THE BRITISH ASTRONOMICAL ASSOCIATION

LUNAR SECTION CIRCULAR

Director Alan Wells
Assistant Director/Editor John Pedler

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Topographical report for February 2007 Lunar Section **Peter Grego**

Meton C

In January's Lunar Section Circular, Rod Hobbs remarked upon a dusky patch that he had observed on the southwestern part of the floor of Meton C on 2006 June 2d at 21:16 UT. The feature in question is shown clearly in a number of plates in the *Consolidated Lunar Atlas*, from which a compilation of details showing the area is shown below. The images are all approximately to the same E-W linear scale.

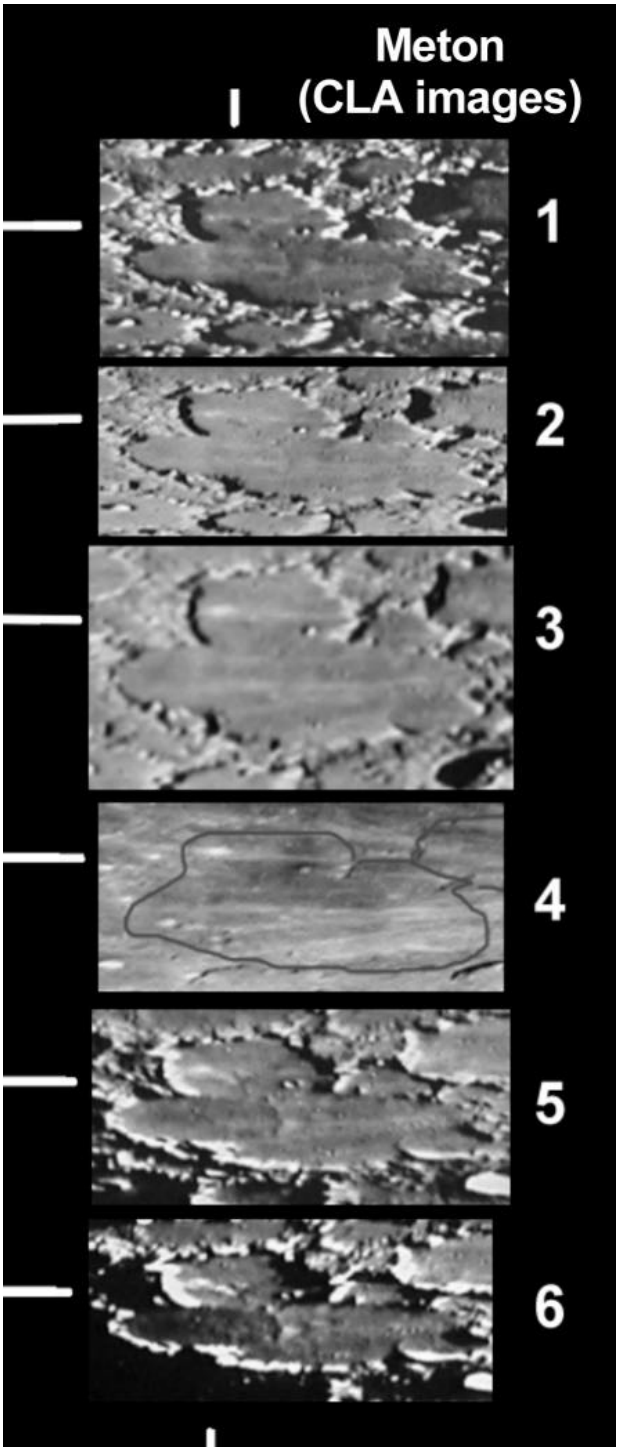


Image details:
1. 1967 Jan 19d, 02:57 UT; Col 7.2°; l -3.6°, b +1.5°. (CLA Plate A5)
2. 1967 Jan 20d, 01:45 UT; Col 18.4°; l -4.8°, b +0.7°. (CLA Plate A8)
3. 1966 Oct 24d, 03:00 UT; Col 28.9°; l +3.4°, b +6.6°.(CLA Plate A10)
4. 1966 Oct 28d, 07:52 UT ; Col 80°; l -1.7°, b +3.2°.(CLA Plate A11)
5. 1966 Sep 4d, 10:44 UT; Col 142.9°; l -4.0°, b +2.7°.(CLA Plate A6)
6. 1966 Sep 5d, 11:43 UT; Col 155.6°; l -5.2°, b +0.7°.(CLA Plate A7)

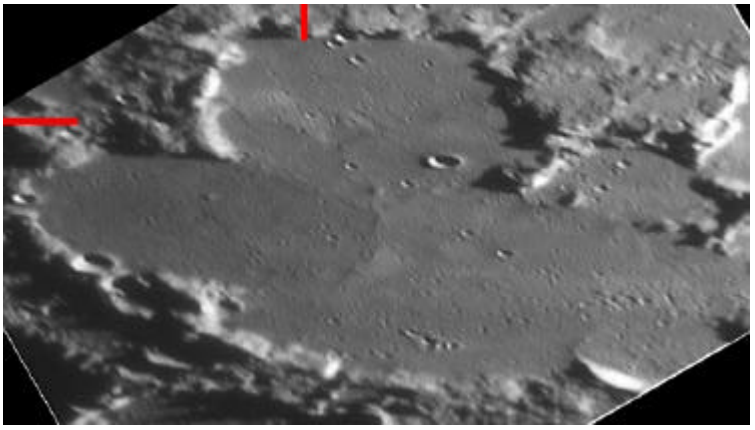
However, it is not possible to arrive at a definitive interpretation based upon medium-resolution images such as these. At first impression, the dark feature in question appears to be a part of the floor that has remained largely unobscured by lighter coloured ejecta from the prominent ray crater Anaxagoras, some 200 km to the west of Meton C. It is clearly not dark enough to represent a solid shadow, as Mr Hobbs points out, but it may represent an area of unresolved rough terrain, or an area that slopes down from the east; alternatively, it may be a simple albedo feature, or a combination of all these.

