THE LUNAR OBSERVER

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

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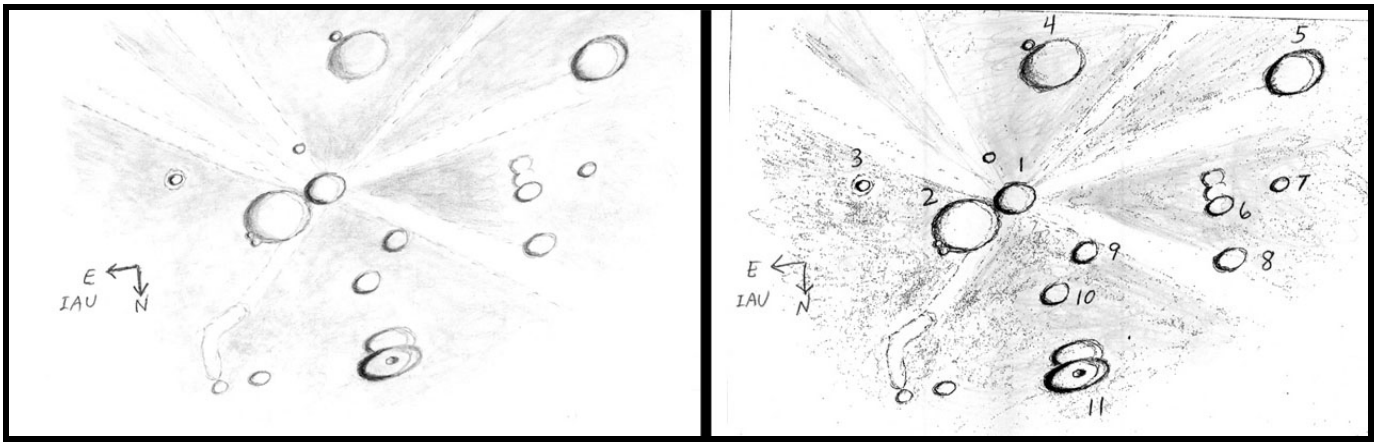
RECENT BACK ISSUES: http://moon.scopesandscapes.com/tlo_back.html

FEATURE OF THE MONTH – MAY 2011

THALES RAYS



Legend: 1. Thales, 2. Strabo, 3. de la Rue J, 4. Thales F (probably), 5. Democritus, 6. Schwabe, 7. Schwabe G, 8. Schwabe F, 9. Strabo L, 10. Strabo N, 11. Hayn E (?)

Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA
May 23, 2010 03:34-03:58 UT, 15 cm refl, 116x, seeing 7/10

I observed this area on the evening of May 22/23, 2010 after the moon hid 6th-magnitude ZC 1713. This area is near the limb north of Lacus Mortis, but librations were very favorable for it that evening. It was also rather far from the terminator, so the sketch is somewhat generalized. Thales is a fairly large, bright, crisp crater that is the center of a conspicuous ray system. Strabo is the larger crater just northeast of Thales. It is duskier and less crisp than Thales and it has two craterlets on its northeast rim. The small, very bright crater southeast of Strabo is de la Rue J, and the large, dark, rather vague crater to the south is probably Thales F. Democritus is the well-defined crater to the west, and Schwabe is the most complete of three rings northeast of Democritus.A large, crisp crater with a central peak is well north of Thales. It must be fairly deep since it still had dark interior shadow. This crater partially obliterated a shallow ring to its south. I'm not sure of its identity, but it might be Hayn E, if so, the partial ring on its south side might be Hayn J. A numbered guide is given with a copy of the sketch.

The brightest ray from Thales extends westward toward the north end of Democritus, passing south of Schwabe and its companions. A vague ray extends to the northwest toward Schwabe F. The area between these rays appears quite gray. A narrow, straight ray reaches to the southwest between Democritus and Thales F. A wide group of rays extends southward between Thales F and de la Rue J. The ray on the east side of this group (nearest de la Rue J) is the brightest of this bunch. A weak ray reaches to the northeast past the west end of Strabo toward an angular bright patch. I'm not sure what this patch is, but it doesn't look like a ray.

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LUNAR CALENDAR

MAY-JUNE 2011 (UT)

May 01	00:00	Moon 7.3 Degrees NNW of Mercury
May 01	16:00	Moon 5.6 Degrees NNW of Jupiter
May 01	17:00	Moon 5.3 Degrees NNW of Mars
May 02	06:50	New Moon (Start of Lunation 1093)
May 06	03:54	Extreme North Declination
May 10	20:32	First Quarter
May 14	10:00	Moon 7.6 Degrees SSW of Saturn
May 15	11:19	Moon at Perigee (362,132 km – 225,018 miles)
May 17	11:07	Full Moon
May 18	23:24	Extreme South Declination
May 20	08:00	Moon 3.4 Degrees S of Pluto
May 24	15:00	Moon 5.4 Degrees NNW of Neptune
May 24	18:51	Last Quarter
May 27	07:00	Moon 5.9 Degrees NNW of Uranus
May 27	09:59	Moon at Apogee (405,004 km – 251,658 miles)
May 29	11:00	Moon 5.4 Degrees NNW of Jupiter
May 30	20:00	Moon 3.8 Degrees N of Mars
May 31	01:00	Moon 4.4 Degrees NNW of Venus
May 31	18:00	Moon 3.7 Degrees N of Mercury
June 01	21:02	New Moon (Start of Lunation 1094)
June 02	09:54	Extreme North Declination
June 09	02:09	First Quarter
June 10	17:00	Moon 7.6 Degrees SSW of Saturn
June 12	01:43	Moon at Perigee (367,187km – 228,159 miles)
June 15	08:48	Extreme South Declination
June 15	20:12	Full Moon (Total Eclipse of the Moon)
June 16	20:00	Moon 3.4 Degrees SSE of Pluto
June 20	23:00	Moon 5.4 Degrees NNW of Neptune
June 23	11:48	Last Quarter
June 23	19:00	Moon 5.9 Degrees NNW of Uranus
June 24	04:14	Moon at Apogee (404,274 km – 251,204 miles)
June 26	04:00	Moon 5.2 Degrees NNW of Jupiter
June 28	20:00	Moon 1.9 Degrees NNE of Mars
June 29	17:48	Extreme North Declination
June 30	06:00	Moon 1.0 Degrees W of Venus

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 is on-line at: **http://www.alpoastronomy.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 has 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: Plato

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 2011** edition will be Plato. Observations at all phases and 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 this crater to your observing list and send your favorites to:

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

Deadline for inclusion in the Plato article is June 20, 2011

FUTURE FOCUS ON ARTICLES:

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

Posidonius TLO Issue: September 2011 Deadline: August 20, 2011

ALPO 2011 CONFERENCE

The annual ALPO Conference is being held in Las Cruces, New Mexico this year. I encourage you to attend, if possible, and to consider presenting a paper. Information, including deadlines, from the conference web-site follows, with links to more information.

