THE LUNAR OBSERVER

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Or http://moon.scopesandscapes.com/tlo_back.html

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

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17 Autumn Lane, Sewell, NJ 08080

FEATURE OF THE MONTH – MARCH 2009

SEGNER

Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA
November 11, 2008 – 4:00 to 4:44 UT
15 cm refl, 170x, seeing 7-8

I sketched this crater on the evening of Nov. 10/11, 2008. This crater is in the southern part of the Schiller-Zuchius basin. Segner has a substantial rim to the west and north, but there appear to be two small gaps in its eastern rim. There is a very small central peak, and the pit Segner H is toward the northeast. Segner L is partly shrouded in shadow just inside Segner's east rim. A thin half-circle of shadowing is southwest of the central peak; this may be a ghost ring. Segner has a dusky interior except for an irregular bright area anchored by the central peak and Segner L and H. This area appeared to have vague shadowing between the central peak and Segner H. Segner C is the largest crater east of Segner; a similar, but smaller crater abuts it

on its east side. A small, unnamed pit is south of C, and Segner A is the modest crater to the north. Several shallow craters are north of Segner A; the one nearest to A is surrounded by a modest halo. All of these craters lie in dusky, marelike material. There is a substantial ridge extending from the north end of Segner, and a smaller one from its south end. These ridges separate dark terrain to the east and within Segner from lighter terrain to the west. (That area was not drawn.) There were a few protruding strips of shadow from the south and west sides of Segner that were drawn as I saw them.

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

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

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

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

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

LUNAR CALENDAR
MARCH-APRIL 2009 (UT)

Mar. 04	07:45	First Quarter
Mar. 07	15:08	Moon at Perigee (367,019 km - 228,055 miles)
Mar. 10	22:00	Moon 5.5 Degrees SSW of Saturn
Mar. 11	02:37	Full Moon
Mar. 18	17:49	Last Quarter
Mar. 19	13:17	Moon at Apogee (404,301 km - 251,221 miles)
Mar. 22	21:00	Moon 1.4 Degrees NNW of Jupiter
Mar. 23	12:00	Moon 1.9 Degrees NNW of Neptune
Mar. 24	10:00	Moon 3.7 Degrees NNW of Mars
Mar. 25	16:00	Moon 4.4 Degrees NNW of Uranus
Mar. 26	06:00	Moon 5.7 Degrees NNW of Mercury
Mar. 26	16:07	New Moon (Start of Lunation 1067)
Mar. 26	20:00	Moon 3.8 Degrees SSE of Venus
Apr. 02	02:32	Moon at Perigee (370,013 km - 229,915 miles)
Apr. 02	14:33	First Quarter
Apr. 07	02:00	Moon 5.5 Degrees SSW of Saturn
Apr. 09	14:55	Full Moon
Apr. 16	09:17	Moon at Apogee (404,231 km - 251,178 miles)
Apr. 17	13:38	Last Quarter
Apr. 19	15:00	Moon 2.1 Degrees NNW of Jupiter
Apr. 19	22:00	Moon 2.2 Degrees NNW of Neptune
Apr. 22	04:00	Moon 4.6 Degrees NNW of Uranus
Apr. 22	14:00	Moon 0.96 Degrees NNW of Venus
Apr. 22	14:00	Moon 5.3 Degrees NNW of Mars
Apr. 25	03:23	New Moon (Start of Lunation 1068)
Apr. 26	16:00	Moon 1.9 Degrees N of Mercury
Apr. 28	06:28	Moon at Perigee (366,041 km - 227,447 miles)

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)

NIKOLAY KOZYREV
AND
THE RIDDLE OF LUNAR CRATER ALPHONSUS

The year 2008 was the fiftieth anniversary of an unusual lunar event observed by professor Nikolay Kozyrev, who was an astronomer at Pulkovo Observatory. It was also the one hundredth anniversary of his birth. Kozyrev's discovery stimulated much interest in, and discussion about, strange phenomena seen on the moon.

Since the earliest telescopic observations of the Moon, astronomers considered our Earth's satellite absolutely unchanging, deprived of liquid water and atmosphere. The Moon seemed to be a body on which nothing changes. The period when the Moon was exposed to intensive bombardment by large meteorites, which left traces in the form of impact craters or ”the seas” of lava, was believed to have been confined to the remote past. Nothing disturbed this world of silence until automatic and manned spacecrafts landed on the surface.

However, long before human flight to the Moon, diligent lunar observers and researchers repeatedly noticed in their telescopes some insignificant, but strange and short-term phenomena: small dimming of separate details of the lunar relief, color changes and other anomalies. Such observations were usually considered untrustworthy because in most cases it was impossible to document an event in the form of a photo. But nevertheless a general term was created for these anomalies as ”Transient Lunar Phenomena”. The American astronomer Barbara Middlehurst, and later Winnie Cameron, compiled a comprehensive catalogue of such observations. Patrol observations of the Moon were organized as “Moon Watch” and “Moon Blink” with international cooperation. The Moon Blink technique consisted of observing a site through two quickly alternating blue and red filters. Any red or blue color anomaly would be noticed by its blinking against the background of almost colorless lunar surface. These visual observations had ambiguous results. Present day video imaging with digital devices may be more successful.

But fifty years ago significant stimulus to the organization of searches for "Transient Phenomena" was provided by a discovery published in the world press by Pulkovo astronomer Nikolay Aleksandrovich Kozyrev, an outstanding Soviet astrophysicist of the last century who was a very original thinker.

The beginning of the space era, marked by the launch of the first artificial Earth satellite, intensified the interest of many astrophysicists in the study of planets and other solar system objects. Most had been busy studying “distant space” - stars, nebulae, or galaxies. The largest telescopes were directed to these objects. The planets were relegated to "moderate size telescopes". N.A.Kozyrev's scientific authority was high, he was known especially for his work in the field of theoretical astrophysics. Management of the Crimean Astrophysical Observatory of the Academy of Sciences of the USSR granted him opportunities to conduct spectral observations on one of larger telescopes of that observatory. Possessing high intuition, N.A.Kozyrev almost at once began spectral observations of Venus and found in its spectrum emission lines, which indicated luminescence of the upper atmosphere of the planet, which may be analogous to terrestrial polar aurora.

With surprising intuition, he had chosen for spectral observations one crater Alphonsus among the great set of craters on the Moon and obtained an unusual result there too. Certainly, this choice was not casual. Many observers had noted temporary dimming at the bottoms of some craters. Astronomer Dinsmore Alter made the most convincing observations in October 1956. Observing the Moon with the 60-inch reflecting telescope at Mount Wilson Observatory in California, he had obtained a series of photographs of a very remarkable group of craters

Ptolemeus-Alphonsus-Arzachel. He took pictures in blue and infra-red and noticed that the details of Alphonsus' floor appeared washed out, compared to the surrounding details, in the blue pictures. Terrestrial atmospheric effects could not explain this local blurring. Kozyrev believed Alter's observations and assumed that outflow of gases from the cracks on Alphonsus' floor were responsible. In October and November 1958 Kozyrev together with V.I.Ezerskij, an astronomer at the Kharkov Observatory, were carrying out spectral observations of Mars with the 50-inch reflector of the Crimean Astrophysical Observatory. At the same time they had decided to try to obtain, on a regular basis, spectrograms of some lunar objects including the crater Alphonsus to search for possible outflow of gases. On spectrograms of the floor and central hill of Alphonsus, taken November 3, 1958 they recorded an obvious brightness anomaly of the central hill. The only explanation was luminescence of gas molecules, which they assumed had been emitted from cracks in the central hill of Alphonsus.

Unfortunately, although fifty years have passed, the 1958 Alphonsus observation remains unique, though as we said it has sharply increased interest in searches for transient phenomena on the Moon.