Higher resolution images by Zac Pujic (Brisbane, Australia) and Wes Higgins (United States) reproduced below show a great deal more topographic detail, but neither show the patch as being particularly prominent. In the vicinity of the dky patch

there are a number of small craters, and there is an indication that a wide, rounded ridge or low plateau borders the south and west of the dusky patch.

Above right: Image of Meton by Zac Pujic (image details currently unavailable).
Below right: Image of Meton by Wes Higgins (2005 June 26d)

Further observations and high resolution images at a variety of illumination conditions will help ascertain the nature of this patch and its immediate vicinity.

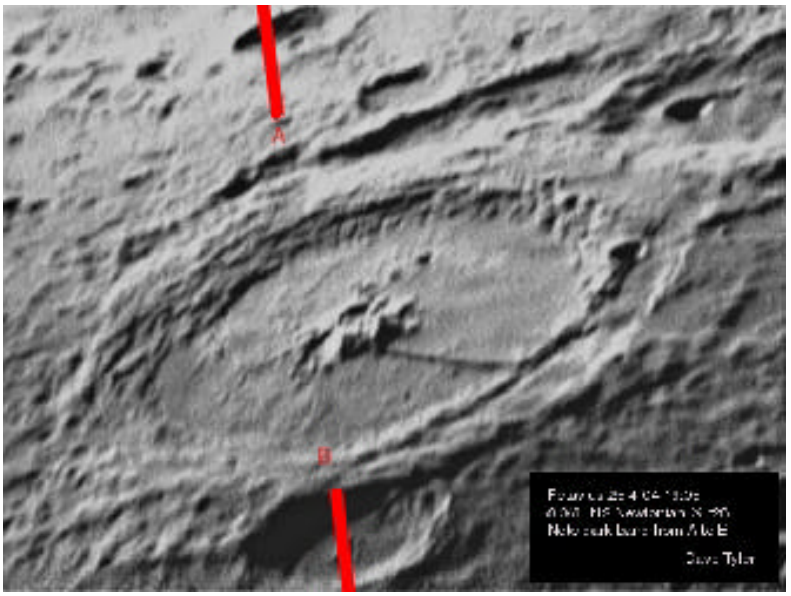


Around the Nectaris basin

The formation of the Nectaris basin by asteroidal impact some 3.9 billion years ago had profound effects across a large portion of the Moon, including the formation of Vallis Snellius, as Maurice Collins rightly comments in January's *Lunar Section Circular*. Vallis Snellius a 500 km long valley made up of a connected chain of mainly shallow craters which extend eastwards from the crater Borda to the south of Hase D, is radial to the centre of the Nectaris basin. Like a number of similar features found around Nectaris (most prominently Vallis Rheita) and other multi-ring basins (especially the Orientale basin), it was formed by secondary impacts of ejected material. According to Spudis (*The Geology of Multi-Ring Impact Basins*, 1993) the main ring of the Nectaris basin has a diameter of 860 km, but there are several smaller inner rings, and a more extensive outer ring some 1,320 km in diameter.

Interestingly, Dave Tyler (High Wycombe) points out a subtle feature relating to the crater Petavius which may have intimate connections with the Nectaris basin. Mr Tyler writes:

"I have observed Petavius for many years as it is a great feature on a young Moon, but I have never noticed the dark band running from A to B (marked on the images here). My ToUcam noticed it right away. The feature appears on three different AVI movie clips. You may also note it is accompanied by a brighter band to the right of it which is also highlighted on the central peak. It appears to me to be a shallow groove one side of which is highlighted by the Sun. This groove also appears in the crater rim. I don't know if it a recognised feature and has a name."



Right: Petavius, imaged by Dave Tyler (2004 April 25d, 19:05 UT)

It is an intriguing feature. The effect is enhanced by the strong (?fault) line cutting across Petavius' outer wall and causing a difference in illumination on either side of it, and this line seems to extend across Petavius' floor in a series of low hills to one side of it. Whether this is all a real fault line, or whether it is an effect caused by a combination of topography, illumination and albedo, it is difficult to be certain at present, but it certainly would deserve closer attention on images and by visual observation. It is radial to the Nectaris basin and may represent a deep-seated fault line predating the formation of Petavius.

The New Moon

The December 2006 issue of *The New Moon* is now available from the Director, Alan Wells, in printed format or as a high-res PDF file. A perfectly readable lower-res version of the journal is available for direct download from my website at:

http://www.lunarobservers.com/baalunar.htm

All Moon-related articles, correspondence, news, notes, comments and observations are welcome. The next issue is planned for the late spring 2007, so if you have any material that you would like to se published in the journal, please send it to me by the end of March.

Peter Grego

Occultation subsection news — Andrew Elliott

I'm pleased to report that we now have occultation predictions again after their absence for the last couple of months. As mentioned in previous Circulars, the OCCMOON program, after being used successfully for over 20 years, has finally met its demise. The total occultation predictions below have been produced using David Herald's OCCULT program version 3.6. Of course nothing is constant and OCCULT outputs predictions in a different format, using different star reference numbers, and different 'observability' conditions. So I have limited the number of columns below but hope to be able to improve the formatting in the coming months. I have included both the February and March predictions to catch up with the usual one month in advance principle. Please note the Pleiades passage on the night of February 23/24.

There has also been a change in the grazing occultation track maps to do away with the 'HPGL' printout. It has been replaced with a bitmapped image, which should be easier to publish. There is also a colour version but this will need some experimentation to find out how well it will carry over to the emailable PDF version.

Two grazes occur in February, both on 26th. The first track crosses NI south of Belfast, and travels SE crossing N and C Wales, Hereford & Worcs., Glos., Wilts, Hants, and W Sussex (near Selsey). Although the star is bright (mag 4.8), the elevation is only around 13-14 degrees and the graze occurs against the bright limb, and from 02:22 UT. So not a particularly good prospect.

