observations made, others appear to be significantly inactive compared to the vast number of routine observations available. Further investigations are under way to check for other factors such as observer selection effects etc. The important point is, the more time spent looking carefully for LTP, or returning routine negative observations, the more robust our statistics will be.

LRO continues to function well. If you look carefully at the LROC image targeting site, you may have noticed some green/yellow dots. Many of these are centered on past Apollo Panoramic image sites, however some appear to be cenetred also on known impact flash sites. In both instances this is presumably because NASA scientists are looking for fresh impact craters that have occurred on the Moon since the 1970's, or in more recent era of active Earthshine impact flash observing campaigns.

A new low cost NASA lunar mission, LADEE (Lunar Atmosphere and Dust Environment Explorer) will be launched in 2013. This is a very relevant mission to LTPs because it will most definitely be able to detect the composition of any surface outgassing (if this is a cause of some LTPs), but will also be able to check out the variability of dust above the surface, over different geographical areas of the Moon. Please keep a look out for news on this mission via tweets on http://twitter.com/LADEE_NASA

LTP Reports: As mentioned in the last newsletter, only one suspected LTP report was received in April, namely on the 18th at UT 20:45-21:00 when Peter Grego (UK), observed Aristarchus (most notably the central peak) to be very bright in Earthshine, before fading.

Routine Reports: One especially interesting report was received from Nigel Longshaw (Oldham, UK) concerning Firsoff's 1956 LTP report of twilight at south pole....

South Cusp 1956 Mar 14 UT 19:00 Observed by Firsoff (Somerset, England, 5" reflector) "Twilight at S.cusp traced 640 km beyond cusp. No trace of twilight at N. pole" NASA catalog weight=4 (good). ALPO/BAA weight=2. NASA catalog ID #635.Sub-Earth Longitude=0.225W, Sub-Earth

Latitude=4.075N, Sub-observer point (Topocentic libration): 5.66°W, 4.65°S, Sub-solar point: 147.91°E, 1.50°N, Selenographic Co-longitude=302.09°.

On 2010 Apr 16 the repeat illumination, and topocentric libration conditions matched the above Firsoff LTP report to within ±1°. Nigel was both prepared and ready to observe this rare event and this is what he saw, based upon the raw sketches from his note book:

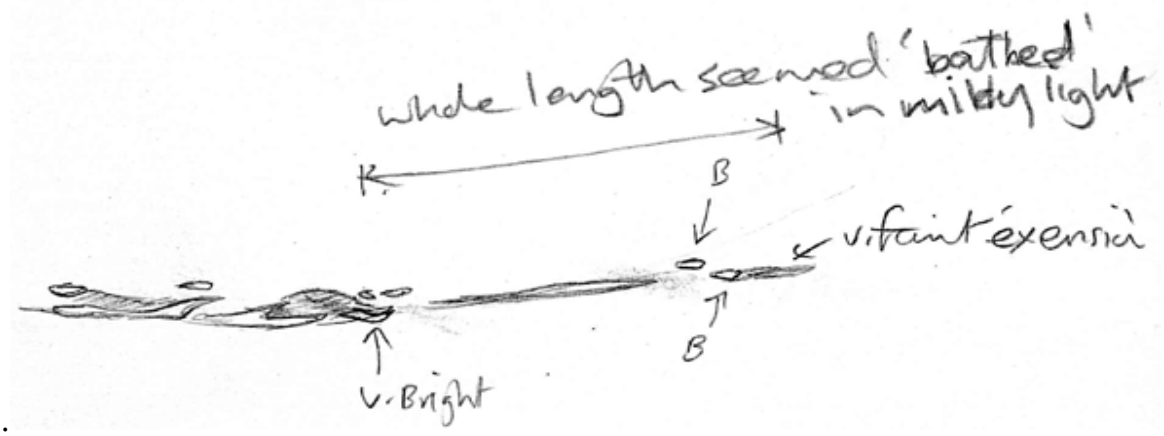


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Figure 1. The southern cusp at 19:30UT through a 72mm refractor with 7mm Orthoscopic eyepiece, seeing Antoniadi III, transparency good, Siub-observer point (topocentric libration) 5.88°W 4.63°S, Sub-solar point: 147.26°E 1.51°N, Selenographic Co-longitude=302.74°.

