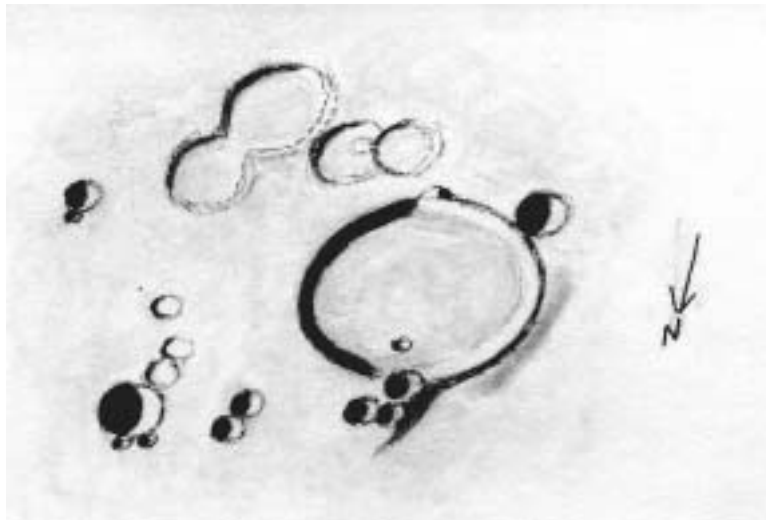


THE LUNAR OBSERVER

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

A PUBLICATION OF THE LUNAR SECTION OF THE A.L.P.O.
EDITED BY: William M. Dembowski, F.R.A.S. - dembowski@zone-vx.com
Elton Moonshine Observatory - <http://www.zone-vx.com>
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FEATURE OF THE MONTH - SEPT. 2005



NICOLAI

Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA

March 17, 2005 - 00:5 to 01:26 UT

15cm Newtonian - 170x - Seeing 7-8/10

I drew this crater and vicinity on the evening of March 16/17, 2005 while observing two occultations. This area is well to the south on the moon, west of the large ring Janssen. The libration that evening was favorable for that area. Nicolai itself has a smooth interior except for a small, shallow crater inside its north rim. Nicolai D is on the rim near this pit, and Nicolai R is to the northeast. An unnamed crater is between them. The LQ Map shows this pit as being larger and less complete than D and R, but it looked smaller and complete to me. Nicolai B is on the southwest rim of Nicolai, and there is a bump on Nicolai's south rim nearby. The largest of several craters to the northeast is Riccius N, according to the LQ Map. Riccius L is the southern one of two very similar craters between Riccius N and Nicolai. Two tiny pits are on the north rim of Riccius N, and three shallow rings are to its south. Nicolai M is the deep crater southeast of Nicolai; a small pit is on its north edge. Several shallow rings are between Nicolai M and Nicolai. Nicolai H is the double ring south of Nicolai. A connecting rim is evident between the two lobes, and there is a bright spot on the floor of the east lobe. Nicolai K is the larger double ring near M. I saw no connecting rim between these two lobes, unlike Nicolai H, and no detail within 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. Several copies of recent journals can be found on-line at: <http://www.justfun.org/djalpo/> Look for the issues marked FREE, they are not password protected. Additional information about the A.L.P.O. can be found at our website: <http://www.lpl.arizona.edu/alpo/> 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.lpl.arizona.edu/~rhill/alpo/member.html> which now also provides links so that you can enroll and pay your membership dues online.

FOCUS ON: Mare Crisium

William M. Dembowski, FRAS
Coordinator, Lunar Topographical Studies

Positioned near the northeastern limb, Mare Crisium is conveniently placed for study under both sunrise (a few days after New Moon) and sunset (a few days after Full Moon) conditions. Due to foreshortening, Mare Crisium appears to be oval in the north-south direction when in reality it is oval in the east-west. Its true dimensions are 570 km (350 miles) east-west by 435 km (270 miles) north-south. Crisium is also unique among the major nearside maria in that it is the only one which is completely isolated from its sisters.

