THE LUNAR OBSERVER

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

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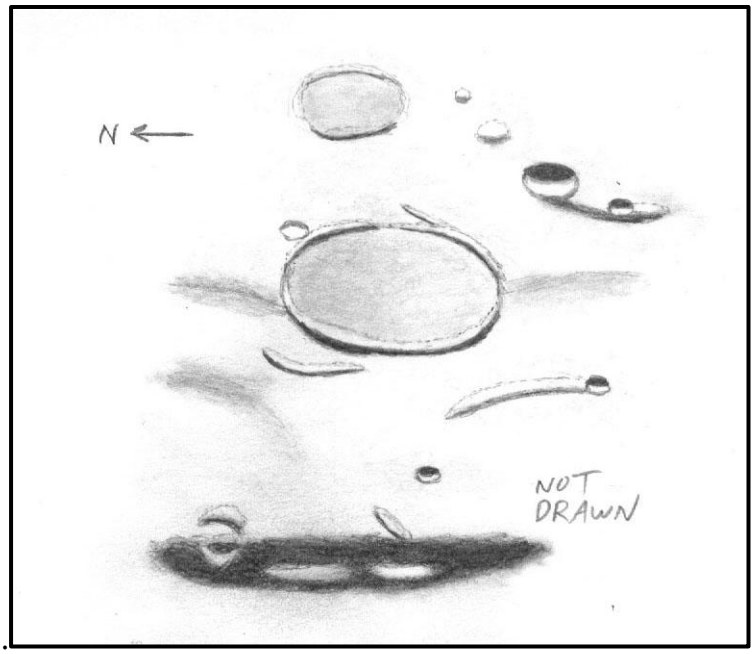
RECENT BACK ISSUES: http://moon.scopesandscapes.com/tlo_back.html

FEATURE OF THE MONTH – DECEMBER 2014

CRÜGER



Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA
September 8, 2014 04:22-05:12 UT, 15 cm refl, 170x, seeing 7/10

I drew this crater and vicinity on the night of Sept. 7/8, 2014. The moon was about 21 hours before full. This crater is south of Grimaldi. It is a shallow crater completely filled with mare material, though it is not near any of the lunar 'seas.' The northwest rim of Cruger is its highest, and there may be a tiny gap in its east rim. The north end of Cruger's interior is slightly darker than its south end. A short, curved ridge is outside the northwest rim of Cruger, but is not concentric to it. A short spur protrudes from its southeast rim, and what appears to be a shallow saucer is on Cruger's northeast side. Cruger E is the fairly large, deep crater southeast of Cruger, and Cruger H is south of E. A strip of dark shadow abuts the west sides of these craters. A dusky area east of Cruger appears to be a ghost ring. This feature's west rim (nearest to Cruger) had a narrow, nearly straight, dark shadow. Its other rims were very low or absent. Its dusky area was quite well defined, however, and appeared like the southern half of Cruger. Two hills lie between this ghost ring and Cruger E. The small craters Cruger G and BA lie south and west of Cruger respectively. A slightly curved ridge extends northward from Cruger G.

This ridge had lighter shadowing than the one northwest of Cruger. Some vague strips of shadow were north and south of Cruger. The one northwest of Cruger may be part of the ruined ring Rocca Q, according to the Lunar Quadrant map. This area appeared relatively smooth considering its proximity to the terminator. Some things noted in this area were bright ridges in dark shadow and what appears to be a broken crater.

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ERRATUM

Last month's Feature of the Month article included several instances of mis-naming of Cuvier D as Cuvier O or Cuvier 0. The online copy has been corrected. The error occurred while copying Mr. Hays' text (which was correct) and went unnoticed in my proof-reading.

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LUNAR CALENDAR

DECEMBER 2014 (UT)

Dec	02	08:32	Moon Descending Node
	06	04:35	Moon-Aldebaran: 1.5° S
	06	12:27	Full Moon
	07	09:06	Moon North Dec.: 18.7° N
	12	23:02	Moon Apogee: 404600 km
	14	12:51	Last Quarter
	16	13:27	Moon Ascending Node
	19	20:55	Moon-Saturn: 1.6° S
	21	18:25	Moon South Dec.: 18.7° S
	22	01:36	New Moon
	24	16:43	Moon Perigee: 364800 km
	28	18:31	First Quarter
	29	09:27	Moon Descending Node

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 nonmember 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.alpo-astronomy.org.** 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.

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 be included:

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

Full resolution images are preferred-it is not necessary to compress, or reduce the size of images. *Additional commentary accompanying images is always welcome.* **Items in bold are required. Submissions lacking this basic information will be discarded.**

Digitally submitted images should be sent to both

Wayne Bailey – wayne.bailey@alpo-astronomy.org
and Jerry Hubbell –jerry.hubbell@alpo-astronomy.org

CALL FOR OBSERVATIONS:

FOCUS ON: Oceanus Procellarum-Reiner gamma

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 **January 2015** edition will be **Oceanus Procellarum-Reiner gamma.** 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 to your observing list and send your favorites to (both):

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

Jerry Hubbell –jerry.hubbell@alpo-astronomy.org

Deadline for inclusion in the Oceanus Procellarum-Reiner gamma article is December 20, 2014

FUTURE FOCUS ON ARTICLES:

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

Subject	TLO Issue	Deadline
Hainzel	March 2015	February 20, 2015

LUNAR TOPOGRAPHICAL STUDIES

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

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

Assistant Coordinator – Jerry Hubbell – jerry.hubbell@alpo-astronomy.org

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

OBSERVATIONS RECEIVED

MAURICE COLLINS - PALMERSTON NORTH, NEW ZEALAND. Digital images of 8 day Moon, Alphonsus & Deslandres.

HOWARD ESKILDSEN - OCALA, FLORIDA, USA. Digital images of Archimedes-Aristillus, Mare Nubium & Philolaus.

ROBERT HAYS - WORTH, ILLINOIS, USA. Drawings of Cruger & LeVerrier-Helicon.

RICHARD HILL – TUCSON, ARIZONA, USA. Digital images of Mare Insularum.

PAOLO LAZZAROTTI – MASSA, ITALY. Digital images of Janssen(2) & Rupes Altai.

ALEXEI PACE-MALTA. Drawing of Clavius.

DAMIAN PEACH-SELSEY, WEST SUSSEX, UNITED KINGDOM. Digital images of Aristarchus(3), Archimedes, Arzachel, Copernicus(3), Clavius(2), Blancanus, Gassendi, Hainzel, Humboldt, Kepler, Moretus(2), Petermann, Philolaus, Pitatus, Plato(3), Pythagoras, Rima Hadley, Rupes Recta, Scheiner, Schiller, Sinus Iridum(2), Tycho & Valles Alpes.

STEVE SIEDENTOP-GRAYSON, GEORGIA, USA. Digital image of Mare Vaporum.

