THE LUNAR OBSERVER

A PUBLICATION OF THE LUNAR SECTION OF THE A.L.P.O.
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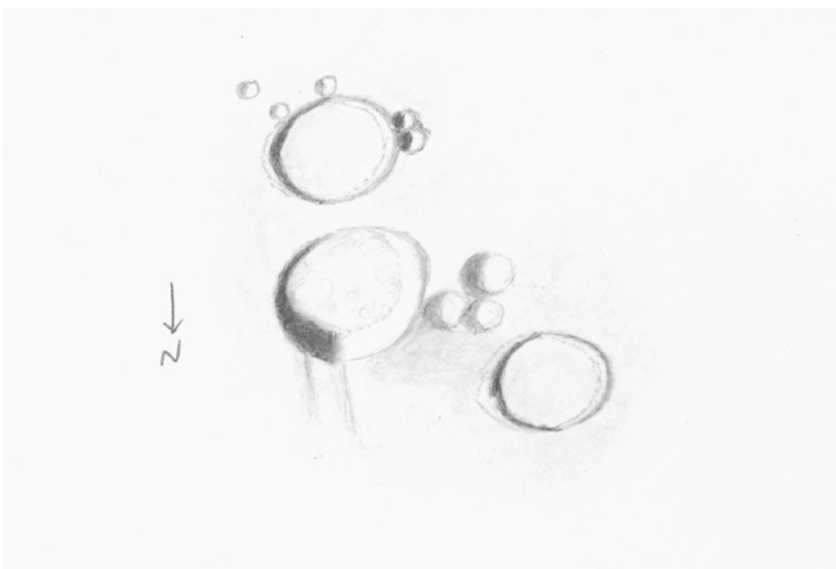
RECENT BACK ISSUES: http://moon.scopesandscapes.com/tlo_back.html

FEATURE OF THE MONTH – JUNE 2009

Abenezra A



Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA
March 5, 2009 0:55-1:11 1:20-1:32 UT
15 cm refl, 170x, seeing 7

I sketched this crater and vicinity on the night of March 4/5, 2009 while watching the moon occult 6th-magnitude ZC 849 and seven other stars. Abenezra A is a crater that stands out fairly well amid the jumble of craters southwest of Abenezra and Azophi, well to the east of Arzachel. Abenezra A is quite round on its north side, but its south side is less round, giving the crater almost a D-shape. There is also much interior shadow and slope inside the north rim, but very little of such in the south. Its floor appears to be featureless. There is a tight group of three craters just west of Abenezra A, and a large, shallow saucer to the northwest. These craters are not labelled on the Lunar Quadrant map. A peak on the saucer's northeast rim intrudes upon its interior shadow. There is substantial shading between Abenezra and this saucer, just north of the aforementioned trio of craters. Two vague strips of shadow extend northward from the northeast side of Abenezra A. The large crater just south of Abenezra A is Azophi B; it is a saucer much like the one to the northwest. There are two small, but relatively deep craters at the west end of Azophi B, and three small, shallow pits to its southeast. These last three craters are not even shown on the LQ map. None of these craters had any visible detail on their floors.

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LUNAR CALENDAR

JUNE-JULY 2009 (UT)

June 07	18:11	Full Moon
June 10	16:05	Moon at Apogee (405,785 km - 252,143 miles)
June 13	14:00	Moon 2.7 Degrees NNW of Neptune
June 13	15:00	Moon 3.2 Degrees NNW of Jupiter
June 15	22:15	Last Quarter
June 15	24:00	Moon 0.37 Degrees SSE of asteroid Juno
June 16	01:00	Moon 5.1 Degrees NNW of Uranus
June 19	13:00	Moon 7.8 Degrees NNW of Venus
June 19	14:00	Moon 5.9 Degrees NNW of Mars
June 20	08:00	Moon 6.5 Degrees N of Mercury
June 22	19:35	New Moon (Start of Lunation 1070)
June 23	10:40	Moon at Perigee (358,017 km - 222,461 miles)
June 27	21:00	Moon 5.8 Degrees SSW of Saturn
June 29	11:28	First Quarter
July 07	09:21	Full Moon (Penumbral Lunar Eclipse)
July 07	21:40	Moon at Apogee (406,232 km - 252,421 miles)
July 10	19:00	Moon 3.3 Degrees NNW of Jupiter
July 10	19:00	Moon 2.7 Degrees NNW of Neptune
July 13	07:00	Moon 5.2 Degrees NNW of Uranus
July 13	19:00	Moon 1.3 Degrees NNW of asteroid Juno
July 15	09:53	Last Quarter
July 18	11:00	Moon 4.8 Degrees N of Mars
July 19	05:00	Moon 5.9 Degrees N of Venus
July 21	20:17	Moon at Perigee (357,464 km - 222,118 miles)
July 22	02:34	New Moon (Start of Lunation 1071)
July 22	19:00	Moon 2.7 SSW of Mercury
July 25	10:00	Moon 6.0 Degrees SSW of Saturn
July 28	21:59	First Quarter

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.

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)

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CALL FOR OBSERVATIONS: FOCUS ON: Mare Fecunditatis

Focus on is a bi-monthly series of articles which includes observations received for a specific feature or class of features. The subject for the **July 2009** edition will be Mare Fecunditatis. 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 Mare Fecunditatis article is June 20, 2009

FUTURE FOCUS ON ARTICLES:

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

Deslandres	**TLO Issue: Sept. 2009**	**Deadline: Aug. 20, 2009**
Menelaus	**TLO Issue: Nov. 2009**	**Deadline: Oct. 20, 2009**

Drawing Notes

The following two articles are the third, and final, installment in the series on drawing techniques used by various observers. This month, Fred Corno describes drawing technique in detail, and Don Spain describes a method for obtaining a basic framework as the basis for your drawing.

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Lunar Drawing

Fred Corno

Up to date imaging technology allows the amateur astronomer to reach quality level previously un-attainable: digital acquisition, stacking, picture editing make any amateur skilled in computer applications capable to rival with probe-quality images. Nevertheless, as picture quality improves, interest in forums and magazines often shifts from the content of the image to the technicalities involved in its acquisition and processing: scope, sensor, processing methods are often a matter of debate hotter than geology and structure the image depicts. Drawing, an “ancient” technique to record observations, forces instead the observer to challenge his/her skills to accurately reproduce shapes, proportions and hues of the lunar surface details. A deeper knowledge of the observed features is then acquired, as is a better comprehension of lunar geology processes. Then, even if less accurate, drawing is often for the amateur a better learning tool in lunar studies than high resolution imaging.

Tools in lunar drawing

Lunar drawing is a subjective technique: each observer develops his/her own style and method and refines them along time. I have been systematically picturing the moon since 2001: but for the telescope and eyepieces, equipment involved is very cheap. In my pencil case the following items are stowed:

1. One 2B micro-lead (0.5 mm) automatic pencil;
2. One wooden pencil in each of the following gradation: 2B, 4B and 6B;
3. One pencil sharpener;
4. Two white pencils, soft and hard;
5. One liquid paper corrector pen;
6. One large eraser, one side wedge-shaped, the other flat;
7. One small, scalpel-shaped eraser;
8. One artist’s stump, dull at one point, sharpened at the other.

Other items are a plastic clipboard, a grey shade scale, observation recording forms on standard copying machine grade paper and a red head-light.

Figure 1: a selection of my drawing tools: from top, graphite pencils, eraser (the scalpel shaped), white pencils, eraser pencil and artist’s stump to smudge and finish (dull point shown).

