THE BRITISH ASTRONOMICAL ASSOCIATION

LUNAR SECTION CIRCULAR

Director Alan Wells
Assistant Director/Editor John Pedler

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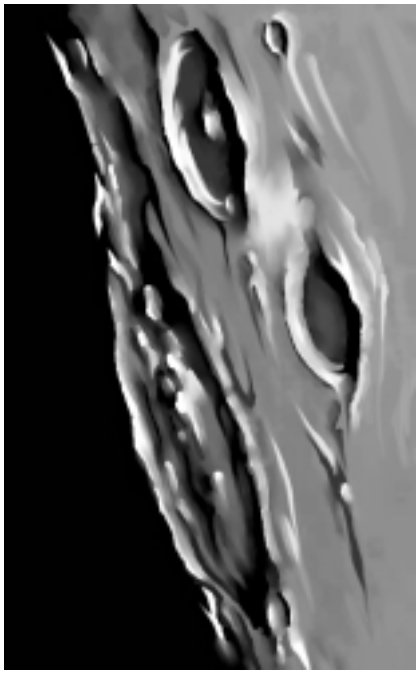
TOPOGRAPHICAL SUB-SECTION — COLIN EBDON

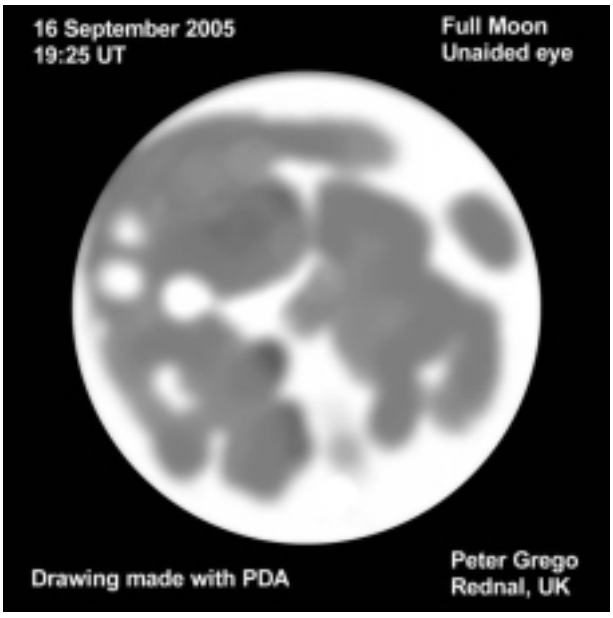
The good news this month is that I received a wealth of material from members during September , including articles for 'The New Moon', drawings, CCD images and archive documents of historical interest. If there is a down side to this, it is that they have all been supplied by the same core half-dozen or so observers whose work regularly fills these pages and those of 'TNM'. I would therefore echo John Pedler's sentiments expressed in the September Circular. There must be more of you out there observing, so why not contribute something? I make no apologies for mentioning this yet again, as the section is only as strong as its base of contributing members, and the sheer number of Circulars distributed each month suggests that interest generally is high.

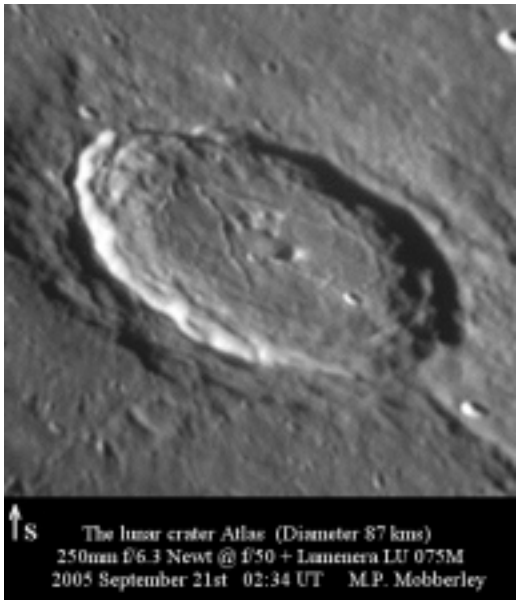
Moving to topographical matters, the subject of crater chains featured last month, and followed up by Phil Morgan (who has sent me some excellent drawings) is one which I would like to pursue in greater depth in a future issue of 'The New Moon'. I would therefore add a specific plea for any observations of crater chains, rille/crater chain features both familiar and possibly previously unrecognised. I am sure that there are some CCD Imagers out there who could contribute material in this respect.