In addition to Alphonsus there are also other objects that deserve attention, such as the crater Aristarchus, the brightest object on the lunar surface visible from the Earth. Kozyrev was also interested in this crater and based on observed spectra came to the conclusion, that the inside of the crater is highly luminescent. In the late 1950's and early 1960's the question of luminescence of the lunar surface was widely discussed and there were attempts to detect it. In particular, Czech astronomer F. Link, French astronomer Z. Dubois, and Pulkovo astronomer N.V. Petrova have suggested possible sources of luminescence on the Moon and tried to find the luminescence effects. The author of this paper has also investigated spectral features of Aristarchus and has found it's extremely blue in comparison with other details of the lunar surface

The question of luminescence has remained till now without the final answer. With the development of digital photo and video techniques, searches for transient lunar phenomena have gone in a somewhat different direction. Now the search for impact flares on the dark side of the Moon has become popular and some successful results were obtained in recent years.

Victor Tejfel, Laboratory of Lunar and Planetary Physics,
Fessenkov Astrophysical Institute, Almaty, Kazakhstan

Selected Kozyrev's papers

Kozyrev N. A. Observation of a volcanic process on the Moon . Sky and Telescope. 1959. Vol. 18. N 4. P. 184-186.

Kozyrev N.A. Spectroscopic proofs for existence of volcanic processes on the Moon. The Moon: Symposium N 14 IAU Leningrad, December 1960. L.; N. Y., 1962. P. 263- 271

Kozyrev N. A. Physical observations of the lunar surface . Physics and Astronomy of the Moon Ed. by Z. Kopal. N. Y.; L., 1962. Chapter 9. P. 361-383.

Kozyrev N. Volcanic Phenomena on the Moon. Nature. 1963. Vol. 198. N 4884. P. 979-980.

FOCUS ON: Tycho

By Wayne Bailey
Acting Coordinator: Lunar Topographical Studies

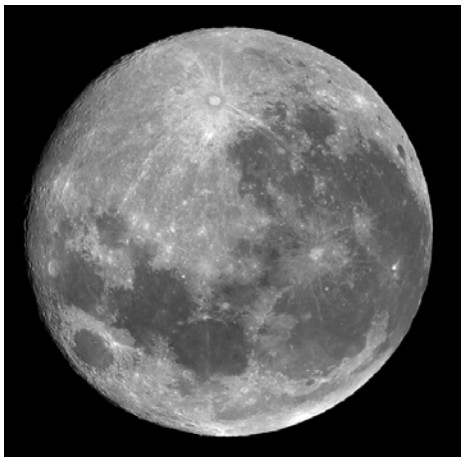


Figure 1. *15 day Moon – Maurice Collins – Palmerston North, New Zealand. December 13, 2008 10:07-10:24 UT, C8, LPI.*

Tycho may be the best known lunar crater that many observers seldom examine. It's extensive ray system, so obvious at full moon (fig. 1), is recognized by almost everyone. Even though Tycho is only a little smaller, and otherwise similar to Copernicus, the crater itself is inconspicuous, situated in the heavily cratered southern highlands (fig. 2), rather than being centrally located in a lightly cratered area.

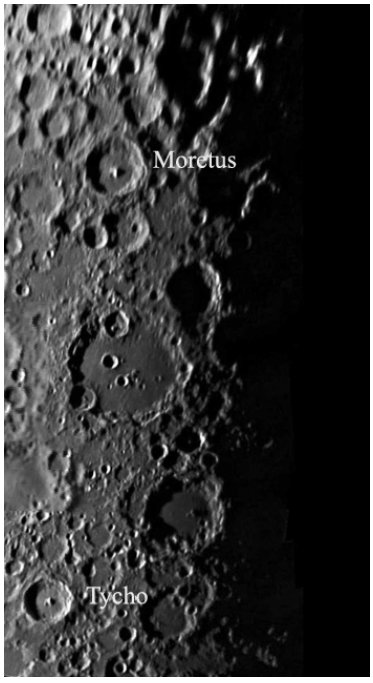


Figure 2. *Tycho to Moretus – Maurice Collins – Palmerston North, New Zealand. December 07, 2008. C8, LPI. Image rectified in LTVT.*

Tycho is a young crater, so the rays haven't had time to weather into oblivion. Current estimates of it's age are about 100 million years or slightly more (Rukl 2004a,b; Wood 2003). It is 85 km diameter, 4.85 km deep with a 1.6 km (Rukl 2004b) or 2.25 km (Wood 2003) central peak. The crater is surrounded by a dark nimbus of approximately twice its diameter. Surveyor 7 landed in this area about 25 km N of Tycho's rim. The dark nimbus is surrounded by a large light area that is asymmetrically placed, extending farther to the east than to the west(fig. 1).

Major rays extend to the northwest across Mare Nubium, south across the highlands, and northeast towards Mare Nectaris. Numerous lesser rays also radiate from Tycho, with the notable exception of the western region between the first two rays above (fig. 3 & 4). This, along with the asymmetry of the bright region indicates that Tycho was formed by a low angle impact from the west. Also, note that the rays are typically tangential to the crater rim, not radial from its center. The NW ray towards Mare Nubium is double, with the rays tangent to opposite sides of the crater. The obvious ray that extends NW across Bessel in Mare Serenetatis is almost perfectly aligned to Tycho, but actually originates from Menelaus (Grego 2005).

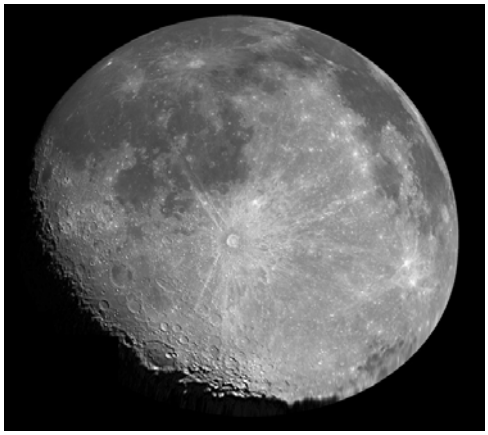
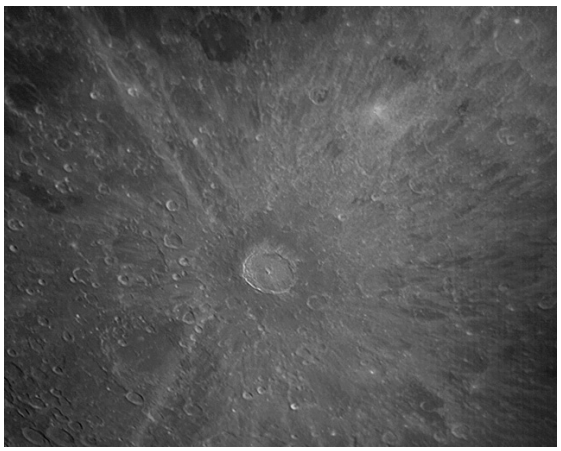
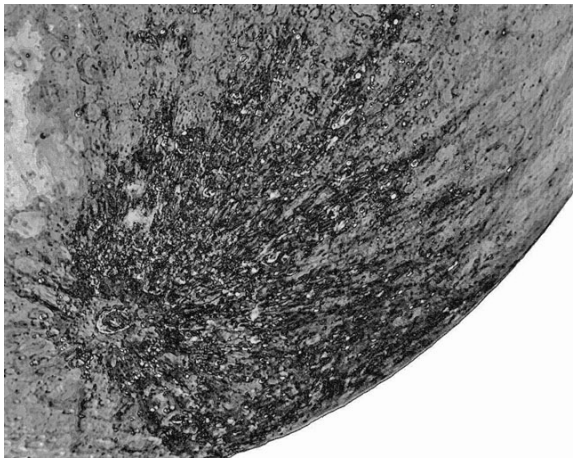


Figure 3. *Tycho – Maurice Collins – Palmerston North, New Zealand. October 13, 2008, image rectified in LTVT.*



Rays are relatively low contrast objects whose visibility can be enhanced by processing images. Figure 5 illustrates the result of such processing. Bill Dembowski will have an article on processing ray images in the next issue of the Journal of the ALPO.