The grey shade scale is a fundamental tool in lunar reproduction: seven levels of grey and two of white are indicated in it. Darkest tone is identified with the number 8, while lightest grey is 2. Number 1 is the white of the paper without any coloring, while 0 is obtained by the white pencils or the liquid paper corrector. Number 8 is the solid black of shadows beyond the terminator or within the floor of shadowed craters. Smaller numbers are progressively correspondent with lighter grey hues: most often, the bottom within the *rimae* reaches something as a 5, while open field regolith in light mare areas is usually 3 or 3/4. Aristarchus is enveloped in 0 white when in full sun, while the rim of older craters is usually 1. Soft slopes in the sun are 2 or 2/3. Shades 8 and 7 are made with the 6B pencil, 6 and 5 with the 4B, 4 and 3 with the 2B, 2 is obtained by the artist's stump saturated of graphite and swept on the paper. The smaller the number in a couple, the lighter the pressure applied to the pencil while coloring.

Technique: the telescope observing

All my drawings are outlined at the telescope eyepiece under the red light, then refined after the observing session. It is mandatory to approach the task in a light-hearted mood, sitting comfortably at the telescope and being clothed to stay warm throughout the session, that may last up to one hour. Longer sessions are not recommendable, since the shadow pattern would greatly change along such a time span.

An observing session starts with the selection of the feature to represent, and adjusting the magnification to the seeing and the size of the detail to picture. I prefer orthoscopic eyepieces, since their limited field of view helps me to focus my mind on the detail.

I divide details into three different groups, based on their size: the general layout features, the main features and the details. To the first group belong all those features that give the general view of the drawing: for instance, in drawing a large crater as Copernicus, general features are the crater rim and the external border of the wall. Main features are large scale details, such as the central peak, the terracing of the inner wall, the distribution of light and dark patches on the floor. To the category of details belong the texture of the ejecta mantle, the white bordering of the crater rim, the white patches in the central peak, minor craters, landslides and so on.

Figure 2: an un-completed Cleomedes (the Moon went outside the field of view before completion) demonstrates the observing at the telescope: only general layout features and some main features are drawn so far. Some grey density numbers have already been indicated, as are darkest shadows.

General layout features are drawn first, to create the frame to be filled next. In doing this, I try to split in simple geometric figure the landscape: craters are polygonal or ovals, shadow patches are made of circles, squares and triangles and so on. At this stage I also mark the areas covered by the darkest shadows, and I fill them in with a texture of straight lines: this creates important landmarks and references for the next steps. It also freezes the shadow pattern at the beginning of the drawing. Shadow pattern and size of the general feature creates a network of reference for main features and details. These are completed next, starting from the smaller craters and boundaries of the areas of equal grey density. At this level, I limit the drawing to the outlines, with light stroke of the 0.5 mm lead. Each area is marked with a number, referring to the grey shade scale for "off line" finishing and coloring. Small details come last.

Technique: finishing

Finishing is carried out immediately after the observation, but in the house in full light. In this phase, grey coloring according to the grey shade scale, deletion of all lines marking the zone or structure boundaries and smoothing of the colored areas with the artist's stump are made.

Darkest areas are filled first, according to their number in the grey scale and regardless the position in the drawing: in doing that, almost the same level of grey is obtained for the same number even for areas far apart from each other, since the stroke is kept the same. But for shadows at the 8 level, all other features are immediately treated with the artist's stump: the smudging improve the perception of the details, the similarity with the original landscape and allows a better reproduction of what has been stored in mind during the observing session. Last level to be filled in is grey 2, obtained just with the stump saturated of the smudging of the darker areas.

During the filling of the grey areas, I delete with the scalpel-shaped eraser the lines I drew to mark the boundaries, unless those were somehow present in the landscape, as shadow lines or banks of a *rima*: the transition among different areas is therefore softened, and a more natural rendering of the lunar surface is achieved.

Dimmer white is finally obtained deleting the grey shading with the eraser, taking a lot of care in keeping the cleared areas narrow and nicely bordered when needed. The brightest white areas are cleared with the eraser first, then filled with the white pencil or the liquid paper corrector, depending upon their size.

Eventually, with the round shaped vinyl eraser, all graphite finger-prints around the drawing are removed.

After completion of the drawing, a quick reference outline of most important features is drawn with a pen, to make a numbered legend to identify them. Name and position of most important features is derived from an atlas (Rukl, Clementine, Legault,…).

Fixing spray is finally used to coat and block the drawing and preserve it along time.

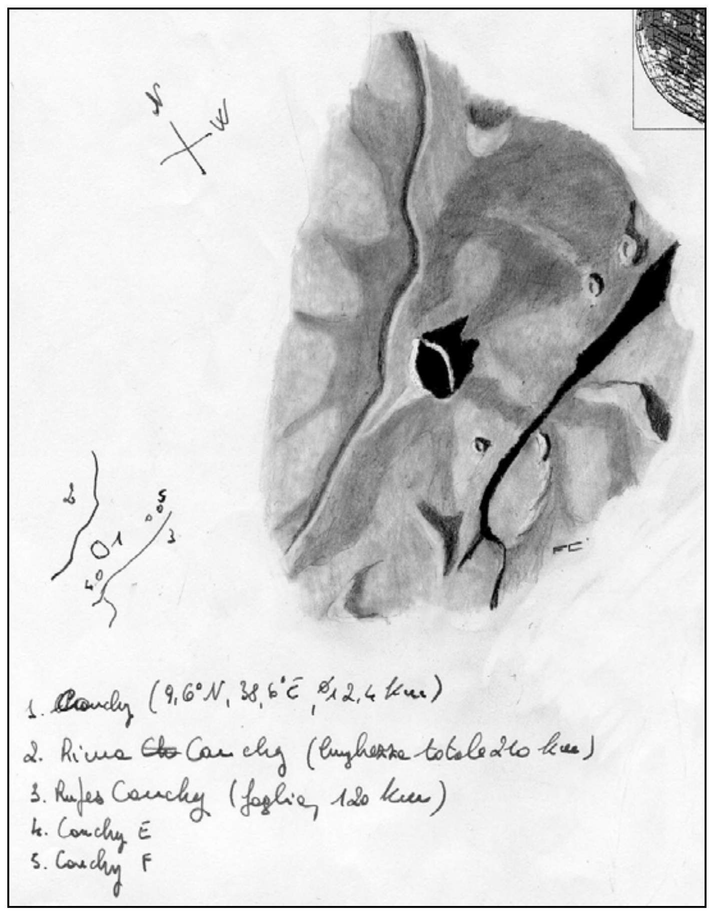

Figure 3: this finished picture of Cauchy, associated rima and environs shows finishing and identification of the superficial features, completing the observing session (Takahashi FS128 at 149x, 24th of December 2006).

Lunar Sketching With The Aid Of A CCD Image

Don Spain

I am a long time lunar observer and sketcher. With the advent of the dedicated CCD imagers (LPI, DSI and others) it became very easy to take fantastic pictures of the moon and I drifted away from actual drawings of the lunar surface. I was becoming more of just a photographer than an actual observer. I did miss observing and sketching at the eyepiece and decided to combine the two. To accomplish this I used Adobe PhotoElements 4.0, a Lunar and Planetary Imager and a scanner. Following is my method of obtaining what I consider a very nice sketch. By using this method you will produce a nice looking sketch in which the features are in proper relationship to each other.