The other graze track travels SE across S RoI and C Cornwall only. The star is a close double with a combined magnitude of 6.7 and the event takes place at a good elevation against the dark limb. However, the areas traversed may not have many observers.

Finally, I should mention the graze of Saturn on the night of March 01/ 02. Starting around 02:35 UT, the central track travels SE down the W of Scotland, W coast of Cumbria, W Lancs, Ches., Midlands (B'ham), Oxon., Berks (Reading), Surrey, and W Sussex. The graze occurs at an elevation of around 33 degrees, but against the bright limb of the nearly full moon. Nevertheless, it should, as always be quite a spectacular occultation graze, suitable for video recording etc.. Owing to the significant diameter of Saturn, the actual track within which a graze will be visible is quite wide although I have no details yet.

As always, please let me know if you want detailed information for any of these grazes.

Predictions for 52°27'41.4"N 1°44'44.0"W Birmingham

February 2007

Occultation Predictions for LSC in February 2007
E.Long. - 1 44 44.0 Lat. 52 27 41.4 Alt. 50m. T.dia 150mm.

Day	TimeUT	Ph	Star	Sp	Mag	% Ill	Elon	Sun Alt	Moon Alt	Moon Az	CA	PA	VA	WA
d	h m s		No	D	V						o	o	o	o
01	0 38 43	d	79868	DK0	7.4	98+	165		58	213	81S	124	102	113
03	21 36 21	r	1522	K0	6.8	97-	160		26	108	59S	258	295	239
03	22 55 19	r	99120	K0	7.2	97-	160		37	126	76N	304	334	284
04	0 47 23	r	99153	cF8	7.2	97-	159		46	160	57N	323	335	303
04	2 41 13	d	1547	cB1	3.8v	97-	159		45	200	-56S	145	133	125
04	3 52 12	R	1547	cB1	3.8v	96-	158		40	223	87S	288	263	268
06	3 38 45	r	138521	K0	7.1	86-	136		35	191	36N	350	343	328
08	1 42 52	r	1919	K5	6.9s	71-	115		17	140	63N	320	344	300

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11  5  3 39 r    2261 K3  6.6   42-  81      9 159  53S 244 258 233
19 18 17 48 D    3520 M5  5.8v   6+  28  -8 16 248  70S  86  51 108
19 19 12  4 D  128481dF0  8.6    6+  28      9 260  88N  63  26  86
20 18 41 42 D     103 G8  5.9   13+  42 -12 26 247  71S  83  49 105
20 19  6  1 D     105wK5  4.4   13+  42     22 253  66N  41   5  63
20 19 40 49 d  109489 K5  8.6   13+  43     17 260  46S 109  72 131
20 19 41 15 D  109488 G0  7.6   13+  43     17 260  86N  61  23  83
20 20  1 26 r     105wK5  4.4   13+  43     14 264 -73N 262 224 284
20 20 35  9 d  109500 F8  8.1   13+  43     10 271  23N 358 320  20
21 18  4  0 d   92574 K0  7.6   22+  56  -6 42 229  80S  77  48  97
21 19 52 45 d     256 K0  8.6   22+  56     28 256  52S 104  67 124
22 18 59 12 D   93033SK0  7.2   32+  70     47 234  85N  66  34  83
22 20 52 53 D     399SA0  5.7   33+  70     32 261  86S  75  34  92
22 21 22 46 d   75531DG5  7.7   33+  71     28 268  57N  38 358  55
23 19 24  7 d     522 G5  7.8   44+  83     55 228  71N  57  27  70
23 22 27 21 d   76113 A2  8.1v  45+  84     30 272  73N  60  17  72
23 22 50 18 D     536cB7  5.5   45+  84     26 276  39S 127  86 140
23 22 54 26 D     539SB6  4.3   45+  84     26 277  79S  88  46 101
       539 = Taygeta = 19 Tauri (Multiple)
23 23  9 42 d   76152cB9  7.2s  45+  85     23 280  45S 122  81 135
23 23 12 55 D     541cB8  3.9   45+  85     23 281  51S 115  74 128
       541 = Maia = 20 Tauri (double)
23 23 13 15 D     542 B8  5.8   45+  85     23 281  88N  75  33  87
       542 = Asterope = 21 Tauri
23 23 16  2 D     543cA0  6.4   45+  85     23 281  86S  81  40  94
23 23 38 51 d     548cB9  6.8   46+  85     19 285  78S  89  49 102
23 23 49 29 d   76194 A0  7.7   46+  85     18 287  90S  77  37  90
23 23 51 49 r     539SB6  4.3   46+  85     17 288 -89S 256 216 268
       539 = Taygeta = 19 Tauri
24  0  0 27 r     541cB8  3.9   46+  85     16 289 -62S 229 190 241
       541 = Maia = 20 Tauri
24  0 29  5 d     557cA1  7.0   46+  85     12 294  16S 152 114 164
24  0 46 26 d     562SB9  6.6   46+  85     10 297  21S 146 109 158
24 18 43 45 d     694wK2  8.1V  55+  96 -11 64 189  54N  46  40  54
24 19 28 25 D X 70481M    7.3   55+  96     62 210  69S 103  83 111
24 19 28 27 D     701SF2  6.6   55+  96     62 210  69S 103  84 111
25 22 13 20 d   77495cA0  8.1   67+ 110     51 247  77N  77  37  79
26  0 56 43 D     885wG7  5.6   68+ 111     28 281  89S  91  48  93
26  2 18 39 D     890cA0  4.6s  68+ 111     16 295   6S 175 136 176
       890 = 136 Tauri (double)
26 18 54  2 d   78580SA2  7.3   75+ 121     60 138  51N  57  85  54
26 21 45 55 d   78685 B9  8.0   76+ 122     61 219  87N  94  69  91
27  0 21 18 D    1042 A2  6.7   77+ 123     41 263  90N  97  54  93
28  2  4 30 d    1180 F5  7.1   86+ 135     31 270  76S 118  76 109
28  3  6 27 d   79739 F0  7.1   86+ 136     22 281  22S 173 131 163
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March 2007