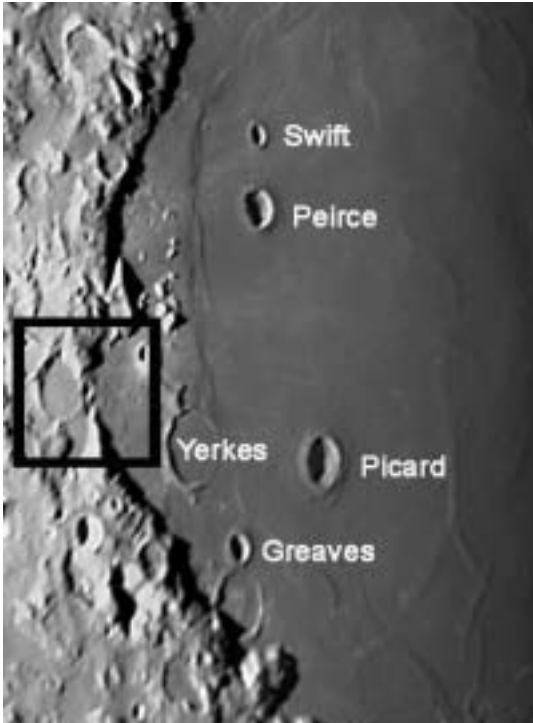


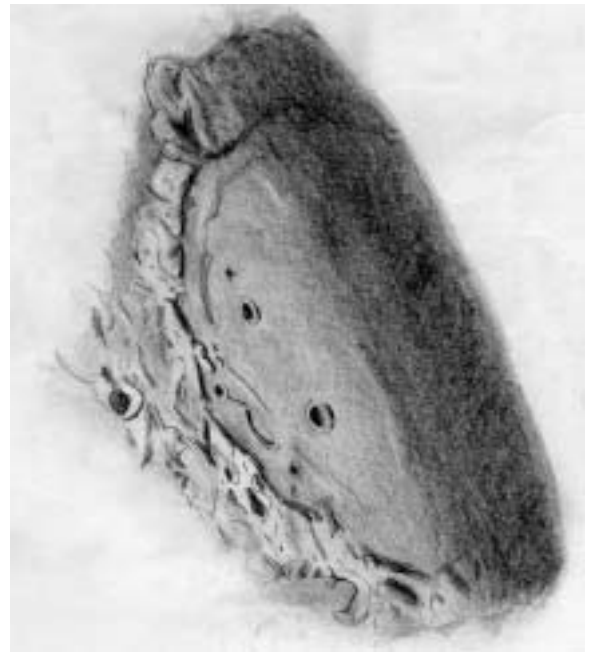
FIGURE 1
Digital image by K.C. Pau
Hong Kong, China
July 23, 2005 - 16:53 UT
250mm Newtonian - 2.5x Barlow

There are few prominent craters on Mare Crisium and nearly all of them lie along the extreme western shore. Since these craters are relatively isolated, they make good targets for beginning observers and help give the novice a sense of scale. I added labels to Howard Eskildsen's image for use as a finder map (See Figure 1). First note Picard, with a diameter of 23km. Picard is a bowl shaped crater with bright walls that rise 2,400 meters above the floor and has a small central hill. Moving northward, Peirce is next with a diameter of 18.5km. Peirce is similar to Picard in general shape and with walls that are about 2,100 meters above the floor. It, too, has a small central hill and also contains a craterlet on the inner southeast wall; lastly comes Swift at 11km.

West of Picard and somewhat larger, though less conspicuous, is Yerkes. Yerkes, a 36km flooded crater, has most of its western walls intact but its northern and eastern rims are quite sunken. The walls of Yerkes also have extensions to the northwest and south which are probably the remnants of adjacent craters that were almost totally submerged when lava flows covered the mare floor. Look, too, for a very low central hill; it can be tough to spot.

FIGURE 2

**Sketch by Robert Wlodarczyk
Czestochowa, Poland
September 13, 2003 - 21:00 UT
120mm Newtonian - 112x**



After covering the floor of the Crisium basin to an estimated depth of 1 km (3,300 ft.), the basaltic lava sank under its own weight creating a series of wrinkle ridges. Some were new features in their own right, while others marked the outlines of flooded and buried craters. Dorsum Oppel (300 km – 190 miles) is the most prominent of these features and follows the curve of Crisium in the northwest. See both Robert Wlodarczyk's sketch (Figure 2) and Gerardo Sbarufatti's unique, comet-like image (Figure 3).

