

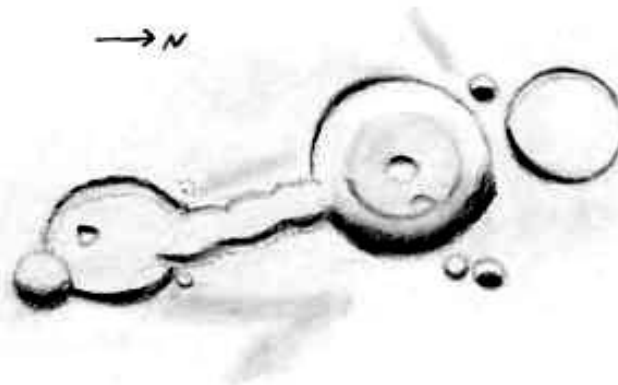


THE LUNAR OBSERVER

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

A PUBLICATION OF THE LUNAR SECTION OF THE A.L.P.O.
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FEATURE OF THE MONTH - JULY 2006



PARROT C

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

February 7, 2006 - 02:00 to 02:24 UT

15cm Newtonian - 170x - Seeing 7/10

I drew this crater and vicinity on the evening of Feb. 6/7, 2006. This is a conspicuous crater just east of Arzachel. It has a large central peak, and a smaller peak inside the east rim. It appears to be a fairly deep crater, but it doesn't show much of a raised rim. The shadowing indicates high points on its southeast and southwest rims, and hints at a secondary interior rim. Parrot H is the fairly large, shallow crater just north of C. There is a gap in the north rim of Parrot H; this crater may have been flooded. The small, crisp crater Parrot L is between C and H, and has a bright interior. Parrot M is east of C. It is similar to L, but it doesn't have as bright an interior. A shallow, unlabelled pit is just south of M. An interesting feature is the wide valley extending southward from Parrot C. It has scalloped sides that indicate at least three coalesced craters. The south end of this valley opens onto the floor of LaCaille GA. This is a shallow crater and has the deeper LaCaille G intruding on its south rim. There is a small pit just east of the valley's junction with LaCaille GA, and a bright, shadowless spot west of this junction. LaCaille GA also has a conspicuous peak southwest of its center not far from G.

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.justfunfun.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.

LUNAR CALENDAR - JULY 2006 (UT)

01 20:00 Moon at Apogee (404,447 km - 251,312 miles)
03 16:36 First Quarter
05 22:00 Moon 4.4 Degrees SSW of Jupiter
11 03:03 Full Moon
13 05:00 Moon 2.9 Degrees SSE of Neptune
13 18:00 Moon at Perigee (364,288 km - 226,358 miles)
14 23:00 Moon 0.4 Degrees SE of Uranus
17 19:13 Last Quarter
23 00:00 Moon 5.6 Degrees N of Venus
24 10:00 Moon 9.2 Degrees NNE of Mercury
25 04:31 New Moon (Start of Lunation 1034)
26 03:00 Moon 2.7 Degrees NNE of Saturn
27 18:00 Moon 1.0 Degrees NE of Mars
29 13:00 Moon at Apogee (405,407 km - 251,908 miles)

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CCD Images of W Bond Crater and Rima

**By Antonio Marino (antoniomarino@libero.it)
and Raffaello Braga (rafbraga@tin.it)**

This article was prepared and submitted by members of the UAI Lunar Section, an organization independent of the ALPO. This article has gone through the ALPO Lunar Section review process.

W Bond is a polygonal large crater with a diameter of about 158 km. It is situated in the North-East quadrant at Longitude 3.7° East, Latitude 65.3° North. It is a very old formation probably of the Nectarian or Pre-Nectarian era formed before the Imbrium basin emplacement. The floor and walls of W. Bond have been therefore heavily modified by that event. Walls are deeply degraded and lowered and the floor is covered by basin debris. Some alignments of craters and depressions SE of the crater point toward the Imbrium basin.

The overall appearance is rather flat and some small craters are detectable inside: on the eastern side there is the craterlet W Bond B (diameter 15 km). From this crater, in NE direction there is another craterlet (diameter 7 km) named W Bond C, both have round profiles and sharp walls. Inside W Bond, on the North side, there is another craterlet (diameter 7 km) – W Bond D. Besides these craterlets there are several more whose diameter is less than 5 km and some ruined ghost craters barely detectable.

The walls surrounding the plain are interrupted by Timaeus crater (diameter 34 km) in the SW and by Epigenes A crater (diameter 18 km) in the NW. The remaining wall path is discontinuous and often interrupted by some small inlets.