Occultation Predictions for LSC in March 2007
E.Long. - 1 44 44.0 Lat. 52 27 41.4 Alt. 50m. T.dia 150mm

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Day TimeUT  Ph  Star  Sp  Mag    % Elon Sun  Moon   CA   PA  VA  WA
 d  h  m  s      No  D       V  ill     Alt Alt Az   o    o   o   o
02  2 47  1 G Saturn      0.0   97+ 159     33 253  -8S 211 174 194
 Distance of Saturn  to Terminator = 1.5 ; to 3km sunlit peak = 0.0
   Duration of Partial Stage for Disk = 31980 mins
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Graze of Saturn nearby at Lat = +52.44 -1.11(E.Long +1.75), CA = -8.5S
02  2 47  4 GrSaturn      0.0   97+ 159     33 253
Closest distance to graze path is 1km at azimuth 241
02 23 47 45 d    1501 G5  7.2   99+ 169     49 183  87S 118 116  99
START OF TOTAL LUNAR ECLIPSE PERIOD:-
03 21 50 22 r X210238    11.7   79E 180     35 133 -10N 324 351 303
03 21 56 38 d X119874    11.3   69E 180     36 135  73U 158 184 137
03 21 59 31 D X 16454 G0 10.8   64E 180     36 135  70U 128 154 107
03 22  6 26 d X119891    11.6   52E 180     37 137  60U 147 172 126
03 22  9 12 D X 16455 G5  9.9   47E 180     37 138  57U 143 167 122
03 22 15 50 d X119916    11.8   35E 180     37 140  55U 127 151 106
03 22 18 40 D X 16442 F0 10.2   30E 180     38 141  54U 174 197 153
03 22 19 57 R X119830    10.5   29E 180     38 141  -4N 268 291 248
03 22 48 36 D X119928    10.2    0E 180     40 150  20U 163 182 143
03 22 52 35 R X 16430 G5 10.7    0E 180     41 151  80U 289 306 268
03 23  0 56 r X119874    11.3    0E 180     41 154  64U 273 289 252
03 23 10  0 R X 16442 F0 10.2    0E 180     42 157  46U 258 272 237
03 23 15 53 R X 16454 G0 10.8    0E 180     42 158  64U 304 317 283
03 23 17 57 r X119891    11.6    0E 180     42 159  53U 285 298 264
03 23 22 49 R X 16455 G5  9.9    0E 180     43 161  52U 290 301 269
03 23 32 48 r X119916    11.8    0E 179     43 164  54U 306 315 285
03 23 35 49 d X 16494 F5 11.2    0E 179     43 165  39U 176 185 155
03 23 51 10 R X119928    10.2    0E 179     43 170  26U 271 277 250
04  0 28  4 r X 16494 F5 11.2   37E 179     44 183  53U 260 258 239
04  0  6 12 d X210297    11.6    5E 179     44 175 -47N  97 100  76
04  0  9 44 D  118607 F8  9.6    9E 179     44 176 -48N  97 100  76
04  0 47 56 d X120051    10.9   71E 179     43 189 -62S 165 160 144
04  0 51 45 d X120085    11.4   77E 179     43 190 -52N 100  94  79
04  0 52 11 D  118616 K2  8.9   78E 179     43 190 -40N  87  81  66
04  0 53 53 D    1600wA5  5.0   80E 179     43 191  -7N  54  47  33
04  0 59 29 D  118611 G5 10.2   88E 179     43 193 -83S 144 137 123
END OF LUNAR ECLIPSE PERIOD
05 23 32 51 r    1779 K0  6.5   96- 157     27 145  39N 351  11 329
20 19 21 32 D     196SF0  7.0s   4+  23 -10 11 274  88S  64  25  85
20 19 39 59 d   92392 K2  9.0    4+  23      9 277  10S 142 104 163
20 19 55 49 d   92404 K0  9.0    4+  24      7 281  84S  68  30  89
22 19 25 38 D   75845 A3  7.6   19+  51 -10 36 261  89N  71  30  85
22 21  0  1 d   75882cF0  8.5   19+  52     22 279  39N  21 340  35
23 19 18  3 d   76547 A0  8.8   29+  65  -9 48 249  78S  90  51 100
24 18 41 44 D     797cB9  6.4   39+  77  -3 61 220  81S  93  67  98
24 23 25 18 d   77224cF8  7.4   41+  80     22 287  69S 107  65 110
25  1  7  2 D     840cK0  6.3   42+  81      9 304  65S 112  77 115
25 19 58  9 d     979 A0  8.1   51+  91     60 226  48N  50  20  48
25 21 39 57 d   78410 K1  7.7   51+  91     46 255  74S 108  67 106
26  1  4 47 d    1013cG0  7.0   53+  93     16 293  83S 101  62  98
29  1 36 17 d    1383cF5  6.6   81+ 129     27 264  54N  73  33  57
30  3 28 11 D    1487SB7  1.4   89+ 141     12 274  54S 148 109 129
      1487 = Regulus = alpha Leonis
30  4 18  4 R    1487SB7  1.4   89+ 141      5 283 -68S 269 232 250
      1487 = Regulus = alpha Leonis
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A letter in the "D" or ‘V’ columns indicate a double, or variable, star, respectively.
See LSC **35**, 5 (May 1999) for comments on recording observations using the new format predictions.