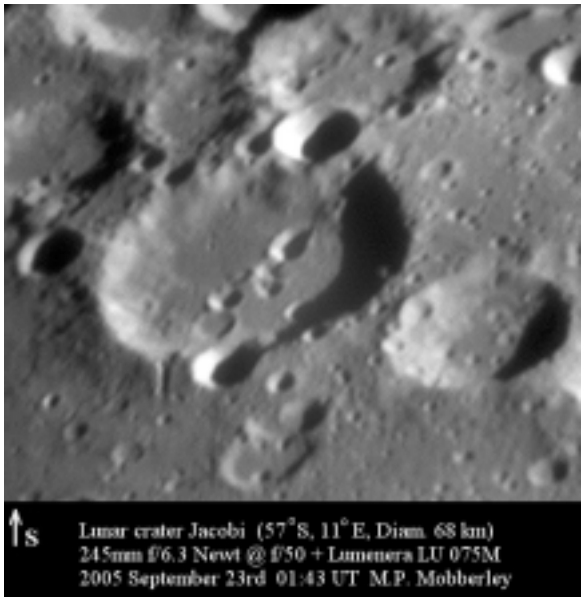
On the subject of CCD work, Martin Mobberley has recently sent me some fine examples, and I have included here not only the familiar crater Atlas, but also Martin's images of Mutus and Jacobi in order to demonstrate just how useful it can be to have images of less well known features. Not all photos have to be of Clavius, Maurolycus and Plato as many of them seem to be!

As previously mentioned, Peter Grego has been in the process of experimenting with the fast processing of CCD images as the basis for visual observation, whereby topographical detail can be drawn over an outline CCD image of a feature obtained shortly beforehand. Peter has now moved one stage further and has recently advised of a new technique actually utilising a Palm PC and a drawing programme at the eyepiece, thus dispensing with pen, pencil, paper, eraser and torchlight altogether. Although this is currently at the experimental stage, the technique promises to deliver another useful tool for the amateur observer and widen the range of possibilities. Peter will be writing something up about this in due course, but in the meantime I have included some of his first attempts with this technique, including a splendid drawing of the naked eye view of the Full Moon. Remember, you read it here first!









Occultation subsection news — Andrew Elliott

Four grazing occultations are predicted for November. Three of these pass over well-populated areas. Track numbers in the July LSC are indicated by [..]:-

22] On the night of Friday November 11, mag 5.9 ZC 3514 is grazed by the southern limb of the 80% sunlit moon. The moon's elevation will be around 20º in the south west and the graze takes place entirely against the dark limb (cusp angle over 10º). The star is actually a very close double with components of magnitude 6.9 each so brief 'step events' may be observed. The track starts on the south Wales coast south of Port Talbot at about 23h 42m UT and travels in a north east direction over Hereford and Worcester, the Midlands, Northants, Cambs, and out to sea via the Wash. The limb has interesting topography. A small (4") telescope should suffice.

[23] In the ***early hours*** of Sunday November 20, mag 6.5 ZC 1105 is grazed by the southern limb of the 83% sunlit moon. The elevation will be over 50º in the south west and again the graze occurs entirely against the dark limb (CA 12º). It is also a close double with components 7.0, 7.7. The track starts on the north coast of Northern Ireland at around 05h 25m UT and travels south eastward over Belfast, central Isle of Man, Lancs. (Southport), south Greater Manchester, east Midlands, Cambs, Suffolk, and Essex, leaving the coast near Brightlingsea. Again the limb has rugged topography with multiple events possible and a small telescope will suffice.

[24] On the ***night*** of Sunday November 20, mag 5.9 ZC 1206 is grazed by the northern limb of the 76% sunlit moon. The moon's elevation will be around 30º due east. The graze occurs against an area of sunlit mountains near the terminator (CA 1-2º) so it will not be too easy to observe and a larger telescope would be recommended. The track starts near the south west tip of Ireland and travels north eastwards across southern Ireland, Anglesey, Lancs (from the south Fylde coast), and North Yorks, leaving the coast near Whitby. Models of the lunar limb at the point of the graze show differences so accurate observations could help to resolve these.

[25] This track crosses sparsely populated areas of Scotland, Cumbria, Durham and North Yorks in the early hours of Saturday November 26. Although the circumstances are favourable, it is not further described here. As always, please let me know if you want detailed predictions for any of these grazes.