The first step is to take a picture of the lunar area of interest. Then I take the laptop computer into my study, pull up the picture and crop if necessary to cover the area I want to sketch. For this article I will use Eratosthenes and surrounding area as shown in Fig 1.

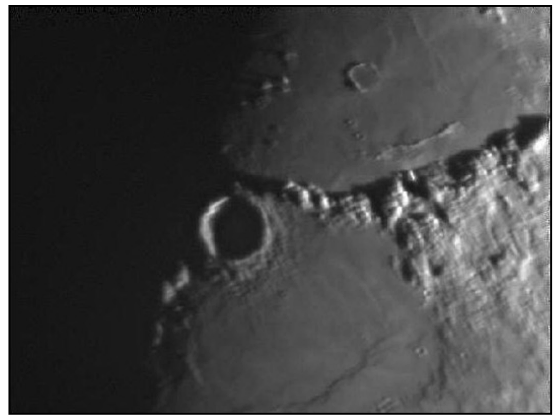

Fig 1

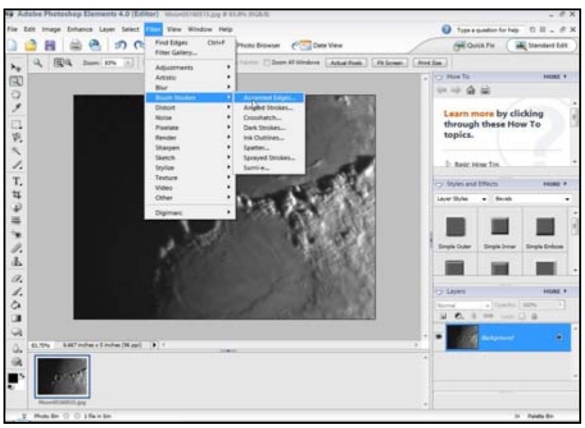

Fig 2

Next import the picture into the photo program and click on Filter in the top toolbar, then go to Brush Stokes on the drop down menu and then click on Accented Edges as shown in Fig 2.

Next set Edge Width to 1, Edge Brightness to 0 and Smoothness to 8 as shown in Fig 3 and click OK.

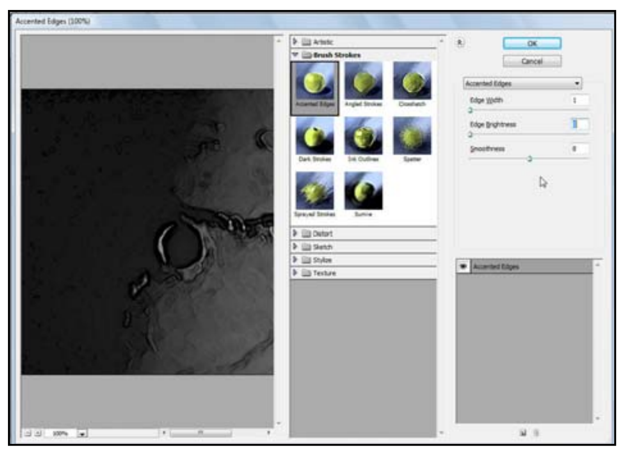

Fig 3

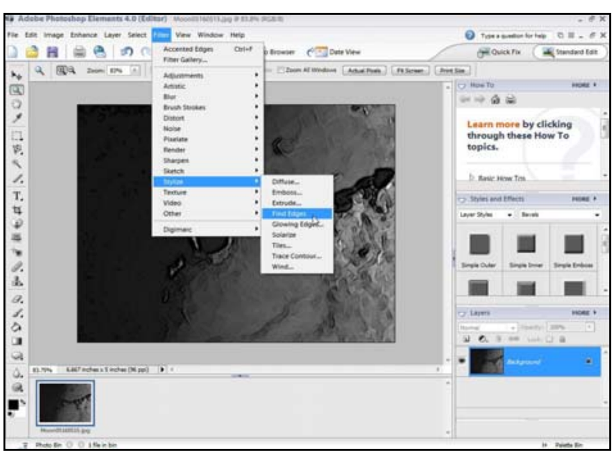

Fig 4

Next click on Filter again and then Stylize and click on Find Edges as shown on Fig 4.

Next click on Enhance on the top toolbar, move cursor to Adjust Lighting and then click on Brightness/Contrast as show on Fig 5

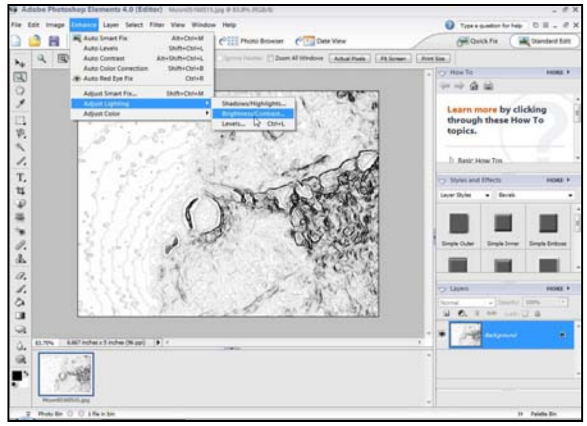

Fig 5

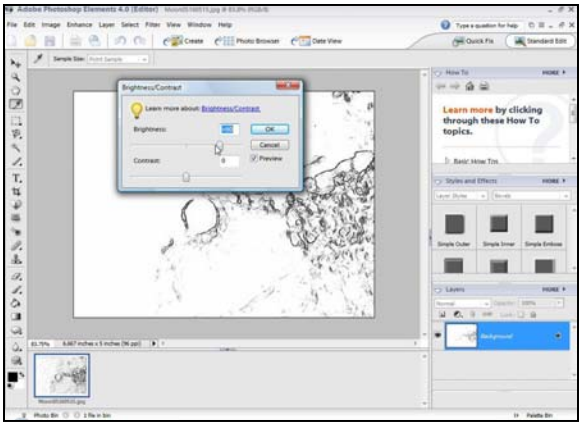

Fig 6

Next move the Brightness tab to 60. Leave the Contrast tab at 0 and click okay. (You can adjust the Brightness to more or less than the 60 I normally use. Higher will mean less detail, lower more detail.) See Fig 6.

You are almost finished. You should have a nice general outline of the area of interest. It should look like Fig 7.

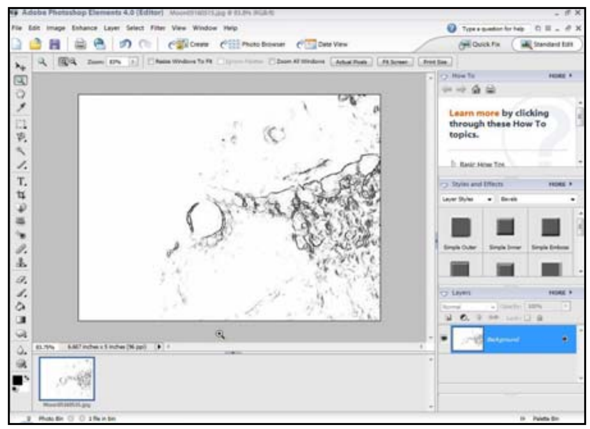

Fig 7

Fig 8

Print it out on any plain white paper, put on a clipboard and go back to your scope's eyepiece and draw in all the detail you wish. I rarely take more than 40 minutes to complete my sketch and usually in the 20 to 30 minute range. I don't use fancy pencils or pens. A standard #2 pencil works fine for me. See Fig 8 for the completed sketch done at the eyepiece.

While this next step is not necessary I scan the sketch and annotate it either later or the next day. See Fig 9.