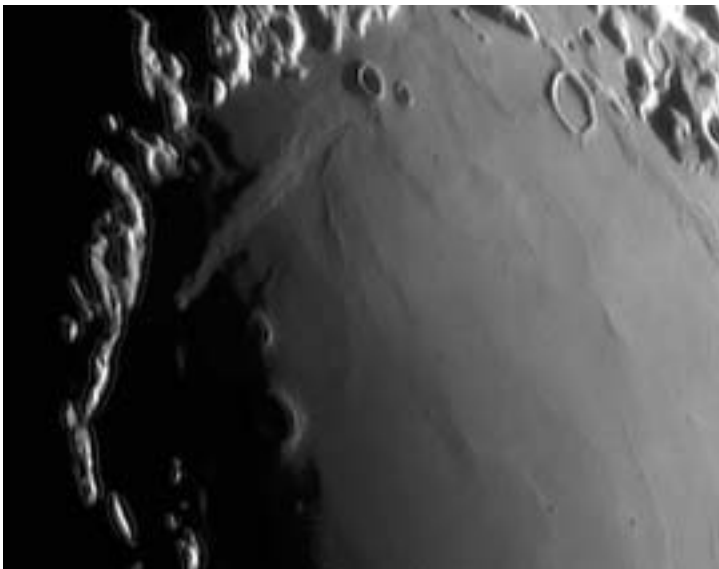


FIGURE 3

**Digital image by Gerardo Sbarufatti
Casselle Landi, Italy
March 13, 2005 - 18:20 UT
8 inch SCT - 2x Barlow**

On the eastern border, Dorsa Tetyaev (150 km – 93 miles) and Dorsa Harker (200 km – 125 miles) run from north to south. See Ed Crandall's image (Figure 4). The more elusive Dorsum Termier is the forked feature well shown in the south-central region. See Howard Eskildsen's image (Figure 5).



FIGURE 4

**Digital image by Ed Crandall
Winston-Salem, North Carolina, USA
October 1, 2004 - 04:20 UT
10 inch Newtonian - Philips Toucam**



FIGURE 5

**Digital image by Howard Eskildsen
Ocala, Florida, USA
August 22, 2005 - 04:23 UT
10 inch Refractor - 2x Barlow**

More experienced observers, and those with larger instruments, might spend some time hunting for O'Neill's Bridge. O'Neill's Bridge was once believed to be a natural arch that spanned the distance between Promontorium Olivium and Promontorium Lavinium. (See black box in Figure 1) It has since been proven to be an illusion created by a shallow crater in the area but it is still fun to search for the "feature" and recapture the illusion. O'Neill's Bridge is best seen three or four days after Full Moon.

REFERENCES:

Coombs, Cassandra "Portal to the Ancient Moon: Mare Crisium", Astronomy Magazine, Oct. 1995
Rukl, Antonin "Atlas of the Moon", Paul Hamlyn Publishing, London, 1991
Wlasuk, Peter T. - "Observing the Moon", Springer-Verlag, London, 2000

FOCUS ON: GASSENDI

CALL FOR OBSERVATIONS

Focus On is a regular series of articles which includes observations received for a specific feature or group of features. The subject of the next installment (**November 2005**) is **Gassendi**. Observations of all kinds (electronic or film based images, sketches, 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 crater to your observing list and send your images to one of the addresses shown in the banner on Page One.

MORE MARE CRISIUM IMAGES



**Digital image by Michael Boschat - Halifax, Nova Scotia, Canada
September 30, 2004 - 12cm Refractor**



**Digital image by K.C. Pau - Hong Kong, China
July 22, 2005 - 15:41 UT - 250mm Newtonian - 2.5x Barlow**

MORE MARE CRISIUM IMAGES



**Digital image by Howard Eskildsen
Ocala, Florida, USA
May 13, 2005 – 00:30 UT
10 inch Refractor**



**Sketch by Robert Wlodarczyk
Czestochowa, Poland
March 31, 2002 - 00:30 UT
180mm Newtonian - 150x**

THE REGION FROM INGHIRAMI TO PIAZZI

**By Colin Ebdon - Colchester, Essex, England
BAA Coordinator of Lunar Topographical Studies**

**This article and sketch originally appeared in the August 2005 issue of
The BAA Lunar Section Circular**

This region of the Moon first came to the observer's attention by way of a March 2003 report of the ALPO Bright Lunar Rays Project by Bill Dembowski. The report included a CCD image from Daniel del Valle, seemingly showing a lunar ray running from the terminator of the nearly Full Moon, between the craters Inghirami and Piazzì. Further details and an outline map were subsequently provided in the BAA Lunar section Circular for June 2003, VOL.40, No.6.

Further investigations suggested that the feature in question was more likely to be a brilliantly illuminated shallow ridge, and this seemed to be confirmed by observations of 1991 November 19 and 1991 December 19 received from Harold Hill. These clearly show a ridge running NW-SE from the direction of the Mare Orientale towards Schickard. The current observation confirms these findings and reveals a ridge approximately 250 kms in length, roughly parallel to the Vallis Inghirami which, for comparison purposes is about half that length.