ALPO 2011 CONFERENCE

The 2011 Annual Conference of the Association of Lunar and Planetary Observers will be held at New Mexico State University, Guthrie Hall Room 201, in Las Cruces, New Mexico, Friday, July 22, 2011 and Saturday, July 23, 2011. For the latest information visit: www.morning-twilight.com/alpo

REGISTRATION:

	Before July 1:	After July 1:
Individual:	$65.00	$80.00
Individual plus family member:	$75.00	$95.00

Banquet: $30 per person (Held at NMSU Golf Course Clubhouse)

LODGING:

Conference Hotel: Sleep Inn University 2121 S. Triviz, Las Cruces, NM 88001 (575) 522-1700

Reservations: (877) 424-6423

Single queen bed: $70+tax single or double occupancy (Call after April 1, 2011- Mention the Association of Lunar and Planetary Observers Conference)

NMSU Dorm Rooms		Bedding Included*	Bedding not included**
Residence Halls	Single Occupancy	$25.00	$19.00
	Double Occupancy	$21.50	$16.00
Apartments	Chamisa Village	N/A	$39.00
	Vista Del Monte or Cervantes Village	N/A	$28.50

DORM RATES PER PERSON PER NIGHT
*Bedding includes 2 flat sheets, 1 pillowcase, 1 pillow, and 1 blanket. Towels are not provided.
**Apartments include kitchens. Guests must bring their own cooking equipment and dining utensils.
If you would like to stay in the dorms, you can download the NMSU Housing Request Form here (PDF).

SPECIAL TOURS: July 21 and July 22

Very Large Array
National Solar Observatory
Apache Point Observatories
White Sands Missile Range
(All venues may not be available, dates to be determined. See website for current details)

REGISTRATION/QUESTIONS: alpoconference@morning-twilight.com

Registrar: ALPO 2011 Conference Robert Williams, 308 N. Mesquite St. #3, Las Cruces, NM 88001

CONTRIBUTED PAPERS:

Deadline for four or five sentence abstract/proposal for papers/workshops/posters is June 15, 2011.
For submission details see JALPO 53, #2, Spring 2011, pg. 4

Contact:
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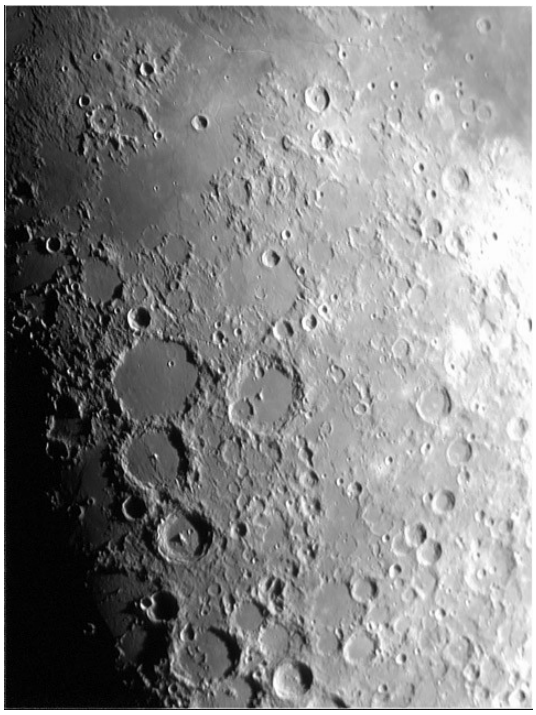
(770) 358-0728 schmude@gdn.edu

FOCUS ON: Alphonsus

By Wayne Bailey
Coordinator: Lunar Topographical Studies

Alphonsus is well placed for observation near the center of the visible face of the moon. Located at 13° S 3° W, nearly on the central meridian, sunrise occurs close to first quarter and sunset around third quarter. It's a large (118 km diameter) crater, easily recognized as the middle crater of the Ptolemaeus-Alphonsus-Arzachel chain (Figure 1). Around full moon, when features near the center become difficult to identify due to the lack of shadows, Alphonsus can still be recognized by the triangle of three dark spots on its floor (Figure 2).



In addition to the variety of features that are visible to the careful observer, the crater attracts interest as the site of the Ranger 9 impact. It is also the location of several transient phenomena sightings, including the spectrographic observations of Kozyrev discussed below.

Figure 1: ***Alphonsus Area -*** *Mark Hardies New Port Richey, FL,USA March 13, 2011 01:30 UT. Seeing 6/10 Transparency 5/6. Colongitude 8.7°. C8, f/10, SCT. DMK 41AU02*

The crater is a ring plain with complex walls and a relatively flat, flooded floor (Figure 3). It is smaller, but more structured than Ptolemaeus to its north. Arzachel, to its south is smaller and more rugged. Another, smaller but interesting crater, Alpetragius, nestles in between Alphonsus and Arzachel. The northern wall of Alphonsus intrudes into Ptolemaeus, showing that the latter predates it. Alphonsus also predates the impact that formed Mare Imbrium, since ejecta from Imbrium clearly gouged valleys in the southern wall, and some features on the floor and northern wall are aligned radially to Imbrium.

The central peak is just a simple block, about 10 km diameter that protrudes about 3 km above the flooded floor. A complex, low ridge extends from the southern wall past the west side of the central peak (Figure 4). It appears to continue to the north wall. However, north of the peak, the ridge becomes less distinct, sometimes appearing as a rille.

Figure 2: ***Alphonsus at high sun.*** *Maurice Collins-Palmerston North, New Zealand. November 15, 2010 07:40-07:43 UT. Seeing A IV. C8, 2x Barlow.*

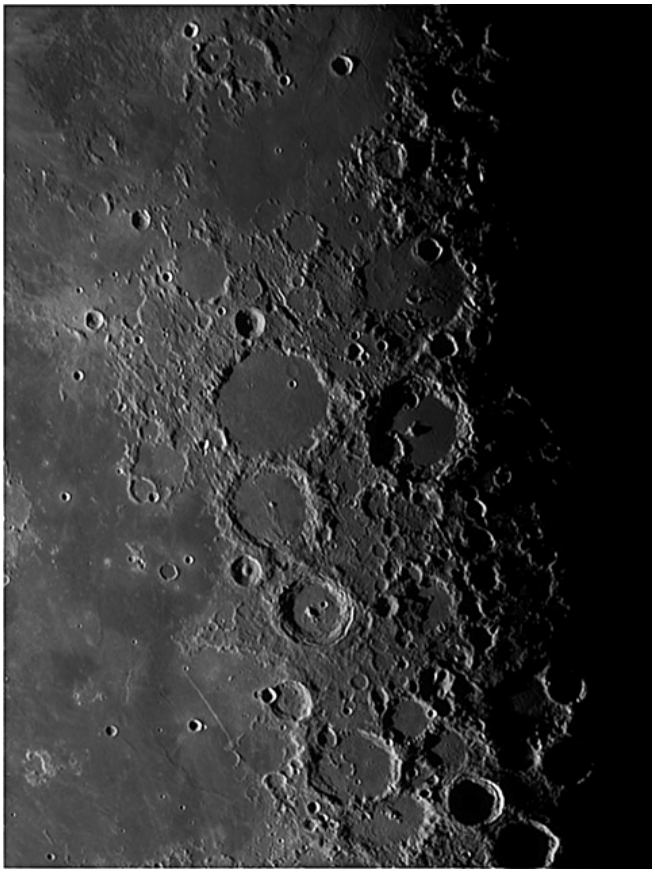
Three distinct dark patches are visible, just inside the west, northeast and southeast walls. Four

small craters can be seen within these patches (2 in the west patch). Careful observation reveals at least two more, small, dark halo craters, one at the base of the wall in the north-northeast, another west of the central peak.