Predictions for 52°27'41.4"N 1°44'44.0"W (Birmingham) – December 2005

Day H	Time-UT M	S	D	P Object Reference	O V	Max Mag	Sp	% Snlt	Elg Alt	Sn	Mn Alt	Mn Az	CA	PA Angle	Watts	a Min/°	b	Star's apparent RA	Dec
5/17	23	44	D	PPM 271630	45	7.9	MA	21+	55		12	200	87S	81	96	-.8	-.3	204809.3	-232724
6/16	44	03	R	PPM 239234	35	4.8	G5	31+	67	-7	19	179	-63S	226	244	-.7	.4	214258.8	-185031
6/18	35	45	DV	PPM 239362	36	7.5	A3	32+	69		16	205	75S	87	106	-.8	-.5	214804.0	-181117
7/17	15	14	DM	PPM 240566	25	7.8	G5	43+	82	-11	25	173	68S	91	112	-.9	.1	223953.2	-123510
7/18	28	37	D	PPM 240603	27	6.8	K2	43+	82		25	192	81S	77	98	-.8	-.1	224144.2	-121203
7/21	40	16	D	PPM 240730	26	6.7	MA	44+	83		9	238	55N	34	55	-.2	.1	224632.7	-110812
8/16	31	36	D	PPM 207615	25	8.4	K0	54+	95	-5	26	148	68S	88	110	-.8	.6	232957.4	-61646
9/16	32	58	D	PPM 143358	25	7.4	G5	65+	107	-6	29	133	22N	358	20	.1	2.4	1822.0	3900
9/16	42	24	D	PPM 143375	15	7.9	G0	65+	107	-7	29	136	85N	61	83	-.6	1.0	1935.0	3314
9/20	15	40	D	PPM 143456	15	7.8	G0	66+	108		38	199	72N	48	70	-.7	.4	2435.8	13521
9/21	22	08	DC	FK5 1010	28	6.0	G5	66+	109		33	218	39N	16	38	-.3	1.1	2542.7	15823
11/22	17	36	D	PPM 117956	45	7.9	F0	85+	135		48	212	59N	41	60	-.7	.6	20701.5	143652
12/01	54	30	DV	FK5 1057	57	6.0	K5	86+	136		22	267	70N	53	71	-.3	-.3	21323.4	151836
ABOVE STAR IS A VARIABLE STAR																			
12/16	06	28	DK	PPM 118572	67	6.0	K0	91+	145	-2	20	86	82N	69	85	.0	1.6	24852.9	181839
13/19	19	26	DK	PPM 92918	98	5.5	B8	96+	158		44	111	39N	35	47	-.2	2.2	34843.0	232632
14/04	13	26	DT	PPM 93212	97	5.7	F5	97+	161		23	280	27S	154	164	1.1	-4.9	40444.1	240730
ABOVE OCCULTATION CLOSE TO SMOOTH-MOON TERMINATOR																			
16/05	59	59	RT	PPM 95226	96	6.1	B8	100-	172		26	282	80S	221	221	-.7	-.2	60124.2	273428
ABOVE OCCULTATION CLOSE TO SMOOTH-MOON TERMINATOR																			
16/23	32	23	RX	PPM 96498	96	6.8	K0	98-	164		59	134	70N	277	273	-.9	.4	64558.9	274006
17/05	24	17	R	PPM 96757	95	7.0	B9	98-	162		39	266	72N	278	273	-.4	-1.3	65619.8	271646
17/07	35	40	RK	SAO 78968	96	7.2	K2	97-	161	-5	20	289	39N	313	307	.4	-1.8	70121.6	270859
18/01	31	30	R	PPM 97900	98	5.4	K5	94-	153		63	164	86S	267	257	-1.0	.3	74429.9	254614
ABOVE STAR IS A VARIABLE STAR																			
19/22	30	35	R	PPM 126352	95	7.3	G5	83-	132		24	89	28S	222	205	.2	4.7	92058.9	190356
20/01	44	47	R	PPM 126454	95	7.6	A3	82-	130		50	136	13N	2	345	-.4	-4.0	92655.3	190203
21/04	56	11	R	FK5EXT 2824	88	5.7	M0	74-	118		51	192	16N	3	343	.2	-3.4	101700.5	134154
23/04	40	24	R	PPM 158121	65	8.4	F0	56-	97		39	160	58N	325	303	-.6	-.8	114227.4	25043
24/06	45	00	RM	PPM 195499	65	8.1	G5	46-	85		34	187	84S	287	266	-1.0	-.4	122719.0	-33405
24/06	23	27	R	PPM 195503	75	8.3	K2	46-	85		34	180	45N	338	317	-.5	-1.1	122728.4	-31913
25/04	49	15	RK	FK5EXT 3046	88	5.7	K0	37-	74		22	145	55S	257	237	-1.1	1.1	130850.6	-90058

Predictions courtesy of the International Occultation Timing Association – European Section – (IOTA/ES) "OCCMOON" program.
A letter in the "D" column indicates a possible double star.
See LSC **35**, 5 (May 1999) for comments on recording observations using the predictions.