The ridge is not clearly defined in Rukl's Atlas but is visible in the Clementine Atlas Of The Moon, Map 109, commencing approximately 25kms SE of Schickard and terminating at an indefinite point WNW of Piazzì, where it mingles with other similar features in rough ground. On the accompanying photograph, secured under high lighting conditions, it can be seen in part as a thin bright line.

The ridge seems to be one continuous feature, although both observations and the maps suggest that it narrows sharply at its mid-point before widening again. The Clementine Atlas appears to show a diagonally crossing rille at this point, about 75km in length.

The ridge does not demonstrate any obvious geological significance in this very rough area of the Moon and does not give the impression of being a part of the extensive effects of the formation of the Mare Orientale. However, it is a very striking feature to the Earth bound observer when caught just right on the terminator at sunrise.

The general region between Piazzì, Vallis Inghirami and the Vallis Bouvard consists largely of unnamed features, including all the craters shown on the drawing, other than those marked.

INGHIRAMI to PIAZZI

Observer: C.Ebdon
Date: 2005 May 21
Time: 21.45 to 23.00 UT.
Seeing: AII, Occasionally AII-AIII
Transparency: Good
7" f15 Maksutov-Cassegrain x 225

INGHIRAMI
(Not depicted)



Earth's Sel Longitude (Deg): -6.00 (0hrs 22/5)
Earth's Sel Latitude: (Deg.): +1.55 to +1.63
Sun's Sel Colongitude: 70.86 to 71.49
Sun's Sel Latitude: +0.96 (0hrs 22/5)

LUNAR TOPOGRAPHICAL STUDIES

Acting Coordinator - William M. Dembowski, FRAS

dembowski@zone-vx.com

OBSERVATIONS RECEIVED

MICHAEL BOSCHAT - HALIFAX, NOVA SCOTIA, CANADA

Digital image of Mare Crisium

COLIN EBDON - COLCHESTER, ESSEX, ENGLAND

Sketches of Abulfeda, Pallas & Murchison, Marius & environs

DANIEL DEL VALLE - AGUADILLA, PUERTO RICO

Sketch of Herschel, Dome near Herodotus A

ACHILLE GIARDANO - NAPLES, ITALY

Digital image of Julius Caesar, Maurolycus,

HOWARD ESKILDSEN - OCALA, FLORIDA, USA

Digital images of Lacus Mortis, Apennine Mtns., Clavius, Copernicus, Mare Frigoris (2), Mare Imbrium, Sinus Iridum (2), Longomontanus, Mare Nubium, Schiller-Zucchius Basin, Mare Humorum, Western Mare Imbrium, Aristarchus, Marius Hills, Anaxamander & Babbage, Anaxamander

PAOLO LAZZAROTTI - NAPLES, ITALY

Digital images of Apennine Mtns., Deslandres, Gruithuisen, Hainzel, Prinz, South Polar Region

K. C. PAU - HONG KONG, CHINA

Digital images of Mare Crisium (2), Hevelius

ZAC PUJIC - BRISBANE, AUSTRALIA

Digital images of Copernicus (color saturated), Dome near Hortensius, Dome near Gruithuisen (2), Bullialdus (color saturated)

GERARDO SBARUFATTI - CASSELE LANDI (LODI), ITALY

Digital image of Ptolemaeus & Alphonsus & Arazachel, Torricelli

MARCO SELLINI - ROME, ITALY

Digital image of Longomontanus, Philolaus & Anaxagoras,

Observations submitted should include the following:

Name and location of observer

Name of feature

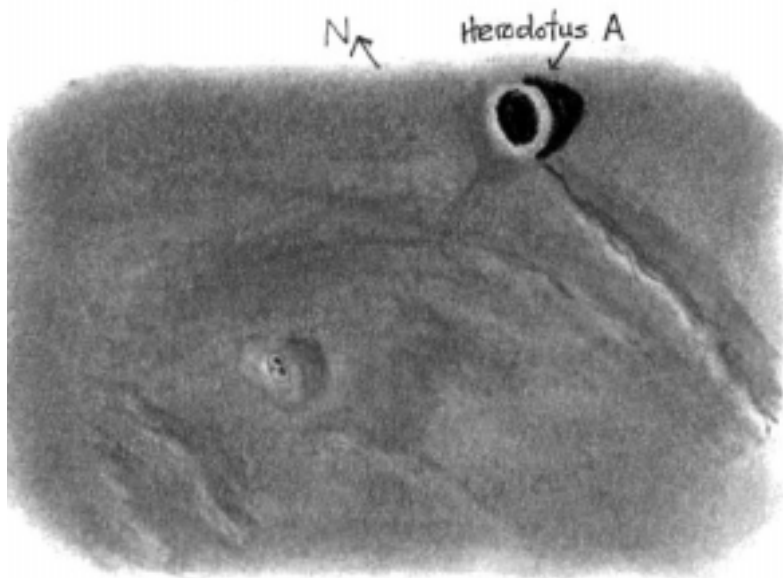
Date and time (UT) of observation

Size and type of telescope used

Magnification (for sketches)

Medium employed (for photos and electronic images)

RECENT TOPOGRAPHICAL OBSERVATIONS



DOME NEAR HERODOTUS A

Sketch by Daniel del Valle - Aguadilla, Puerto Rico

August 17, 2005 - 00:36 to 00:50 UT

8 inch SCT - 338x & 450x

Observing notes: This dome has unique double craterlets on its summit. According to the Times Atlas of the Moon its height relative to the surrounding terrain is 660 km. The closest nearby feature is Herodotus A. In Rukl it is given the Greek letter designation ω (Omega). Its shape is roughly oblong, not circular. The double craterlets were seen clearly under high power in spite of the indifferent seeing (6/10).