Grazing Occultations, UK and Ireland, Jan 01-Sept 24 2007, Magnitude <= 7.0

See accompanying graze track map in this LSC

TRACK NO.	DATE (2005)	USNO REF:	SAO/PPM REF:	D	MAG	%SUN-LIT	L	W.U.T. HH MM.M	CUSP ANGLE	T	STAR NAME	MAG1 (Where double)	MAG2 1
JAN 12	ZC 1970	158147	L 6.2		43-	S	7	14.6	10.2	D	B	85	Vir	6.5	8.2
2	JAN 22	ZC 3430	146639	A	5.6	15+	S	16	53.5	15.1	D	B	96 Aqr	5.7	10.6
3	JAN 27	ZC 552	76199	K	2.9	70+	S	16	38.7	12.3	D	A	25 eta Tau (Alcyone)	3.0	4.6
4	JAN 27	ZC 549	76192	U	6.3	70+	S	16	47.3	11.1	D	B	24 Tau	7.1	8.2
5	JAN 29	ZC 756	76941		6.6	81+	N	1	19.7	1.0	D	B	38 B. (Aur)/Tau		
6	FEB 26	ZC 890	77675	V	4.6	68+	S	2	17.6	5.3	B	B	136 Tau	4.8	6.3
7	FEB 26	ZC 1035	78710	X	6.7	76+	N	22	48.2	3.9	D	B		7.6	7.6
8	MAR 2	SATURN			0.3	96+	S	2	26.4	7.1	B	A	Saturn – N.B.		
9	APR 7	ZC 2318	184184		6.6	83-	N	3	55.3	0.4	T	C			
10	APR 22	ZC 1089	79142		6.7	35+	N	22	54.4	10.3	D	A			
11	MAY 23	ZC 1487	98967	A	1.4	49+	S	15	3.9	4.8	B	A	32 alpha Leo (Regulus)		
12	JUL 17	ZC 1487	98967	A	1.4	10+	N	8	6.2	1.3	D	C	32 alpha Leo (Regulus)		
13	AUG 7	ZC 574	76286	K	6.8	35-	N	3	43.5	11.2	D	A		7.6	7.6
14	SEP 6	ZC 1013	78540	O	7.0	28-	N	0	33.9	6.1	D	C		7.1	8.7
15	SEP 23	ZC 3031	189667		5.9	81+	S	0	17.2	12.7	D	B	17 Cap		
16	SEP 24	ZC 3307	165134	V	4.8	95+	S	22	29.0	12.2	D	A	57 sigma Aqr	5.7	5.7

'D' column after PPM indicates double star code. 'W.U.T.' = Start UT of west end of track

Letter in column after "CUSP ANGLE": -
'B' = Bright Limb
'D' = Dark Limb
'T' = Near Terminator

Column 'T' = Telescope size required: -
'A' = 4"
'B' - 6"
'C' = >6"

N.B. Don't forget to add 1 hour to the above times during British Summer Time! (wef March 25)

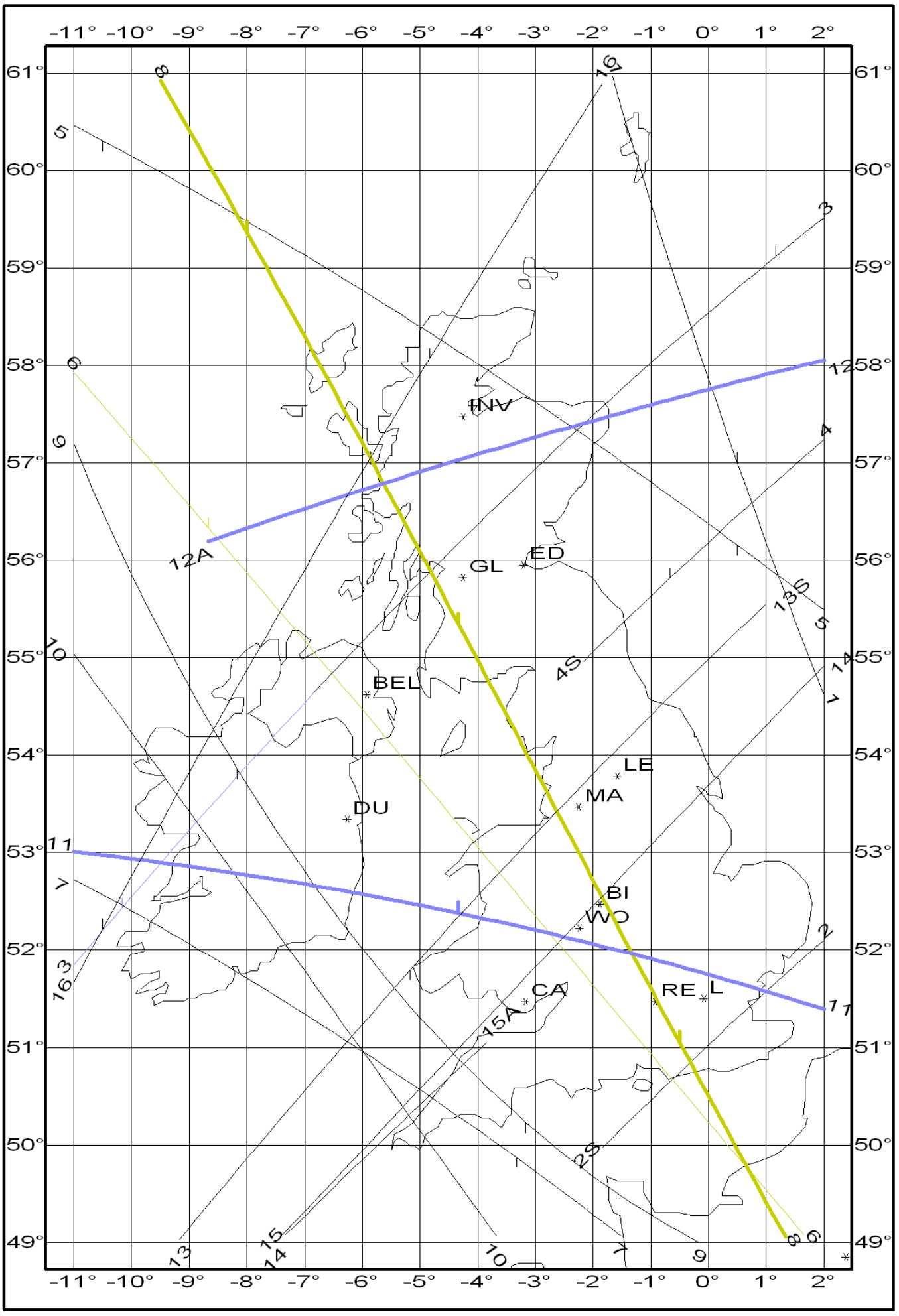
Predictions are courtesy of Dave Herald's "OCCULT" program v6.3 for total occultations, and the International Occultation Timing Association European Section (IOTA/ES) "GRAZEREG" program.