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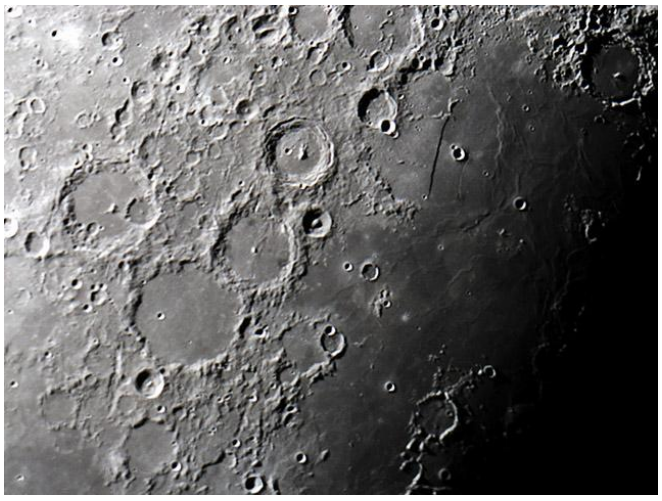
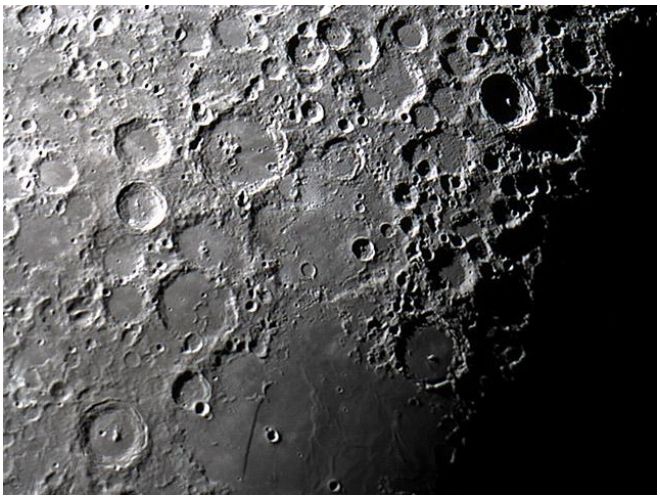
RECENT TOPOGRAPHICAL OBSERVATIONS



ALPHONSUS - Maurice Collins-Palmerston North, New Zealand. November 1, 2014 08:06 UT. C-8 SCT.

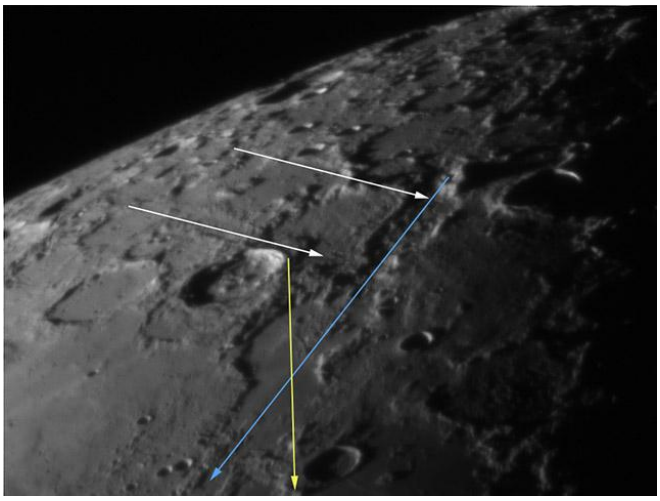
RECENT TOPOGRAPHICAL OBSERVATIONS



DESLANDRES - Maurice Collins-Palmerston North, New Zealand. November 1, 2014 08:06 UT. C-8 SCT

MARE NUBIUM-RUPES RECTA - Howard Eskildsen-Ocala, Florida, USA. November 15, 2014 11:15 UT. Seeing 5/10, Transparency 56. Mewlon 250, 1.5x Barlow, IR block filter, DMK 41AU02.AS.

Mare Nubium shows some seldom-seen wrinkles at this low illumination. Might that be a buried crater near the center of the image, north of Pitatus? A pair of smaller craters almost makes it look like a flounder viewed at an odd angle. More curious wrinkles wind northward at the top of the image. On the upper right of the image the northern tip of the Sword of Hygens, Rupes Recta, disappears into the shadows behind Birt, but never reappears as the cleft angles away from the terminator. Curiously, even the "handle" of the sword is nearly invisible, with the barest illumination of its uppermost reaches faintly visible along the right margin of the middle of the image.

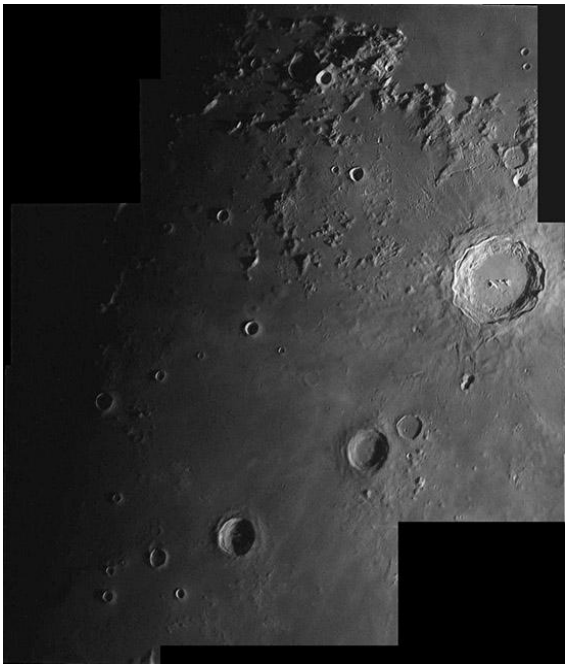


PHILOLAUS - Howard Eskildsen-Ocala, Florida, USA. November 15, 2014 11:37 UT. Seeing 5/10, Transparency 56. Mewlon 250, 1.5x Barlow, IR block filter, DMK 41AU02.AS.

Philolaus, the crater left of center in this image clearly reveals its twin central peaks. An elongated scar lies tangential to its upper right (NE) boarder and angles to the upper left. Above that scar, a parallel scar may be present as well. Both are marked with white arrows. Another curious wide, irregular valley appears to the right of Philolaus and angles downward and towards the left (marked by the blue arrow). It appears to be a fortuitous string of craters that have been scoured and degraded with northeastern and southwestern walls selectively destroyed. The yellow arrow points towards the center of Mare Imbrium.

So what events created these scars? Curiously the white arrows point towards Mare Serenitatis and lie about 45° to the Imbrium arrow. Obviously Imbrium ejecta is not the cause of the Philolaus scars, so perhaps they could be a remnant scars from Serenitatis. Is it really possible that some scars from the formation Serenitatis could have survived the later devastation from the Imbrium Impact? The broad valley (or pseudo-valley) that angles towards the void of Oceanus Procellarum show a great deal of erosion and fill, but I doubt Procellarum is primarily responsible for it. I wish I knew what was. It is fun, however, pondering the possibilities.

RECENT TOPOGRAPHICAL OBSERVATIONS



MARE INSULARUM – Richard Hill – Tucson, Arizona, USA October 4, 2014 03:08 UT. Seeing 8/10. TEC 8" f/20 MAK-CASS, SKYRIS 445M. 656.3 nm filter.

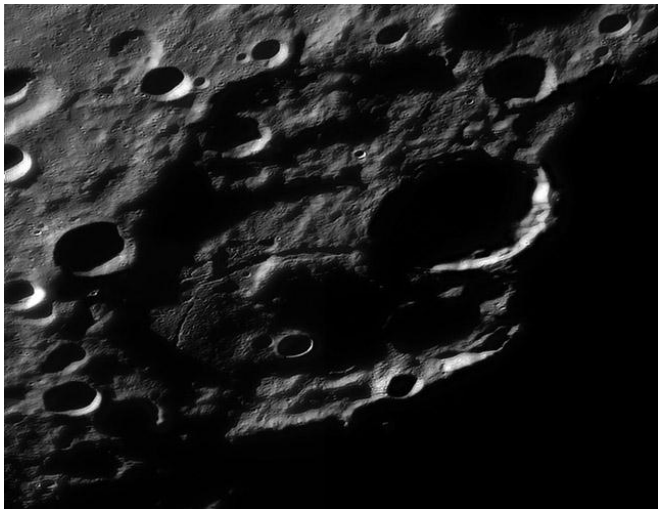
Sunrise on Mare Insularum, an area filled with domes. Just below the dominant Copernicus on the right edge of this image are two large craters, Reinhold and Lansberg. This is the extent of Mare Insularum. Directly left of Copernicus, sitting out in Insularm all by itself, is the little crater Hortensius. Look just above it and you will see a cluster of 6 domes called Hortensius Omega. Try to find this in your telescope. It's fun to watch as the lighting changes during the lunar day. See if you can spot the central summit pits in several of them.