RIMA ARIADAEUS & JULIUS CAESAR

Digital image by Achille Giardino - Naples, Italy

June 13, 2005 - 19:40 UT

125mm ETX - 2x Barlow - Toucam Pro

RECENT TOPOGRAPHICAL OBSERVATIONS

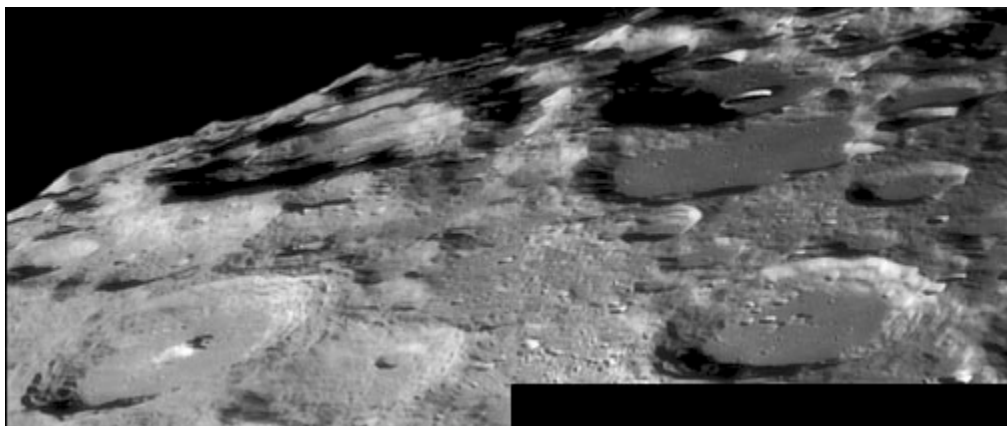


LACUS MORTIS & ENVIRONS

Digital image by Howard Eskildsen - Ocala, Florida, USA

July 26, 2005 - 10:19 UT

6" Refractor - Nikon Coolpix 4300



SOUTH POLAR REGION

Digital image by Paolo Lazzarotti - Naples, Italy

June 18, 2005 - 20:41 UT

178mm Mak-Cass - Lumenera LU075 Camera

RECENT TOPOGRAPHICAL OBSERVATIONS



HEVELIUS

Digital image by K.C. Pau - Hong Kong, China

April 22, 2005 - 13:22 UT

250mm Newtonian - 5x Barlow - Philips Toucam Pro



DOME NEAR HORTENSIUS 24

Digital image by Zac Pujic - Brisbane, Australia

July 16, 2005 - 08:41 UT

31cm Newtonian - Philips Toucam Pro - Wratten 25A Filter

RECENT TOPOGRAPHICAL OBSERVATIONS

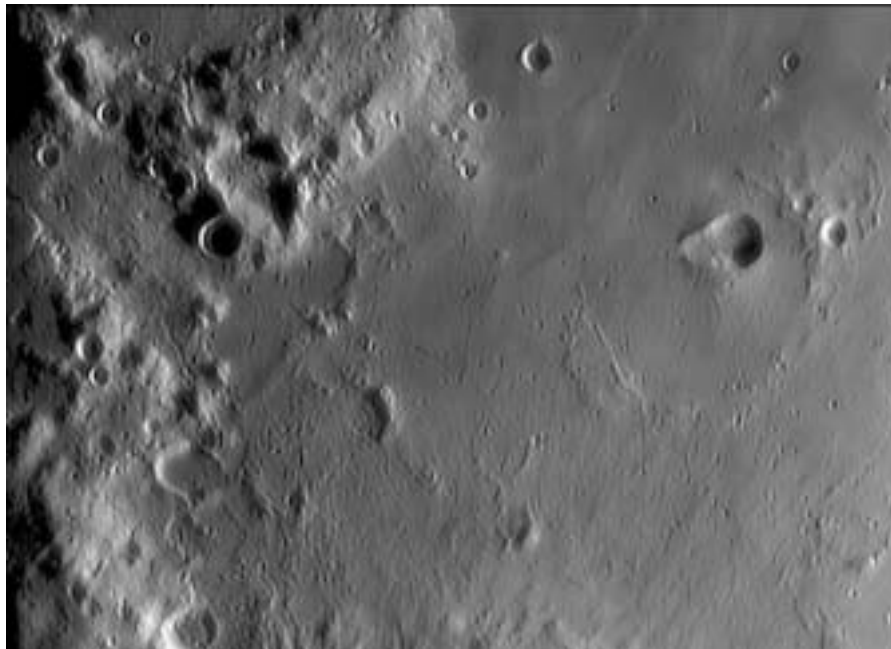


LONGOMONTANUS, WILHELM, MONTANARI

Digital image by Marco Sellini - Rome, Italy

July 16, 2005 - 18:31 UT

180mm Mak - 800/1000 frames stacked



SINUS ASPERITATIS & TORRICELLI

Digital image by Gerardo Sbarufatti - Cassele Landi, Italy

March 16, 2005 - 19:26 UT

8 inch SCT - 2x Barlow - Red Filter

BRIGHT LUNAR RAYS PROJECT

Coordinator - William M. Dembowski, FRAS

Each month TLO features a book or magazine excerpt dealing with Bright Lunar Rays. Some are from current sources, others from vintage astronomical literature.

This month's offering is from:

On The Moon

Patrick Moore

Cassell & Co. - 2001 - Pages 83-84

Finally there are the bright rays, which dominate the whole scene when the Moon is near full. Unlike most other details, they are best seen under a high light; they are very obscure when near the terminator, and become conspicuous only when the Sun has risen to a considerable altitude over them. Of the many ray-systems on the surface, two stand out as being incomparably more splendid than the rest; those of Tycho and Copernicus.

Tycho is a well-formed crater in the southern uplands, 54 miles across, with high terraced walls and a central mountain complex. Magnificent though it is, Tycho lies in so crowded an area that it would not be outstanding were it not for the rays. When it first emerges from the long lunar night it seems to be a perfectly normal bright crater, but gradually the rays come into view, until by full moon they dominate the whole of the southern part of the disk. There are dozens of them, streaking out in all directions from Tycho as a focal point; they cross craters, plains, peaks and valleys, uplands and maria, rills and pits without showing obvious deviation.

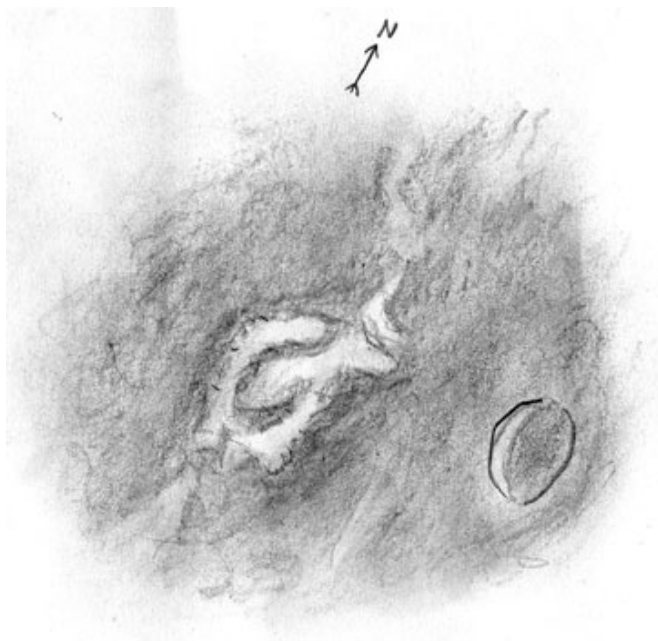
Near full moon, when Tycho's rays dominate the whole scene, it is tempting to believe that the crater lies at the lunar pole. In fact it does not; it is some way away.