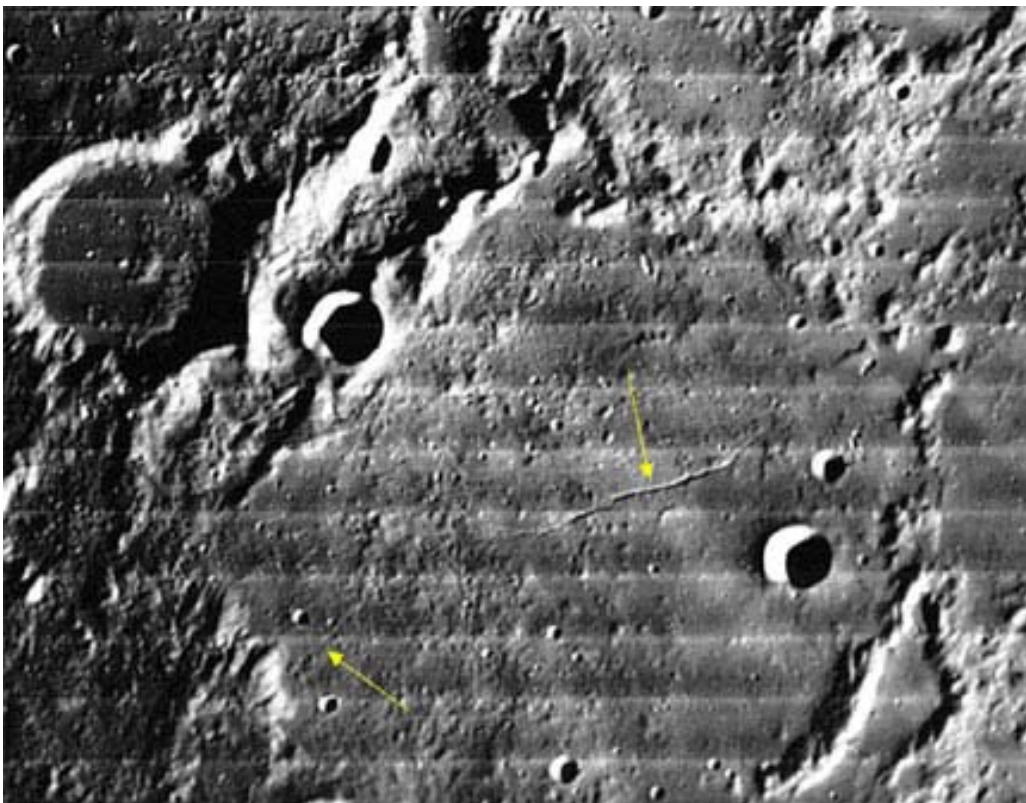


FIGURE 1

Due to the foreshortening of W Bond area it is very difficult to observe two rimae stretching inside it. The most important is Rima Bond (See Figure 1, the IV-116H2 image from LOPAM) which starts from the SW wall (NE of Timaeus) and stretches towards NE for about 50 km based on the LOPAM image and assuming equal to 15 km the diameter of W. Bond B crater. Another rima is barely visible in the same image and its length seems to be around 10 km. It is possible that due to heavy modifications undergone by the crater's floor what can we see now is only a part of the whole fracture system.

Clementine 750 nm images allow us to trace Rima Bond for a longer distance compared with one can see in the LOPAM photograph (Figure 2). The track bends toward NE and seems to terminate close to a dark spot between two rays from Anaxagoras. Its overall length reaches 80 km.

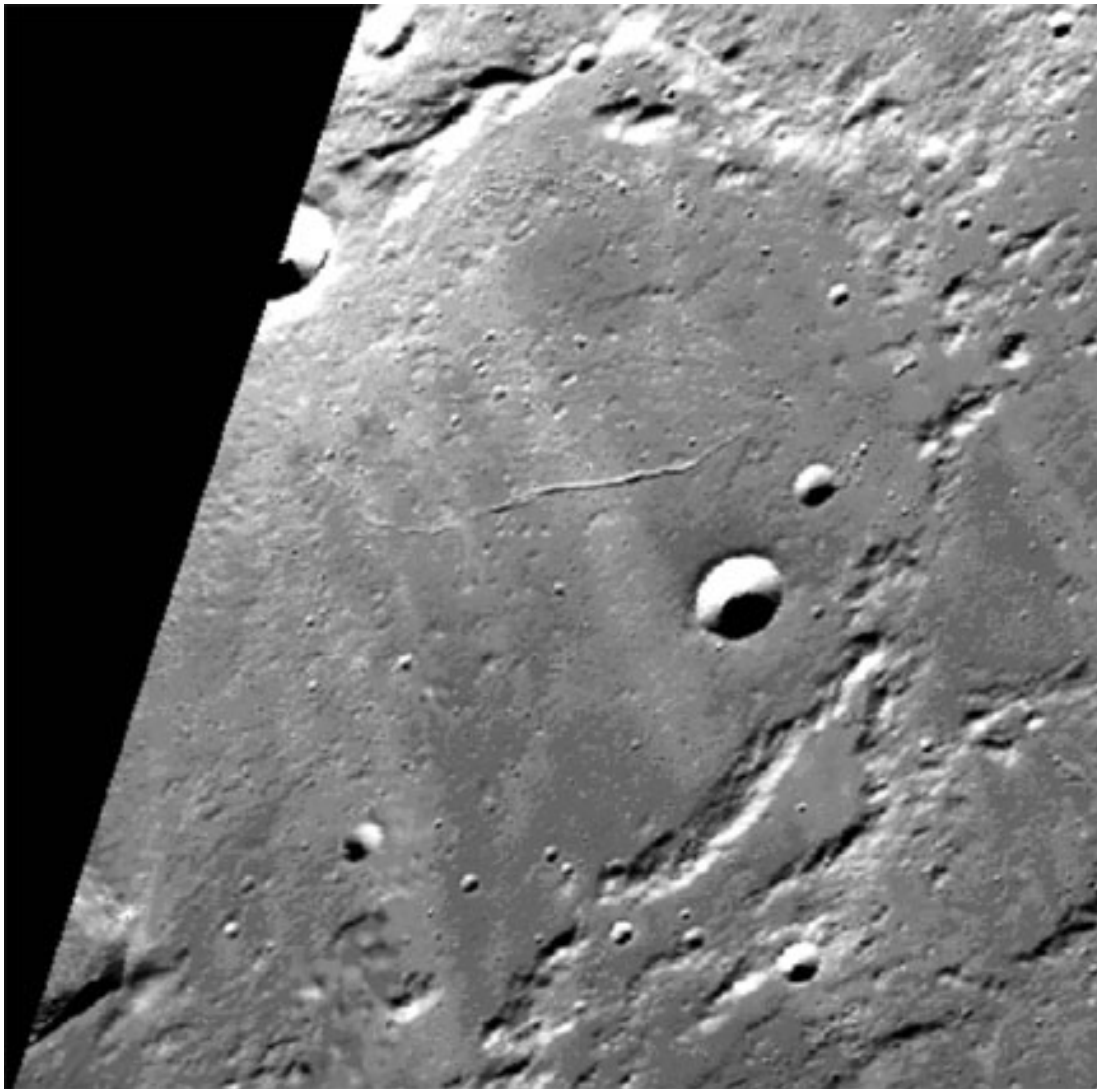


FIGURE 2

The only CCD image we know showing the most prominent part of Rima Bond has been obtained by Paolo Lazzarotti with a Dall-Kirkham telescope of 315 mm f/25, on Jan. 7th 2006 18:14 UT from Massa – Italy (Figure 3). The Sun was high 2.8° above the crater while the azimuth was 99.7°. Therefore the

rima did not cast any visible shadow, nevertheless it can be traced on the image because its sunlit portion was well positioned toward the observer.