Figure 4. *Tycho (high sun) – Howard Eskildsen – Ocala, FL USA. January 10, 2009 01:24 UT. Colongitude 76º, Seeing 8/10 Transparency 5/6. Meade 6" refractor, NexImage.*



Tycho is an excellent example of a large, complex crater, pristine because of it's youth. It's depth to diameter ratio indicates that its flat floor has not been flooded by volcanic activity. Under high sun conditions, albedo variations are visible on the floor (fig. 6), while lower angle illumination (fig. 7) shows the eastern floor is smoother than the western. The floor appears to consist of impact melt with a double central peak.

Figure 5. *Enhanced Ray System – William Dembowski – Elton, PA USA. July 16, 2008 03:11 UT. Colongitude 66.6º, Seeing 4/10. C8, SCT, Orion Starshoot II.*

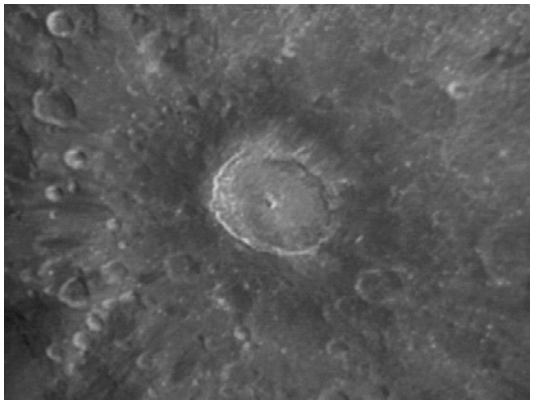
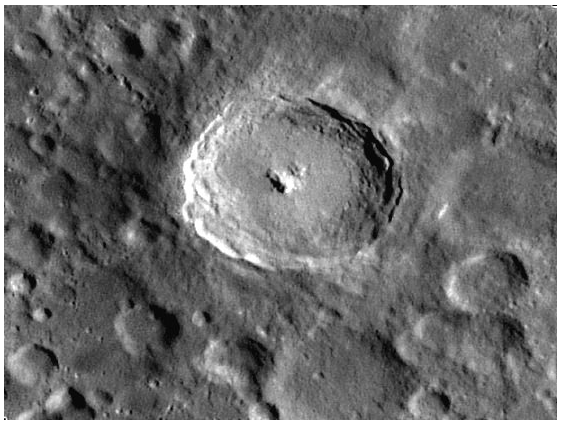


Figure 6. *Tycho (high sun) - Howard Eskildsen – Ocala, FL USA. January 10, 2009 01:36 UT. Colongitude 76º, Seeing 8/10 Transparency 5/6. Meade 6" refractor, 3x barlow, NexImage.*



Secondary impact pits and ponds of impact melt cover the dark nimbus. This dark nimbus will eventually disappear as the surface is eroded by meteorite impacts. Compare Tycho to Moretus in fig. 2, which has been rectified to an overhead view that provides about the same view of each. The craters are very similar in size and appearance, but Moretus has none of the bright and dark surrounding features that make Tycho so conspicuous near full moon.

Figure 7. *Tycho (low sun) – John Sussenbach – Houten, Netherlands. March 14, 2003. C11, f/20, Toucam Pro I.*

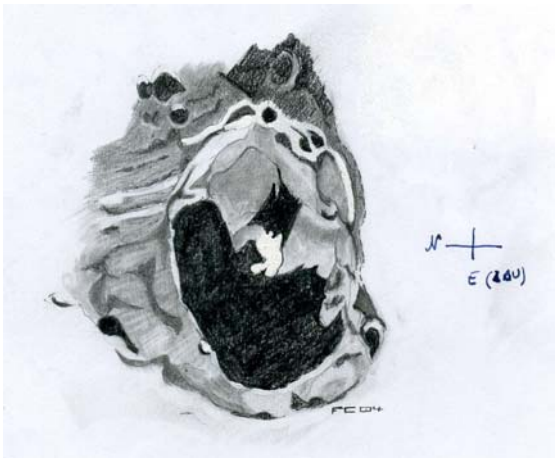
REFERENCES

Grego, Peter. 2005. The Moon and How to Observe It. Springer-Verlag, London, pg 183.
Rukl, Antonin. 2004a. Atlas of the Moon, revised updated edition, ed. Gary Seronik, Sky Publishing Corp., Cambridge, pg 154.
Rukl, Antonin. 2004b. Atlas of the Moon, revised updated edition, ed. Gary Seronik, Sky Publishing Corp., Cambridge, pg 197.
Wood, Charles. 2003. The Modern Moon: A Personal View. Sky Publishing Corp., Cambridge, pg 124-125.

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.
Mutch, Thomas. 1970. Geology of the Moon. Princeton University Press, Princeton.
Schultz, Peter. 1976. Moon Morphology. University of Texas Press, Austin.

ADDITIONAL TYCHO OBSERVATIONS



Tycho – Fred Corno – Settimo Torinese, Italy. December 20, 2004. Seeing 6/10, Transparency good. Vixen 102M refractor, 200x.

Tycho – Jay Albert – Lake Worth, Florida USA. January 6, 2009 03:30 UT. Seeing 7/10, Transparency 4/6. Celestron NexStar 11' SCT, Scopetronix 40mm Plossl, Olympus SP 570 camera, ISO 64, 1/30 sec.

Tycho – Alexandros Filothodoros – Karlovassi, Samos Island, Greece. 08/11/2008 17:50 UT. Seeing 7/10, Transparency 4/6. Skywatcher 6" f/8, 1.3 mp color webcam.

Tycho

Antonius J Schalken

'Luar' Observatory, Melbourne, Victoria, Australia

One of the glories of the full Moon, Tycho (Fig 1 below) lies in close proximity and to the North of to the large crater Clavius (11.2° W and 43.3° S). The extensive network of bright rays extending from Tycho is best observed at or near full Moon. The dark 'collar' or 'halo' around the rim of the crater is also best seen at this time.

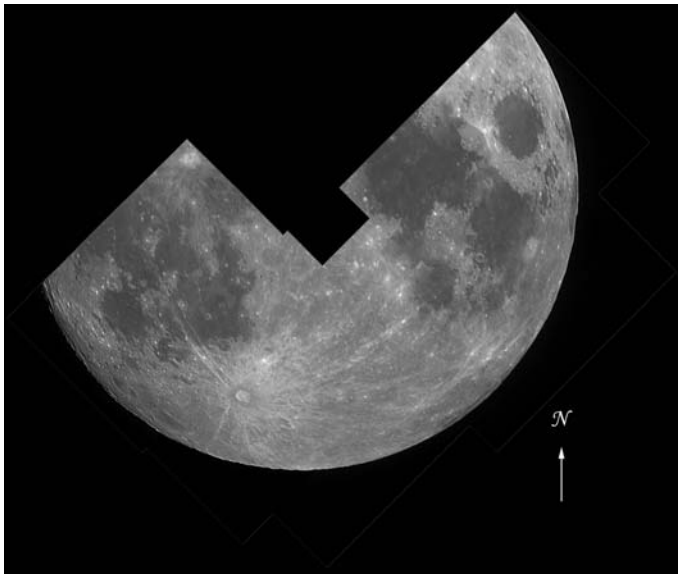


Figure 1: Tycho and the southern highlands *– April 19, 2008 10:50 UT. Colongitude 75.3º. 110mm f/9 Newtonian. Lunation 13.3 days (from New Moon).*

The system of rays is readily seen in figure 1 radiatng towards the northwest, eastwards and to the South. One long ray extends from Tycho in a northwestern direction to the vicinity of Bullialdus in Mare Nubium, a distance of approximately 730 km (1). To the east we have a number of very long rays, one extending to Mare Nectaris (and maybe beyond) a distance of about 1400km (ibid.). Note that the region west of the crater appears to be free from rays and impact ejecta. This is a clear indication that the impact occurred at a low angle with the bolide striking from the west.