Several rilles occur on the floor. The easiest one to locate parallels the northeast and east wall, about 10 km away from the base of the wall. A small, short rill extends northeast from the dark halo crater in the southeast, seeming to join an east-west rille that appears to penetrate the low central ridge. Another rill extends north across the floor, east of the central peak about 1/3 of the distance to the wall. Numerous small craters (none larger than a couple of km diameter) pepper the floor. Most are a challenge to detect although they sometimes appear as unresolved bright spots.

Figure 3: ***Alphonsus*** **-** *Jerry Hubbell, Locust Grove, Virginia, USA. March 13, 2011 02:17 UT. Colongitude 9.5º, Seeing 7/10, Transparency 4.5/6. Sky-watcher 120 ED APO, 2x Barlow, ATIK 314e TEC CCD.*

The walls are somewhat degraded, but still show complex details (Figure 5) when carefully examined. The southeast wall, in particular, shows clearly the results of gouging by Imbrium ejecta. The outer northwest wall also shows Imbrium aligned gullies, although they are less pronounced than in the southeast. At the base of the northwest wall, blocks protrude from the floor as though the wall collapsed, then was flooded. The southwest section of floor also appears rougher than the rest, as though this section may be older than most of the floor.



The third successful lunar imaging mission by NASA, Ranger 9, crashed into northeastern Alphonsus on March 24, 1965. It transmitted television images from its four cameras as it descended, with the final image resolving objects only about 1 foot in size. A video of the descent can be viewed at http://www.airspacemag.com/video/Ranger-9s-Last-Moments.html.

Figure 4: ***Alphonsus-evening illumination*** - Howard Eskildsen-Ocala, Florida, USA. March 26, 2011 10:34 UT. Seeing 9/10, Transparency 5/6. Orion ED 80, 600 mm f.l, 3X Barlow, DMK 41AU02.AS, No Filter.

Alphonsus is also the site of several transient phenomena observations. The explanation for the spectrographic observations Kozyrev in 1958 continues to be one of the most controversial topics. That story begins in 1955 when Dinsmore Alter claimed that details on part of the floor of Alphonsus were less distinct on blue photographs than on infra-red photographs taken with the Mt. Wilson 60 inch reflector. Nicolai Kozyrev then began a program of spectral monitoring of the lunar surface with the 50 inch reflector

of the Crimean Astrophysical Observatory. On November 3, 1958, he saw a brightening of Alphonsus' central peak and the spectra at that time showed broad emission bands at the peak's position. The emissions were identified as the Swan Bands of C_2 plus additional features. For more information see Kozyrev (1959), Tejfel (2009) and North (2000, p 353). The spectra definitely show something, but the interpretation has remained controversial for more than 50 years. Among the interpretations that I have heard are: Fluorescence of gaseous emissions on the moon; Contamination by cigarette, match and/or lighter; and Guiding errors during the exposure. That last one puzzles me: I don't understand how guiding errors can create an emission band, if anyone can clarify that for me I'd appreciate it.

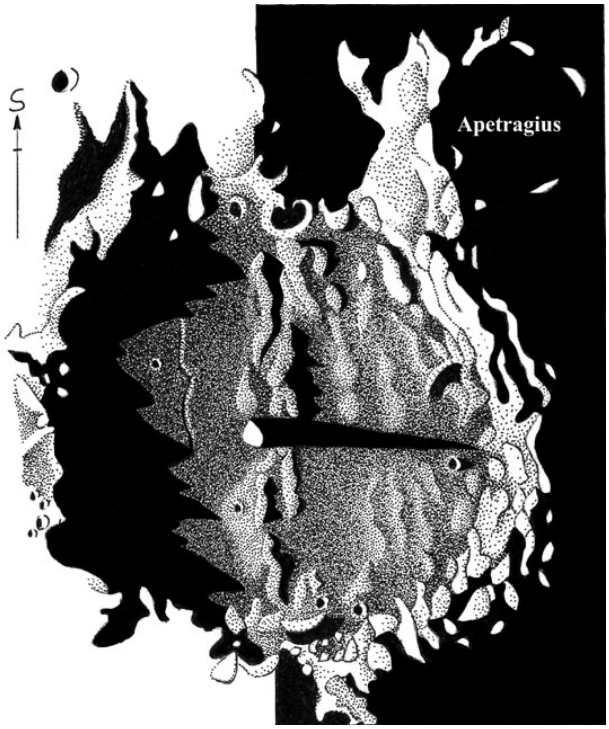


Figure 5: ***Alphonsus -*** *Phillip Morgan –Lower Harthall-Tenbury Wells, Worcestershire, England. March 26, 2007. 19:00-20:15 UT, Colongitude 5.3°-5.9°. Seeing 8/10, Transparency 4/5. 305mm, f/5, Newtonian, 400x.*

ADDITIONAL READING

Bussey, Ben & Paul Spudis. 2004. The Clementine Atlas of the Moon. Cambridge University Press, New York.
Byrne, Charles. 2005. Lunar Orbiter Photographic Atlas of the Near Side of the Moon. Springer-Verlag, London.
Gillis, Jeffrey J. ed. 2004. Digital Lunar Orbiter Photographic Atlas of the Moon.. Lunar & Planetary Institute, Houston. Contribution #1205 (DVD). (http://www.lpi.usra.edu/resources/lunar_orbiter/).
Kozyrev, Nikolai. 1959. Sky & Telescope, pg. 184, February issue. "Observation of a Volcanic Process on the Moon"
Mutch, Thomas A. 1970. Geology of the Moon: A Stratigraphic View. Princeton University Press, Princeton.
North, Gerald. 2000. Observing the Moon, Cambridge University Press, Cambridge.
Rukl, Antonin. 2004. Atlas of the Moon, revised updated edition, ed. Gary Seronik, Sky Publishing Corp., Cambridge.
Schultz, Peter. 1976. Moon Morphology. University of Texas Press, Austin.
Shirao, Motomaro & Charles A. Wood. 2011. The Kaguya Lunar Atlas. Springer, New York
Tejfel, Victor. 2009. The Lunar Observer, March issue. "Nikolay Kozyrev & the Riddle of Lunar Crater Alphonsus"
Wood, Charles. 2003. The Moon: A Personal View. Sky Publishing Corp. Cambridge.

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Dawes and the boundary between Maria Tranquillitatis and Serenitatis

Fred Corno

The boundary between Mare Tranquillitatis and Mare Serenitatis is marked by two major craters: Plinius and Dawes. The former of the two is a 43 km wide crater, with prominent and tormented central peak, sharp rim and it usually draws the attention of most of the observers. The latter, Dawes, is smaller and less prominent: with a diameter of 18 km it may even go unnoticed when compared with the more renowned Plinius. Nevertheless, it sports some interesting features.