I prefer this extra step as I don't like to annotate on the original sketch. I do file the CCD image (usually printed out on photo paper) with the original and scanned sketches for my records.

I know it seems like a lot of steps and a lot of time to get to the printout of the outline, but with a minimum of practice you can do it in less than 10 minutes. I recommend practicing on a photo with your photo program until you get the steps down.

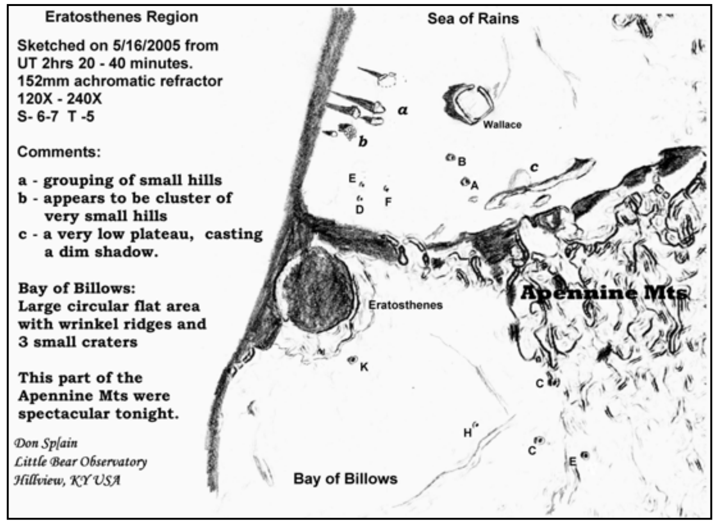

Fig 9

There are other photo programs than the one I used for this article that work fine, but I like it the best as it is a little more versatile. You will probably want to change the setting on some of the steps to suit you own personal style, but I think you will find you get a nice, crisp sketch that is pleasing to the eye without a lot of work starting with a blank sheet at the eyepiece.

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LUNAR TOPOGRAPHICAL STUDIES

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

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

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

OBSERVATIONS RECEIVED

MIKE BOSCHAT – HALIFAX, NOVA SCOTIA, CANADA Digital images of Fracastorius

MAURICE COLLINS - PALMERSTON NORTH, NEW ZEALAND Digital images of Alpine Valley (3), Cassini, Jansson to Mare Australe, Mare Crisium (4), Mare Humboldtianum, Mare Imbrium, Plato's Hook, Theophilus, and mosaics of the 2.7, 4, 5, 8, 9, 15, 17, 21, and 22 day moon

HOWARD ESKILDSEN - OCALA, FLORIDA, USA Digital images of Agatharchides A, Anaxagoras, Montes Apenninus, Aristarchus, Deslandres, Eratosthenes, Mare Imbrium-North, Pitatus, Tycho to Ptolemaus, also Banded crater reports for Agatharchides A(2), Anaxagoras(2), Aristarchus(2), Aristillus(2), Bessarion(2), Birt, Bode, Brayley(2), Conon(2), Damoiseau E, Davy A&G, Kepler(2), Menelaus, Messier, Milichius, Nicollet, Theaetetus(2), Proclus, Pytheas(2) and Rosse

CHARLES GALDIES – NAXXAR, MALTA Drawings of Conon and Davy & Palisa

ROBERT HAYS – WORTH, ILLINOIS, USA Drawings of Abenezra A and Fra Mauro

RIK HILL – TUCSON, ARIZONA, USA Digital image of Aristoteles to Burg

PHILLIP MORGAN –WORCESTERSHIRE, ENGLAND Drawings of Cicus & Rima Hesiodus and Triesnecker

AXEL TUTE - BADEN-WÜRTTEMBERG, GERMANY Digital images of Mare Crisium and Mare Fecunditatis

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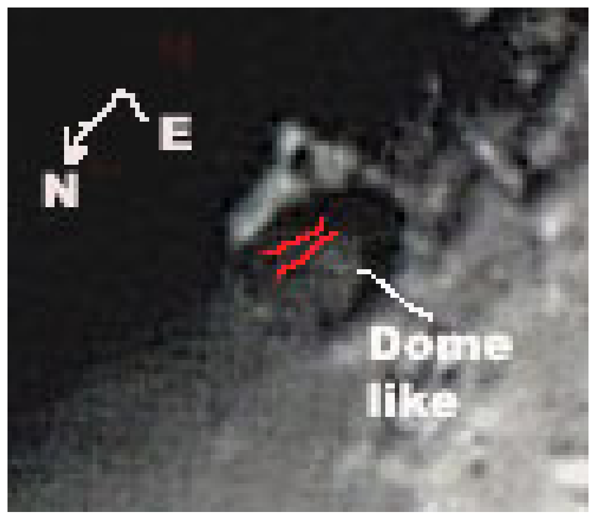
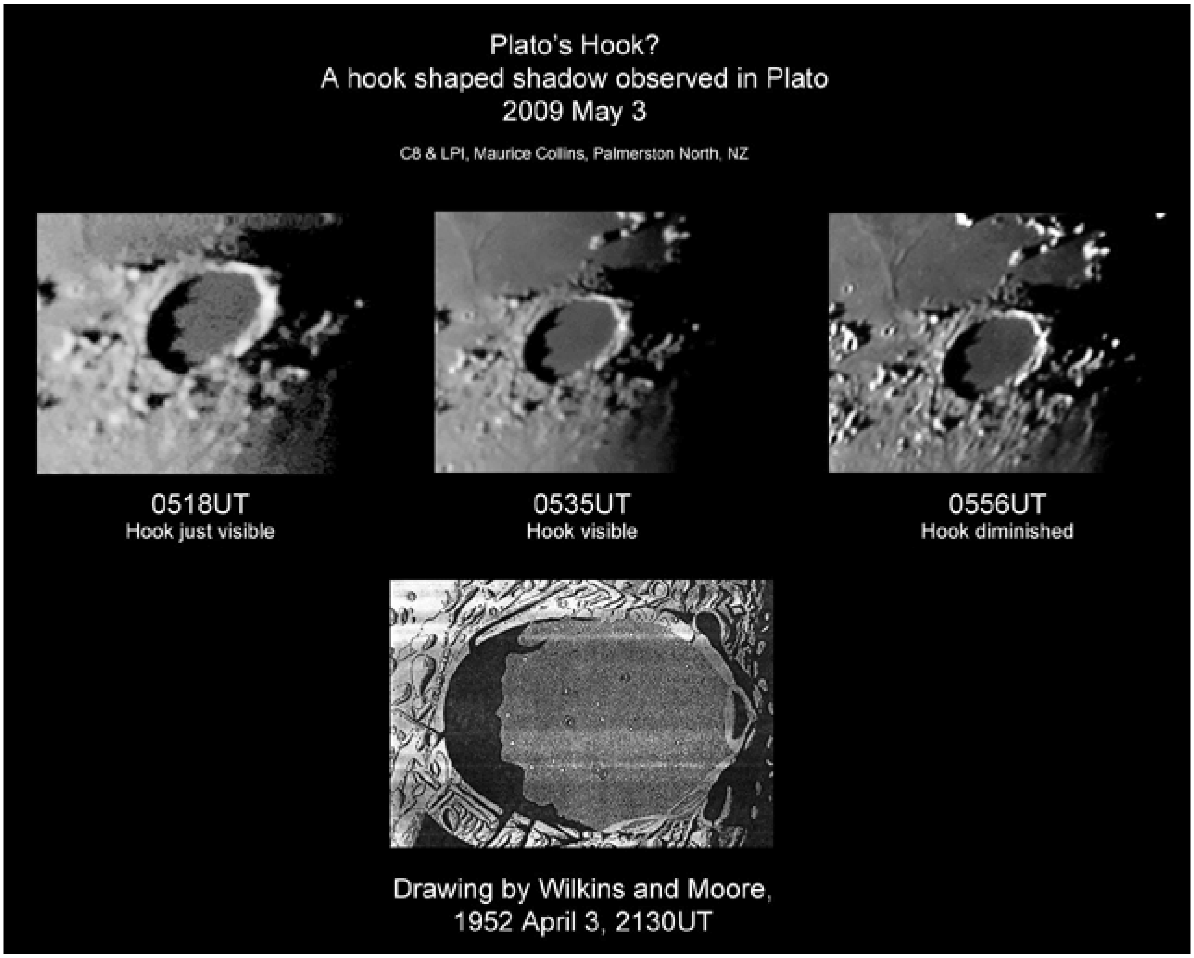
RECENT TOPOGRAPHICAL OBSERVATIONS