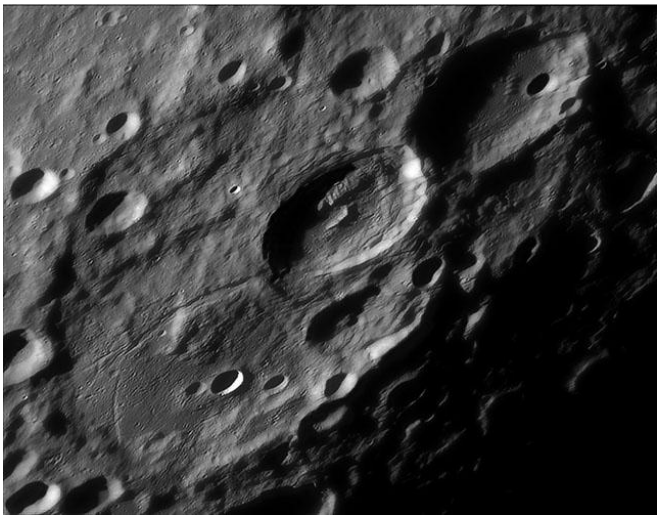
Above Copernicus are the Montes Carpatus and directly above, the crater Gay-Lussac. Note Rima Gay-Lussac to the left of the crater in the field of secondary craters formed from the Copernicus ejecta. secondary pits and more features formed or modified by ejecta. Enjoy the view!

JANSSEN– Paolo Lazzarotti – Maaciano (GR), Tuscany, Italy. August 18, 2011 02:55 UT. Seeing 5-7/10, Transparency 4/5. Gladius XLI 400mm Cassegrain f/16, 2x barlow, 0.107 "/px. Experimental Sony ICX285 camera, Baader R filter.

http://www.lazzarotti-hires.com/2014/11/ultimi-raggi-su-janssen.html?lan=english

Yet another picture of Janssen when the last blades of light are grazing its floor giving a scary look of it. As a bonus, pushing the low lights, I could detect the faint Fabricius floor illuminated by crater wall on the right!

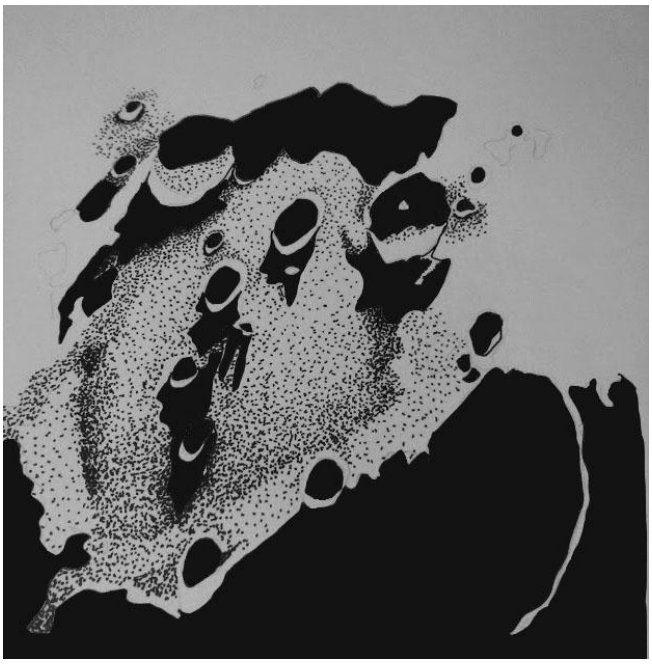




JANSSEN– Paolo Lazzarotti – Maaciano (GR), Tuscany, Italy. September 16, 2011 00:43 UT. Seeing 6-7/10, Transparency 4/5. Gladius XLI 400mm Cassegrain f/16, 2x barlow, 0.107 "/px. Experimental Sony ICX285 camera, Baader R filter.

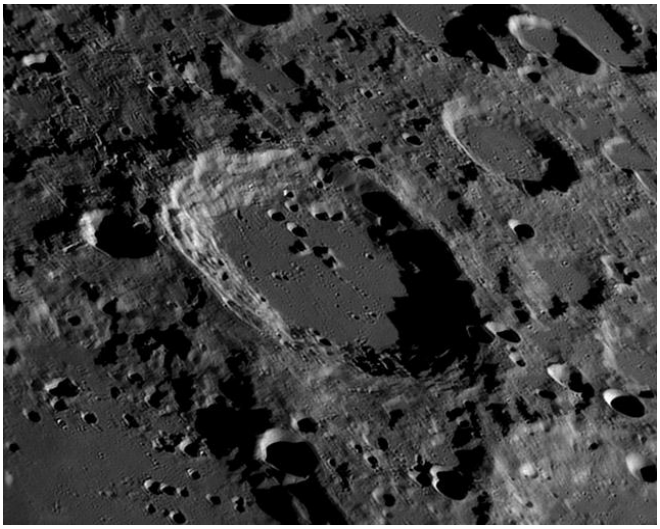
http://www.lazzarotti-hires.com/2014/10/il-vecchio-janssen.html?lan=english

RECENT TOPOGRAPHICAL OBSERVATIONS



CLAVIUS – Alexei Pace – Malta November 1, 2014 ~22 UT. EdgeHD 14, 255x, Seeing 4/10, transparency 4/6, colongitude 24.5º.

http://canopus123.wordpress.com/2014/11/04/lunar-crater-clavius



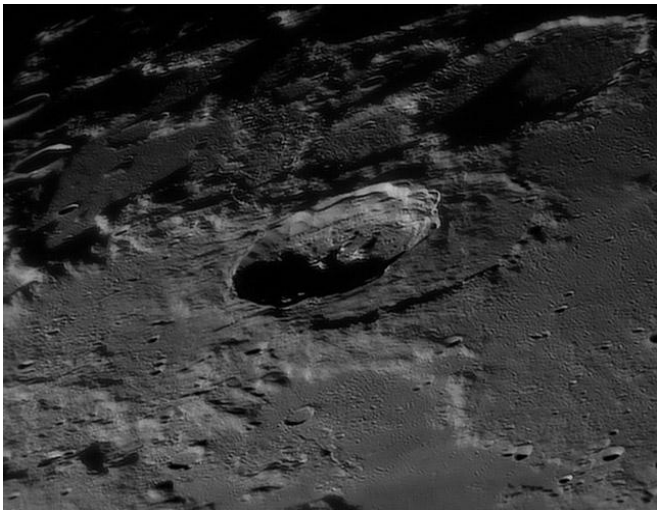
BLANCANUS–Damian Peach –Selsey, West Sussex, United Kingdom. April 18, 2014.

http://www.damianpeach.com/lunar14.htm

HAINZEL–Damian Peach –Selsey, West Sussex, United Kingdom. April 22, 2014.