Dawes is emplaced on a mare district dating to the upper Imbrian period: according to Moon Geological map I489, most of it is part of the oldest lava fields of the area, characterized by relatively high albedo (0.064 – 0.066). To the Northwest a wedge of younger material, still belonging to the upper Imbrian, is present. For this latter albedo is lower, scoring in the range 0.061-0.062.

Differences in albedo are easily discernible by visual observation under low sun, even if mixed up with shadows cast by smooth and very low reliefs rolling in the surroundings. The crater itself appears to be sitting on some kind of a lobate plateau spreading to the East, as if a flow of lava was coming from the opposite direction when the mare filling was emplaced. On the South-West side, a low scarp is positioned, curved to follow the curvature of the crater rim: of course, it was emplaced earlier than the crater formation, supposed to occur in the Eratosthenian or Copernican period, depending upon the geological map that is considered. The combination of the scarps to the SW and the lobes to the East encloses the crater in some kind of a flower-like structure, catching the eye of the visual observer. To the North, a set of low reliefs or a subdued ridge proceeds from the crater. To the East, very close to the rim, an arcuate and discontinuous trough, the Rima Dawes, circles the crater as a castle's defensive installation (see drawing in ***Figure 1*** and compare with crops of LAC 42 map – ***Figure 2***- and moon geological map I489 –***Figure 3***-).

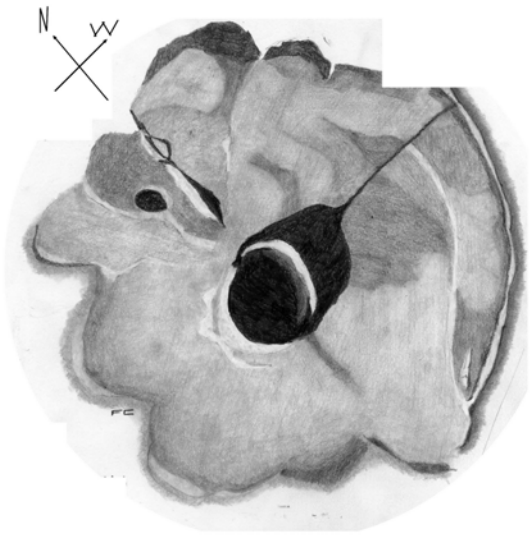

Figure 1*: Dawes and its immediate surroundings. Observation by the author with a 4" achromatic refractor at 200 and 250x, taken on the night of the 8th of February 2011 at 19.00 UT.*

Figure 2: *Crop from LAC Map 42 (Mare Serenitatis) showing Dawes and its surroundings: the southernmost rille on the left is Rima Plinius I.*

The shadow cast by the crater rim to the West blends in the most interesting feature I happened to observe in the present session: a sharp and narrow line of shadow running roughly to the WSW. Its sharpness and definition suggest that it is the mark of a rille rather than just a smooth valley in

the ground. LAC map 42 shows the farthest reaches of Rima Plinius I in a position that is compatible with the observation.

The location of Dawes is also interesting because of the different composition of the filling of Mare Tranquillitatis to the South and Mare Serenitatis to the North: according to the Clementine survey, just North

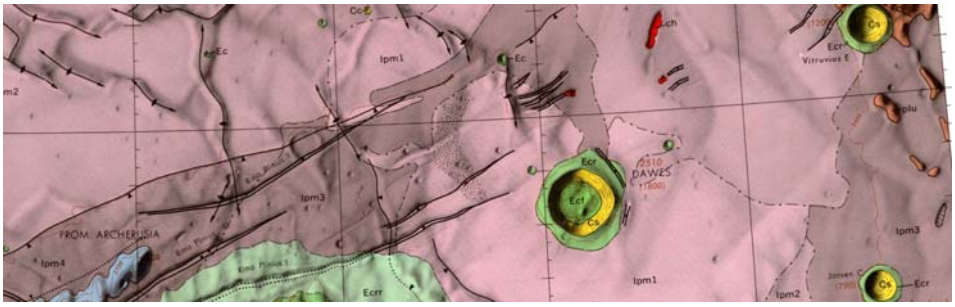

Figure 3: *Crop from Moon Geological Map I489 showing the same district as in Figure 2: pink hue indicates lava from upper Imbrian period (in the proposed interpretation, the darker the hue the younger the terrain and the lower the albedo – such an interpretation was then questioned after Apollo and Clementine findings, see text), green and yellow crater material from Eratosthenian period (rim and floor material and talus from inner slope slumping respectively)*

of Dawes an abrupt change in titanium content of the mare lava occurs. Flows in Mare Tranquillitatis and the southern reaches of Mare Serenitatis are made of titanium-rich lava, whereas Mare Serenitatis is mostly made of low titanium basalt. In ***re 4*** a Clementine image showing TiO_2 content is presented: Dawes is emplaced in a titanium rich district, and it is encircled by even higher titanium content ejecta. To the NW, low titanium lava of Mare Serenitatis appears. Craters piercing the latter are circled by high titanium ejecta as well, demonstrating that the Serenitatis-centered flow from the N was emplaced to cover the older one from the S. Such a finding is consistent with the earlier Apollo pictures of the area and radiometric determinations on samples returned by Apollo 11 and 17 in reversing the initial stratigraphic interpretation of the zone, as it was presented in Lunar Geological Map I489: low-albedo flows are *de facto* older than their high-albedo counterparts.

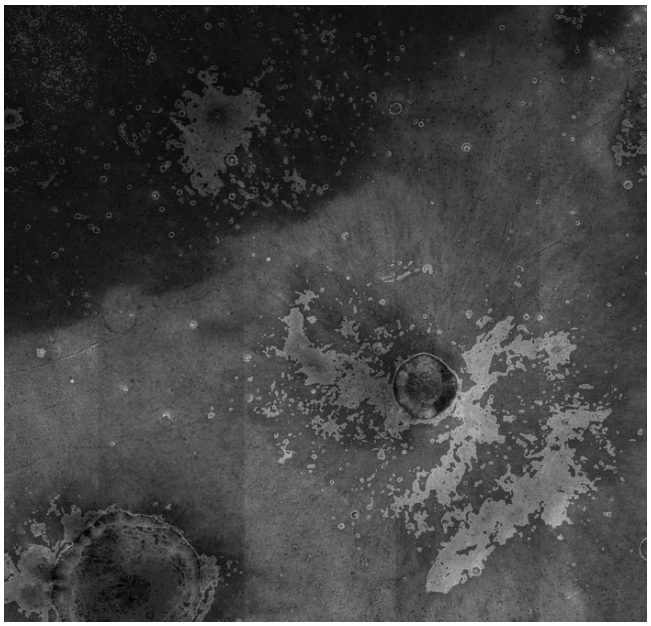

Figure 4: *Crop from Clementine TiO_2 image: the lighter the colour, the higher the Titanium content. Dawes is the crater at center-left, surrounded by even higher titanium ejecta. To the visual observation, high-titanium districts appear darker than the others.*

A visual observation of Dawes, an isolated crater at the boundary between Maria Tranquillitatis and Serenitatis, prompted me to go through an extensive and rewarding investigation about local geomorphology and petrology: the nature and the relative sequence of emplacement of the various features in the region surrounding Dawes were determined.