Valley Snellius Naming — Robert A Garfinkle FRAS — Sec tion Historian

In the January 2007 issue of the *Lunar Section Circular*, Maurice Collins asked when the lunar feature Vallis Snellius was named and wonders why it is not mentioned in the Wilkins and Moore book, *The Moon*. The International Astronomical Union (IAU) named this feature in 1964, thus being 11 years after *The Moon* was first published and 4 years after the second edition came out, it is not in that book. Vallis Snellius is shown and labeled in the Orbiter images on pages 51 (59-3) and 52 (60-1) in the *Atlas and Gazetteer of the Near Side of the Moon*, NASA SP-241, (1971) by Gary L. Gutschewski, Danny C. Kinsler, and Ewen Whitaker. The valley is also depicted on the LAC 97 (I-720), "Fracastorius Quadrangle" and LAC 98 (I-794) "Petavius Quadrangle" charts. I am sure that you will find it in numerous other lunar reference works published over the last 40 years.

To fill in some additional information on Vallis Snellius, it is the longest named valley on the Moon and runs for about 592 km (368 miles), as mentioned by Maurice. Depending on the angle of solar illumination, the valley can be hard to distinguish from the surrounding rough terrain. The valley begins in the vicinity of the northwestern ejecta blanket of the pre-Nectaris-age crater Snellius and heads in a generally northwestern direction. The valley appears to be younger than Snellius, because where the valley hits the crater's northwestern rim, the rim is distorted inward and degraded. The valley has been reshaped by numerous impacts believed to be from the formation events of Langrenus and the "Nectaris Basin". Selenologists believe that Vallis Snellius is the result of a long chain of impact sculpturing and not subsidence along graben faults.

Grazing Occultations, Great Britain 2007 >= 7.0 mag. IOTA/ES E. Riedel



BAA/ALPO TRANSIENT LUNAR PHENOMENA

Tony Cook

Observations were received from the following observers for December: Jay Albert (FL, USA), Marie Cook (Mundesley, UK), myself (University of Nottingham, UK), Maurice Collins (New Zealand), Robin Gray (NV, USA), Praet Marnix (Belgium), Gerald North (Narborough, UK), and Brendan Shaw (UK). One TLP and two candidate impact flash reports were received for December.

On 2006 Dec 02, 2006 03:30-5:30UT Robin Gray was using a 152mm f9 refractor. The seeing was 5 (US scale), and the transparency was initially 3 (US scale), with broken clouds, clearing to 6 and a magnification of x228 was used. The Moon's elevation angle above the horizon was very high at 57 to 64 degrees over this time period, so there should have been no atmospheric spectral dispersion effects that one gets at much closer to the horizon. Robin reported… *"An initial observation of Bullialdus took place at 03:30UT and at that time it was noticed that the crater interior appeared to have a hint of yellow coloration. Briefly inspected Timocharis and the Cobra Head area, which was still in shadow. At 03:57UT (see Figure 1) it was noticed that part of the interior of Bullialdus had turned a deep yellow color. The southeast and east central part of the crater floor as well as a circular feature on the SW crater floor were yellow. The rest of the crater floor and inner walls of Bullialdus remained shades of gray. Comparison with other craters in the area such as Konig, Bullialdus A and B, Reinhold, Lansberg, Encke and Gassendi showed no trace of yellow in these features. By 04:05UT the yellow color was fading and by 04:15UT it was gone. Attempted to contact David Darling from 04:24-43UT but did not have his phone number. By 04:46UT all of the clouds in the sky were gone. Bullialdus remained gray. At 04:51 a slight yellowish tinge was seen in the crater. This was very fleeting and disappeared by 04:56. At 05:01UT a yellowish color was again seen briefly. At 05:16UT a slight yellowish tinge was seen again. This rapidly grew stronger - at 05:17 other craters were examined and no yellow coloration was seen. By 05:18UT Bullialdus had once again faded to gray. No further yellowing was seen by 05:30UT, when observations were concluded. Bullialdus was examined through Wratten Filters Red 29, Blue 38A, Yellow Green 11 and Yellow 15 - nothing unusual was seen through any of these."*

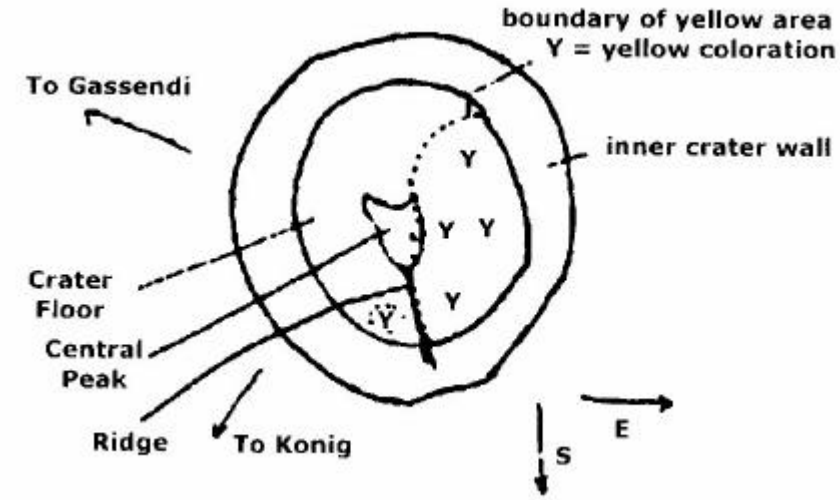


Figure 1 Robin Gray's sketch of Bullialdus showing the location of the yellow colouration, seen in white light, 03:57 UT on 2006 Dec 03. Note that I have re-orientated his sketch and re-positioned/ rewritten his annotation.