http://www.damianpeach.com/lunar14.htm

RECENT TOPOGRAPHICAL OBSERVATIONS

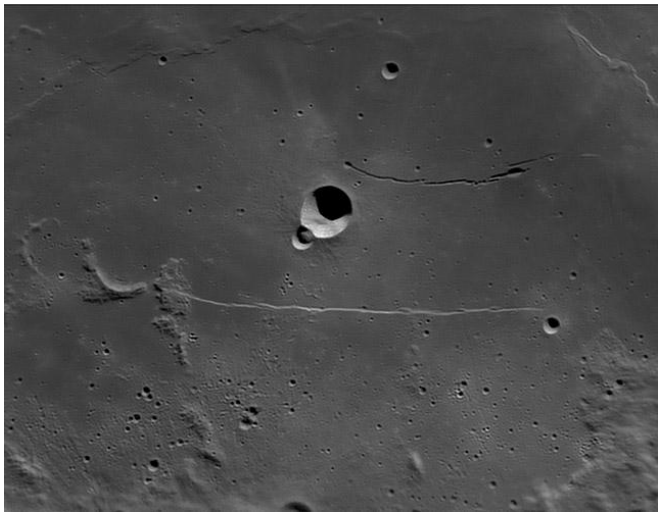


PHILOLAUS–Damian Peach –Selsey, West Sussex, United Kingdom. March 12, 2014.

http://www.damianpeach.com/lunar14.htm

This impact crater is located in the northern part of the Moon's near side. It overlays the older and heavily worn 'Philolaus C' to the south. This crater retains a well-defined form that has not changed significantly since it was originally created. The outer rim edge is roughly circular, but with a somewhat irregular edge that displays signs of slumping. The most notable slum is a triangular area along the eastern rim. The inner wall of the crater has a complex system of terraces with a sharp-edged rim in locations where slumping has occurred. On the exterior of the rim is an outer rampart that extends outward nearly half a crater diameter in all directions.

The interior floor is irregular with rough areas about the center and to the northeast. There is no single central peak, but rather a pair of peaks offset to the south and the east of the middle. There is also a smaller ridge pair offset to the northwest. The flattest part of the interior floor is in the northeast of the crater interior. The floor is not significantly marked by impacts.



RUPES RECTA–Damian Peach –Selsey, West Sussex, United Kingdom. April 20, 2014.

http://www.damianpeach.com/lunar14.htm

MARE VAPORUM-RIMA HYGINUS–Steve Siedentop –Grayson, Georgia USA. October 31, 2014 02:35 UT. Seeing 2/5, transparency 5/5. Explore Scientific ED127 Apo, Orion Star Shoot.

LUNAR TRANSIENT PHENOMENA

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

LTP NEWSLETTER – DECEMBER 2014

Dr. Anthony Cook - Coordinator

Happy Holidays to all our readers. Observations from the following observers were received in October: Jay Albert (Lake Worth, FL, USA - ALPO) observed: Aristarchus, Aristillus, Herodotus, Linne, the lunar eclipse, Mare Humorum, Mons Hadley, Plato and Vallis Schroteri. Maurice Collins (New Zealand - ALPO) imaged: Hipparchus, Montes Caucusus, the lunar eclipse and obtained image mosaics of the whole lunar disk. Marie Cook (Mundesley, UK - BAA) observed Alphonsus, Aristarchus, Cassini, Kepler, Plato and Vallis Scrhoteri. Pasquale D'Ambrosio (Italy, UAI) imaged Plato. Brian Halls (Lancing, UK – BAA) imaged Plato. Rik Hill (Tucson, AZ - ALPO) imaged Albategnius, Apianus, Cassini, Mare Insularum, Wilhelm, the south pole, and several other features. Alun Jones (Aberystwyth University, UK) images several features. Bill Leatherbarrow (Sheffield, UK – BAA) observed Plato. Thierry Speth (France - ALPO) imaged: Alphonsus, Aristarchus, Censorinus, Copernicus, Eratosthenes, Janssen, Maginus, Mons Piton, Mons Pico, Pallas, Posidonius, Ptolemaeus, and Römer. Franco Taccogna (Italy – UAI) imaged Aristarchus, Mons Piton, Proclus, Ptolemaeus, and Plato. Fontani Valerio (Italy, UAI) imaged Herodotus.

News: I am still making my way through Prof Arlin Crotts' book "*The New Moon*" and will let you know in the new year about any aspects concerning LTP. So far the book has covered aspects past successes of NASA lunar exploration, the present day problems of getting lunar exploration funded, and I have started a chapter on the history of lunar geological science, which has been brought up-to-date with inclusions of results from LRO, and GRAIL etc.

A typo concerning instruments crept into last month's LTP article. Jay Albert's Vendelinus observation of 2014 Sep 11, the instrument quoted should have read: 6" SCT.

LTP Reports: No actual LTPs were seen in October. But imagine though that you were observing say the beautiful sight of the shadow spires on the floor of the crater Plato receding and shortening at sunrise, when over the space of just a few minutes an elongated white spot appears inside a gap between adjacent shadow spires. It would certainly look odd and attract our attention! This is exactly what Brian Halls (BAA) found after examining some images he took of this crater on 2014 Oct 31 UT at 19:15 and 19:17 (See Fig 1d and e). A request to some our international colleagues, revealed that they had been imaging Plato too prior to Brian Halls discovery images. An image from Thierry Speth (ALPO) from 19:10UT on the same night (See Fig 1c) "just" shows the onset of this spot. But two earlier images by UAI observers Franco Taccogna (UT 19:07 – see Fig 1b), and Pasquale D'Ambrosio (UT 17:24 – see Fig 1a) failed to show any signs of this spot. Bill Leatherbarrow (BAA) was observing Plato visually, on this night, but his seeing was just so poor, and what with the Moon being low, that it is not surprising that he did not notice anything unusual on the crater floor. So in effect in just 3 minutes, between Franco Taccogna's image, and Thierry Speth's image this white spot emerges?

To make sure that this was not a LTP we need to check that this "Halls Effect", as I will now refer to it, has not been recorded before. The only past LTPs that had similar illumination to the Hall's Effect, on the night of the 31st October 2014, were:

Plato 1972 Jun 19 UT 21:40-22:30 Observed by S.A. Jones (Swansea, Wales, 12" reflector x150) and Moore (Selsey, England, 12.5" reflector x450) "Noted a bright area in the center. Moore noted nothing unusual & he tho't obs. saw one of permanent light patches" NASA catalog weight=0 (most unlikely to be a LTP). NASA catalog ID #1336. ALPO/BAA weight=1

Plato 1886 Sep 06 UT 19:00? Observed by Valderama (Italy?) "Streak of light on dark floor of crater in shadow.

(sunlight between peaks on walls?)" NASA catalog weight=0 (most unlikely to be a LTP). NASA catalog ID #251. ALPO/BAA catalog weight=1.

Plato 1887 Feb 01 UT 18:00 Observed by Elger (England) "Ill-defined shadow of peaks of W.border-in contrast to sharpness of mts. outside it. Never seen before. Such phenomena occur on floor, but never on ramparts. (Drawing)." NASA catalog weight=4 (high). NASA catalog ID #254. ALPO/BAA catalog weight=1.

Plato 1916 Jul 8 UT 19:00? Observed by Markov (Russia) "Light on the shadow of the bands at the bottom (similar to #362)" NASA catalog weight=3 (average). NASA catalog ID #364. ALPO/BAA weight=2.