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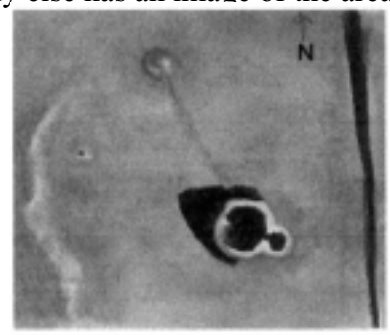
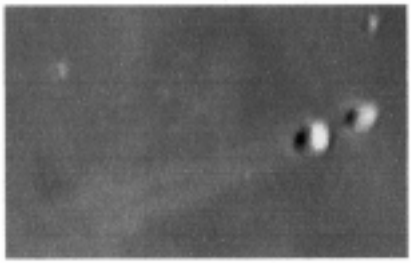
Observations for September have been received from: Jay Albert (Lake Worth, FL, USA), Michael Amato (West Haven, CT, USA), Michael Moschat (Halifax, NS, Canada), Clive Brook (Plymouth, UK), Marie Cook (Mundesley, UK), Tony Cook (Long Eaton, UK), Daniel del Valle Hernandez (Puerto Rico), Robin Gray (Winnemucca, NV, USA), Antonio Marino (Naples, Italy), Gerald North (Narborough, UK), and Brendan Shaw (UK). A total of 13.5 hours of coverage was obtained. Note that observing time quotes here, and in past articles, are provisional as often additional observations come to light after publication.

Sep 12 at UT 00:40-01:02 Daniel del Valle Hernandez (Aguadilla, Puerto Rico) made a sketch (see Fig 1) of the Birt area and found that "*despite the cleft near the dome being visible, Rima Birt was not so clearly visible – whether this was due to an obscuration, or the hazy conditions is uncertain*". Personally I would go for the hazy conditions as an explanation, but if anybody else has an image of the area close to this time, please let me know.



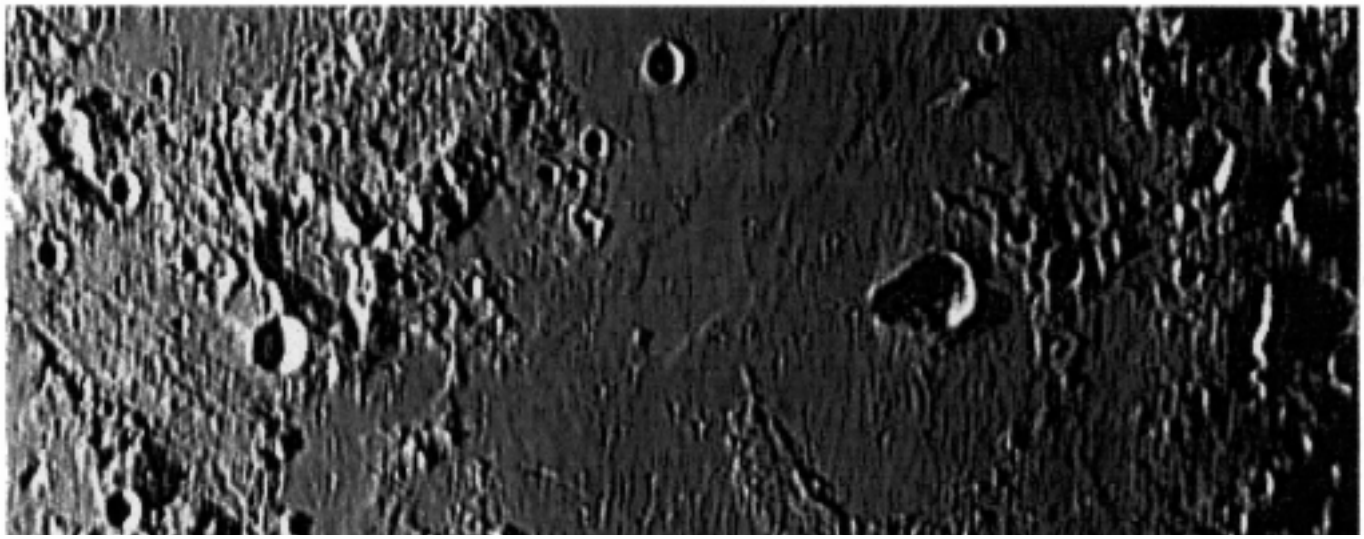
Birt through a 4.7" refractor x222, Orion V-block filter, seeing 7/10 and transparency poor (hazy).

On Sep 20 Antonio Marino (Ercolano, Na, Italy) took a CCD image of the Messier A as this corresponded to the repeat illumination and libration (to within +/-1 deg) for Sir Patrrick Moore's TLP observation from 1951 Aug 20 UT 00:00? that the 1978 NASA catalog has the following description: *"Brilliant white circular patch seen in it. Has seen it and Messier blurred several times"*. The catalog gives this report a high reliability weight of 4, or meaning *"a single unconfirmed observation but from an experienced observer"*. Antonio's image does indeed show that the wall of Messier A quite bright, but we cannot tell if there is a bright circular patch there because the image has saturated slightly on the rim. To me it just looks like the rim is catching the sunlight and hence naturally bright. Anyway for European observers another repeat illumination and libration opportunity occurs on Nov 20-21 (see the predictions for further details).



Messier A (left crater) image taken at 20:37UT with a Philips Vesta camera with IR-cut through a x2 Barlow on a 150mm telescope.Video rate 10 frames per sec.