Fracastorius – Mike Boschat, Halifax, Nova Scotia, Canada, May 29, 2009 00:30-01:00 UT. 6" Maksutov, 60-167x, afocal, Centrios digital camera. Seeing AII-III, transparency 6-8/10. Colongitude 328.5º.

While observing Fracastorius I noted 2 dark lines coming from the shadow area, one slightly curved from south to north-west the other fairly straight from south to north. There was an area almost near where crater M would be but to me it looked almost dome like in structure. I never saw these 2 dark lines before. I could not get a very good image through the telescope so I mark off the lines in red and dome like area on the image.





Plato's Hook – Maurice Collins - Palmerston North, New Zealand, May 03, 2009 05:18-05:56 UT. C8, f/10, LPI. Colongitude 13.6º.

In 1952, H.P. Wilkins and Patrick Moore observed a hook like shadow in Plato that they drew on 3rd April, 1952 at 2130UT. Looking at an image I took on 3rd May 2009 at 0535UT, there is a curve of the shadow, resembling a hook also. Though it is not quite as curved as in the drawing by Wilkins and Moore which was published in their book "The Moon".

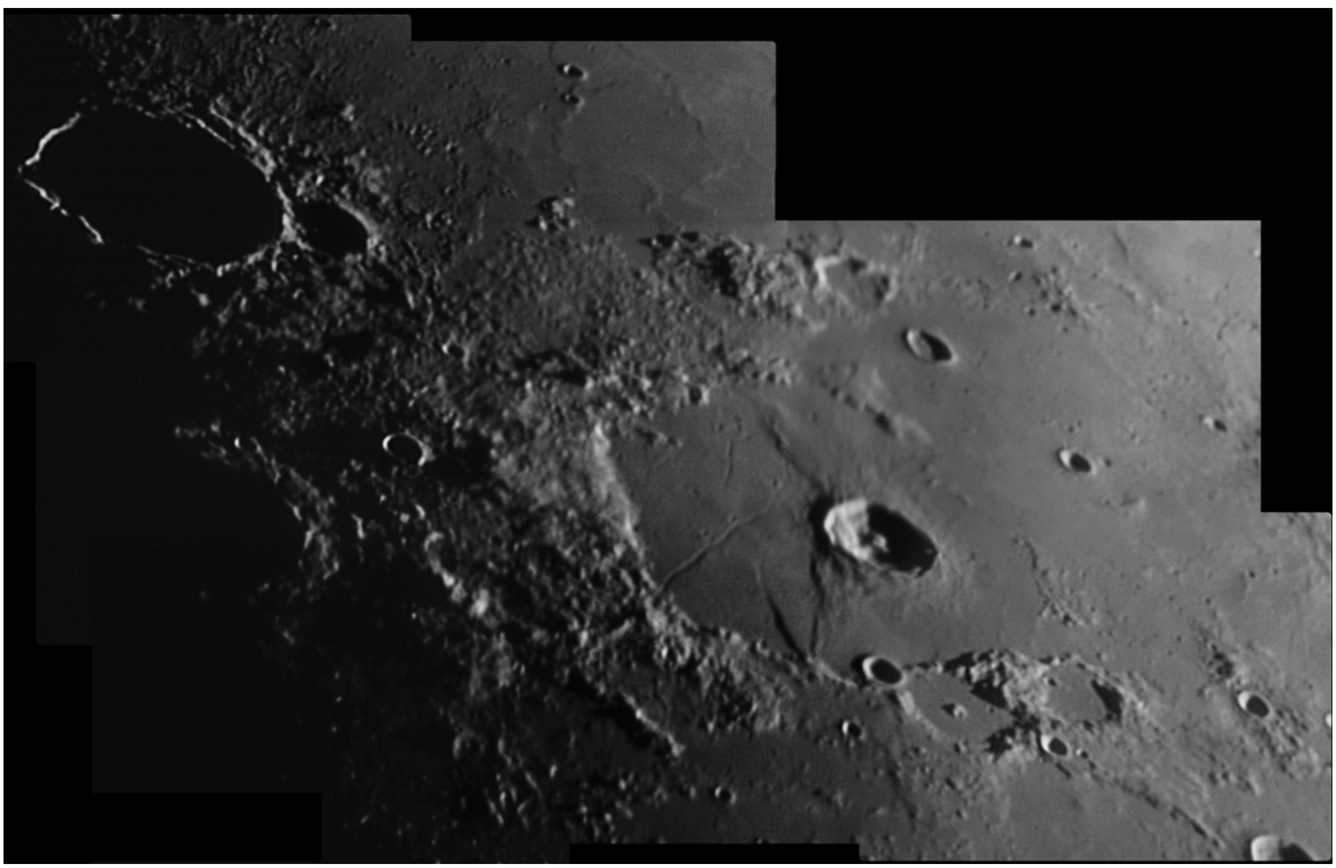
The colongitude of my images according to VMA was 13.6 degrees at my image taken at 0535UT. I also imaged it later, at 0556UT and earlier at 0518UT, but the shadow at the later time had diminished during the half hour later as the sun angle increased. It is also hard to determine if the shadow is more or less hook-like in the 0518UT image as it was in daylight and the image is noisier. It is also possible I missed the period of a more hook like shadow if it occurred before I started observing and earlier in the afternoon.

The other shadows at 0535UT in the interior of Plato are in a very similar position as the Wilkins & Moore drawing. I found it an interesting comparison.

It could be that Wilkins and Moore only had about 15 to 20 minutes to observe the hook shaped shadow before it changed form as shown in my images.

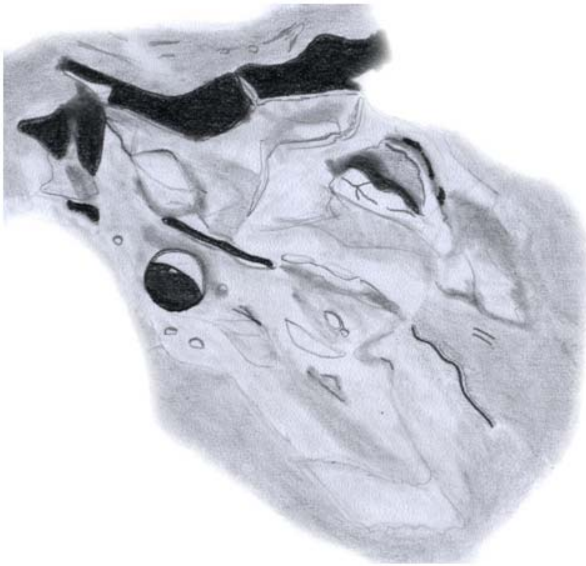
I wonder what Sir Patrick would think of these images and what his recollections of his observation would be today?