The 1972 and 1916 LTP, although just lying outside of the +/-0.5° similar illumination angle window, have been included above because the former is covered by the Pasquale D'Ambrosio image (Fig 1a), and the latter has an uncertainty on its timing (e.g. 19:00?) in the Cameron catalog report description – but the description may have some similarities to the "Halls Effect". The Jones LTP from 1972 (see 2014 May LTP newsletter for the sketch) is a ~30 km wide light diffuse elliptical patch on the floor of the shadow filled floor of Plato, encompassing the "Halls Effect" location, but offset further to the west, this is clearly not visible in Pasquale's image. The Valderama (Italian?) LTP observation is difficult to interpret without seeing the original report from the Sirius Journal 20, 45, 94, from 1887, as it might be just referring to the gaps between the shadow spires? I have a photocopy copy of the Elger sketch from 1887 Feb 01 (see 2012 Mar LTP newsletter for the sketch), but it is from a later selenographic colongitude of 11.25° and shows nothing out of the ordinary other than there are no signs of floor craterlets?

A check on routine observations at similar illumination, revealed just one that fitted the "Halls Effect" quite well, and that was taken by Brendan Shaw on 2014 Mar 29 at UT 19:41 (see Fig 1f). This also shows this light spot, but not so strongly, and later on during the sunrise process. Given that the light spot was seen at very similar local solar altitudes, it seems it is unlikely to be a LTP as it repeats. Figure 2 reveals this transient spot to be at the location of a double craterlet on the northern floor of Plato. The effect is probably the result of the eastern rim of the double floor craterlet, catching sunlight above the floor area, which in turn, makes it noticeably brighter than the Plato's floor. The "Halls Effect" is quite spectacular and short lived, and I have generated a set of predictions for the next few years, in Table 1 - if any of our budding high resolution photographers would like to have a go at capturing this.

Routine Reports: Below is a selection of reports received for September that can help to re-assess some past LTP observations.

Hipparchus: On 2014 Oct 02 UT 19:21 Rik Hill (ALPO) imaged this crater under the same illumination conditions to the following LTP report by Daniel del Valle Hernandez (ALPO):

Hipparchus 2003 Nov 30/Dec 01 UT 23:58-00:05 Observed by Hernandez (Aguadilla, Puerto Rico, 8"SCT, f/10, and a Logitech QuickCam) "Images taken 7 minutes apart. Inside Hipparchus is a small crater whose rim seems to be obscured in the second image (Hipparchus-B). Observer not positive that this is a true LTP". ALPO/BAA Observation. ALPO/BAA weight=1.

From what is shown in Fig. 3(left) and Fig. 3(right), the two original images supplied by Daniel, the region enclosed by the box turns out to be Hipparchus X, not B. I cannot see any change between the two images which might have suggested an obscuration in 2003. It is true that the rim of X is broken, but this shows up in Rik's image (Fig. 3 Centre) from 2014 also. Daniel comments in his report that he was not positive that it was a LTP, and although it was assigned a weight of 1 in the ALPO/BAA database, just as a precaution, now that we have Rik's image at identical illumination, it is clearly safe to remove the 2003 LTP from the database, by making it a routine observation, with a weight of 0.

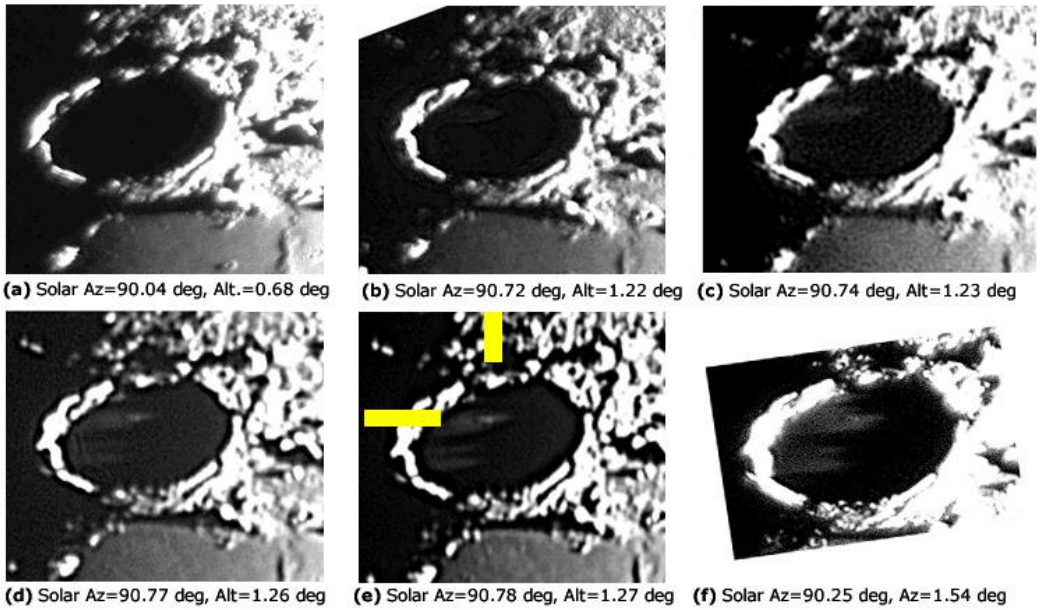


Figure 1. Sunrise over Plato with north towards the top. **(a)** 2014 Oct 31 UT 17:34 (Sel. Col. = 9.76°) image by Pasquale D'Ambrosio (UAI). **(b)** 2014 Oct 31 UT 19:07 (Sel. Col. = 10.63°) image by Franco Taccogna (UAI). **(c)** 2014 Oct 31 UT 19:10 (Sel. Col. = 10.65°) image by Thierry Speth (ALPO). **(d)** 2014 Oct 31 UT 19:15 (Sel. Col. = 10.69°) image by Brian Halls (BAA). **(e)** 2014 Oct 31 UT 19:17 (Sel. Col. = 10.69°) image by Brian Halls (BAA) with markers to indicate the location of the light spot in the gap between the shadow spires on the northern floor. **(f)** 2014 Mar 09 UT 19:41 (Sel. Col. = 10.47°) image by Brendan Shaw (BAA).