Rather unexpectedly, the rays cannot be traced inside Tycho itself. There is a ray-free area around the rampart, showing darkish under a high light, where the streaks stop short; neither do they radiate from the exact centre of Tycho, since many of them are tangential to the walls. Yet there can be no doubt that the rays were produced at the time of the impact which formed the crater - and since the rays cross all other formations this is proof positive that Tycho must be the youngest structure in this part of the Moon. One ray stretches right beyond the Mare Serenitatis, passing close to the bright little crater Bessel, and there has been a great deal of discussion as to whether this is one long, genuine 'Tycho ray' or whether it has been renewed along its course - though it is not easy to see just how this could have happened. In January 1968 the Surveyor 7 space-craft made a gentle touch-down on the outer slopes of Tycho, and sent back excellent pictures. It is still there, and one day, no doubt, it will be collected and taken away to a lunar museum.

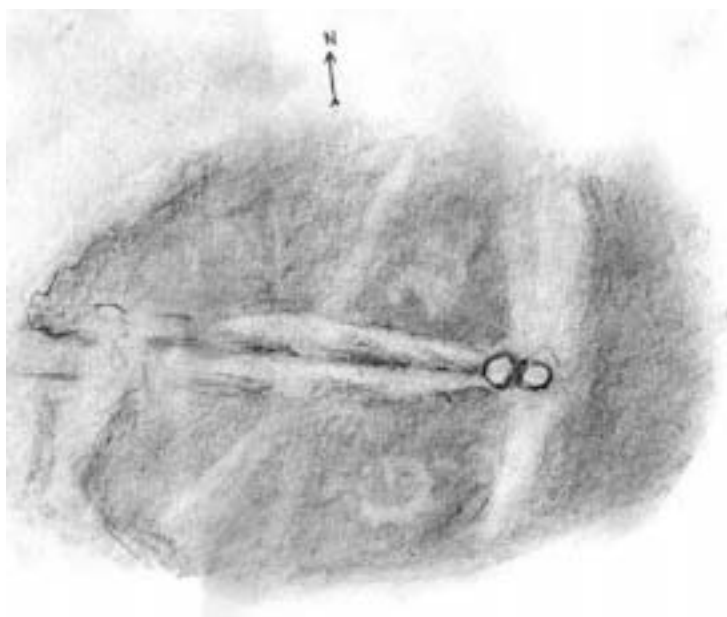
The rays associated with Copernicus are different from those of Tycho. They are not so luminous, and at full moon, when they are at their best, they appear less brilliant than the gleaming crater-ring of Copernicus itself. Neither are they so long or so regular as those of the Tycho system, though they spread widely over the surrounding plain.

Here and there over the disk other ray-centres can be made out: Kepler on the Oceanus Procellarum, Olbers close to Grimaldi in the far west, Anaxagoras in the north, and so on. Some craters have rays which are so dark as to be scarcely detectable. We also find small craters surrounded by bright patches - Euclides, near the Rhiphaen Mountains, is an example - and craterlets with short ray-systems. Near full, the various rays confuse the whole lunar scene so thoroughly that even the practised observer may have trouble finding his way about.

RECENT RAY OBSERVATIONS



REINER GAMMA
Sketch by Robert Włodarczyk
Częstochowa, Poland
February 23, 2005
120mm Newtonian - 112x



MESSIER & MESSIER-A
Sketch by Robert Włodarczyk
Częstochowa, Poland
June 21, 2005
120mm Newtonian - 112x

LUNAR TRANSIENT PHENOMENA

Coordinator – Dr. Anthony Cook – acc@cs.nott.ac.uk

Assistant Coordinator – David O. Darling – DOD121252@AOL.COM

LTP NEWSLETTER - SEPTEMBER 2005

Dr Anthony Cook, School of Computer Science & IT, Nottingham University, Jubilee Campus, Wollaton Road, Nottingham, NG6 1BB, UNITED KINGDOM. Email: acc@cs.nott.ac.uk

Observations for July were received from: Michael Amato (CT, USA), Clive Brook (Plymouth, UK), Antonio Marino (Italy), Brendan Shaw (UK), and William Watson (USA). The total observing time for July was only 6 hours. Clearly the low altitude of the Moon, poor weather, and vacations have had a detrimental effect!