Pitatus – Howard Eskildsen – Ocala, Florida, USA. May 16, 2009 09:43 UT. Seeing 8/10, Transparency 5/6. Meade 6" refractor + 3x barlow, NexImage, W-8 yellow filter.

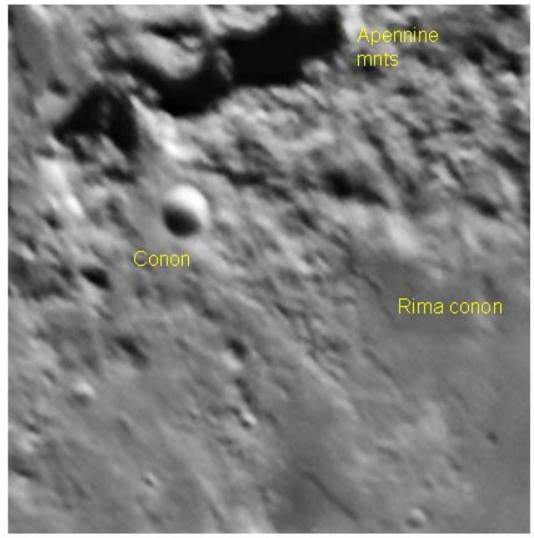


Aristoteles-Burg – Richard Hill - Tucson, Arizona, USA. April 04, 2009 02:14 UT. C14, f/22, UV/IR blocking filter, SPC900NC camera, Seeing 8/10. 100/1000 images.
The sun was just lighting the tops of the ramparts on Aristoteles and Eudoxus. I like the way this turned out around Burg with all the faulting and ejecta.

Conon, Rima Conon & Apennine Mountains - Charles Galdies - Naxxar, Malta. May 2, 2009 18:15-18:35 UT. 200cm SCT, 240x, Seeing: 9/10.



Telescope: SCT 8".
Date & time: 2nd. May 2009 - 20.15 to 20:35 LT.
240x – Seeing: 9/10
Charles Galdies, Naxxar, Malta



Telescope: Celestron C11 (11") on CGE mount.
CCD camera: SBIG ST10-XME + 6.3 focal reducer,
10 exposures of 0.02 sec. using 13nm. Astronomik Ha filter.
Date & time: 2nd. May 2009 - 20.00 LT.
(c) Leonard Ellul Mercer, Attard, Malta

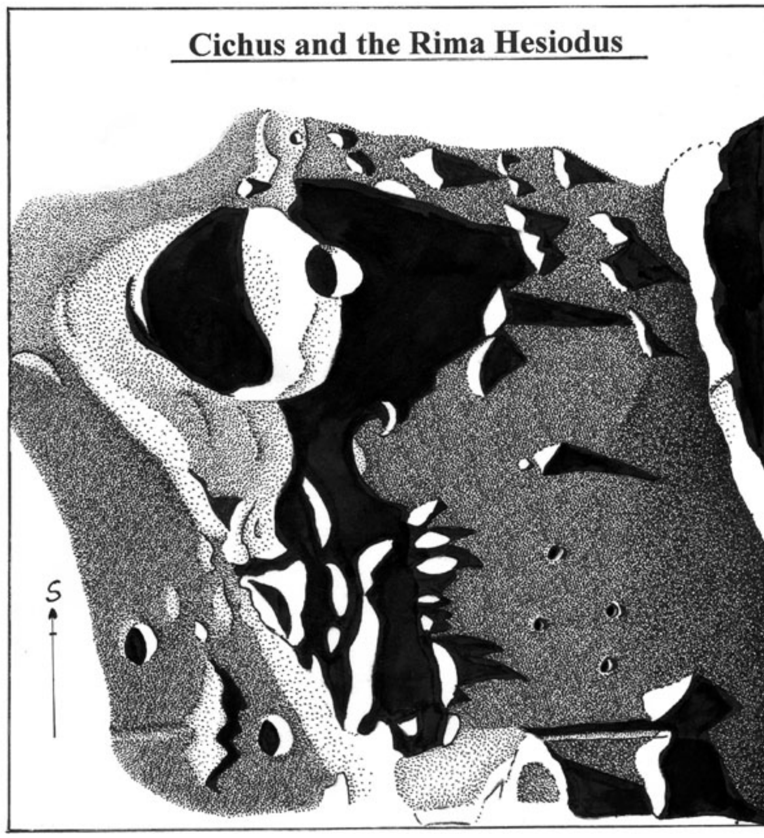
On the night of May 2nd at 18 UT I scanned the lunar area next to the terminator. The Apennine mountains are always a fascinating feature to scan and ponder on their relative size, their rugged tops and deep edges.

The seeing was almost perfect and the very interesting delicate rima was evident under the good seeing conditions of that night (Longitude 2.0 East; Latitude 18.0 North). It seems that rima conon originates on the Apennine mountains, cuts through the mountains and distends itself into the smooth mare vaporum. It resembles much like a riverbed running from the base of the Apennines. Its fine, serpentine structure with a narrow, uniform width came into view for long enough moments to enable me to produce the sketch. At 2E, 18N next to rima conon, a double edged feature was resolvable by the telescope. Apollo Mapping Camera (Camera Rima Conon_A17 3) shows it as a double rima system with sharp narrow walls situated in Mare Vaporum. This was more in line with what I observed on that night.

Conon is a 20km wide round crater (1.9E, 22.3N) and showed steep bright slopes indicative of little erosion along the inner wall. A near central hill was evident.

Through a local yahoo user group (maltastro.yahoo.com), I received a lunar image taken by Leonard Ellul Mercer from Malta that was taken during the same period. The figure on the left is my sketch whilst the one on the right is a zoomed image of the area taken by Ellul Mercer.

Cichus & Rima Hesiodus - Phil Morgan – Worcestershire, England. April 4, 2009 20:00-20:40 UT. Seeing 7/10, transparency 4/5, colongitude 26.6-26.9º. 305mm, f/5 newtonian, 400x.



The purpose of this observation was to follow up Harold Hill's study of 1983 February 21st, when he noticed an apparent bridging or stepped appearance of the short rille/fault that runs just to the south of the Hesiodus rille where it encounters the promontory that travels north from the Cichus northern outer rampart, Harold's drawing appears on page 116 of his Portfolio of Lunar drawings.

Cichus itself is about 41 kilometres wide with a couple of low hills on the interior and broad bright ramparts that contrast with the small dark bay to the west, a small extension of the Palus Epidemiarum. This being bounded on the west by the outer western flank of Capuanus and to the east by the barrier mentioned above, a natural dividing wall between the Mare Nubium and the Palus Epidemiarum. To the east of this wall are the flooded remains of the ancient crater Weiss, 66 kilometres. Perched somewhat precariously on the western rim of Cichus is the 11 kilometre bowl crater Cichus C.

Webb became interested in Cichus C in 1833 when he noticed that it appeared to be twice the diameter as depicted by John Schroter on his map of 1792, drawn some half a century before the first ever-lunar photograph was taken. This led him (mistakenly) to conclude that it had grown in the meantime! Interestingly Schmidt drew C as lying outside the rampart of Cichus – probably just a slight positional error on his part. One of the bright rays from Tycho passes tangentially just to the northeast of the rim of Cichus. Unfortunately, on this occasion the illumination was too far advanced, at colongitude 26.6 degrees, for any bridging of the fault to be visible. This fault/rille is rather interesting in itself, since it represents quit a considerable break in the barrier at this stage of illumination, and doesn't appear to be related to any great rille system. Possibly it came about by the dipping of the terrain to the north – the same forces that led to the formation of the Hesiodus rille.