Figure 2, shows us the morphology of Tycho in greater detail.

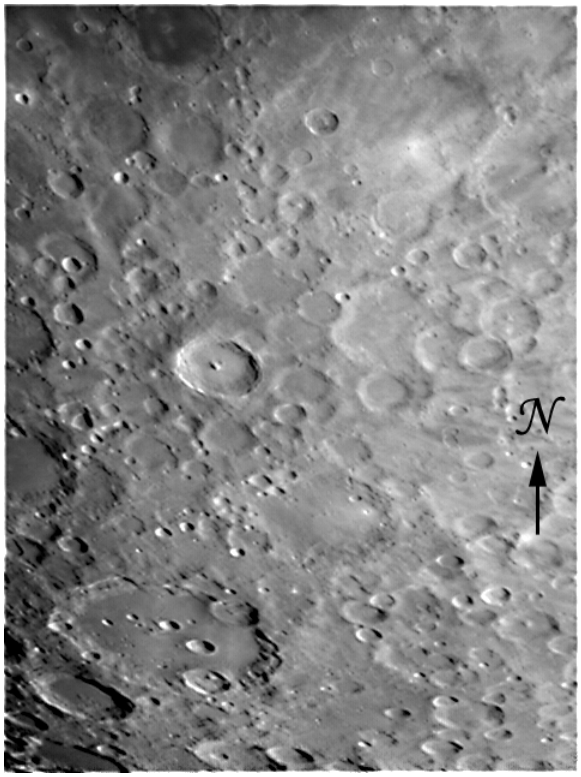


Figure 2: Tycho and Clavius *(lower left corner) – Antonius J Schalken – 'Luar' Observatory, Melbourne, Victoria, Australia. October 03 2006 13:06 UT. Colongitude 44.8°, Seeing 6/10, Transparency 4/6. 6" f/10 Maksutov, Toucam Pro II, red filter (Wratten A). : 98 images stacked and processed with Registax V3.0.19 and Adobe Photoshop. Lunation 11.06 days (from New Moon).*

The principal morphological features of Tycho visible in figure 2 are the central peak, the relatively smooth floor and the collapsed and terraced walls. The height of the central peak is given as 2.25 Km (2), crater depth of 4.8 km (ibid.) and diameter 85 to 88 km (refs. 2 and 3).

To look at the detailed geomorphology of this very young crater we need to observe Tycho away from the full Moon, when light is incident from the east or west.

References

1. Legrand, C. and Chevalley, P. Virtual Moon Atlas version 3.5c b

2. Wood, Charles.A (2003): The Modern Moon: a personal view. Sky Publishing Corp. Cambridge, MA, USA

3. A Rükl (1993) Atlas de la Lune Librarie Grund, Paris

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CALL FOR OBSERVATIONS:
FOCUS ON: Triesnecker to Ariadaeus

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 **May 2009** edition will be the area from **Triesnecker to Ariadaeus**, including Rimae Triesnecker, Hyginus & Ariadaeus. 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 this fascinating area to your observing list and send your favorites to:

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

Deadline for inclusion in the Triesnecker-Ariadaeus article is April 20, 2009

FUTURE FOCUS ON ARTICLES:

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

Mare Fecunditatis	**TLO Issue: July 2009**	**Deadline: June 20, 2009**
Deslandres	**TLO Issue: September 2009**	**Deadline: August 20, 2009**

LUNAR TOPOGRAPHICAL STUDIES

Website: http://www.zone-vx.com/alpo-topo.html

OBSERVATIONS RECEIVED

WILLIAM DEMBOWSKI – ELTON, PENNSYLVANIA, USA Enhanced digital image of Tycho ray system

CHARLES GALDIES – MALTA Drawing of Hainzel

MAURICE COLLINS - PALMERSTON NORTH, NEW ZEALAND Digital images of Tycho-Bessel Ray, 1st Qtr Moon, 10, 11, 13 & 22 day Moon, Mare Crisium, Mare Humorum, Clavius and Copernicus to Aristarchus

FRED CORNO – SETTIMO TORINESE, ITALY Drawings of Bessel and Tycho

ED CRANDELL – WINSTON-SALEM, NORTH CAROLINA, USA Digital images of Gassendi (4)

HOWARD ESKILDSEN - OCALA, FLORIDA, USA Albufeda, Arago & Lamont, Clavius (2), Curtius (2), Descartes, Deslandres, Maurolycus, Moretus, Tycho (2)

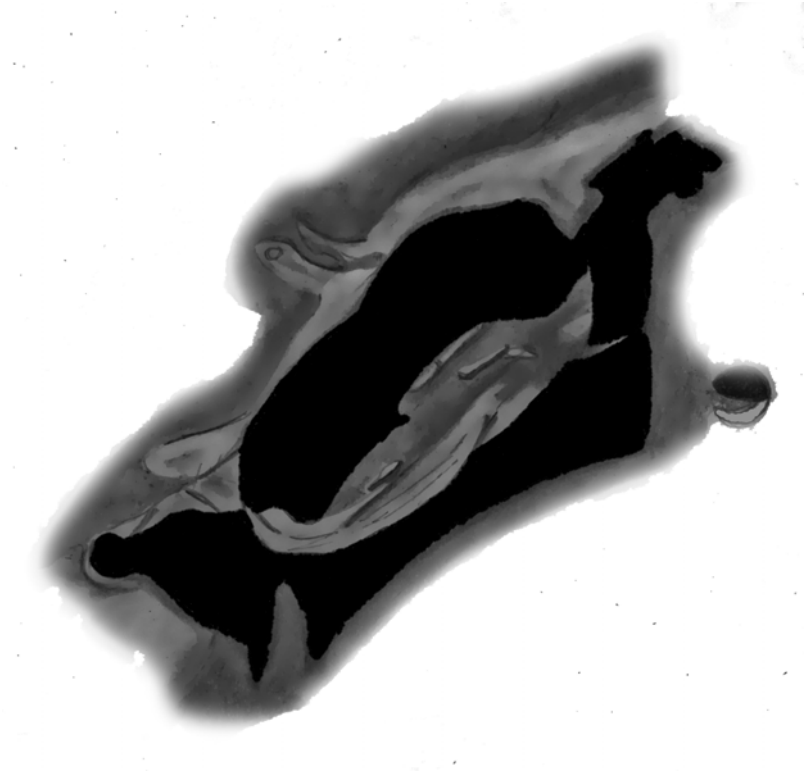
PETER GREGO – ST DENNIS, CORNWALL, UK Drawings of Fraunhofer, Rima Hyginus, Sirsalis, Wrottesley

PHILLIP MORGAN – TENBURY WELLS, WORCHESTER, ENGLAND Drawing of Ariadaeus Rille

KLAUS PETERSEN – GLINDE, GERMANY Digital image of Ptolemaeus to Purbach

JOHN SUSSENBACH – HOUTEN, NETHERLANDS Digital images of Mons Rumker, Phocylides, Pythagoras, Schickard, Tycho