The authors welcome any further images of this intriguing lunar region, worthy of careful scrutiny under low illumination conditions.

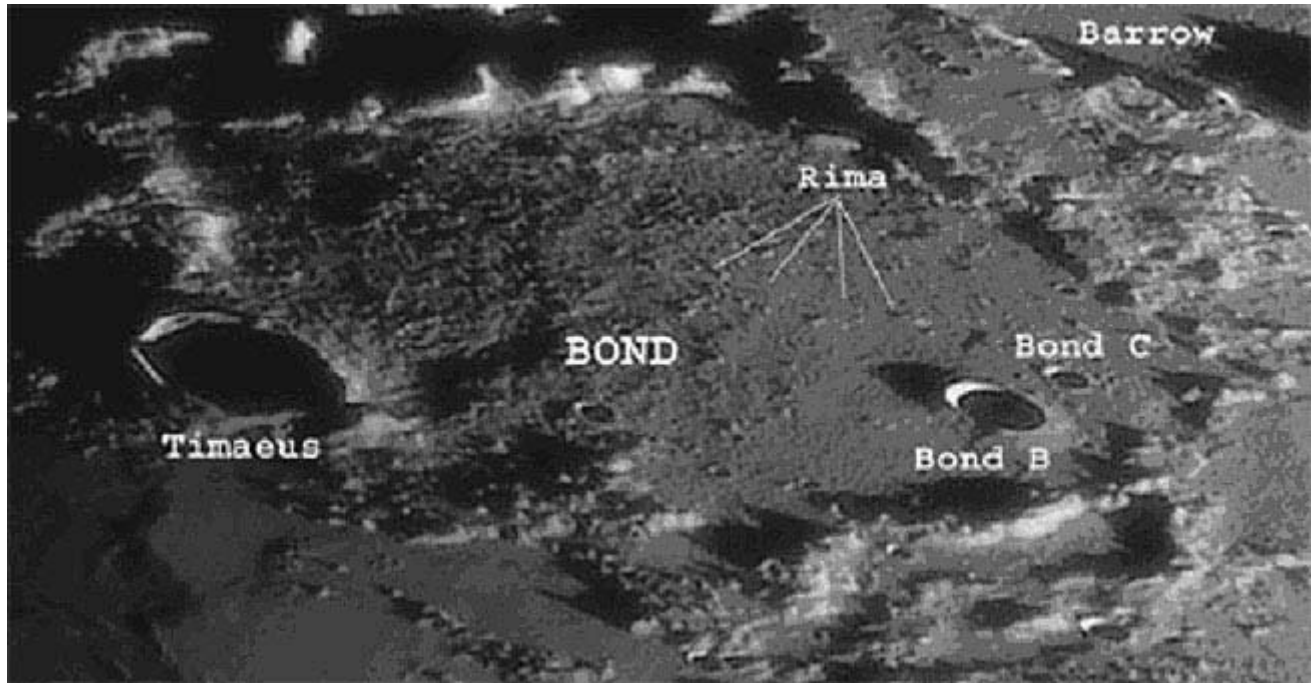
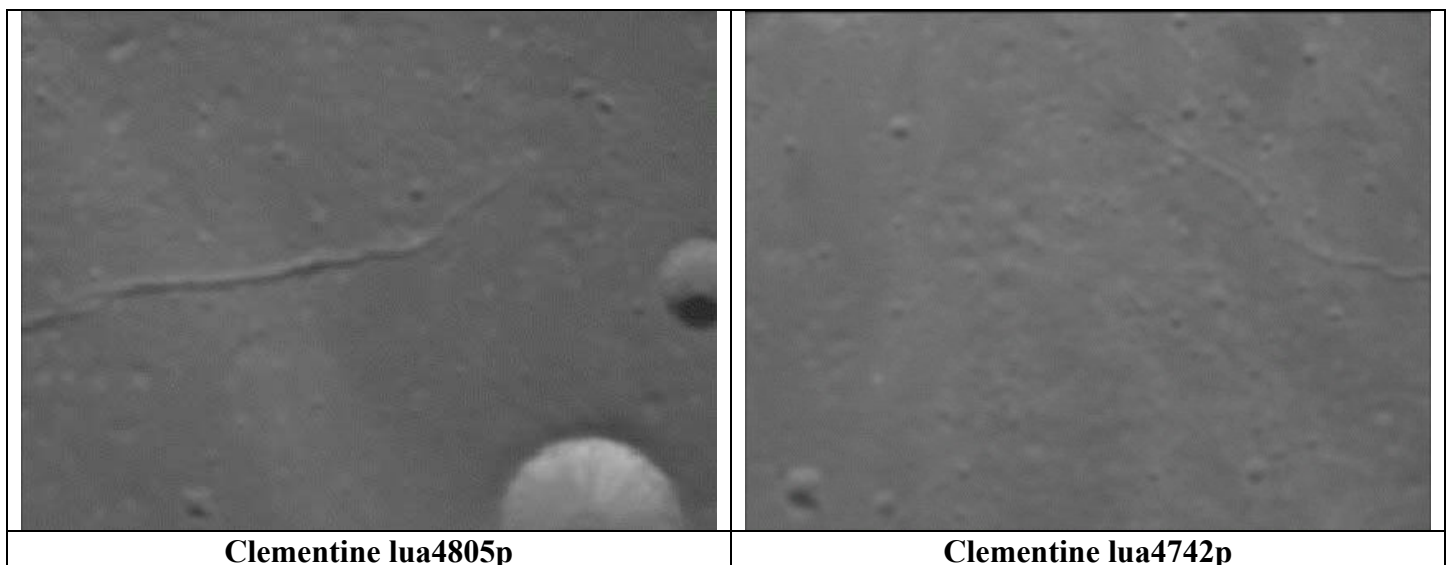


FIGURE 3

Following are two more images of Clementine showing the beginning of the longer rima at north-west of W Bond C (Image lua4805p), and the curved zone towards Epigenes A (Image lua4742p).