In Fig 3 an image by Brendan Shaw I thought I would use to pose a puzzle for our readers/observers. With the increasing use of CCD cameras to obtain higher and higher resolution, there is an increasing trend to use elaborate image processing techniques like image stacking and high pass filtering. Some of this can introduce artifacts, but sometimes it does definitely bring out detail that we would otherwise have not noticed. When Brendan sent me the image originally it did not show the multitude N-S striations seen in Fig 3. Brendan sends me his raw images (unsharpened) as all observers should! So I would be interested to hear from readers whether they think these N-S rilles (or tails to many of these secondary craters) are real? They occur in both the highlands on the West and in certain mare areas. There are also some diagonal striations in the highland area to the West too. Have any visual observers seen these before or are they image processing artifacts?



CCD image of Torricelli area 2005 Sep 23 UT 01:04 near IR pass filter. The Sun's altitude was +4.4 deg above the horizon at Torricelli at the time that this image was taken.

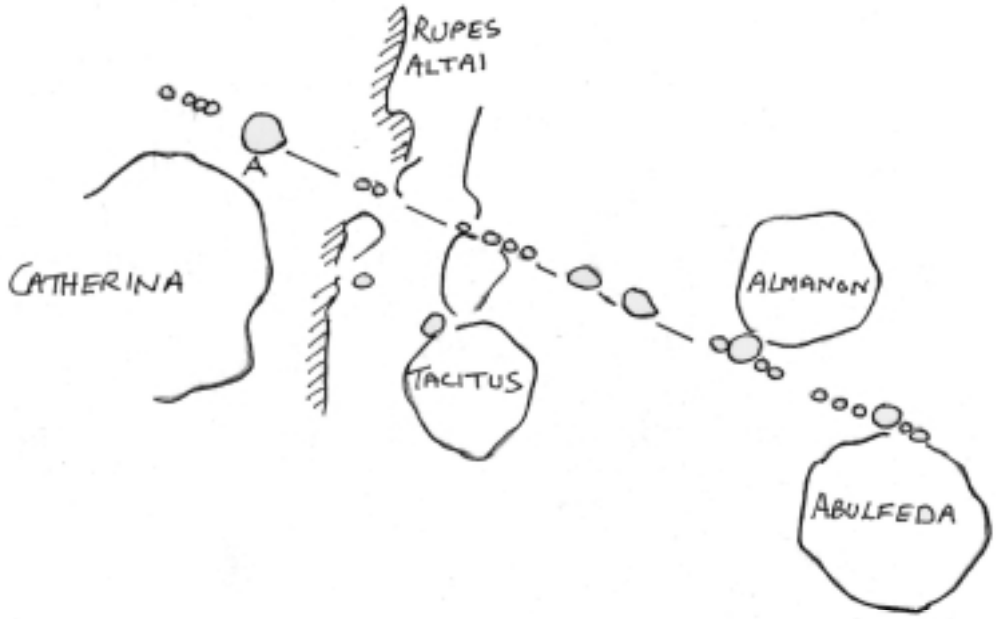
Finally October was a sparse month for repeat illumination/libration events, just two of them. However this November has a dozen! I would like particularly to encourage observers to have a go at observing the Moon on the morning of the **Nov 17th** at around the times listed below. Although this is the night for the maximum of the Leonid shower, pretty much minimal activity is expected this year, and what is worse, the Moon is just past full. Instead another occurrence of the repeat illumination and libration (to within +/- 1 deg) of the famous 1983 Jan 29th Torricelli B (see JBAA (2000) Vol 110, p117-123) event occurs for Europe. An international attempt to re-observe under similar conditions in 2001 Feb 09 (one Saros or 18 years on, see: http://www.wfs.be.schule.de/pages/torricelli/E_results02.html) failed to find anything unusual, nor did another attempt on 2002 Mar 30. However I would like to urge observers to make one last attempt at observing the normal appearance of this crater. In particular: 1) high resolution images to try to see which part of the crater is brightest, 2) whole disk images to establish which is the brightest crater on the Moon at this time (the reason behind this is that at one point during the 1983 Torricelli B event, it was said to be the brightest crater on the Moon – could this have been mistaken identify with nearby Censorinus as suggested by some critics? Well if we find that Censorinus is not the brightest crater on the Moon at this time, then this alternative theory gets shot down), and 3) medium resolution attempts at regular intervals (say every 10 min) to monitor brightness and colour. If Torricelli B behaves normally again, as it should, then we know that it was definitely a real TLP back in 1983, and was endogenic in origin. Secondly on **Nov 20/21st** repeat illumination/libration conditions for Sir Patrick Moore's Messier A TLP occur (see Fig 2). Please do have a go at observing this using high resolution images or sketches to see if you can see the brilliant white patch inside the crater.