RECENT TOPOGRAPHICAL OBSERVATIONS

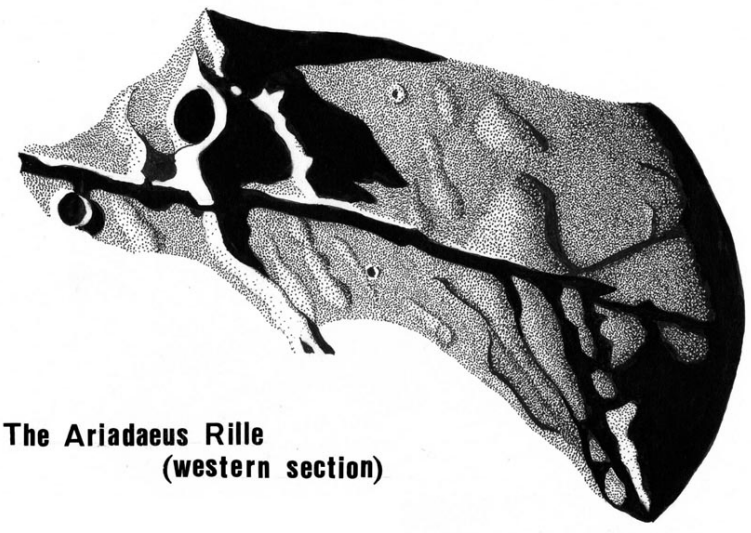


Hainzel - Charles Galdies, Malta. 8th November, 19:30 – 19:45 UT. 200mm, f10, 17mm plossl, Moon Filter. Seeing 8/10

Hainzel was the most striking crater on this day and time. This feature consists of an interesting trio of intersecting craters, the largest being Hainzel. The time of sketching was right when the floor was half illuminated. At this phase the extension of the broad bright terraced border across a portion of the interior was very apparent, and the structural character of the formation was clearly revealed. The floor showed a level of detail, among which, on the South is a bright longitudinal ridge, which forms part of the promontory of Hainzel C.

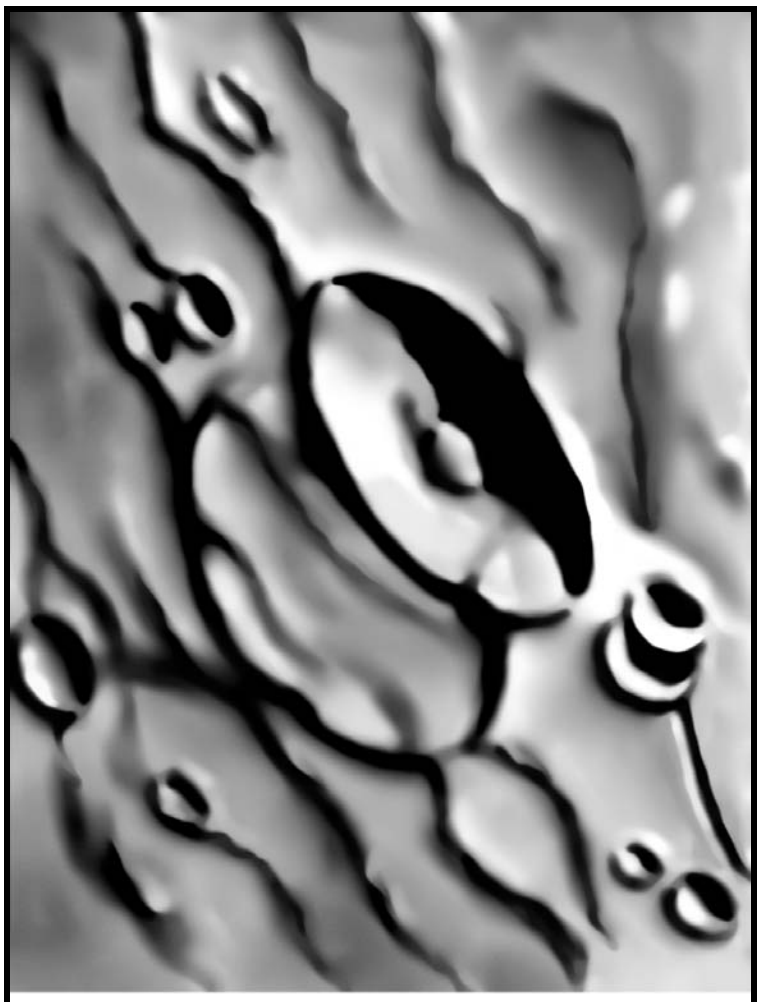
The northern wall portion of the heavily worn crater Mee is sketched to the southwest wall of Hainzel.

Ariadaeus Rille – Phillip Morgan – Tenbury Wells, Worchestershire, England. February 15, 2005 17:45-18:30 UT. Colongitude 351º. Seeing 5/10, Transparency 3/5. 305mm, f/5 Newtonian. 400x.



The Ariadaeus Rille
(western section)

RECENT TOPOGRAPHICAL OBSERVATIONS



Sirsalis

2009 January 9
21:05-21:50 UT
Col. 73.0-73.4°
Seeing: AII-III, cold -2°C
200 mm SCT x200, binoview used
Integrated light
Peter Grego (St Dennis, Cornwall, UK)
PDA sketch (enhanced in PhotoPaint)

