BAA/ALPO TRANSIENT LUNAR PHENOMENA NEWSLETTER 2004 June

by David Darling

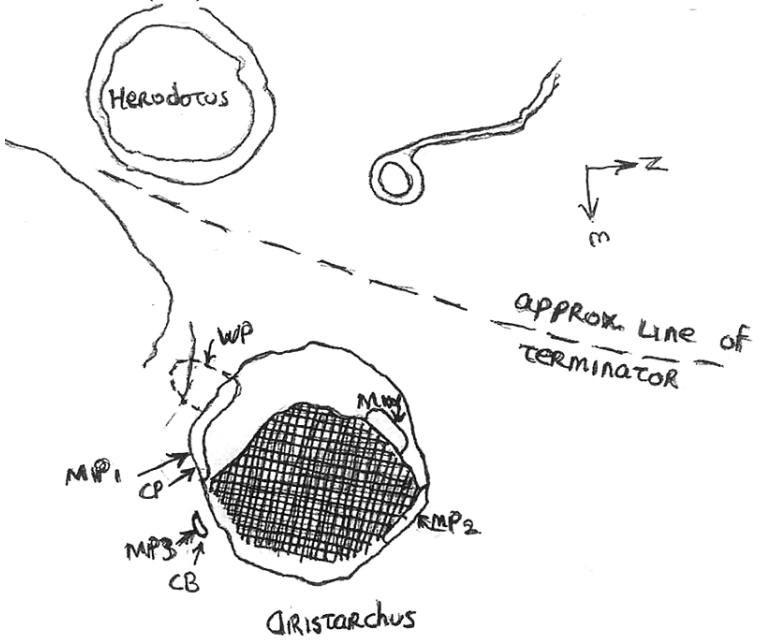
I am writing this month's report as Tony Cook is still busy marking his student exams and coursework. For April observations received were from: Jay Albert (USA), Clive Brook (Plymouth, UK), Tony Cook (Nottingham, UK), Marie Cook (Mundesley, UK), David Darling (Sun Praire, USA), Robin Gray (Winnemucca, USA), Antonio Marinio (Italy), Gerald North (Norfolk, UK), Brendan Shaw (UK), and Daniel del Valle (Puerto Rico). Preliminary May 04 lunar eclipse reports/images have been received from UK observers: Marie Cook and Tony Cook, Maurice Gavin, and Martin Mobberley - cloud was a big problem for most of the UK.

The latest news from the Smart 1 mission is that it is still on track to the Moon, achieving its 278th Earth orbit and is in good health. When it achieves lunar orbit we will commence ground based observations of the selected lunar transient phenomena sites. The launch took place on 2003 Sep 27 and it takes 15 to 17 months before it achieves lunar orbit. I have made contact with the principle investigator Dr. Giuseppe D. Racca and he very excited about having us collaborate with their mission. Concerning the Japanese Lunar-A mission, I have also contacted Prof. Hitoshi Mizutani the Lunar A project manager and he said that he very interested in my proposal and fully agrees that the opportunity to add to our knowledge about the Moon should be used to its fullest extent. Lunar A will be placing two penetrators into the lunar surface, one for the near side and one for the far side, however the orbiting bus will also carry a camera for surface imaging. The probes will be monitoring the lunar seismic activity and heat flow probe. The craft was due for launch in Aug/Sep but is being delayed for redesign following technical problems with the projectiles on a 300m drop test. Hopefully this problem will be corrected soon so the mission can get off the ground. In the latest news "The Space Review" has announced a new upcoming NASA mission: Lunar Reconnaissance Orbiter (LRO), scheduled for launch in late 2008. The primary goal is to map the Moon's usable resources at 1m resolution. This will help develop the technologies needed for in-situ resources utilization (ISRU). The need for this kind of mission is that relatively little is known about the potential minerals except for the sites where the Apollo spacecraft have landed. The most important resource that would be sought is ice in permanently shadowed craters near the poles.

As we have not had a very distinctive TLP report for some time now, I thought that it would be interesting to recap on an event that really stood out from most of the other TLP reports. This event took place on 15 July 1989 UTC 21:00-22:00 and was observed from three geographical locations, and by 11 different observers. This particular observation proved that the color effects reported on the Moon are not always atmospheric related and that not all observers have the same color perception.Observers who participated were: Robert Manske, David Weier, Keith Curtis, Joe Keyes, LeRoy Yanna, Eric Norman, Gene Knutson, Jerry Sullivan, Tom Eichman, and Craig Radi who all observed through the SCT C11 located at the Carl Fosmark Jr. Memorial Observatory.