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Shadow Spires in Bonpland

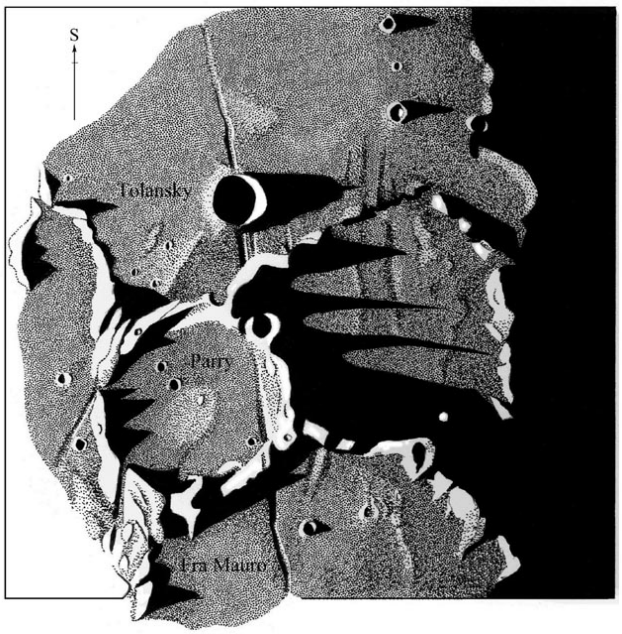
Phil Morgan

If you are lucky enough to catch first light on the old and battered crater Bonpland, you will be treated to a spectacular set of shadow spires spreading across the crater floor.

On this occasion I caught it just right, with the most northerly of the spires reaching out right across the 55 kilometre floor area, and touching the foot of the inner west rampart.

If seeing is good, as it was on this night, then you will also be able to study the Rima Parry l as it bisects Fra Mauro, just to the north of Bonpland. This long and winding rille also slices through the extreme western inner floor of Parry, and then continues on its journey southwards underneath the fresh crater Tolansky (formerly Parry A) and ends up just outside the outer rampart of Guericke. This southern extension of the rille is harder to see, probably because it shallower than the more northern half.

For those interested in looking at the latest LROC images, check out the nearby small crater Bonpland D. This is almost another Messier A – but not quite!



BONPLAND – Phillip Morgan –Lower Harthall-Tenbury Wells, Worcestershire, England. March 13, 2011. 20:30-21:10 UT, Colongitude 18.5°-18.9º. Seeing 8-9/10, Transparency 5/5. 305mm, f/5, Newtonian, 400x.

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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 4, 5, 8, 10, 15, & 17 day moon, Langenus-Rheita Valley, Mare Smythii, Montes Alpes, Palus Putredinis, Plato, & Southern Terminator.

FRED CORNO - SETTIMO TORINESE, ITALY. Drawing of Dawes.

HOWARD ESKILDSEN - OCALA, FLORIDA, USA. Digital images of Albategnius, Alpes, Copernicus-Kepler, Maginus, Montes Apenninus & Pallas. Banded crater forms for Dawes, Messier, & Proclus.

RICHARD HILL – TUCSON, ARIZONA, USA Digital image of Rimae Sirsalis.

PHILLIP MORGAN –LOWER HARTHALL-TENBURY WELLS, WORCESTERSHIRE, ENGLAND. Drawings of Alphonsus & Bonpland.

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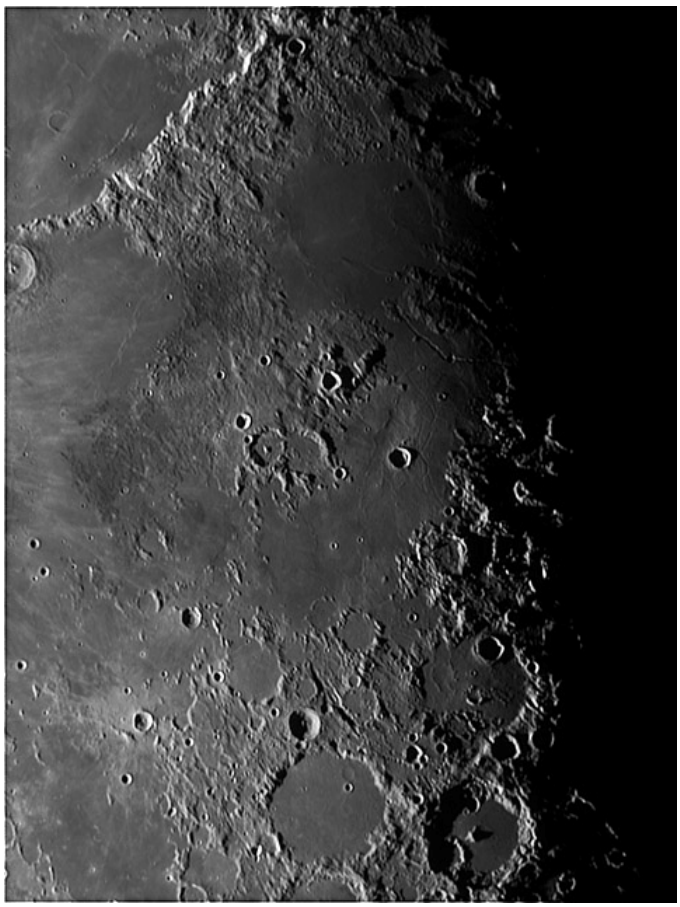
RECENT TOPOGRAPHICAL OBSERVATIONS

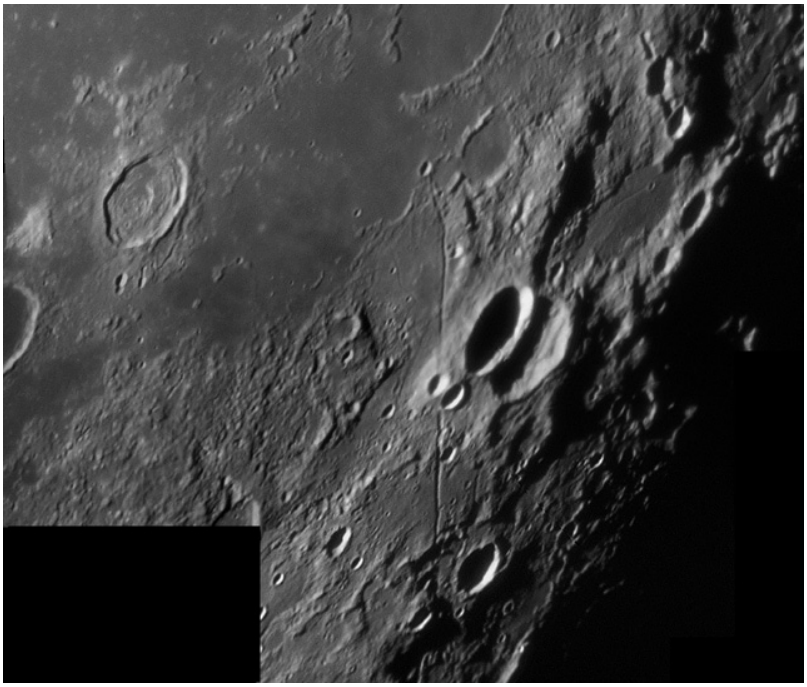
LANGRENUS-RHEITA VALLEY - Maurice Collins-Palmerston North, New Zealand. April 20, 2011 11:30-12:00 UT. C8, 2x Barlow, LPI.