Nevertheless a somewhat rushed observation of the region was attempted, with the result portrayed opposite. Four small craterlets were glimpsed in better moments on the floor of the Palus Epidemiarum. These were subsequently confirmed in the Times Atlas, and just to the south of these, and due west of Cichus, there appears to be the remains of a ruined ring.

An attempt was also made to see if there was any indication of the great Hesiodus rille cutting through this promontory that runs north from Cichus. But any definite sign of it crossing the barrier proved negative on this occasion. It is easy to lose track of the scale of things when lunar drawing – for example I show the Hesiodus rille about 10 mm across, but in fact at this point on the lunar surface it some 5 kilometres wide and about 1 kilometre deep. Imagine being transported to the Moon and standing on the edge of rille and looking to the other side!!

It was, however, intriguing to note that it was the northern inner scarp of the Hesiodus rille that was illuminated. Being situated at 31 degrees south one might expect it to be the southern inner wall that would be catching the solar rays.

The first clue is the angle of the spires of shadow stretching westwards from the isolated peaks in the Palus Epidemiarum. These are spreading slightly to the north, and this tells us that the Hesiodus rille is not running due east to west. In fact as it strikes 300 kilometres westwards it travels from 29 degrees to over 32 degrees south, some 80 kilometres measured on the lunar surface. All fairly basic stuff you may say, but such facts are not always remembered when you notice something in the eyepiece that appears inexplicable!

Mare Crisium – Axel Tute - Baden-Württemberg, Germany. November 15, 2008 22:00 UT. Seeing 6/10, transparency 5/6, colongitude 124º. 8" f/10 SCT, ToUcam 740k. 100/1000 frames.

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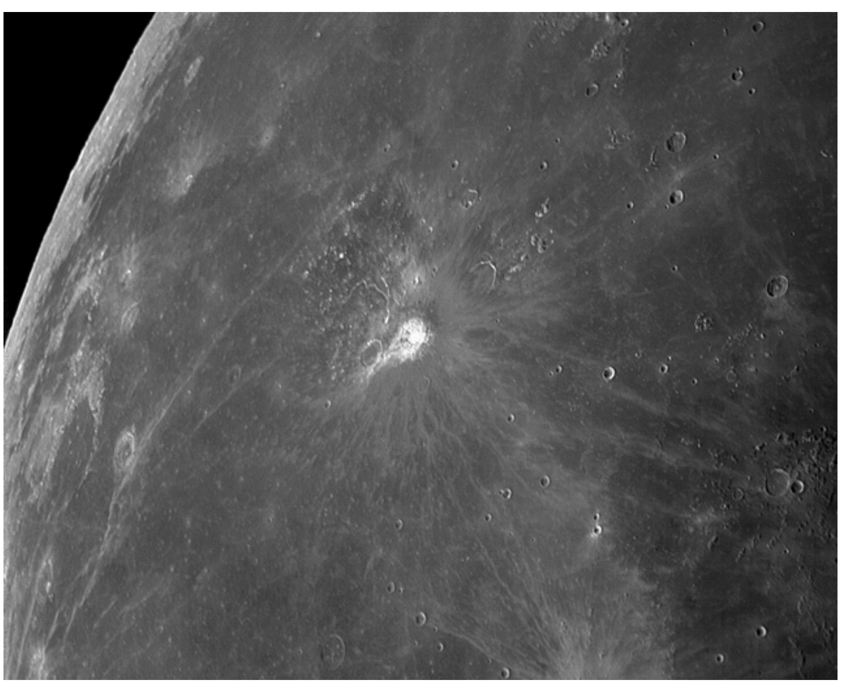
BRIGHT LUNAR RAYS PROJECT

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

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

Bright Lunar Rays Website: http://moon.scopesandscapes.com/alpo-rays.html

RECENT RAY OBSERVATIONS



Aristarchus – Howard Eskildsen – Ocala, Florida, USA. May 16, 2009 09:26 UT. Seeing 9/10, transparency 5/6, Colongitude 53.9º. Meade 6" f/8 refractor, 2x barlow, Orion StarShoot II, W-8 yellow filter.

BANDED CRATERS PROGRAM

Coordinator – Wayne Bailey – wayne.bailey@alpo-astronomy.org
Assistant Coordinator – William Dembowski - dembowski@zone-vx.com
Banded Craters Program Website: http://moon.scopesandscapes.com/alpo-bcp.html

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

Crater Observed: Davy A and Davy G
Observer: Howard Eskildsen Observing Station: Ocala, Florida
Mailing Address: P.O. Box 830415, Ocala, Florida, USA
Telescope: Meade 6" Refractor 152 mm f/8
Imaging: Orion StarShoot II Filters: W-15 Yellow
Seeing: 8/10 Transparency: 5/6
Date (UT): 2009/05/16 Time (UT): 09:16
Colongitude: 175°

Position of crater:	Selen. Long.	Selen. Lat.
Davy A	7.7° West	12.2° South
Davy G	5.1° West	10.4° South

Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1 2004-11-07

Image (North up):

Comments:

Dark arrow points to south end of a band that extends from southern crater rim of Davy A across the floor to the north crater rim. It appears to be a ridge in the floor with some extension to the rims as well. Davy G (white arrow) has a bright southeastern rim and shadowing to the west. There is a gray area at the head of the arrow, but I see no definite banding at this colongitude.

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

Crater Observed: Bessarion
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 Filter
Seeing: 8/10 Transparency: 5/6
Date (UT): 2009/05/16 Time (UT): 09:26
Colongitude: 175°
Position of crater: Selen. Long. Selen. Lat.
36.9° West 20.9° North
Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1 2004-11-07

Image (north up):

Comments:

There is a delta-shaped shadow in the northwestern portion of the crater. A curious bright streak extends northward to Bessarion E.

LUNAR TRANSIENT PHENOMENA

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

LTP NEWSLETTER – JUNE 2009

Dr. Anthony Cook - Coordinator

Observations for April 2009 were received from the following observers: Paul Abel (Leicester, UK), Jay Albert (FL, USA), Clive Brook (Plymouth, UK), Tony Buick (UK), Maurice Collins (New Zealand), myself (Aberystwyth, UK), Marie Cook (Mundesley, UK), Bill Leatherbarrow (Sheffield, UK), David Moorehouse (New Zealand), and Geoff Wingham (New Zealand).

Recent LTP Reports: I have not heard any further reports to confirm the following April LTPs mentioned in the May circular:

Proclus 2009 Mar 31 UT 19:26-19:50 byMarie Cook.
Mare Crisium 2009 Apr 01 UT 20:00-20:30: by Clive Brook.
Mare Crisium 2009 Apr 02 UT 21:45-22:05: by Clive Brook.
Plato 2009 Apr 04 UT 20:30-20:45; 21:40; 01:03-02:30?: by Clive Brook, Marie Cook and Jay Albert

However two new LTP have since been reported for April and May:

Proclus 2009 Apr 12 UT 00:00: Clive Brook (Plymouth, UK, 2" refractor, x25, Edmond Optics filter No. 80 (blue) and No. 47 (light rose/purple)) noted that the rays of Proclus stood out better in rose/purple light than in blue. Unfortunately no other observers were observing at the same time.