FOCUS ON: Mare Serenitatis

William M. Dembowski, FRAS
Coordinator, Lunar Topographical Studies

Mare Serenitatis (Sea of Serenity) is a nearly circular, 600 km wide mare in the Northeastern quadrant of the Moon. It is bounded by four major mountain ranges; Montes Caucasus to the North, Montes Taurus to the East, and Montes Haemus & Montes Apenninus to the South and West. (Figure 1)

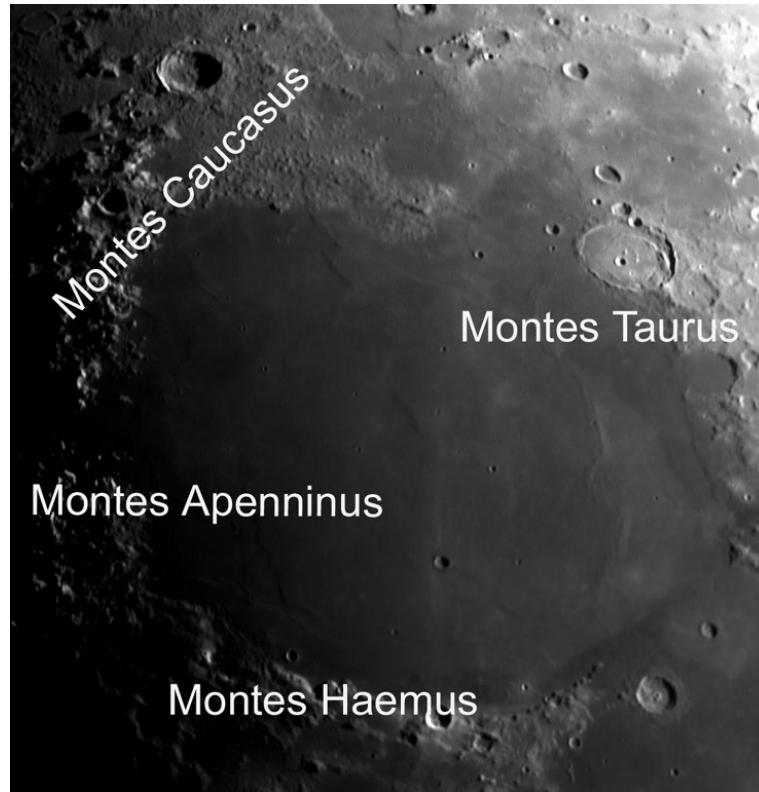


FIGURE 1

Mountain ranges surrounding Mare Serenitatis

Digital image by Wayne Bailey - Sewell, New Jersey, USA
May 4, 2006 - 01:50-02:21 UT - 11 inch f/10 SCT - Philips Toucam

BETWEEN THE MOUNTAINS:

The gap between the Caucasus and Taurus mountains is about 120 km and leads into Lacus Somniorum. Near the center of the gap lies the 9 km crater Luther while at the southern end is the grand crater Posidonius. At 95 km in diameter, and a floor covered with interesting features, Posidonius is worthy of a “Focus On” of its own. Just to the South is le Monnier, a 60 km crater with a sunken western wall that has allowed the mare lavas to fill the interior of the crater and earn it the designation of a bay. Careful examination under low lighting will reveal the peaks of the missing rim and confirm the true nature of this feature. (Figure 2)