Event: Alphonsus (Smith, 1966 May 03) can be seen on/from (UTC): 2005 Nov 15 (00:59-03:48) – *[Look for reddish patches]*
Event: Aristarchus (Wereaulk, 1965 May 15) can be seen on/from (UTC): 2005 Nov 15 (16:21-17:59) – *[Can you see any red colour or does the east wall look unusually bright?]*
Event: Aristarchus (Bartlett, 1976 Jun 12) can be seen on/from (UTC): 2005 Nov 16 (02:26-06:22) – *[Look for colour to the north of the crater/rim]*
Event: Archimedes (Haas, 1940 Aug 18) can be seen on/from (UTC): 2005 Nov 16 (05:36-07:29) – *[Check the brightness of the NE wall and generally image/sketch the crater]*
Event: Proclus (Bartlett, 1958 Jul 02) can be seen on/from (UTC): 2005 Nov 16/17 (22:53-02:49) – *[Image/sketch this crater and also note down how visible/bright the central peak is]*
Event: Aristarchus (Bartlett, 1958 Jul 02) can be seen on/from (UTC): 2005 Nov 16/17 (23:48-03:40) – *[Check for colour in the crater]*
Event: Kastner (Azeau, 1971 Nov 03) can be seen on/from (UTC): 2005 Nov 17 (03:47-07:18) – *[Check for colour in the crater]*
Event: **Torricelli B** (Foley, 1983 Jan 29) can be seen on/from (UTC): 2005 Nov 17 (05:49-07:39) – *[This is a repeat of the famous 1983 TLP, please check for colour and brightness at regular intervals]*
Event: Aristarchus (Bartlett, 1976 Aug 11) can be seen on/from (UTC): 2005 Nov 17 (06:09-07:39) – *[Check for colour and do you think that the West wall is sharp of fuzzy?]*
Event: Proclus (Bartlett, 1958 Jul 03) can be seen on/from (UTC): 2005 Nov 17/18 (23:51-04:24) – *[Monitor features in and around this crater at regular intervals for variation in brightness]*
Event: Aristarchus (Bartlett, 1958 Jul 03) can be seen on/from (UTC): 2005 Nov 18 (00:34-04:21) – *[Check for colour in the crater]*
Event: **Messier A** (Moore, 1951 Oct 20) can be seen on/from (UTC): 2005 Nov 20/21 (23:10-02:07) – *[Look for a brilliant white patch in this crater, also look for "blurrings" in Messier and Messier A]*

Further 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 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 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!

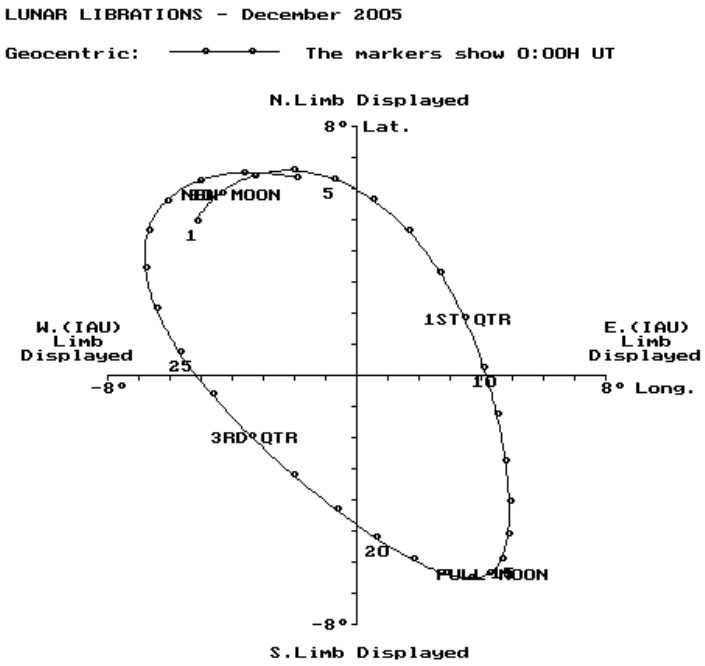
The Abulfeda Crater Chain — Phil Morgan

In the September edition of the circular, Colin Ebdon brought readers attention to the crater chain running south-eastwards from the outer southern rampart of the crater Abulfeda, and included a recent study by himself and a not so recent one by me !
However, I believe that these observations depict only part of what could be in fact, one of the longest crater chains on the visible face of the Moon, since this chain of craters can be seen to extend for about another 180 miles towards the southern outer slopes of Catherina, passing through the 10 mile wide crater Catherina A (and affecting the shape of its north-western wall), making a total of some 250 miles. This is not, of course, a continuous chain of craters, since the individual components lie on a fault and in places the craters are replaced by a graben or valley structure. That this is a fault line is evident by the lateral offset in the Altai Scarp (Rupes Altai) where the crater chain/fault cuts through at the point of intersection.
This is such a prominent feature that it is easily traced on plate 13b of the Hatfield Photographic Atlas. Photographs taken with much larger apertures are much more revealing, and a study of the region in the Times Atlas is worthwhile for those interested.