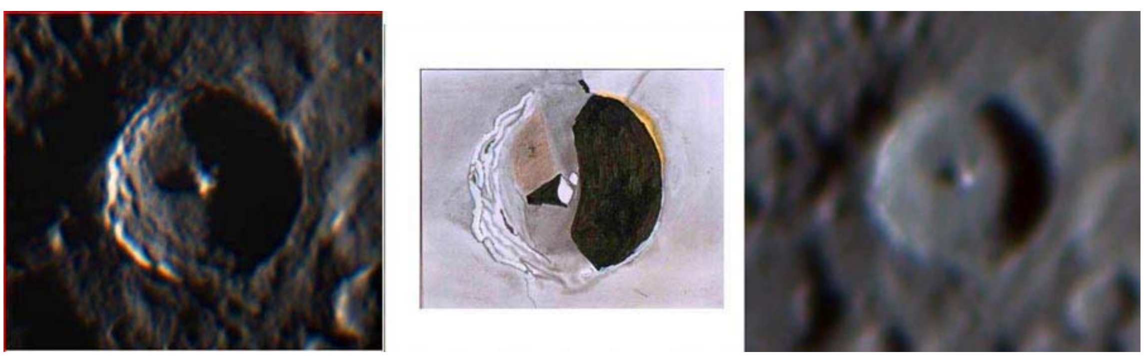


Figure 1. Left: CCD image by Bill Leatherbarrow (Sheffield, UK) at UT 20:07 – image has undergone addition of artificial spurious color and scattering in order to mimic atmospheric effects. Additional color exaggeration has been applied to enhance the colors. Centre: sketch by Paul Abel based upon appearance of Tycho at UT23:20-00:12. Right: CCD image by Maurice Collins (New Zealand) at UT06:03 (slightly color enhanced). North is at the top in all 3 pictures.

Tycho 2009 May 03 UT 23:20-00:11: Paul Abel (Leicester, UK, 8" reflector, x312, seeing III-IV) observed that the north east wall of Tycho was slightly brighter than would have been expected, slightly blurred (not seeing related) and had a strong orange-brown color. No spurious color seen elsewhere. A change in eyepieces showed the same effect. A drawing was made at 23:20UT and finished at 00:12UT

(Fig. 1 centre). At 23:12UT part of the inner northwest floor had a dull brown color, whereas before it was grey. By 00:11UT the color effect was fading and by 00:18 seeing conditions were too bad to continue. Marie Cook (Mundesley, UK, 9cm Questar telescope, x80, x130, seeing III, transparency moderate to good) had observed Tycho earlier in the evening at 22:15UT, but had seen no signs of color. Bill Leatherbarrow (Sheffield, UK, 8cm scope, high cloud interruptions and bad seeing) had taken monochrome images at UT 20:07 (Fig 1 left) and 20:10, but these showed nothing unusual, and he checked the crater visually at 00:00-00:30, but detected no color, although the Moon's low altitude contributed to poor seeing conditions and some spurious color was seen. CCD images from M. Collins (Palmerston North, New Zealand) taken at 04:46UT, 06:03-06:54 (Fig 1 right) showed no color apart from spurious color on contrasty edges, in no way reflecting what was seen early by Paul. I was unfortunately unable to put out a phone alert because on that night because I had switched off my mobile following a nuisance call earlier that evening and did not receive Paul’s email until much later.

The fact that Bill’s after midnight observation overlapped with Paul’s observation was fortunate, however Bill could not discern any surface color because his observing conditions were really quite bad by this time. Sheffield and Leicester are relatively close in UK terms, but according to Bill the local topography near Sheffield can alter local weather conditions from the regional norm. The Moon’s altitude above the horizon over the duration of the LTP varied from 26deg to 19deg, only becoming significantly low towards the end of the observing session. In order to check for effects of atmospheric spurious color, I took Bill’s observation, separated the monochrome image into identical red, green and blue components, offset them according to the direction that I would have expected refraction effects to occur, and recombined them together again. Fig. 1 (left) shows the outcome. (colors exaggerated so that they hopefully show up in the printing/PDF process). You can see that although some orange can be produced on the north east rim, there should have been more prominent spurious color elsewhere e.g. the central peak. Paul did not report any spurious color despite looking. After email discussion with Paul though, he favours atmospheric conditions as the cause of the color, although we have not been able to model fully what he saw on the computer. Also if it were a LTP, then one would not expect outgassing on the rim of a crater! For now I am assigning an ALPO/BAA weight to this report of 2 – slightly higher than a 1, because Paul carried out several tests at the time of the observation for spurious color, changed his eyepiece, and followed the effect through to its fade. Just in case you are wondering how to check for spurious color in future when looking through a telescope – this can be done by blinking alternatively between red and blue filters e.g. Wratten 25 and 44a, or any other good red/blue filters that cancel out each other’s light if placed over each other in front of a light source.

LCROSS: We are still awaiting the launch of LCROSS and the Lunar Reconnaissance Orbiter (LRO) in early June. Do keep a look out on the LCROSS web site for further details at: http://lcross.arc.nasa.gov/observation.htm. However despite what I may have said last month , we should not expect the impact to occur for quite a while (days to months) because they will be acquiring improved imagery of the possible target sites so as to establish the optimum location for science return. Another web page of interest is the Google Group site dedicated to LCROSS observations: http://groups.google.com/group/lcross_observation. As and when a target is selected and the impact date and time determined, you can submit your observations to the LCROSS observations group, however please also copy them to us at the BAA and ALPO so that we can report upon you success. The LCROSS team is also encouraging amateurs to image at high resolution the cusp area so as to provide professional observatories sets of navigation images, under different illumination, from which they can target spectrometers etc. Further facts about the planned impact, gleaned from NASA’s LCROSS web site, are:

1) LCROSS will be a 2000kg mass targeting into a permanently shadowed area at the lunar south pole.

2) The impact velocity will be greater than 2km per sec and it will come in at an angle of 30 deg off the vertical, with a positional uncertainty of 3km.
3) The expected ejecta plume will be ~60km high
4) The expected energy released will be ~200 times that of the Lunar Prospector impact into the same region back in 1999 (that produced no detectable water or dust plume)
5) During the impact a secondary spacecraft, following behind, will relay imagery and data before itself (700kg) will slam into the Moon.
6) In the event of ice reserves being present beneath the surface, we would expect that ice sublimation might be detectable ~10min after impact
7) OH exosphere contribution might carry on until ~1 hour after impact and cover a region of 100km – but as optical non-spectroscopic observers we would be unlikely to detect this
8) The impact must not occur within +/-30 deg of Full Moon and must not be within +/-76 deg of New Moon
9) Ground-based observing will be optimized for Hawaii or Chile, and should be 2 hours after sunset or 2 hours before sunrise at either of these sites. Also the Moon should be greater than 45deg above the horizon.

For repeat illumination LTP predictions for June, these can be found on the following web site: http://users.aber.ac.uk/atc/tlp/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!

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KEY TO IMAGES IN THIS ISSUE

1. **Abenezra A**
2. **Aristarchus**
3. **Aristoteles**
4. **Bessarion**
5. **Cichus**
6. **Conon**
7. **Davy A&G**
8. **Fracastorius**
9. **Mare Crisium**
10. **Pitatus**
11. **Plato**
12. **Pythagoras**

FOCUS ON targets
X = Mare Fecunditatus (July)
Y = Deslandres (September)
Z = Menelaus (November)