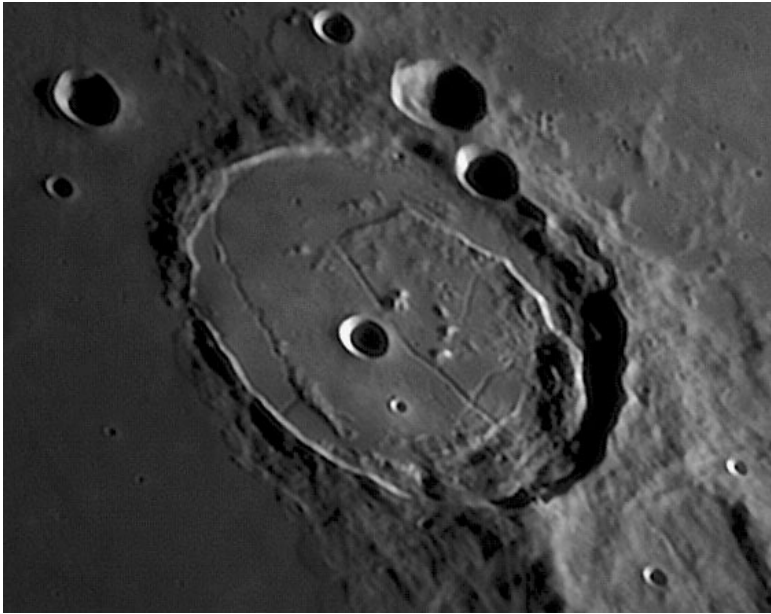


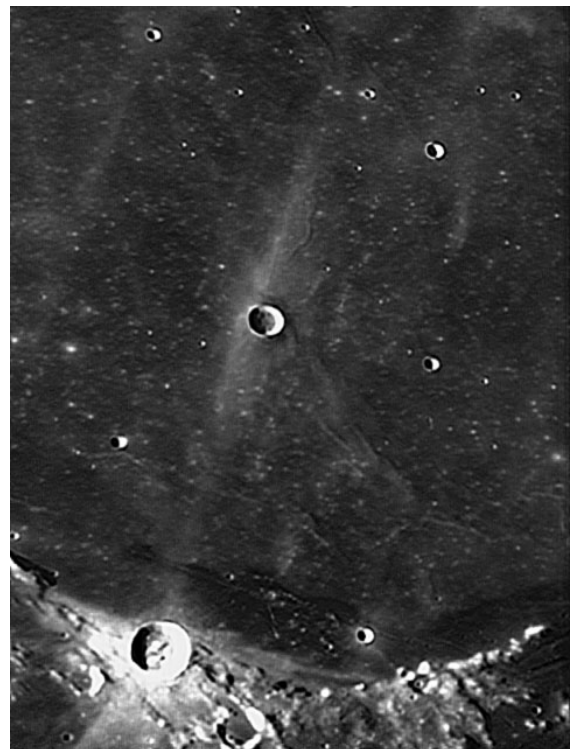
FIGURE 2
Posidonius

Digital image by Paolo Lazzarotti
Massa, Italy
March 16, 2005 - 81:43 UT
252mm Newtonian
Lumenera LU075M Camera

The gap between the Taurus and Haemus mountains measures approximately 160 km and opens into Mare Tranquilitatis. The largest craters in this area, Plinius and Dawes, are actually within the confines of Mare Tranquilitatis. Although noted, they will not be described here. Proceeding clockwise we come to the brilliant crater, Menelaus. 27 km in diameter, with a very sharp rim and a nice assemblage of central peaks, Menelaus is easily recognized by the bright, directional ray which emanates from its general direction and crosses virtually the entire width of Mare Serenitatis. There is still disagreement as to whether this ray originates in Menelaus itself or from a more distant crater such as Tycho. About a third of the way across the Mare the ray crosses the crater Bessel, the largest crater on the floor of Serenitatis. Although easy to locate and of respectable size (16 km), Bessel is rather nondescript and serves more as a marker for other features (rays and wrinkle ridges) than as an interesting subject in its own right. (Figure 3)

FIGURE 3
Menelaus & Bessel

Digital image by Anthony Ayiomamitis
Athens, Greece
October 22, 2005 - 02:53 UT
AP160 f/7.5 Refractor
Philips Toucam



The opening between the Apennine and Caucasus mountains is the narrowest at 65 km and leads to Mare Imbrium. In line with the opening, but about 100 km seaward, is the infamous crater Linné. Famed selenographer, Julius Schmidt, caused a sensation in 1866 when he announced that Linné had disappeared or at least radically changed in appearance. It was Schmidt's contention that Linné had changed from a 10 km crater to a 10 km bright spot; this change was later disproved and attributed to poor earlier maps. The bright halo can be easily seen with a small telescope (Figure 4); the 2.4 km crater itself will usually require a 6 inch telescope and favorable lighting.

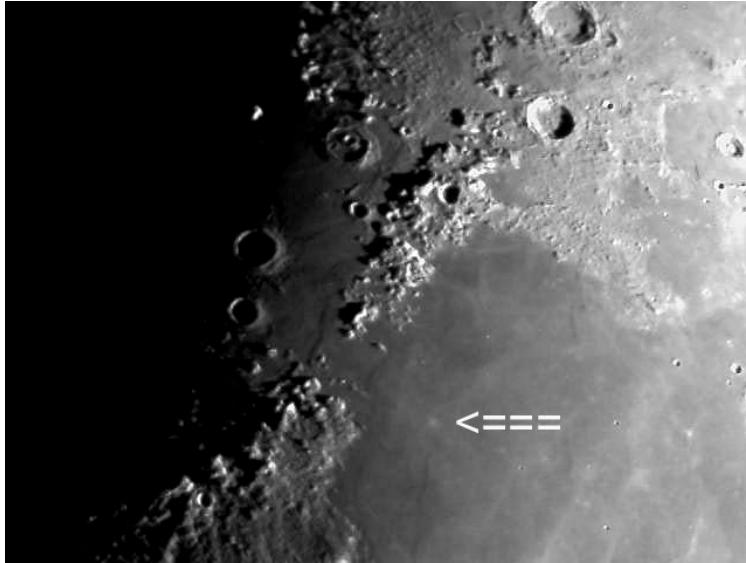


FIGURE 4
Bright halo surrounding Linné
Digital image by Dominiek Hoste
Kortrijk, Belgium
December 8, 2005 - 17:30 UT
8 inch f/10 SCT - Meade LPI

North of Linné and nearer the Caucasus mountains is the largest individual dome on the Moon, the Valentine Dome (Mons Rumker at 70 km is more accurately a complex of several volcanic uplifts.) Informally named for its heart shape, the Valentine Dome surprisingly has no "official" designation. The dome is an impressive 30 km in diameter but only 100 meters in height with several hills and rilles closely associated with it. (Figure 5)



FIGURE 5
Valentine Dome
Digital image by K.C. Pau
Hong Kong, China
September 16, 2003 - 21:11 UT
250mm Newtonian - Philips Toucam Pro



FIGURE 6
Lava flows - Mare Serenitatis

Color digital image by
Achille Giordano

Naples, Italy

January 14, 2006 - 02:42 UT

ETX125 f/15 Mak.