The story begins when Robert Manske of the Madison Area Astronomical Society observed a pinkish tinge to the rim of Aristarchus. The following is his report: *"I was the first one to observe a pinkish tinge to the rim of Aristarchus in the area marked MP1 in the accompanying sketch. I was using the 8mm Clave. I called for Dave Weier to observe, and we then called others who were present. The pinkish color was made much more pronounced when we began to use the 7mm Nagler. The accompanying sketch combines the observation of myself, Weier, and Keith Curtis. MP1, MP2, and MP3 represent areas where I saw a pinkish color. The M prefix indicates Manske, the P represents pink, the numeric suffixes indicates relative brightness with area MP1 being the brightest. Regions MP1 and MP2 appeared to extend along the top of the ring wall. Region MP3 existed on the outside of the ring wall. I also saw an area MW, white in color, on the inside of the ring wall. The arrow from CP points to the region where Keith Curtis saw perhaps a hint of pink. It seems to be identical to the eastern most tip of region MP1. CB points to an area which Curtis thought was greenish-blue! It seems to be identical to the region MP3, the region which I thought was the weakest shade of pink. WP points to an area which Weier thought was slightly pinkish. This area is clearly on the outside of the ring wall and seems to extend beyond the ejecta blanket. The approximate location of the terminator is drawn in. This is from memory, so it is not particularly accurate. It is meant to display the fact that sunrise has just occurred for Aristarchus and not yet for Herodotus or the Cobra Head. The drawing was developed from the original sketches made by myself and Keith Curtis at the C-11 using the 7mm Nagler.*

I will now report on other observers and their comments. This part of the report is developed from notes taken at the scene by David Weier. The orientation generally had Herodotus roughly by the 11 and 12 o'clock position. Due to the right-angle on the C-11, the region MP3 was at about the three o'clock. Most observers got a chance to observe with both the 7mm and 8mm lenses. The 8mm was used from 0200 until about 0230 at which time the 7mm was put in. The parentheses suggest identifications with areas on the sketch. Jerry Sullivan: 7mm: Two white spots, one at 9 o'clock (perhaps MW), the other at 1 o'clock (MP1?). 8mm: yellowish, perhaps borderline pink region at 3 o'clock (MP3?). Tom Eichman: 8mm: nothing outstanding. 7mm: a bright area at 1 o'clock, no color (MP1?) Joe Keyes: 8mm: nothing outstanding. 7mm: slight color along the rim. He did not note where on the rim. LeRoy Yanna: 8mm: pink on bottom at 2 o'clock (near MP1 but apparently further down the inside of the ring wall). Pink on the ridge at 2 to 3 o'clock (in the area of MP1 and MP3). Eric Norman: 7mm nothing outstanding. Eric was at the eyepiece for only a few seconds. Craig Radi: 7mm nothing outstanding. Gene Knutson: 7mm yellowish tinge at 8 to 9 o'clock (MW)."



At about 03:00UTC thickening clouds precluded further observations and so David Darling (Sun Praire, WI, USA) of the ALPO TLP Network was alerted. David had not gone with the observing group since at the time he was waiting for daughter #4 to be born and did not dare travel. The sky at Sun Parire was cloudy so telephone calls were made to individuals on the ALPO TLP network. Here are the reports received: Mr. Spain (Fairdale, KY, USA) was using a 90mm Maksutov at 30X & 60X. Observed 03:59-04:15 UTC: *"I received a call from David Darling at about 03:30 UT about the possibility of a TLP event at, or near, Aristarchus. He said it was a color TLP but that was all he knew as he had received the report from a member of the TLP network and he, David, was clouded out. I quickly set up my scope and observed the Aristarchus area. There "appeared" to be a pinkish or light red "glow" along the western wall, not unlike the color fringe from a poorly corrected refractor, except there was no corresponding blue fringe. I checked other bright areas, Tycho, Jura Mts., and Schiller, but none showed any sign of color. This would seem to indicate that a true TLP was occurring. The only problem I have with the observation is the terrible seeing and cloud conditions. Still I will give the event an 80% probability of being a true TLP. Since I have no idea of what the other network member(s) saw a close comparison should confirm or deny my observation. Personal note: The observing conditions were sort of like a poor Hollywood horror movie. Streamers of dark clouds drifted in front of the moon through out the observation giving a rather eerie effect."* Mr. Smith (Los Angeles) was using an 8 inch Newtonian Reflector at 370X. Observed at 4:20 UTC.: *"I saw orange or reddish orange on southern rim or crater, my two friends saw pink. The phenomena was easily visible but averted vision seemed to help. Color fringe observed by friend around other bright areas at same time. Confirmed by me, but not as obvious as around Aristarchus. Rising sun*