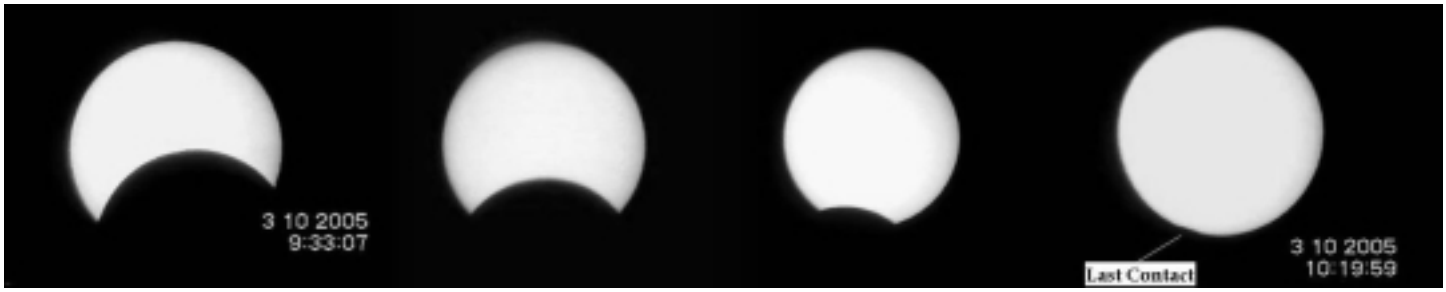
Date	Libration amountø	PAø	Feature presented
1.0	7.3	43	Gerard*
2.0	7.6	35	Volta*
3.0	7.7	27	Cleostratus*
4.0	7.4	19	Horrebow*
5.0	6.8	11	Poncelet*
6.0	6.1	2	Anaxagoras*
7.0	5.1	350	Baillaud
8.0	4.2	334	Hayn
9.0	3.5	311	Riemann
10.0	3.4	283	Ibn Yunus
11.0	3.9	257	Brunner
12.0	4.8	241	Barnard
13.0	5.8	231	Gum
14.0	6.6	224	Oken
15.0	7.2	219	Lyot
16.0	7.4	216	Brisbane
17.0	7.3	212	Hanno
18.0	6.9	208	Pontecoulant
19.0	6.1	203	Helmholtz*
20.0	5.0	194	Boussingault*
21.0	3.9	180	Malapert
22.0	3.1	155	Segner
23.0	3.1	120	Wright
24.0	3.9	93	Riccioli
25.0	5.1	76	Bohr
26.0	6.3	66	Bartels
27.0	7.3	58	Rontgen
28.0	8.0	51	Lavoisier
29.0	8.3	44	Gerard
30.0	8.2	36	Repsold*
31.0	7.8	28	Cleostratus*

Program by Bob Roberts.
Observer at: Lat. 51.0øN, Long. 1.0øW
* indicates that the feature is not illuminated.



I have been given to understand that Springer-Verlag has recently published a new version of the Hatfield Lunar Atlas. It is likely to fill a real need for those observers with SCT telescopes that give a mirror image, as I believe that the atlas is orientated with N at the top but E and W reversed. I have no information yet as to price but will let you know when I do.

The Partial Solar Eclipse of Oct 3rd. Not strictly Lunar, but I thought that I would include them as I understand that very few people in this country saw anything. (Supplied by Colin Ebdon).