Philips Toucam Pro

THE MARE LAVAS:

The lava covered floor of Serenitatis is perhaps the most crater-free of any of the major lunar mare. Note that the largest floor feature mentioned above is a dome, not a crater. But being devoid of craters does not mean devoid of interest. The floor of Serenitatis is not a single, monotonous sheet of lava. Rather, it is composed of at least four different tonal regions with the darkest skirting the outer edges to the South and East (Figure 6). The eventual collapse of the lava filled basin created a fascinating system of wrinkle ridges the most prominent of which is Dorsa Smirnov. More commonly known as the Serpentine Ridge, Dorsa Smirnov runs parallel to the eastern shore of Serenitatis for 200 km and requires only binoculars or a small telescope to be seen under a low sun (Figure 7). Several other wrinkle ridges pick up the circular route around the mare with Dorsa Lister to the South and Dorsum Buckland & Von Cotta to the West. In addition, Dorsa Aldrovandi traces the eastern shoreline between the Serpentine Ridge and the Taurus Mountains while Dorsum Azara defies the pattern and runs nearly North-South across the center. All are worthy of your attention.

FIGURE 7
Serpentine Ridge (Dorsa Smirnov)

Digital image by Howard Eskildsen
Ocala, Florida, USA

March 28, 2004 - 01:00 UT

10 inch f/16 Refractor

Nikon Coolpix 4300



DOUBLE-DIGIT OBSERVING:

Whether by necessity or choice, low-power observers and imagers will find much of interest in Mare Serenitatis. With the exception of a few minor features all of the formations mentioned here can be studied and enjoyed with magnifications below 100x. In fact, it is only at lower magnifications that one can observe the overall structure of any lunar region, and ponder any possible relationships between the individual features (Figure 8). So, instead of foregoing the broader views offered by low and medium powers, remember to explore the many possibilities offered by double-digit observing.



FIGURE 8

Overall view of Mare Serenitatis

Digital image by Donald Spain - Louisville, Kentucky, USA

December 8, 2005 - 00:48

152mm f/8 Achromatic Refractor - Meade LPI

REFERENCES:

Burnham, Robert - "Sailing the Sea of Serenity", Astronomy Magazine, Jan.1995

Grego, Peter - "The Moon and How to Observe It", Springer-Verlag, 2005 Wood, Charles A. - "The Modern Moon: A Personal View", Sky Publishing, 2003

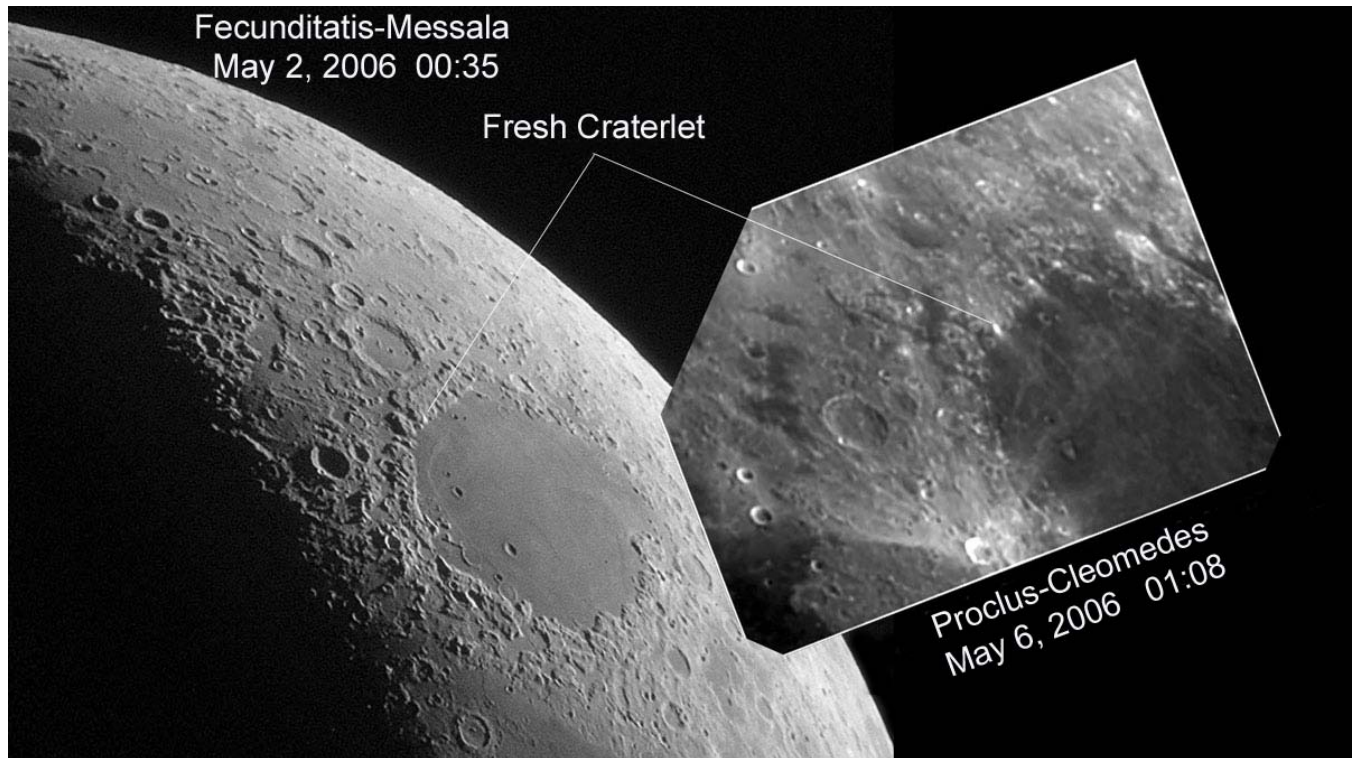
CALL FOR OBSERVATIONS - FOCUS ON: ATLAS & HERCULES

Thanks to all who contributed to this installment of *Focus On*. *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 September 2006 edition will be Atlas & Hercules. 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 favorites to one of the addresses shown in the banner on Page One.