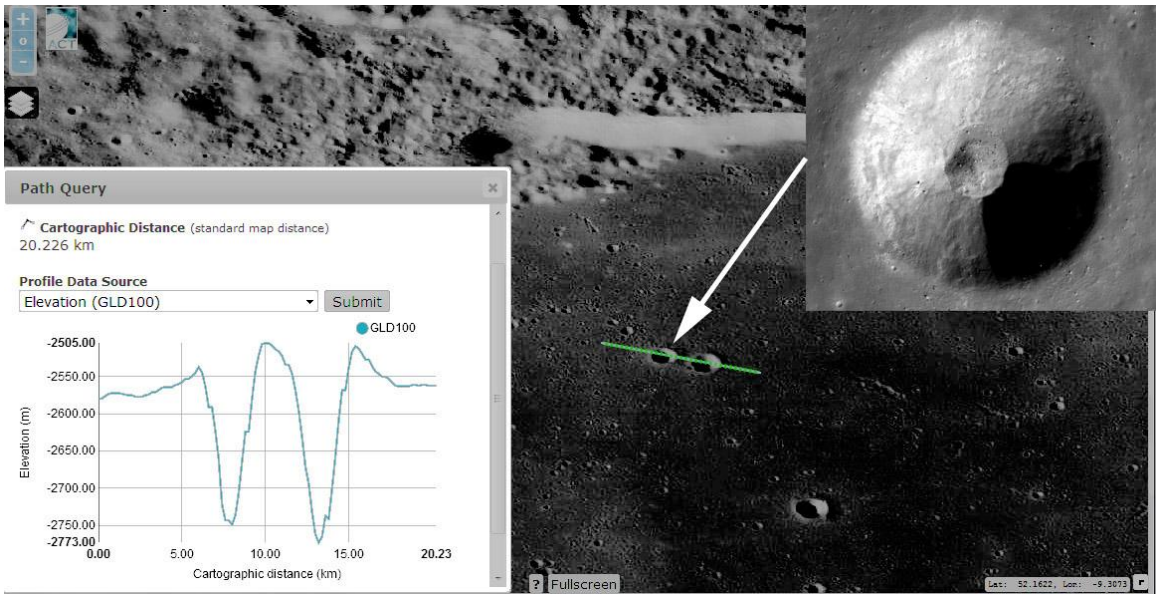


Figure 2. A close up of the floor of Plato showing a topographic profile through the double craterlet causing the light spot in Fig 1c-e – the rim height is approximately 50m above the surrounding terrain. Interestingly the west most craterlet of the pair, at 1.7km in diameter, has a dome-like feature, covered in boulders, offset slightly to the SE of the floor centre (shown on the top right inset – sunlight shining from bottom right) which is somewhat unusual for simple craterlets of this size. Perhaps it is a deposit of impact melt, or alternatively restructuring uplift that formed shortly after the crater formation. There is a slight chance that it could even be a volcanic dome? The right hand craterlet is slightly larger at 2.1 km in diameter. Image and topographic data off the LRO Quickmap web page: http://target.lroc.asu.edu/q3/ .

Date	UT	Date	UT	Date	UT	Date	UT
2014 Nov 30	09:15	2015 Aug 23	03:17	2016 May 15	03:24	2017 Feb 04	21:14
2014 Dec 29	23:48	2015 Sep 21	14:27	2016 Jun 13	14:39	2017 Mar 06	11:14
2015 Jan 28	14:27	2015 Oct 21	03:50	2016 Jul 13	01:34	2017 Apr 05	00:24
2015 Feb 27	04:38	2015 Nov 19	17:30	2016 Aug 11	12:37	2017 May 04	12:38
2015 Mar 28	18:01	2015 Dec 19	07:55	2016 Sep 10	00:09	2017 Jun 03	00:05
2015 Apr 27	06:27	2016 Jan 17	22:36	2016 Oct 09	12:32	2017 Jul 31	22:00
2014 May 26	18:04	2016 Feb 16	13:00	2016 Nov 08	01:52	2017 Aug 30	09:18
2015 Jun 25	05:09	2016 Mar 17	02:43	2016 Dec 07	16:03	2017 Sep 28	22:00
2014 Jul 24	16:05	2016 Apr 15	15:30	2017 Jan 06	06:40	2017 Oct 28	10:21

Table 1. Predictions for the "Halls effect" on the floor of Plato. Please allow say +/- 10 minutes of these times. Note that when attempting this observation, please check that the Moon is above the horizon from your observing site, and that the Sun has long set below your local horizon.

Figure 3. Hipparchus crater with north towards the top. **(Left)** Webcam image by Daniel del Valle Hernandez (ALPO) from 2003 Nov 30 UT 23:58. **(Centre)** a subsection of a considerably sharper image by Rik Hill (ALPO) from 2014 Oct 02 UT 01:29 that has been blurred on purpose to match the resolution of 2003 era webcam quality. **(Right)** Webcam image by Daniel del Valle Hernandez (ALPO) from 2003 Dec 01 UT 00:05.

Tycho: On 2014 Oct 02 UT 19:21 Alun Jones (Aberystwyth University, UK) imaged the Moon under the same illumination conditions to the following LTP report by Robert Spellman:

1996 Apr 27 UT 02:26-03:14 Observed by Robert Spellman (Los Angeles, CA, USA)" 02:26 U.T. Sunrise on Tycho 3/4 of the crater was in shadow, top most section of the central peak was in sunlight. In white light brightness of the central peak rivalled the brightness of the Western (sunlit) wall. No change was detected in red light, however in blue light definite strong darkening was observed. Blink obtained when viewing thru 25A and 38 filters. At 2:52 U.T. in the poor to fair seeing the apparent size of the central peak in white and red light was the same, in blue light the central peak in white and red light was the same, in blue light the central peak size shrank to 1/2 white and red size (and brightness). Also appearing sharper. Comparison was made also with the central peak of Alphonsus, no changes were observed. The significant part of the observation was the relative brightness of the central peak to the sunlit rim in white and red light, they appeared almost identical with the crater rim, being just slightly brighter. In blue light the brightness of the central peak was reduced by at least half while the rim brightness was not, (relative to one another). I strongly believe that this was a real event. The shadow filled portion of Tycho was examined for any abnormalities but none were observed. Observations were ended shortly after 3:14 U.T. due to clouds. I also conducted about 20 Moon blink observations during this observing run and got the same strong reaction each time." ALPO/BAA weight=3.

Alun's image (Fig 4) does not show the central peak rivaling the western illuminated wall of the crater, nor does it show the central peak being larger and brighter in red light than in blue. It is difficult to know the

seeing or transparency conditions experienced by Robert Spellman, or the telescope type, as I do not have any details other the above report. Scattered light can be an issue, especially down the blue end of the spectrum, and this could affect the brightness of point like features such as the central peak area. Likewise if the telescope used was refractor, then although modern ones are achromatic, there can still be some focus issues at extreme ends of the visible spectrum. As I cannot account for Robert Spellman's description, I will leave the weight of the 1996 LTP in Tycho as a 3 for now.

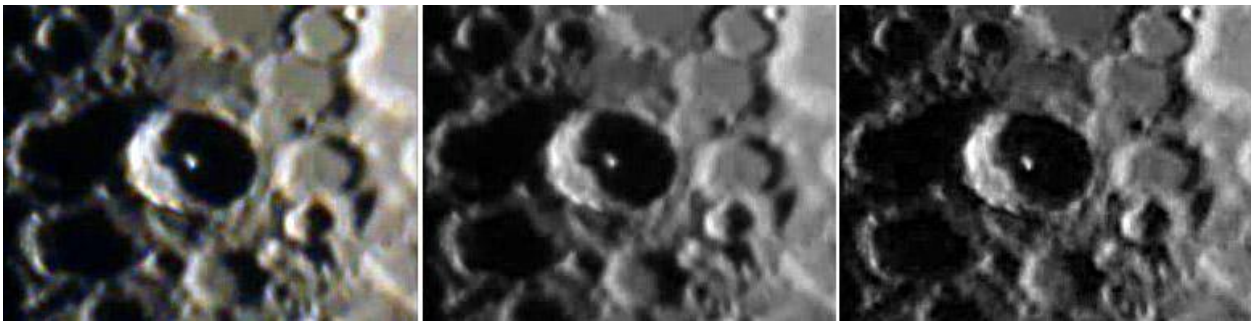


Figure 4. An image of the crater Tycho by Alun Jones with north towards the top, taken on 2014 Oct 02 UT 19:21. **(Left)** Color image. **(Centre)** Tycho in red light. **(Right)** Tycho in blue light.

Plato: On 2014 Oct 03 UT 18:30-19:00 Marie observed Plato under the same illumination conditions to a LTP report from Bartlett from 1968:

On 1968 Oct 01 at UT 21:00? Bartlett (Baltimore, MD, USA) and Beck (Ohio, USA, x437) observed lack of detail on the floor of Plato, however the wall of the crater was easily resolved. Cameron says that this was an independent confirmation. The Cameron 1978 catalog ID=1092 and weight=5. The ALPO/BAA weight=3.