RECENT TOPOGRAPHICAL OBSERVATIONS



PALLAS - Howard Eskildsen-Ocala, Florida, USA. March 26, 2011 10:31 UT. Seeing 9/10, Transparency 5/6. Orion ED 80, 600 mm f.l, 3X Barlow, DMK 41AU02.AS, No Filter.

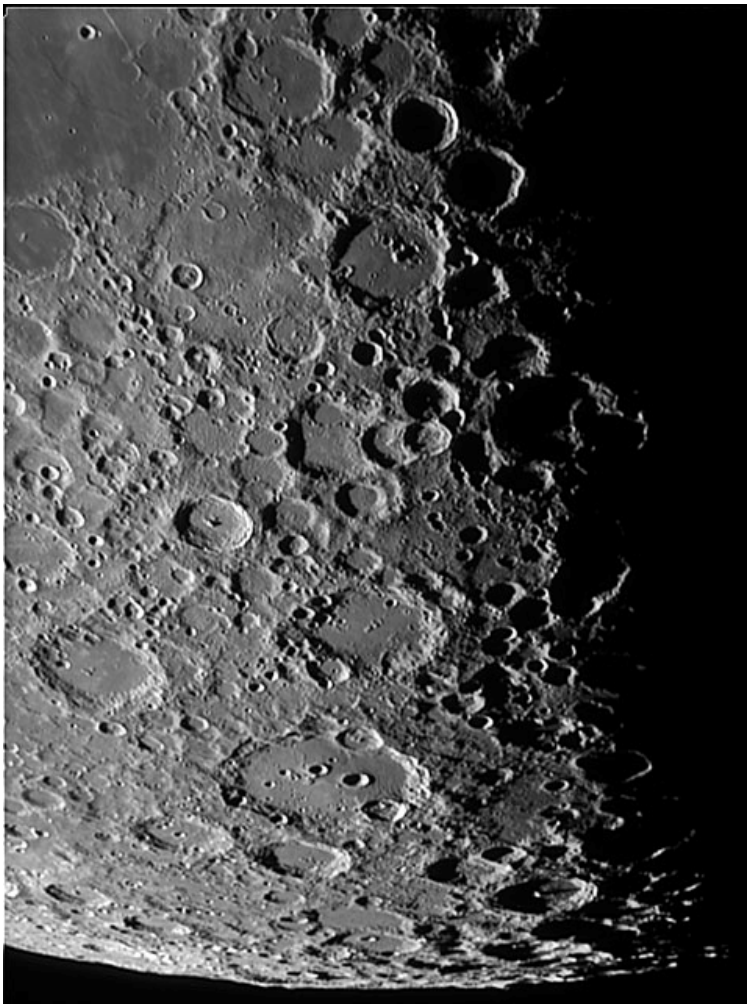
RIMAE SIRSALIS – Richard Hill – Tucson, Arizona, USA February 16, 2010 04:59 UT. Seeing 8/10. C14, 2x barlow, f/22, SCT. DMK21AU04. UV/IR blocking filter.



ADDITIONAL TOPOGRAPHICAL OBSERVATIONS

MARE SMYTHII - Maurice Collins-Palmerston North, New Zealand. April 18, 2011 11:26 UT. C8, LPI (dew on optics).

MAGINUS - Howard Eskildsen-Ocala, Florida, USA. March 26, 2011 10:36 UT. Seeing 9/10, Transparency 5/6. Orion ED 80, 600 mm f.l., DMK 41AU02.AS, No Filter.



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

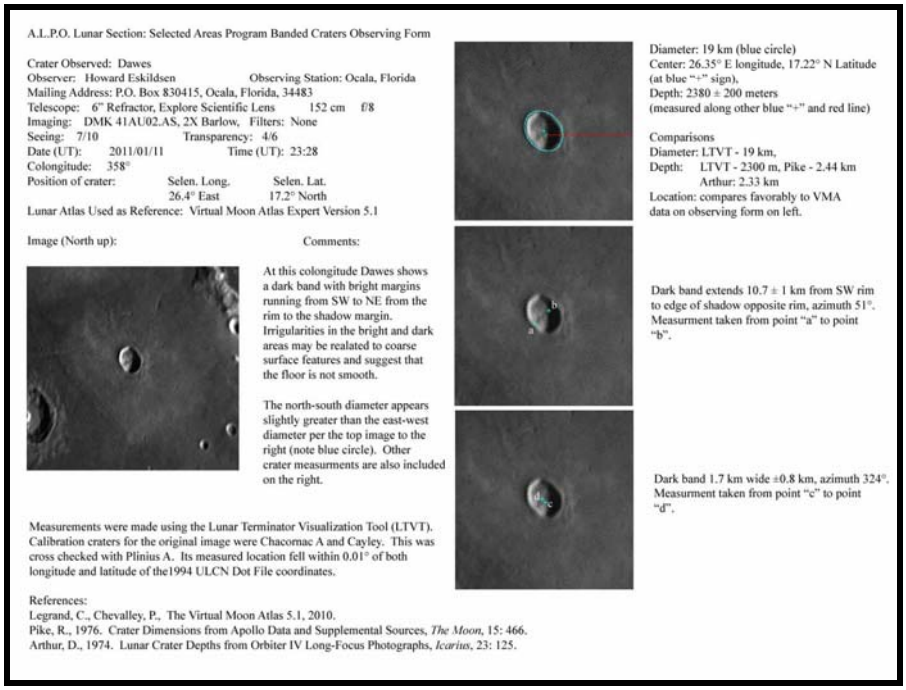
COPERNICUS & KEPLER RAYS - - Howard Eskildsen-Ocala, Florida, USA. March 26, 2011 10:40 UT. Seeing 9/10, Transparency 5/6. Orion ED 80, 600 mm f.l., 3x Barlow, DMK 41AU02.AS, No Filter.

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: Dawes
Observer: Howard Eskildsen Observing Station: Ocala, Florida
Mailing Address: P.O. Box 830415, Ocala, Florida, 34483
Telescope: 6" Refractor, Explore Scientific Lens 152 cm f/8
Imaging: DMK 41AU02.AS, 2X Barlow, Filters: None
Seeing: 7/10 Transparency: 4/6
Date (UT): 2011/01/11 Time (UT): 23:28
Colongitude: 358°
Position of crater: Selen. Long. Selen. Lat.
26.4° East 17.2° North
Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 5.1

Image (North up):

Comments:

At this colongitude Dawes shows a dark band with bright margins running from SW to NE from the rim to the shadow margin. Irrigularities in the bright and dark areas may be realated to coarse surface features and suggest that the floor is not smooth.