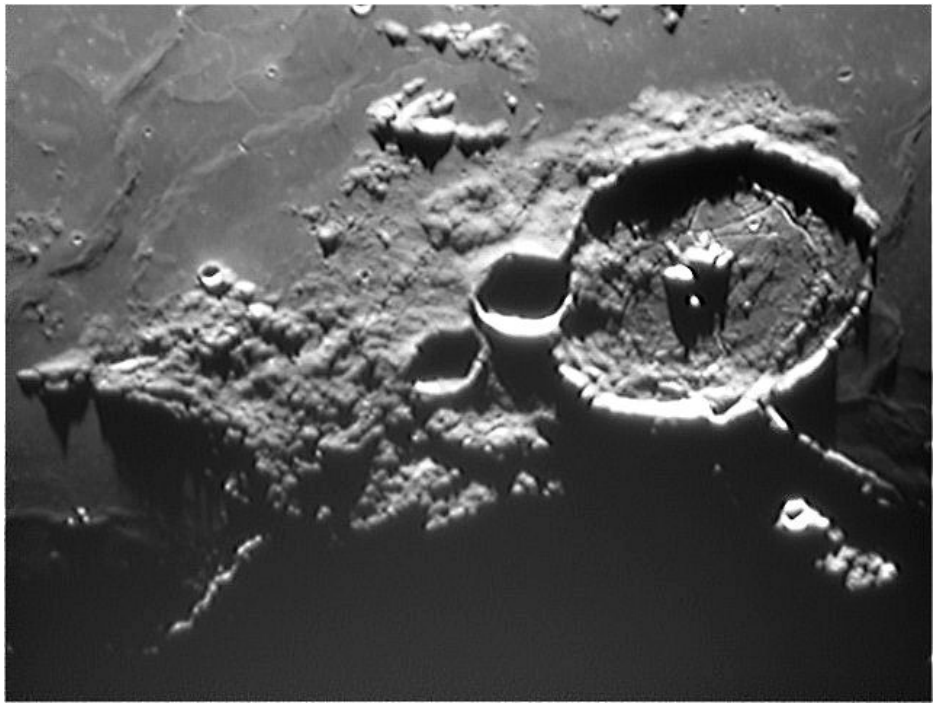
RECENT TOPOGRAPHICAL OBSERVATIONS

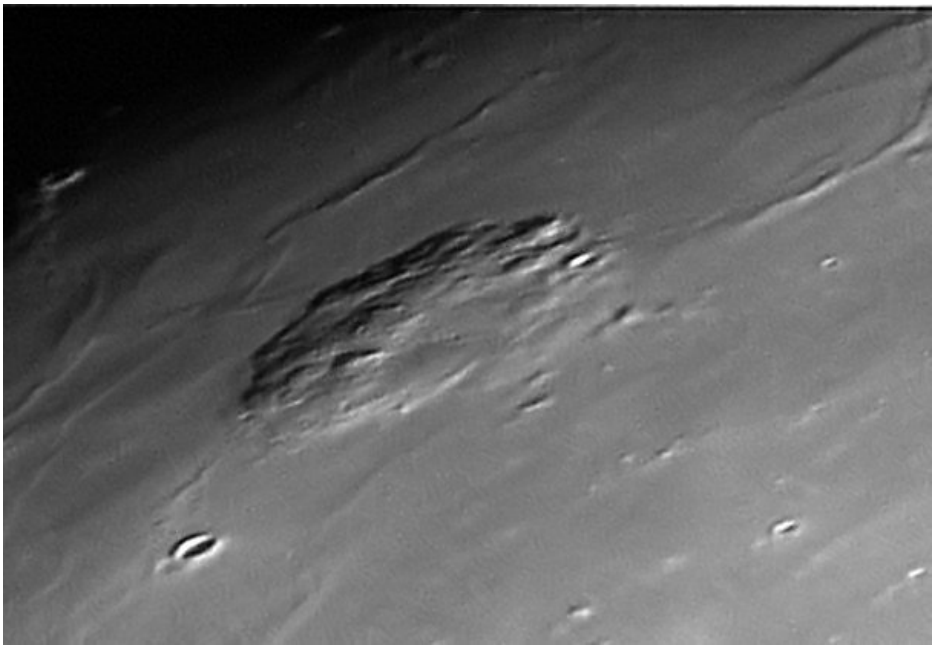
Bessel - Fred Corno - Settimo Torinese, Italy. December 18, 2004. Seeing 5/10, Transparency excellent. Vixen 105M refractor, 250x. NE-SW light streak is ray from Tycho.

Clavius & Schiller-Zucchius Basin -Maurice Collins - Palmerston North, New Zealand,
February 06, 2009 08:34 UT. C8, LPI.

RECENT TOPOGRAPHICAL OBSERVATIONS

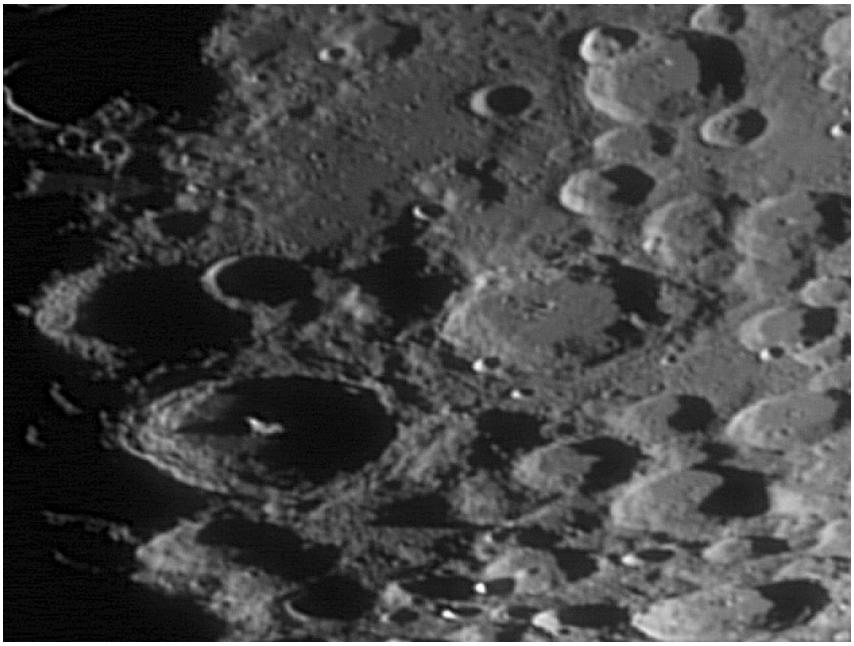
Gassendi & Letronne - Ed Crandell – Winston-Salem, North Carolina, USA. February 06, 2009 00:15 UT. Seeing 5/10, Transparency 4/6, Colongitude 43º. 254 mm f/7 Newtonian, Toucam.



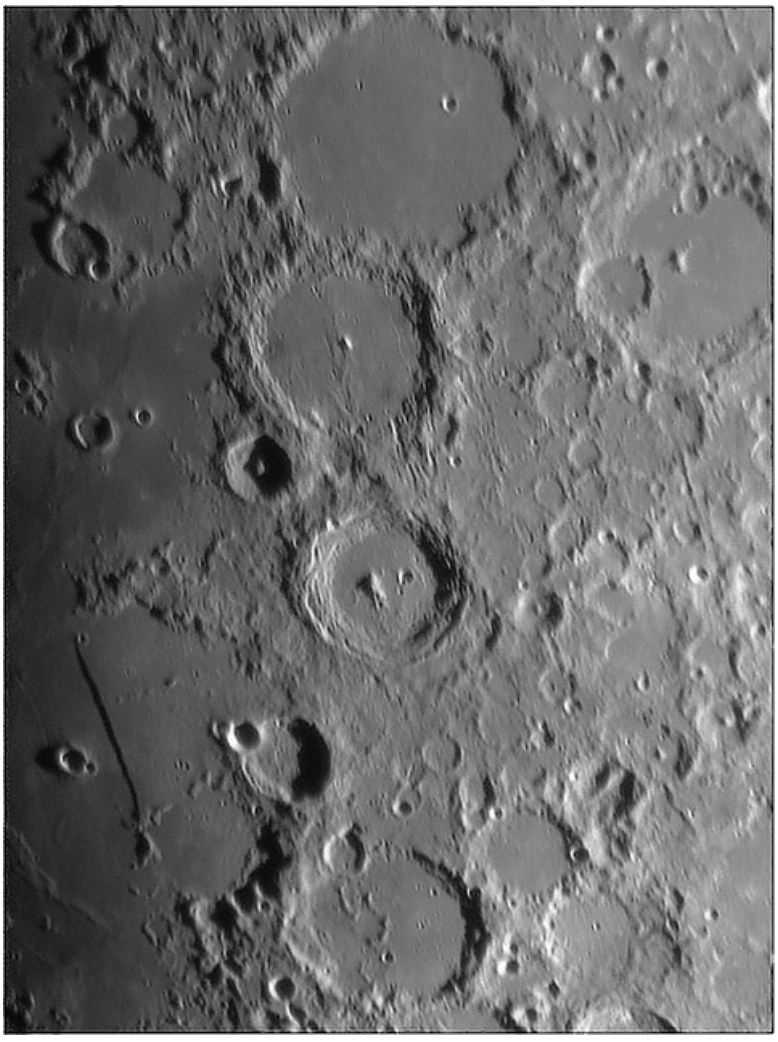


Mons Rumker – John Sussenbach – Houten, Netherlands. February 14, 2009 04:00 UT. C11 SCT f/20 with DMK21AU4 camera.

RECENT TOPOGRAPHICAL OBSERVATIONS



Curtius & Moretus - Howard Eskildsen - Ocala, FloridA, USA. January 05, 2009 01:23 UT. Seeing 8/10, Transparency 6/6. Meade 6" f/5 refractor, 3x barlow, NexImage.