At 19:30UT (See Figure 1) "Tenuous thread of light, barely perceptible (tors?) extending from cusp to detached mountain peaks in the south – but could not be certain - The thread of light became more pronounced as the sky darkened – yet remained a most beautiful delicate spectacle".

By 20:00 UT "Earthshine was prominent at low power – clean cut limb – blue grey line – almost same intensity of light around the whole perimeter – no details could be readily seen".

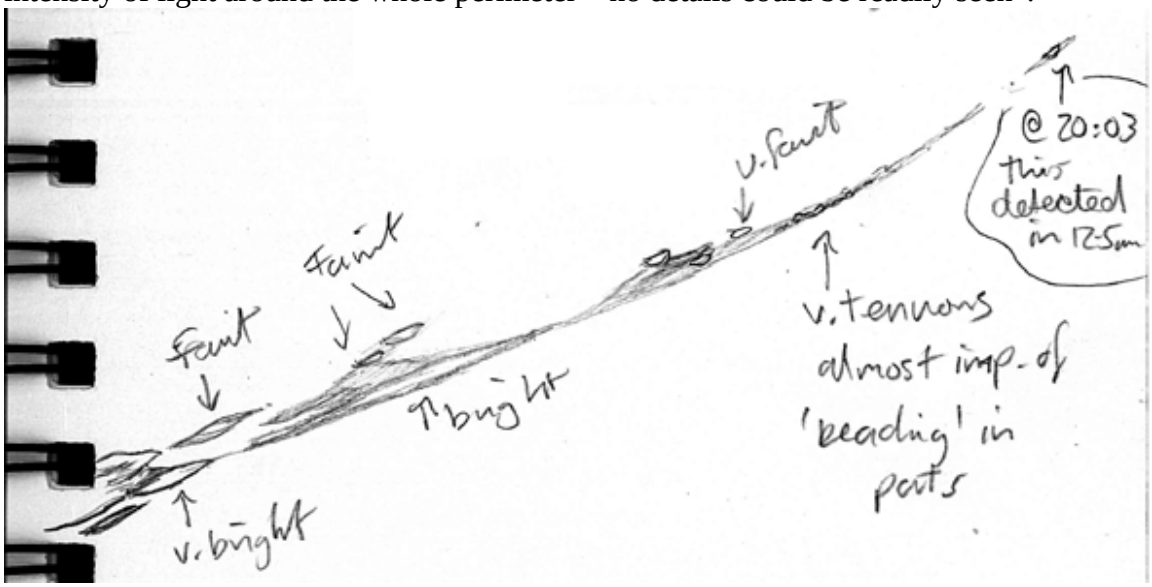

Figure 2. The southern cusp at 19:50UT through a 72mm refractor with 7mm Orthoscopic eyepiece and x2 Barlow, seeing Antoniadi II-III, transparency good, Sub-Observer point (libration): 5.89W°, 4.60°S, Sub Solar point: 147.09°E 1.51°N, Selenographic Co-longitude=302.91°.

Nigel continues (See Figure 2) "As darkness closed in the cusp extensions became more apparent yet seemed to extend further south." – "Slender ghost like 'tendrils', reminiscent of thin wavy clouds on warm summer evenings"

So has Nigel solved the mystery of what Firsoff saw back in 1956, namely just higher than normal topography being illuminated? Possibly and although we cannot rule out extreme explanations such as electrostatic dust levitation close to the limb, it seems odd that the solar wind density, temperature and speed would have a similar charging effects both in 1956 and 2010. For now therefore I will lower the ALPO/BAA weight of this 1956 LTP from 2 to 1 so as to minimize its influence in subsequent statistical analysis. Anyway if you see similar predictions cropping up on the web site below for the lunar poles, then please do try to observe these. We really do need your observations to help solve some of these past mysteries!