The north-south diameter appears slightly greater than the east-west diameter per the top image to the right (note blue circle). Other crater measurments are also included on the right.

Measurements were made using the Lunar Terminator Visualization Tool (LTVT). Calibration craters for the original image were Chacornac A and Cayley. This was cross checked with Plinius A. Its measured location fell within 0.01° of both longitude and latitude of the1994 ULCN Dot File coordinates.

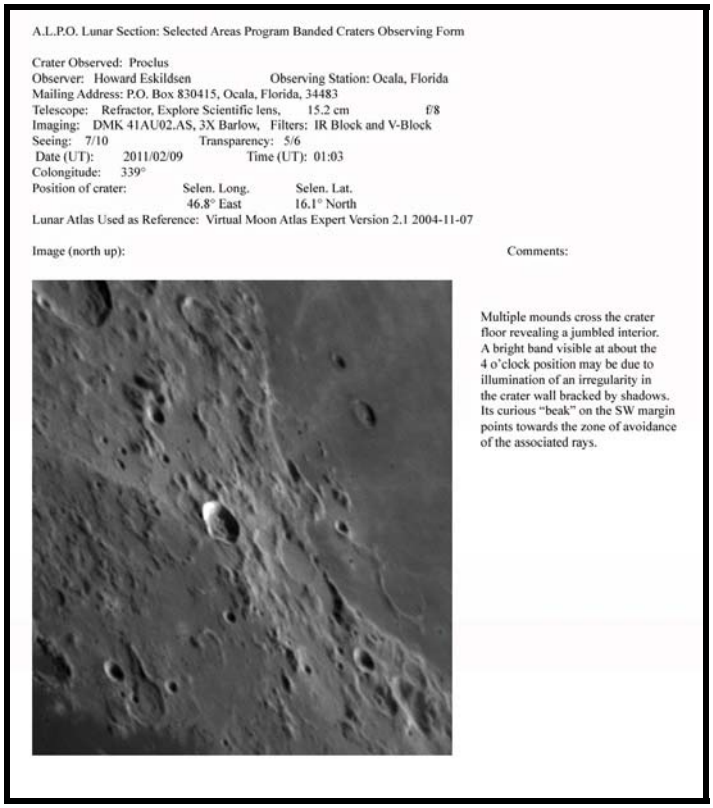
Diameter: 19 km (blue circle)
Center: 26.35° E longitude, 17.22° N Latitude (at blue "+" sign).
Depth: 2380 ± 200 meters
(measured along other blue "+" and red line)

Comparisons
Diameter: LTVT - 19 km,
Depth: LTVT - 2300 m, Pike - 2.44 km
Arthur: 2.33 km
Location: compares favorably to VMA data on observing form on left.

Dark band extends 10.7 ± 1 km from SW rim to edge of shadow opposite rim, azimuth 51°. Measurment taken from point "a" to point "b".

Dark band 1.7 km wide ±0.8 km, azimuth 324°. Measurment taken from point "c" to point "d".

References:
Legrand, C., Chevalley, P., The Virtual Moon Atlas 5.1, 2010.
Pike, R., 1976. Crater Dimensions from Apollo Data and Supplemental Sources, *The Moon*, 15: 466.
Arthur, D., 1974. Lunar Crater Depths from Orbiter IV Long-Focus Photographs, *Icarius*, 23: 125.



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

Crater Observed: Proclus
Observer: Howard Eskildsen Observing Station: Ocala, Florida
Mailing Address: P.O. Box 830415, Ocala, Florida, 34483
Telescope: Refractor, Explore Scientific lens, 15.2 cm f/8
Imaging: DMK 41AU02.AS, 3X Barlow, Filters: IR Block and V-Block
Seeing: 7/10 Transparency: 5/6
Date (UT): 2011/02/09 Time (UT): 01:03
Colongitude: 339°
Position of crater: Selen. Long. Selen. Lat.
46.8° East 16.1° North
Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1 2004-11-07

Image (north up):

Comments:

Multiple mounds cross the crater floor revealing a jumbled interior. A bright band visible at about the 4 o'clock position may be due to illumination of an irregularity in the crater wall bracked by shadows. Its curious "beak" on the SW margin points towards the zone of avoidance of the associated rays.

LUNAR TRANSIENT PHENOMENA

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

LTP NEWSLETTER – MAY 2011

Dr. Anthony Cook - Coordinator

Observations for March 2011 were received from the following observers: Jay Albert (Lakeworth, FL, USA) observed: Aristarchus, Biot, Censorinus, Conon, Langrenus, Montes Teneriffe, Posidonius, and Plato. Maurice Collins (New Zealand) observed: Aristarchus and took Whole Moon images. Marie Cook (Mundesley, UK) observed: Arsiatrchus, and Censorinus. Myself (Newtown, UK) observed the Moon with a color web camera. Bob O'Connell (Keystone Heights, FL) observed: Aristarchus. Brendan Shaw observed: Alphonsus, Briggs, Censorinus, Eratosthenes, Geminus, Linne, Plato, Proclus, Schickard, and Tycho. Claudio Vantaggiato (A UAI observer in Italy) observed Aristarchus.

News: Brendan Shaw has had his malfunctioning CCD camera repaired and is back in action again. Marizio Morini of UAI in Italy has been busy organizing Italian observers to attempt to disprove past LTP reports in a similar way to which we have been doing in the BAA Lunar Section. Quite a lot of email communication has been taking place to see how we can cooperate to look for LTP and reduce the existing LTP dataset. Following emails sent out by the BAA and ALPO for the repeat illumination conditions for Greenacre and Barr's Oct and Nov 1963 Aristarchus TLPs, we have received many high quality color images from observers in the USA, Portugal, Germany, Poland, and Malta I will discuss these next month.

LTP Reports: No LTPs were reported during March, however if anybody was observing Earthshine on Apr 07 at around 20:00UT, or the lunar south pole area on Apr 08 at 19:30-22:00UT, then please get in touch – more next month about what was seen.

Routine Reports: On 2010 Apr 27, in sketches made at UT 00:10-00:30 and 01:45-02:00, Peter Grego observed a craterlet and an NE-SW trending curved lineament (wrinkle ridge?) neither of which showed up on NASA LAC charts of the area? In March 2011, Brendan Shaw re-examined the area and I am happy to say that the craterlet is most definitely visible, therefore the Lunar Aeronautical Chart is incorrect not to show this craterlet. The lineament or wrinkle ridge is not visible though in Brendan's image – however it is possible that higher resolution imagery might reveal this? Either way it shows remarkably good agreement between Peter's PDA sketch and the CCD image (see figure 1). In view of the fact that the E-W lineament issue has not been completely resolved, this observation has been placed in the LTP database under the lowest weight of 1 until someone observes this feature again.