Ptolemaeus to Purbach – Klaus Petersen - Glinde, Germany. May 13, 2008 21:09 UT. North up , East left Seeing 6/10, Transparency 4/6. Meade 8" SCT at f/10, DMK 21AF04.AS, 300 from 1000 frames stacked with AviStack, slight wavelet (Gauss) in Registax, finished with PS and MagicFocus

BANDED CRATERS PROGRAM

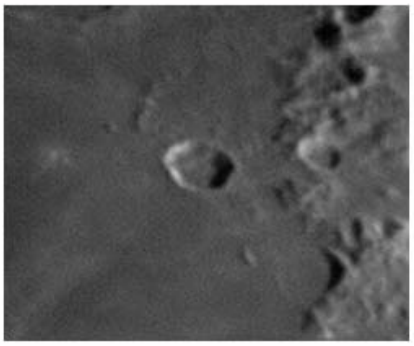
Coordinator – Wayne Bailey – wayne.bailey@alpo-astronomy.org

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

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

Crater Observed: Theaetetus
Observer: Howard Eskildsen Observing Station: Ocala, Florida
Mailing Address: P.O. Box 830415, Ocala, Florida, 34483
Telescope: Meade Refractor 152 cm f/8
Imaging: Orion StarShoot II, 2X Barlow Filters: W-15 Yellow
Seeing: 4/10 Transparency: 3/6
Date (UT): 2008/11/08 Time (UT): 01:16
Colongitude: 30°
Position of crater: Selen. Long. Selen. Lat.
6.0° East 37.0° North
Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1

Image (North up):



Comments:

Most notable feature is a bright band across the northwestern floor of the crater.

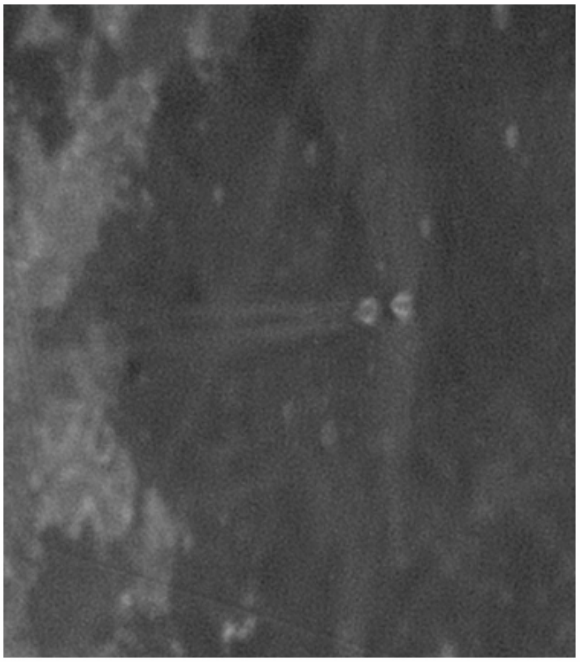
A.L.P.O. Lunar Section: Selected Areas Program Banded Craters Observing Form

Crater Observed: Messier & Messier A
Observer: Howard Eskildsen Observing Station: Ocala, Florida
Mailing Address: P.O. Box 830415, Ocala, Florida, 34483
Telescope: Meade Refractor 15.2 cm f/8
Imaging: Orion Starshoot II, 2X Barlow, Filters: W-15 Yellow
Seeing: 4/10 Transparency: 3/6
Date (UT): 2008/11/08 Time (UT): 01:28
Colongitude: 30°

Position of crater:	Selen. Long.	Selen. Lat.	
	47.6° East	1.9° South	(Messier)
	46.8° East	2.0° South	(Messier A)

Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1 2004-11-07,
Rukl, Antonin, Atlas of the Moon

Image (north up): Comments:



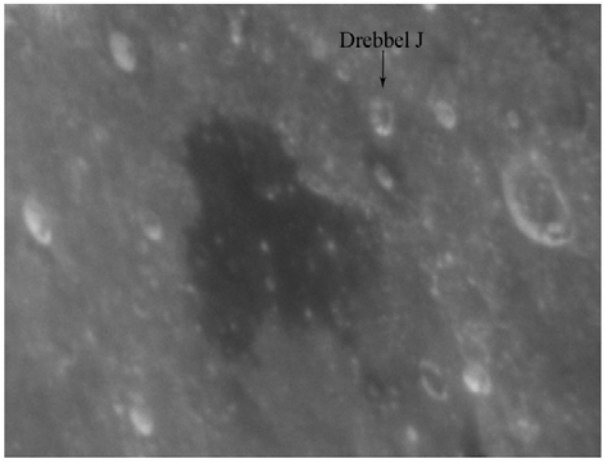
A.L.P.O. Lunar Section: Selected Areas Program Banded Craters Observing Form

Crater Observed: Drebbel J
Observer: Wayne Bailey Observing Station: Sewell, NJ
Mailing Address: 17 Autumn Lane, Sewell, NJ 08080
Telescope: Celestron SCT 28 cm f/20
Imaging: Skynyx 2-1M Filters: Schuler IR72
Seeing: 4/10 Transparency: 4/6
Date (UT): 2008/08/19 Time (UT): 05:53
Colongitude: 123.4 Latitude: -0.2
Position of crater: Selen. Long. Selen. Lat.
52.3° West 40.6° South
Lunar Atlas Used as Reference: Rukl, Atlas of the Moon, Revised Updated Ed.

Comments:

At least four narrow radial dark bands. One on N wall, one on S wall, and two on W wall.

Image (North up): (East right):



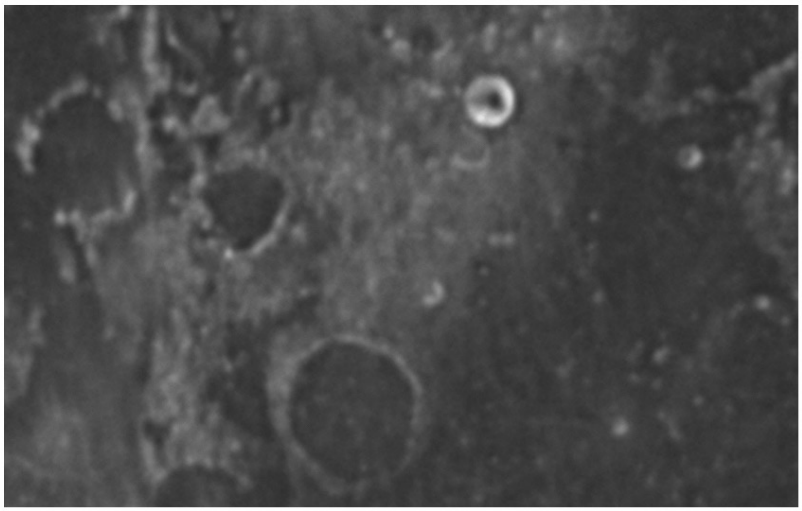
A.L.P.O. Lunar Section: Selected Areas Program Banded Craters Observing Form

Crater Observed: Darney
Observer: Wayne Bailey Observing Station: Sewell, NJ
Mailing Address: 17 Autumn Lane, Sewell, NJ 08080
Telescope: Celestron SCT 28 cm f/20
Imaging: Skynyx 2-1M Filters: Schuler IR72
Seeing: 4/10 Transparency: 4/6
Date (UT): 2008/08/19 Time (UT): 05:38
Colongitude: 123.3 Latitude: -0.2
Position of crater: Selen. Long. Selen. Lat.
23.5° West 14.5° South
Lunar Atlas Used as Reference: Rukl, Atlas of the Moon, Revised Updated Ed.

Comments:

Dark radial band on W wall. Narrow bright radial band on SW wall

Image (North up): (East right):



LUNAR TRANSIENT PHENOMENA

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

LTP NEWSLETTER – MARCH 2009

Dr. Anthony Cook - Coordinator

Observations for January 2009 were received from the following observers: Jay Albert (FL, USA), Paul Brierley (UK), Clive Brook (Plymouth, UK), Maurice Collins (New Zealand), myself (Aberystwyth, UK), and Marie Cook (Mundesley, UK). If there are any new budding US observers (or elsewhere) out there who would like to help us with observations, then I have an extensive set of predictions for each of the US states on-line now on the following web page http://users.aber.ac.uk/atc/tlp/tlp.htm .