Physical Data for Lunations: 1025 — Computed by Gareth Williams

2005 DEC.	Age d	Phase	Earth's Selenographic Longø	Earth's Selenographic Latø	Sun's Selenographic Colongø	Sun's Selenographic Latø	R.A. h m	Dec. ø	Rises h m	Sets h m	Transit h m	Alt ø
1.0	28.9	0.006	-5.2	5.0	267.0	-1.27	15 51	-24.1	07 59	15 10	11 38	12
2.0	0.4	0.003	-4.4	5.9	279.2	-1.28	16 52	-27.1	09 22	15 53	12 39	10
3.0	1.4	0.027	-3.3	6.4	291.4	-1.29	17 55	-28.4	10 31	16 56	13 42	9
4.0	2.4	0.075	-2.1	6.6	303.6	-1.31	19 00	-27.8	11 20	18 18	14 45	11
5.0	3.4	0.148	-0.7	6.3	315.8	-1.32	20 04	-25.4	11 53	19 48	15 45	15
6.0	4.4	0.239	0.5	5.6	328.0	-1.34	21 04	-21.3	12 16	21 20	16 41	20
7.0	5.4	0.344	1.7	4.6	340.2	-1.35	22 00	-16.0	12 32	22 49	17 32	26
8.0	6.4	0.456	2.7	3.3	352.3	-1.37	22 53	-9.9	12 45	.. ..	18 20	33
9.0	7.4	0.569	3.5	1.8	4.5	-1.39	23 43	-3.4	12 56	00 14	19 07	39
10.0	8.4	0.677	4.1	0.3	16.6	-1.41	00 32	3.2	13 07	01 37	19 53	46
11.0	9.4	0.775	4.5	-1.3	28.8	-1.43	01 21	9.5	13 20	03 00	20 41	52
12.0	10.4	0.858	4.8	-2.8	40.9	-1.45	02 11	15.4	13 35	04 24	21 30	57
13.0	11.4	0.924	4.9	-4.1	53.1	-1.47	03 03	20.5	13 54	05 48	22 22	62
14.0	12.4	0.969	4.9	-5.2	65.2	-1.49	03 57	24.4	14 22	07 10	23 16	65
15.0	13.4	0.994	4.7	-5.9	77.3	-1.51	04 53	27.1	15 01	08 25	.. ..	..
16.0	14.4	0.997	4.3	-6.4	89.4	-1.52	05 50	28.3	15 53	09 26	00 11	66
17.0	15.4	0.981	3.7	-6.6	101.6	-1.53	06 47	28.0	16 59	10 12	01 04	66
18.0	16.4	0.946	2.9	-6.4	113.7	-1.54	07 42	26.3	18 11	10 44	01 58	64
19.0	17.4	0.895	1.8	-6.0	125.8	-1.54	08 34	23.5	19 26	11 06	02 48	61
20.0	18.4	0.830	0.7	-5.3	138.0	-1.55	09 22	19.6	20 40	11 22	03 33	56
21.0	19.4	0.755	-0.7	-4.3	150.1	-1.54	10 08	15.0	21 52	11 35	04 16	52
22.0	20.4	0.670	-2.1	-3.2	162.3	-1.54	10 52	9.9	23 03	11 45	04 57	46
23.0	21.4	0.579	-3.4	-2.0	174.4	-1.54	11 34	4.4	.. ..	11 54	05 36	41
24.0	22.4	0.484	-4.7	-0.6	186.6	-1.53	12 16	-1.3	00 14	12 03	06 16	35
25.0	23.4	0.388	-5.7	0.8	198.7	-1.53	13 00	-7.0	01 26	12 14	06 56	29
26.0	24.4	0.293	-6.5	2.2	210.9	-1.52	13 45	-12.6	02 43	12 26	07 40	23
27.0	25.4	0.204	-6.8	3.5	223.1	-1.52	14 34	-17.9	04 03	12 42	08 28	18
28.0	26.4	0.126	-6.7	4.7	235.3	-1.51	15 27	-22.5	05 29	13 05	09 21	13
29.0	27.4	0.062	-6.1	5.6	247.4	-1.51	16 25	-26.0	06 54	13 41	10 20	10
30.0	28.4	0.020	-5.1	6.3	259.6	-1.50	17 28	-28.1	08 11	14 35	11 23	9
31.0	29.4	0.002	-3.6	6.5	271.8	-1.50	18 34	-28.2	09 11	15 51	12 28	10
JAN 2006												
1.0	0.9	0.013	-2.0	6.3	284.0	-1.50	19 40	-26.4	09 52	17 22	13 32	13
2.0	1.9	0.052	-0.2	5.7	296.2	-1.49	20 44	-22.7	10 19	18 58	14 31	18
3.0	2.9	0.117	1.5	4.7	308.4	-1.49	21 43	-17.6	10 37	20 31	15 26	24
4.0	3.9	0.203	3.0	3.4	320.6	-1.49	22 38	-11.4	10 52	22 00	16 17	31
5.0	4.9	0.304	4.2	1.9	332.7	-1.50	23 30	-4.8	11 04	23 25	17 05	37
6.0	5.9	0.413	5.1	0.3	344.9	-1.50	00 20	1.9	11 15	00 48	17 52	44
7.0	6.9	0.524	5.7	-1.3	357.1	-1.50	01 09	8.4	11 27	00 49	18 39	51
8.0	7.9	0.632	6.0	-2.7	9.2	-1.51	01 59	14.4	11 41	02 12	19 27	56
9.0	8.9	0.730	6.1	-4.0	21.4	-1.51	02 50	19.6	11 59	03 35	20 17	61
10.0	9.9	0.817	5.9	-5.1	33.5	-1.52	03 43	23.7	12 23	04 57	21 10	64
11.0	10.9	0.888	5.5	-5.9	45.6	-1.52	04 38	26.7	12 57	06 14	22 04	66
12.0	11.9	0.943	5.0	-6.4	57.8	-1.52	05 34	28.2	13 45	07 19	22 59	66

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Items for the December 2005 circular should reach the Editor by the 10th Nov. 2005