Only one other observer appears to have been observing on that night, Maurice Collins in New Zealand and he just happened to capture Bullialdus by chance and sent me two raw unprocessed colour images taken at 09:43 and 09:45UT, some four and a half hours after Robin's last reports of the yellow colour. I have reproduced a colour enhanced version of the 09:45 image below and can see no obvious signs of colour. Robin was sent a copy and was asked if the colour he saw was srtrong enough to have shown up in this image and replied: *"I would have been able to see the yellow in Bullialdus in this image, had it been there. I have observed Bullialdus many times before this and this is the only time I noticed a yellow coloration - it was noticeable from the beginning of my observation of the crater that night. As I described in my report, the color varied considerably in extent and intensity through the observation period."* I also asked Robin an obvious question, did he notice any blink effect between the Red Wratten 29 filter and the Blue Wratten 38A filter, but he said that he did not notice any.

Figure 2 Enhanced colour image of Bullialdus, taken by Maurice Collins, NZ, ~4.5 hours after the end of the TLP reported by Robin Gray.

There are several interesting things about Robin's observation and Bullialdus:

1) The lunar altitude was high, so there should have been no spectral dispersion in our atmosphere, and no similar colour was visible on any other features. Colour can come from the optics in refractors, but again no colour was seen on other features.

2) The amount of yellow colouration varied on and off in four episodes (18 minute episode first followed by 4 min, then < 1min, and 1 min) for just under a total of ~25 minutes during the entire 120 minute observing session.

3) The fact that Bullialdus appeared normal through the red, yellow, green and blue filters poses us a problem. It is normal to look for colour with Red and Blue Moon Blink filters – Robin says that he saw no effect. The red Wratten 29 filter has a very sharp cut-off at wavelengths shorter then 620 nm. The blue Wratten 38A filter has a more gradual cut off 50% at 480 nm, 40% at 500 nm, 23% at 550 nm, 2.6% at 600 nm, 1% at 620 nm and nothing beyond 650 nm. The colour "yellow" is a bit subjective and lies in the range 500-600 nm. Therefore if the yellow colour that Robin saw was due to a single bright spectral line emission, then it probably would have come out black in the red and dark gray in the blue. This was not reported, however we must remember that the sensitivity of Moon Blink devices lies in detecting colour extremes, such as "reds" and "blues" and is not really keyed up to finding colours in between. Although he used other filters, it looked normal through these too. This probably indicates that the

yellow colour was over a range of wavelengths that spanned through the cut-offs of the red and blue filters, but obviously with a slight peak in the yellow.

4) One of the reasons why Robin was observing the crater at this time was part of the routine effort to check out the normal appearance of craters under the same illumination conditions as to when TLPs have been seen here in the past. The original TLP report was by: Findlay and Ford (Dundee, Scotland) back in 1974 Sep 27 UT 22:45-23:40 (10" refractor, 150x, 180x, filters): *"Saw yellowish-orange color in crater. After clouds passed at 2300h color still there & gave a slight blink which no other craters did. Not seen in red filter, dark in blue. Ford saw it along ridge fr. c.p. to SW wall. Alert did not bring confirm. as clouds intervened for all others."* NASA catalog weight=4 (high). NASA catalog ID #1394. However the Moon was low in altitude 23-20deg. Back in 1974.

5) Of the 10 past TLP reports for Bullialdus, 8 have been colour related, although it should be said that 4 of these had the Moon in a low altitude range of 17-23 degrees above the horizon, and some of these early reports do not describe a conscious effort to look to see if other features exhibited colour.

6) One moral of this story is that please can all observers keep either David Darling or my own telephone TLP alert numbers nearby. Long lasting TLP events are rare, but it might have been possible to get other observers up and about to verify the colour seen. As a backup, having a digital colour still or video camcorder at hand may help to verify such reports too and they do provide three waveband observations rather than just two with Moon Blinks.

If you wish to try to observe Bulliadus during 2007 at the same colongitude as Robin's observation, then you may do so at the following dates and UTs so long as the Moon is say > 20degrees above your horizon and it is night time:

Jan 30	09:10-10:59	Feb 28	23:58-01:47	Mar 30	14:00-15:49	Apr 29	02:56-04:45
May 28	14:46-16:35	Jun 27	01:42-03:31	Jul 26	12:11-13:59	Aug 24	22:44-00:33
Sep 23	09:57-11:45	Oct 22	22:13-00:01	Nov 21	11:43-13:31	Dec 21	02:19-04:06

The second of the reports is as follows: On 2006 Dec 08 at 17:52 UT +/- 2 min, Maurice Collins (Palmerston North, New Zealand) reported seeing a very bright flash near the center of the lunar disk (south of Godin) in daylight! The flash flared up and down over a fraction of a second and was visually perceived to be three times brighter than the illuminated lunar background. He was using a 40mm A.H. eyepiece on his 3.5" Maksutov telescope. Seeing was Antoniadi III-IV. Some video was taken about 10 minutes earlier but shows nothing of interest was happening thenr, although a faint spot was visible in the Godin region, but this could easily be video image noise on the digitized image frame that I have seen. I have passed this report across to Brian Cudnik of ALPO's impact flash programme. It should be said though that single flashes are very difficult to confirm and can be caused by other effects e.g. cosmic rays striking the human retina.