Deadline for inclusion in the Atlas & Hercules article is Aug. 20, 2006

BRIGHT CRATERLET - NORTHERN MARE CRISIUM

Howard Eskildsen - Ocala, Florida, USA



FECUNDITATIS-MESSALA

May 2, 2006 - 00:35 UDT

Libration Latitude: -6 degrees 33 min.

Libration Longitude: -5 degrees 16 min.

Meade 6 inch f/8 Refractor - 2x Barlow

40mm MaxView W8 Yellow Filter

Nikon Coolpix 4300 - 1/30 second

PROCLUS-CLEOMEDES

May 6, 2006 - 01:08 UDT

6 inch f/8 Refractor - 2x Barlow

NexImage - IR Block Filter

OBSERVING NOTES:

This high albedo feature on northern Crisium was called to my attention by a friend on the evening of May 1-2, 2006. At first I thought it was just due to the sun angle on that site, but in the photo taken five days later it still appeared bright under high illumination. Perhaps it represents ejecta from a relatively fresh craterlet.

LUNAR TOPOGRAPHICAL STUDIES

Acting Coordinator - William M. Dembowski, FRAS

dembowski@zone-vx.com

OBSERVATIONS RECEIVED

WAYNE BAILEY - SEWELL, NEW JERSEY, USA

Digital images of Tycho (3)

ED CRANDALL - WINSTON-SALEM, NORTH CAROLINA, USA

Digital images of Eudoxus, Eudoxus & Aristoteles

HOWARD ESKILDSEN - OCALA, FLORIDA, USA

Digital images of Mare Crisium (2)

ACHILLE GIARDANO - NAPLES, ITALY

Digital image of Clavius

DOMINIEK HOSTE - KORTRIJK, BELGIUM

Digital images of Aristillus & Autolycus, Sulpicius Gallus Formation

MICHAEL MATTEI - LITTLETON, MASSACHUSETTS, USA

Digital image of Gutenberg dome

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

Seeing: 1 to 10 (1-Worst 10-Best)

Transparency: 1 to 6

Magnification (for sketches)

Medium employed (for photos and electronic images)