For repeat illumination (only) LTP predictions for the coming month, these can be found on the following web site: http://users.aber.ac.uk/atc/tlp/tlp.htm . 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! Twitter LTP alerts can be accessed on http://twitter.com/lunarnaut.

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

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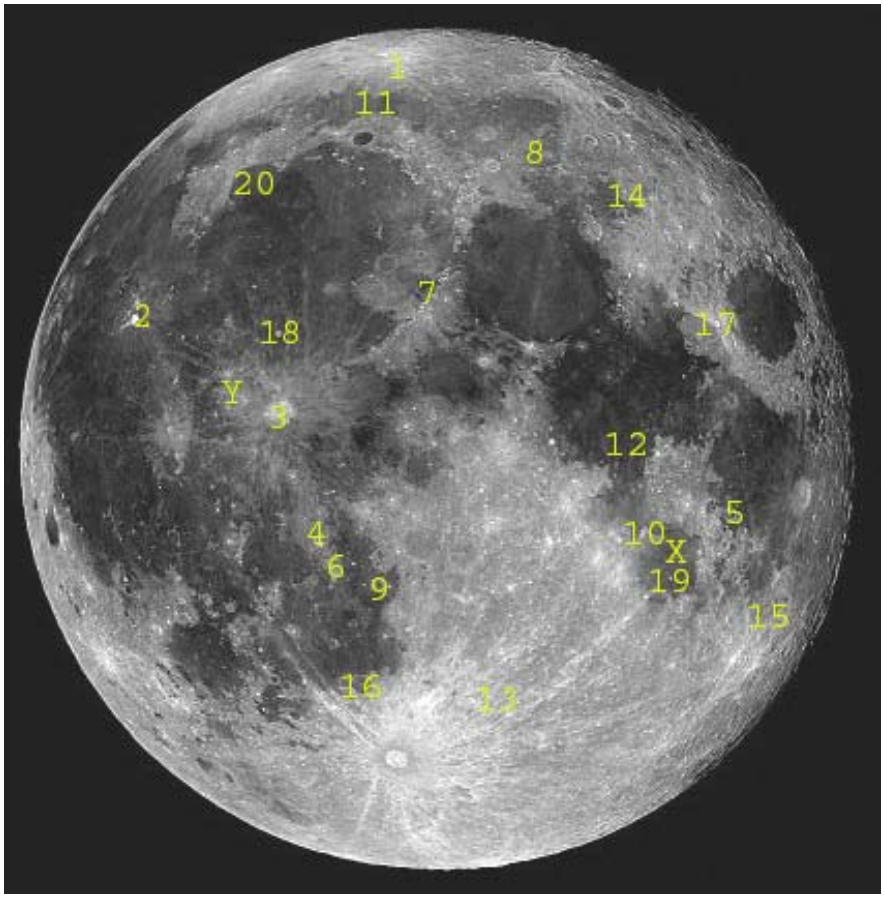
KEY TO IMAGES IN THIS ISSUE

1. **Anaxagoras**
2. **Aristarchus**
3. **Copernicus**
4. **Delisle-Diophantus**
5. **Fra Mauro**
6. **Goclenius**
7. **Guericke**
8. **Hadley Rille**
9. **Lacus Mortis-Burg**
10. **Lassell**
11. **Madler**
12. **Mare Frigoris**
13. **Maskelyne**
14. **Maurolycus**
15. **Maury**
16. **Petavius B**
17. **Pitatus**
18. **Proclus**
19. **Pytheas**
20. **Rosse**
21. **Sinus Iridum**



FOCUS ON targets

Dark-Haloed Craters (July)
X = Mare Nectaris (September)
Y = Milichius-T. Mayer Area (November)