Recent LTP?: On 2009 Jan 9th at 20:00 UT Paul Brierley (using a Orion Optics SPX 200 f/5.6 telescope, seeing = V) took a CCD image (Atik 2-HS camera, x2 Barlow and CLS) of the Moon and showed it to the BAA's topographic coordinator, Peter Grego. Peter, who says that he knows the area quite well, noticed that "the interior western wall of the crater Schiaparelli, appeared (to him) to be "somewhat muted in brightness – it is normally quite bright to look at". Interestingly, I was observing the Moon using a 10.5" remotely controlled telescopes at Aberystwyth University, about 15 minutes after Paul's image, however I detected nothing unusual – though my image resolution was smaller, and I was imaging in the red light centered on the Hydrogen Alpha wavelength at 656nm. It is possible that Paul's bright rim might have been an image processing artifact, but we should follow this up, just in case and for now this report will be given a weight of 1.

On 2009 Jan 30th at 12:35:20UT +/-2min Ray Masini (Perth, Western Australia) saw a glow hanging well over on the Earthlit edge of the crescent limb off the limb of the Moon well to the west (IAU) of the Moon's south pole. This was a naked eye observation. The sketch supplied reveals that it probably was not an isolated mountain peak catching the sunlight. There was a star, 19 Virginis, that underwent a grazing occultation that night (information supplied by Andrew Elliott), and which might have offered an explanation, however the times do not agree. It is therefore imperative that if any observers who were looking at the Moon at this time from Western Australia, or within the longitude range of ~100ºE to ~125ºE, that they get in contact, especially if they were looking at the south limb or the Earthshine. More about this next month after I have had time to digest the flurry of emails.

Kaguya Orbit Position Now Available: The Japanese space agency, JAXA, has now put on-line the orbital position of their Kaguya (or as it used to be known: SELENE) spacecraft as it is flying across the lunar surface. Therefore if you would like to attempt to take high resolution (Earth-based images) or sketches of the lunar surface, and compare them with images from this spacecraft, please feel free to do so. In the past we (via David Darling's efforts) have attempted this during the Clementine and Lunar Prospector missions. In this way, if the spacecraft detects a puff of Radon gas (as some LTP theories suggest) from the surface or detects color, then we can compare this directly with observations made from Earth which will be representative of past LTP reports. The Kaguya web site is at….

http://odweb.tksc.jaxa.jp/oddse/main.jsp

LPSC Conference LTP abstracts: This year's Lunar and Planetary Science conference, in Houston (March 23-27) has two poster presentations on the subject of LTP during their Thursday evening poster session. To view these abstracts type in the following web address below, and if you go to "Thursday Evening (6:30-9:30)" and click on the "Lunar Dust and Transient Surface Phenomena" then you will find two poster abstracts near the bottom that refer to LTP…

http://www.lpi.usra.edu/meetings/lpsc2009/lpsc2009download.shtml

The abstract by Prof Arlin Crotts of Columbia University, New York, states that they have obtained 1 month's worth of continuous look imagery of the Moon in white light, and at the time that the abstract was written, they had processed only 17 hours worth of this, and had not found any LTP. His team can detect brightness changes down to the 1-2% level with 1 arc sec effective resolution over the whole lunar disk. Therefore from this, if LTP were to be random events then we know that they occur at a rate of less than one per 17 hours approximately. The other abstract discusses a preliminary analysis of archived LTP observations supplied by amateur and professional astronomers over the last few hundred years. It hints at (a) a suggestion that there appears to be a peak in LTP activity near the end of April, (b) another surge in activity around sunrise – a time when electrostatic charged dust particles are known to be active, and (c) also some activity in Earthshine at specific solar colongitudes – the latter is especially odd because these regions are not illuminated by the Sun nor would be interacting with ions and electrons in the Earth's magnetosphere. However the abstract also points out that when non-LTP reports are fed into the analysis software, one also sees a surge in observations at sunrise. I presume that this is because this is a sociable time to observe the Moon, and also the terminator region is more interesting to look at than elsewhere? Further information on both these posters will be available at the conference and I will try to find out more for you. In the mean time if you wish to read these, please go to the conference abstracts on the web link above. Anyway at least the latter abstract shows that your observations are being used and are useful in the study of the Moon!

BBC World Service Discovery Programme: In early February the BBC World Service broadcast their Discovery science programme on the radio, discussing LTP. If you would like to hear a podcast of this, then please visit the BBC web site on…

http://www.bbc.co.uk/worldservice/specials/948_discovery_2008/page2.shtml

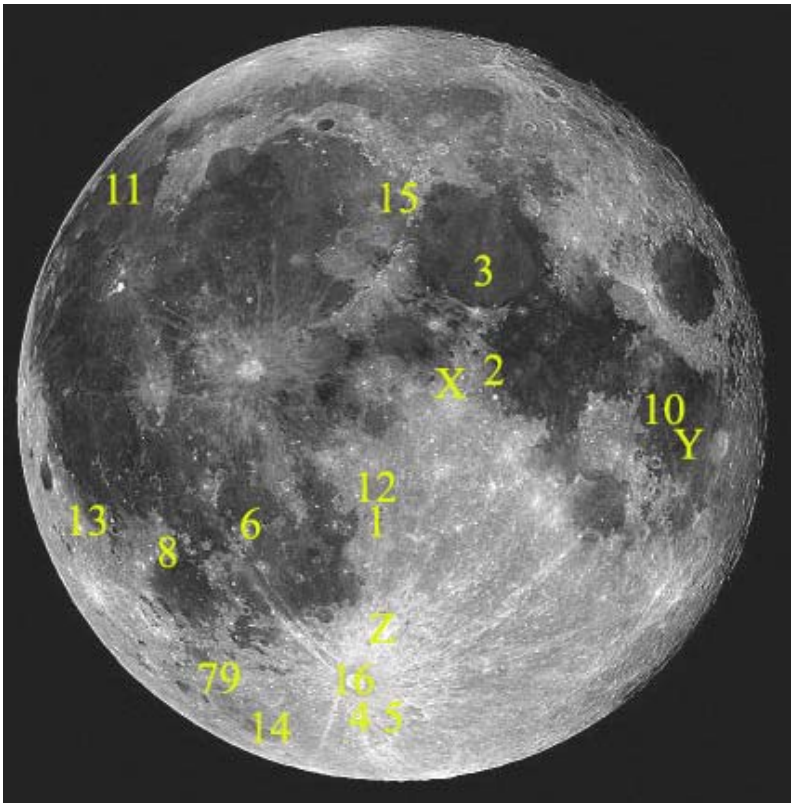
This covers the most recent theories and observational efforts to understand LTP, and as the presenter, Andrew-Luck Baker says at the end, he would not be surprised if the mystery behind most LTP, and whether they exist or not, were solved very soon!

Predictions for times to observe what the Moon at the same illumination (and sometimes libration) to when past observers saw LTP can be found on the following web site: http://users.aber.ac.uk/atc/tlp/tlp.htm. By re-observing at these times we get to understand what the surface should normally look like and so can better judge (or disprove) past LTP events. For members who do not have access to the internet, please drop me a line and I will post predictions to you. If you would like to join the LTP telephone alert team, please let me know your phone No. and how late you wish to be contacted. If in the unlikely event you see a LTP, please give me a call on my cell phone: +44 (0)798 505 5681 and I will alert other observers. Note when telephoning from outside the UK you must not use the (0). When phoning from within the UK please do not use the +44!

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

KEY TO IMAGES IN THIS ISSUE

1. **Alphonsus**
2. **Ariadaeus**
3. **Bessel**
4. **Clavius**
5. **Curtius**
6. **Darney**
7. **Drebbel J**
8. **Gassendi**
9. **Hainzel**
10. **Messier**
11. **Mons Rumker**
12. **Ptolemaeus**
13. **Sirsalis**
14. **Segner**
15. **Theaetetus**
16. **Tycho**



X = Triesnecker to Ariadaeus (May FOCUS ON target)
Y = Mare Fecunditatus (July FOCUS ON target)
Z = Deslandres (September FOCUS ON target)