Marie was using a Questar telescope (10.8 cm aperture, x80-130) under moderate transparency and Antoniadi III seeing, but could quite clearly see that the wall detail was sharp, that there was a thin shadow on the floor, and that floor detail was seen close to the shadow. Therefore Bartlett, back in 1968, should have been able to have seen some floor detail too – though the report does not explicitly state what his telescope size was, nor the seeing conditions. I will keep this 1968 report at a weight of 3.

Herodotus: On 2014 Oct 05 UT 20:34-22:44 Fontani Valerio (UIA) imaged (see Fig 5) Herodotus crater at the same illumination as the following three reports of a central white patch (pseudo peak) becoming visible temporarily on the floor of Herodotus crater.

Herodotus 1950 Mar 30 UT 19:00? Observed by Wilkins (Kent, UK, 15" reflector) "Transient c.p. (similar phen. to Bartlett's in later yrs.? see #532). NASA catalog weight=4 (good). NASA catalog ID #523. ALPO/BAA weight=3.

Herodotus 1956 Nov 15 UT 01:05-01:30 Observed by Bartlett (Baltimore, MD, USA, 3.5" reflector x100) "Pseudo c.p. clearly seen est. I=5.5, wratten filters showed it neutral to green, red, & yellow, but duller in blue. Floor est. 2deg, distinctly olive-green. Precise time at 0117 at col. 55.27deg" NASA catalog weight=4 (good). NASA catalog ID #655. ALPO/BAA weight=3.

Herodotus 1966 Nov 24 UT 21:50 H.Hill (UK, 7.25" reflector, x240), seeing 4-6/10, transparency 4/5) sketched a central white diffuse patch inside the floor of the crater, with a size of about 1/7th the diameter of the crater. The eastern edge of the white patch was encroached by the shadow of the eastern rim. ALPO/BAA weight=3.

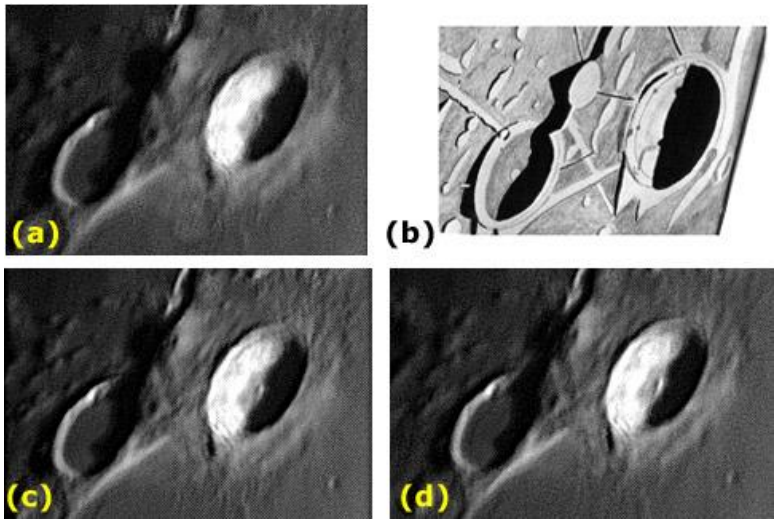


Figure 5. Images of Herodotus (except (b)) taken on 2014 Oct 05 by Fontani Valerio. **(a)** 21:34 UT, Sel. Col.=55.02°, $Az_{\odot}$ =92.25°, $Alt_{\odot}$ = 4.82°. **(b)** A sketch by H.P. Wilkins from 1950 Mar 30 UT 19:00(?), Sel. Col.=54.94(?)°, $Az_{\odot}$ =92.04(?)°, $Alt_{\odot}$ = 4.83(?)°- from Moore's Guide to the Moon. **(c)** 21:34 UT, Sel. Col.=55.27°, $Az_{\odot}$ =92.35°, $Alt_{\odot}$ = 5.06°. **(d)** 22:53 UT, Sel. Col.=55.69°, $Az_{\odot}$ =92.52°, $Alt_{\odot}$ = 5.43°.

The Wilkins LTP (see Fig 5b) is closest to Fig 5a in terms of solar altitude, but there is no sign of Wilkins' white spot. As was discussed in the Dec 2012 edition of The Moon: Notes and Records of the Lunar Section of the British Astronomical Section, p22-35 (http://www.baalunarsection.org.uk/tmnr2_december2012.pdf), it is normal not to see a white spot at the centre of Herodotus, and although it has been reported on 13 occasions at sunrise by a number of observers, the Wilkins sketch has some inaccuracies in terms of the amount of shadow in Aristarchus and its surrounds, which might suggest that the UT of the sketch was uncertain?

No sketch could be found for the Bartlett report of a pseudo peak from 1958 Nov 15, but the closest of Fontani's images would be probably Fig 5c. Again this clearly does not show a pseudo peak in the 2014 repeat illumination conditions. Fig 5d is just slightly before the repeat illumination conditions for the Harold Hill sighting of a diffuse white patch on the floor of this crater, but again nothing resembling this can be seen in Fontani's image.

In the above mentioned BAA Lunar Section paper, no definite conclusion was reached as to what the central white spot might be, though some criticism was made of some of the sketches. One possible observer mis-interpretation explanation might be that it was just a psychological effect, where by observers were seeing a white diffuse area in the dimple (inset) part of the shadow. How this could trick so many observers though, such as Hill, Wilkins, or Firsoff, remains unclear. The weights of the original LTP reports will remain as they are, as we do not know for sure what the original observers saw? If anybody would like to check their imagery, to look for evidence of a central pseudo spot, or to attempt to keep an eye open for it in future, then you will need to examine Herodotus at a colongitude range of 52.6°-60.5°.

Herodotus: On 2014 Oct 06 UT 02:05-02:20 Jay Albert, (using a Celestron C11 SCT scope, x224, and x311, seeing poor 3-4 out of 10, and transparency between magnitude 3, dropping to 1) observed Herodotus under the same illumination conditions to Bartlett's report below:

> *In 1949 Nov 03 UT 01:06 J.Bartlett (3.5" refractor, x100) noted that the floor of Herodotus was very dark, the east wall was very bright, and the floor contained a central bright peak. The BAA/ALPO weight=3.*

Jay noted that the floor of the crater was the same shade of gray as most of the Aristarchus Plateau and only marginally darker than Oceanus Procellarum. The SE exterior wall was bright, but the interior eastern wall

was in black shadow which covered about 1/3 of the floor. The western wall was very bright. There was no "central peak", but he did see a small, lighter grey arc around the tip of the part of the eastern wall shadow that protruded closest to the center of the crater's floor. A simulation of what Bartlett should have seen, can be found in Fig 6 - a simulation created with ALVIS software. Jay's observation matches the selenographic colongitude of the 1949 LTP, but in terms of solar altitude is about 0.15° higher than Bartlett's observation. I suspect that the arc that Jay refers to is part of a sinuous(?) rille that arcs around the eastern floor boundary – the southern part of which is shown in the Fig 6 simulation. As neither Jay's observation, or the Fig 6 simulation, shows a central spot area on the floor, the LTP from 1949 remains at a weight of 3.