On 2005 Jul 11 at 01:18 UT William Watson (Tonawanda, NY) reported: *“a bright flash in the northern hemisphere of the moon's earthshine with the naked eye. I estimated that it was brighter than Jupiter at about -3 or -4 magnitude and lasted for about 0.5 sec with no indication of motion. It could have been a meteor coming toward me, or my eyes playing tricks on me, but it certainly looked real. It was an evening with heavy hazy cirrus clouds, and nearby Jupiter could only be seen, if you knew where to look for it.”* Although observers are encouraged to report such observations to the impact flash group of ALPO, run by Brian Cudnik, he was away and so asked me to check if anybody else was observing around this time – if so then please email Brian Cudnik on: cudnik@sbcglobal.net

I received a communication from John Hauk (USA, Email: remmy19822002@cs.com), concerning a couple of theories that he has been developing about LTP, so I thought they might be worth a quick mention to see what others think:

A) The areas where LTP brightening phenomena have occurred are often made up of made up of high density quartz, and when these are compressed, cause a brightening effect - this utilizes lunar seismic activity

B) During compression of certain soil compositions around these LTP areas, weak magnetic fields are created. Protons and high-energy particles then hit these magnetic fields and cause energy exchanges, which come out as light.

I suppose one of the problems of this electrodynamic effect is that much of the lunar surface is made up from loose rock and is anyway coated mostly by regolith. The latter will quite likely obscure any largish contiguous rock units. Having said that though the as the lunar nearside presents a surface area of 20 million km sq, statistically there could well be some areas of exposed solid rock. A similar theory for (A) has been proposed before e.g. by Zito in his 1989 paper in *Icarus*.

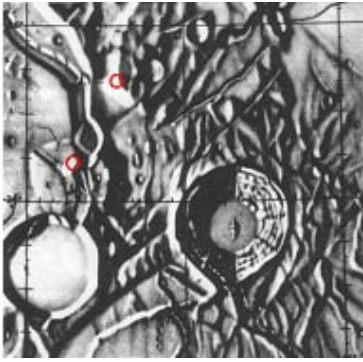


Figure 1
Location of the 1963 spots

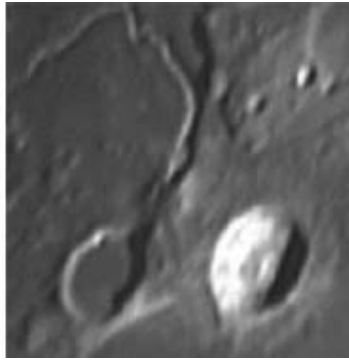


Figure 2
Antonio Marino's image

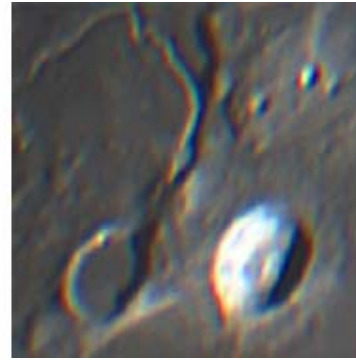


Figure 3
Simulated spurious color

Antonio Marino took a really interesting image of Aristarchus on 2005 Jul 18th. I have been waiting to see this image of the crater for many years now. It is important because it was within +/- 1deg of both the illumination and libration conditions of the famous Greenacre and Barr observation (fig 1) from 1963 that kick started much of subsequent LTP observations. Antonio's image (fig 2) was in black and white, but it enables us to model atmospheric spurious color which some have suspected might have caused the two suspected red spots from this 1963 LTP (fig 1). Having added exaggerated artificial spurious color (see fig 3), in the direction that prismatic spectral dispersion should occur in, it is clear that this does not satisfactorily explain the locations of the red spots seen in 1963. Indeed other more obvious spurious color is visible elsewhere. I have checked for spurious color in other directions (re-Fitton's theory from the 1970's) but none of these yielded the specific red spots either. So one is left to conclude that maybe Greenacre and Barr did see a real LTP back in 1963, and after all at an altitude of 30 deg above the horizon, prismatic spurious color, if present, should have been minimal < 1". If it was present then it should have been a lot more prominent elsewhere on crater rims, but this was not reported at the time.

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

THE MOON IN THE NEWS

NASA plans for lunar outpost

<http://www.chicagotribune.com/technology/chi-0507310325jul31,1,7235177.story?coll=chi-technology-hed>

Hubble scans for Moon base locations

<http://www.newscientistspace.com/article/dn7880>