RECENT TOPOGRAPHICAL OBSERVATIONS



TYCHO

Digital image by Wayne Bailey - Sewell, New Jersey, USA

April 10, 2006 - (Mosaic) 02:56-03:02 UT

11 inch f/10 SCT - Schuler IR72 Filter - Philips Toucam



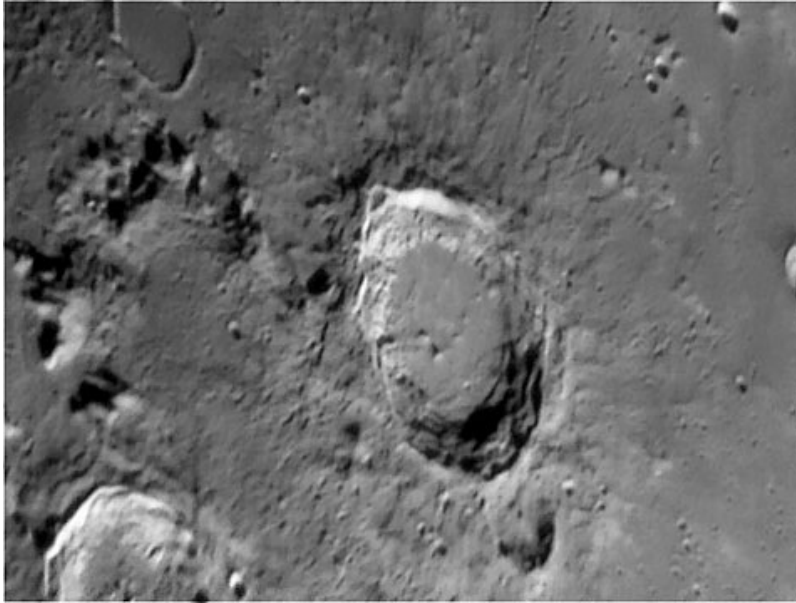
GUTENBERG DOME

Digital image by Mike Mattei - Littleton, Massachusetts, USA

May 30, 2006 - Approx. 03:00 UT

14 inch f/10 Newtonian - Philips Toucam

RECENT TOPOGRAPHICAL OBSERVATIONS



EUDOXUS

Digital image by Ed Crandall - Winston-Salem, North Carolina, USA

June 4, 2006 - 01:11 UT

10 inch f/7 Newtonian - 3x Barlow - Philips Toucam



COPERNICUS & SULPICIUS GALLUS FORMATION

Digital image by Dominiek Hoste - Kortrijk, Belgium

December 11, 2005 - 20:30 UT

8 inch f/10 SCT - Meade LPI

RECENT TOPOGRAPHICAL OBSERVATIONS

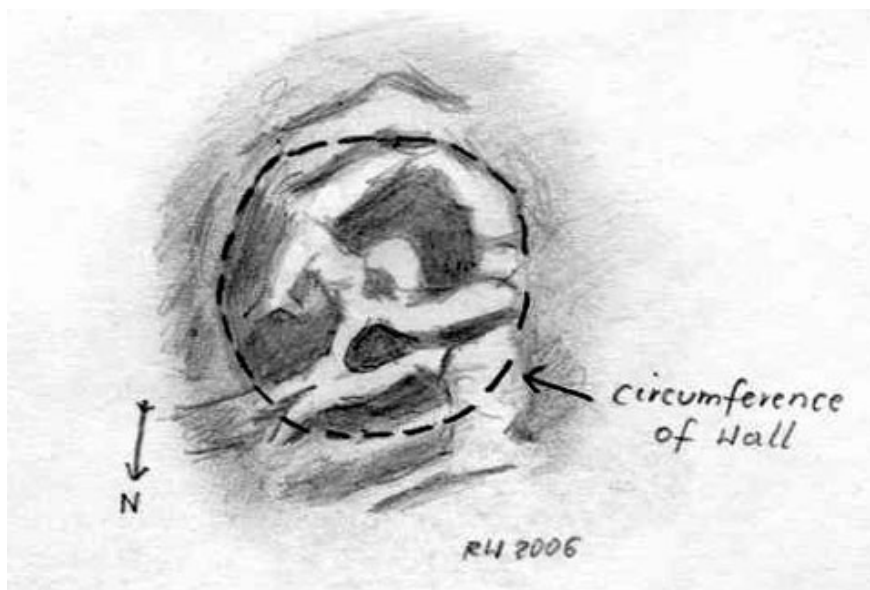


CLAVIUS

Digital image by Achille Giordano - Naples, Italy

June 6, 2006 - 20:50 UT

ETX125 f/15 Mak. - 2x Barlow - Philips Toucam Pro



ERATOSTHENES AT FULL MOON

Scheme of bright and dark spots

Sketch by Robert Włodarczyk - Częstochowa, Poland

February 6, 2006 - 20:00 UT

12cm f/7.5 Newtonian - 112x

LUNAR TRANSIENT PHENOMENA

Coordinator – Dr. Anthony Cook – acc@cs.nott.ac.uk
Assistant Coordinator – David O. Darling - DOD121252@aol.com

LTP NEWSLETTER - JULY 2006

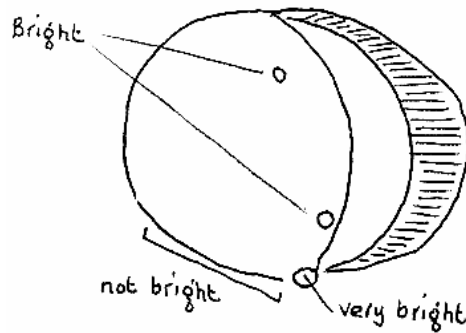
Dr. Anthony Cook - Coordinator

ALPO/BAA LUNAR TRANSIENT PHENOMENA

Observations for May were a bit lean but were received from: Michael Amato (West Haven USA), Alan Heath (UK), Rod Hobbs (UK), and Gerald North (UK). I was also emailed by Piergiovanni Salimberi (GLT, Italy) to report an observation by Guy Jasmin (Quebec, Canada) on 2003 Apr 10 UT(?) 20:40 concerning an event inside Alphonsus crater that lasted 5 minutes. So if anybody was observing back then in 2003, please get in contact. Note that the time given may be local time and not UT? My regards to Piergiovanni who has been recovering from a couple of broken vertebra. Also readers may like to know that my mother, Marie Cook, has not been able to observe for several months due to breaking her wrist, but should be back in action soon. So my regards go out to both observers and we wish them a speedy recovery.

I have also been contacted by Stephen Taylor (MD, USA) who is interested in participating in the SMART-1 impact observations. I will try to get all relevant details together by the next newsletter, suffice to say that ALPO observers should be contacting Brian Cudnik to express an interest. But to re-iterate SMART-1 is due to impact on the Moon on Sep 03 2006 at 02:00UT with a 7 hour uncertainty. A 5-10m diameter crater is expected and the expected ejecta area will be ~25sq km resulting in a temporary obscuration. Unfortunately this is on the dark side, but might just be visible in small telescopes if some of this ejecta makes it into sunlight? There will be some opportunities (Jul 10-11) to do some test runs and I will announce these to those who have expressed an interest. Before thinking about observing this impact though in Sep, please do check whether the Moon will be above your horizon on the date and time in question!

Both Alan Heath (Long Eaton, UK) and Rod Hobbs (Holt, UK) had a go (independently) at re-observing one of Jean et al's LTP's in Aristillus from 1970 Apr 14th. The original 1970's observation was: "North wall of Aristillus very Bright – telescope 4" refractor, Montreal, Canada". The same illumination (solar altitude 5 deg) and libration re-occurred on 2006 May 5th from the UK and Rod observed from 20:01-20:11 UT and Alan observed at 20:10 and 20:50UT. Rod's observational notes (5.5" f/7 refractor, S=III) state: "Brilliant, roughly linear area within the illuminated wall, with isolated brilliant point around the wall to south, also within the illuminated area. This point might be a small crater in the wall that is visible on high resolution photographs. One of the central peaks faintly visible as a point within the shadow." Interestingly enough Alan Heath Alan (Celestar 8", x200, S=II-III) reported: the north wall was not particularly bright, but instead there was a very bright spot on the north wall. This spot can be seen in the Kuiper photographic atlas (C2-b) but in the atlas is not quite as bright. So I wonder if Jean et al. got confused between the bright spot on the north and saying that the north wall was very bright?



Alan Heath's Sketch of Aristillus from 2006 May 05 - north towards the bottom

Predictions, including the more numerous illumination only events can be found on the following web site: <http://www.lpl.arizona.edu/~rhill/alpo/lunarstuff/ltp.html>. 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, School of Computer Science & IT, Nottingham University, Jubilee Campus, Wollaton Road, Nottingham, NG6 1BB, UNITED KINGDOM. Email: acc@cs.nott.ac.uk

THE MOON IN THE NEWS

Space News: NASA solicits scientists' input on lunar experiments

http://space.com/spacenews/businessmonday_060626.html

Space Flight Now: SMART-1 probe prepares for end of its lunar mission

<http://www.spaceflightnow.com/news/n0606/23smart1/>

CRI: China to measure thickness of moon soil

<http://en.chinabroadcast.cn/2906/2006/06/23/65@105942.htm>

CBS: China plans moon walk by 2024

<http://www.cbsnews.com/stories/2006/06/20/ap/tech/mainD8IBN02G0.shtml>

MSNBC: NASA retraces its steps to the moon

<http://msnbc.msn.com/id/13109216/>

Space.ref: Russia's lunar return

<http://www.spaceref.com/news/viewnews.html?id=1131>