On 2011 Mar 10 at UT 00:45-00:58 Jay Albert examined the crater Biot and described "the west wall as being very bright with a slight shadow notch in the middle without breaking through the rim. The SW portion was especially bright. The crater itself was completely shadow-filled." This matched the same illumination conditions as a 1969 Jul 19 LTP observation by d'Azevado *et al.* of Paranaiba, Brazil who commented that Biot was extremely bright compared to what had been seen several months earlier. This currently has a low ALPO/BAA weight of 1 – which has a minimal effect in statistical analysis. A few more observations at different lunations will be able to settle this one for sure, but on the face of it, it could well be the normal appearance that was seen.

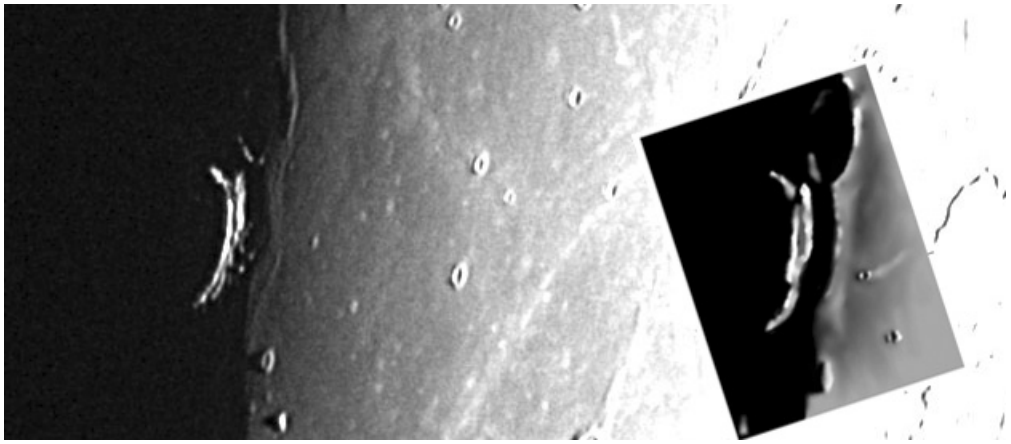


Figure 1*. Image and Sketch of Briggs crater – north is at the top. (Left) enhanced CCD image by Brendan Shaw 2011 Mar 17 UT 20:40. (Right inset) Sketch by Peter Grego from 2010 Apr 27 UT 00:10-00:30.*

On 2011 Mar 19 at UT 07:16-08:37 Maurice Collins took a color image mosaic of the whole Moon. This covered the same illumination conditions as a 1938 Jan 16 observation by Barker who observed in Plato a "brownish-gold veined surface, color irregular – laid on a smooth floor". An enlargement of Maurice's image is shown in Figure 2 – although image resolution is not ideal, there is no sign of the effect seen by Barker, therefore the weight for this 1938 LTP will remain at 2.

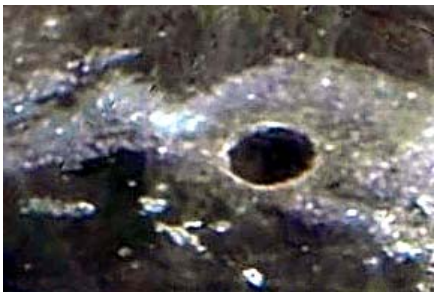


Figure 2 *CCD image of Plato by Maurice Collins from 2011 Mar 19. North is at the top,*

On 2011 Mar 15 at UT20:35-20:40 Marie Cook re-examined Censorinus crater and found the ejecta apron area to be bright and white, as bright as Proclus. This was complete contrast to a LTP observation that she made back in 1991 May 24th at the same illumination, when this region around Censorinus was described a "very dull, greyish, not diffused as on the previous couple of days when it was white". The BAA/ALPO weight was 2 but will be upgraded to 3 to reflect this difference in appearance.

Suggested Features to observe in May: 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! Alternatively LTP alerts can be accessed on http://twitter.com/lunarnaut.

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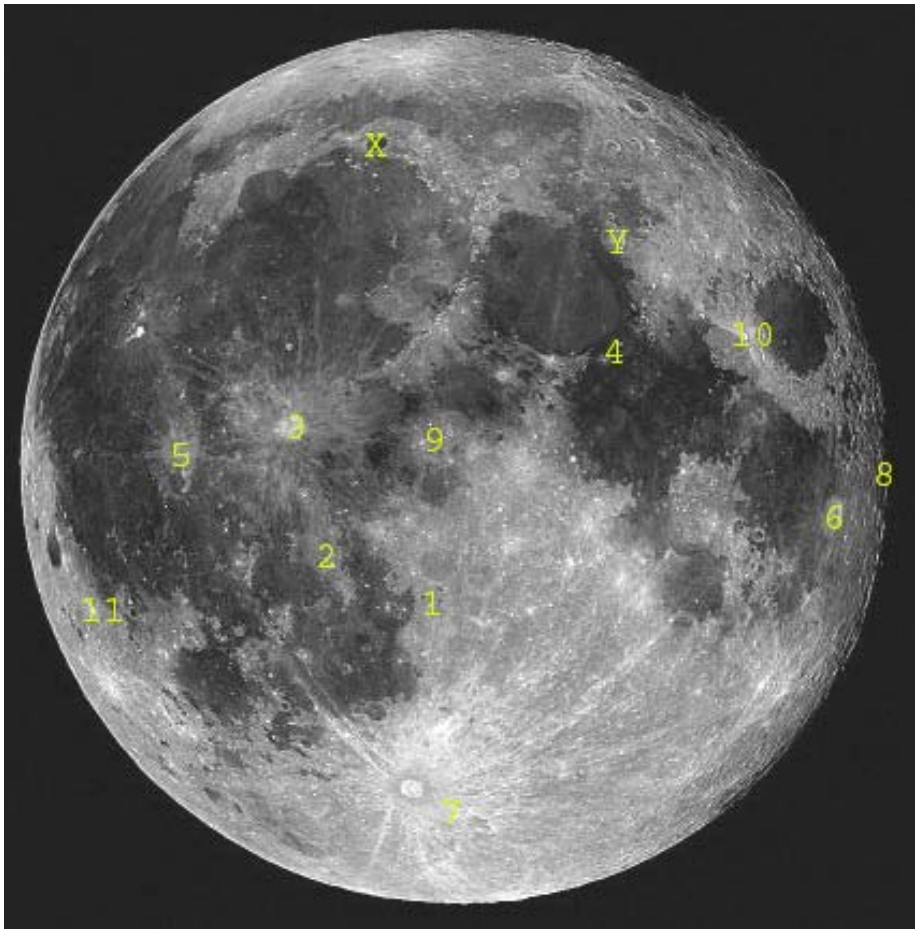
KEY TO IMAGES IN THIS ISSUE

1. **Alphonsus**
2. **Bonpland**
3. **Copernicus**
4. **Dawes**
5. **Kepler**
6. **Langrenus**
7. **Maginus**
8. **Mare Smythii**
9. **Pallas**
10. **Proclus**
11. **Rimae Sirsalis**



FOCUS ON targets

X = Plato (July)
Y = Posidonius (September)