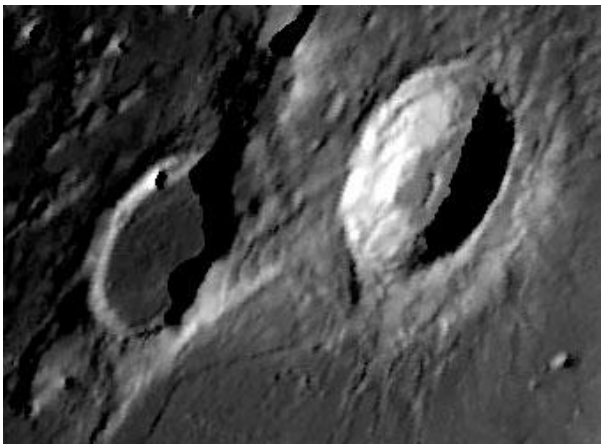


Figure 6. An ALVIS simulation of the appearance of Herodotus for Bartlett's report of a pseudo peak from 1949 Nov 03 UT 01:06. Similar software for the production of visualizations of the lunar surface, but using the LTVT software can be found here: http://ltvt.wikispaces.com/LTVT .

Lunar Eclipse: On 2014 Oct 08 UT 09:35-10:53 Maurice Collins imaged the lunar eclipse through his ETX-90 and three sample images taken during this time can be seen in Fig 7. Reports of LTP during lunar eclipses are numerous, but this maybe because variations in density of the Earth's shadow, mixed in with the human visual system becoming unreliable at low light levels, gives rise to a lot of false detections. Nevertheless I thought readers might be interested in some repeat topocentric libration LTP during past lunar eclipses as outlined below:

On 1910 Apr 01 at UT 22:00-23:00 LeRoy (France?) during an eclipse, observed Tycho to be visible as a very bright spot standing out in the slate grey shadow. Apparently only Tycho was seen during the eclipse. The mid eclipse point was at 22:14UT. The Cameron 1978 catalog ID=236 and the weight=1. The ALPO/BAA weight=2.

On 1978 Sep 16 at UT 18:28-18:57 G.Searle (Concord, Sydney, NSW, Australia, 8" reflector, x100, x160, S=III) observed a bright star-like point on the western (IAU) edge of Mare Tranquilitatis (x100) that appeared unlike any other crater and a check of the location revealed no suitably bright crater in that region (from a map?). Changed to a higher power (x160) and it was still there, but not as conspicuous. Observer thinks that this may have been due to the Moon's low altitude (16 deg) and the seeing. At 18:35 he compared it to the brilliant crater Proclus and found the star-like point to be 75% of the brightness of Proclus. Ken Wallace (Australia) had been taking photos and observed the object at 17:37.5UT. The object gradually faded over the next 15 minutes and by 18:52UT could only be seen in averted vision at x100. By 18:57UT it was gone. The Cameron 2006 catalog ID=38 and weight=5. The ALPO/BAA weight=3.

Although each eclipse is different with respect to where the Moon passes through the Earth's shadow, it is interesting to note that there is no obvious sign of a bright point on the western shores of Mare Tranquilitatis, Tycho was not especially bright, and its rays were not visible in Fig. 7, though of course this could be because of the resolution of the images. For now the weights of these two LTP will remain the same.

Figure 7. Images acquired by Maurice Collins on 2014 Oct 08 UT during his observing session that spanned 09:35-10:53. North is towards the top.

Suggested Features to observe in December: For repeat illumination (and a few repeat libration) LTP predictions for the coming month, these can be found on the following web site: http://users.aber.ac.uk/atc/tlp/tlp.htm. By re-observing and submitting your observations, we will get a clear understanding of what the feature ought to have looked like at the time. Only this way can we really fully analyze past LTP reports.

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 TLP, firstly read the LTP checklist on http://users.aber.ac.uk/atc/alpo/ltp.htm, and if this does not explain what you are seeing, 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.

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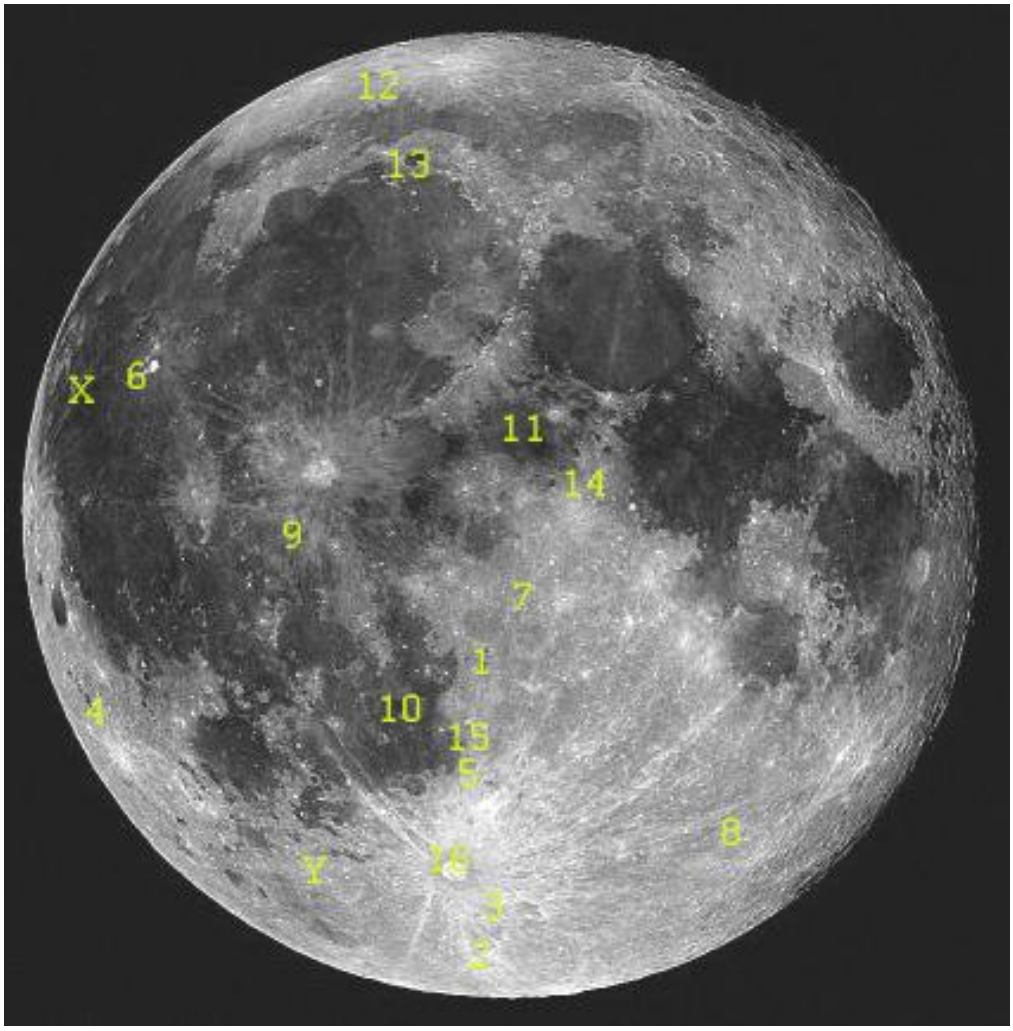
KEY TO IMAGES IN THIS ISSUE

1. **Alphonsus**
2. **Blancanus**
3. Clavius
4. **Cruger**
5. **Deslandres**
6. **Herodotus**
7. **Hipparchus**
8. **Janssen**
9. **Mare Insularum**
10. **Mare Nubium**
11. **Mare Vaporum**
12. **Philolaus**
13. **Plato**
14. **Rima Hyginus**
15. **Rupes Recta**
16. **Tycho**



FOCUS ON targets

X = Oceanus Procellarum-Reiner gamma (January)
Y = Hainzel