illuminating west wall, but crater's shape very distinct. From similar phenomena observed around Jupiter at low altitude, would guess atmospheric refraction as cause."

This TLP report is in my opinion, a five star event. Between the three reports 11 people looked through a telescope and not every individual saw the same thing. Several important things are shown with this observation. The first factor being that the changing of the eyepiece from an 8mm Clave to a 7mm Nagler, this made considerable difference in their ability to resolve the color on the formation. The second factor is that not all the observers at the observatory with Robert Manske could see the color effect, or they saw it as a different color. It is an important factor that individuals are unique in their color perception and not every one see color the same. The third factor is the great distance between the three observing sites. The distance between southern Wisconsin and Louisville, KY is 464 miles. Between Southern Wisconsin and Los Angeles, CA it is about 2000 miles. We have 2000 miles distance between Louisville, KY and Los Angeles. Such a great separation distance eliminates the possibility of it being an atmospheric effect. The fact that I had very little information provided to me when I activated the alert prevented me from biasing the observers on what to expect. They all peg the location on the southwest rim of the crater independently from each other. The most important thing that is shown by this observation is how important it is to establish and observing network so that confirmations can be conducted. This could have been an observation that did not carry the weight it does and could be easily dismissed as atmospheric or poor collimation of the telescope. This was even expressed by one of the observers as a possible cause. But the fact that so many observers were able to see the same phenomena gives credibility to this effect being real and on the lunar surface.

Few repeat illumination and libration events occur for June, so please observe any that you can:

Event: 66E, 44S (Unknown observer, 1920 Nov 23) can be seen on/from (UTC): 2004 Jun 01 Italy (00:47-01:45) *[look for bright spots or rays in this area at low magnification]*

Event: Aristarchus (Bartlett, 1964 Jul 23) can be seen on/from (UTC): 2004 Jun 01/02 Altanta, DC, New York, Pittsburgh (01:00-01:08); Germany (21:13-21:59); Puerto Rico (23:00-01:08); UK (21:13-23:31) *[check colour and texture of floor]*

Event: Aristarchus (Bartlett, 1959 Mar 24) can be seen on/from (UTC): 2004 Jun 02 New Zealand (13:34-16:52) *[look for colour on E.rim and changes in blue/violet cast of the crater]*

Event: Aristarchus (Moore, 1969 Jul 01) can be seen on/from (UTC): 2004 Jun 04 LA, Winnemucca (05:35-08:04); Phoenix (05:57-06:35) *[check for colour on SE wall and signs of blurring around the crater]*

Event: Aristarchus (Bartlett, 1955 Jan 12) can be seen on/from (UTC): 2004 Jun 06 New Zealand (09:55-12:00) *[look for blue-violet glare on E. rim of crater]*

Event: East of Piccard (Noble, 1878 Mar 10) can be seen on/from (UTC): 2004 Jun 24 New Zealand (09:30-08:59) *[look for a defined white patch]*

Event: Censorinus (Nicolini, 1969 May 24) can be seen on/from (UTC): 2004 Jun 26 Atlanta, DC, New York, Pittsbugh (01:00-04:51); Houston, Madison (02:00-04:59); LA, Winnemucca (04:00-04:59); Las Cruces, Phoenix (03:00-04:59) *[compare brightness with Proclus over time]*

Event: Clavius (Cook, 1915 Apr 23) can be seen on/from (UTC): 2004 Jun 26 UK (23:09-23:53) *[look for a narrow straight beam of light from crater A to B]*

Further 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 TLP telephone alert team, please let me know your phone No. and how late you wish to be contacted. If in the unlikely event you see a TLP, please call on Tony Cook's mobile: +44 (0)798 505 5681 and he 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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