Maurice Collins also reported another fainter flash on the Moon whilst looking for Geminid impact flashes in Earthshine. This one occurred near Proclus at 14:37 UT on 2006 Dec 15.

Apart from the usual checking up on past TLP sites at the same illumination and libration, for 2007 I have thought up three additional projects that I would like to invite observers to participate in:

Monitoring of Earthshine for impact Flash Clouds

I got this idea from the SMART-1 impact, where it was found that apart from the impact flash, a cloud persisted for many seconds following the impact, presumably from debris ejected into sunlight (http://www.cfht.hawaii.edu/News/Smart1/)? It occurs to me that apart from looking for short duration flashes with video rate cameras, perhaps we could also employ integrating CCD or digital still cameras that are capable of taking repeated exposures in Earthshine of say 0.25 to 5 sec exposure at intervals of 5 to 10 seconds. Such images give us much clearer views of the Earthshine than we can get from single TV frames. These Earthshine images can then be used to build up a movie from which we can look for associated impact debris/ejecta clouds. We would concentrate at times of the year with high meteor rates on the night side e.g. Quadrantids, Perseids, Leonids, Geminids. Where possible two or more observers should observe at the same time to avoid terrestrial cloud effects.

Monitoring of crater interior shadows at Sun rise

These have been several interesting TLP reports where observers have reported temporary grey shadows or transient activity within crater shadows e.g. Herodotus, Eratosthenes, and Tycho. One possibility may be electrostatic levitation of dust particles. In order to participate we would require low to moderate resolution imaging with CCD cameras in order to gain enough contrast to see possible details inside shadows, taking images at a rate of at least one per minute and keeping the scene reasonably fixed would be ideal. Scattered light will undoubtedly be a problem, so you should not attempt this unless the transparency is excellent, and the Moon is at least 20 degrees above the horizon. At the very least, if no TLP are detected, we should get some nice images and time lapse movies of shadow rays and see possible evidence for light scattered off crater rims onto crater floors. Although intended for CCD observers, visual observers can participate too, by just keeping a look out for gray shadows (in deeply shadowed craters) and alerting us if they see any.

Monitoring of Ina type features

As reported in Nature (9th Nov 2006), Prof. Peter Schultz of Brown University, has evidence that the Ina formation, and others, may be geologically very young, and perhaps still outgassing? Although this partly contradicts Apollo surface evidence of non-major outgassing – (the lunar atmosphere is just so thin that anything substantial like this would have been detected over the few years of surface instrument operation) it might be worth our while monitoring the regions around Ina and other similar geologically young

formations for obscuration and colour. High resolution colour CCD images and visual observations over time intervals of the following areas would be worth trying: Ina (18.6N, 5.3E), Hyginus rille central cadera, and near Arago/Rima Aridaeus, - just in case!

Due to pressure of work from teaching three university modules during the spring semester, TLP articles and acknowledgement of receipt of observations may become a bit fragmentary over the next four months – so my apologies but I will do my best to stay in touch.

The following repeat illumination and libration events for UK observers occur for February....

Event: Aristarchus (Cutts et al, 1969 Nov 22) can be seen on/from (UT): 2007 Feb 01 (00:00-04:32) - *[Can you see a bright patch on the west wall between the two radial bands – do your local seeing conditions make this appear to pulsate? Also any sign of colour present inside the crater?]*

Event: Plato (Pratt, 1874 Jan 01) can be seen on/from (UT): 2007 Feb 01 (04:24-07:09) - *[Would you say that the appearance of the crater looks unusual at this colongitude?]*

Event: Aristarchus (Bartlett, 1976 Jun 12) can be seen on/from (UT): 2007 Feb 02 (06:11-07:32) - *[Do you see any sign of colour in and around this crater, especially on the E-NE wall crest?]*

Event: Proclus (Bartlett, 1958 May 04) can be seen on/from (UT): 2007 Feb 03 (01:24-05:15) - *[Please sketch or CCD image the crater, taking note of the brightness of spots]*

Event: Aristarchus (Bartlett, 1958 May 04) can be seen on/from (UT): 2007 Feb 03 (01:54-05:52) - *[Can you see any colour in or around this crater?]*

Event: Peirce A (Wilkins, 1934 Dec 23) can be seen on/from (UT): 2007 Feb 05 (05:34-07:49) - *[Can you see Peirce A crater or detail on the floor of Peirce?]*

Event: Aristarchus (Bartlett, 1957 Oct 16) can be seen on/from (UT): 2007 Feb 10 (03:54-05:58) – *[Any sign of a faint blue-gray tint on the N, NW, W floor and walls?]*

Event: Gaudibert (Mare Nectaris, 1880 Jan 18) can be seen on/from (UT): 2007 Feb 23/24 (22:30-01:22) - *[Please observe especially if the seeing is bad to see if you can match Gadibert's description of the whole of this region appearing foggy. CCD images would also be welcome at this stage in illumination so that we can simulate bad seeing on these on a computer!]*

Event: Plato (Bartlett, 1964 May 20) can be seen on/from (UT): 2007 Feb 25 (17:33-19:52) - *[Any sign of orange-red colour on the west wall? Please image with a CCD if you have one as we can then use this to try to simulate atmospheric spurious colour]*

Event: Piton (Moore, 1958 Sep 23) can be seen on/from (UT): 2007 Feb 27 (00:36-04:15) - *[Any sign of obscuration?]*

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 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

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From the Ed....

We have reached new heights. Twelve pages! This is due to the excellent contributions by our three main contibutors, but even with this bumper issue I still have a number of items sent in by other members, and I assure you that they will appear soon! Please keep your contibutions coming. The Summer will evenually arrive when there is nearly always a dearth of material, and items from newer members would be especially welcome.

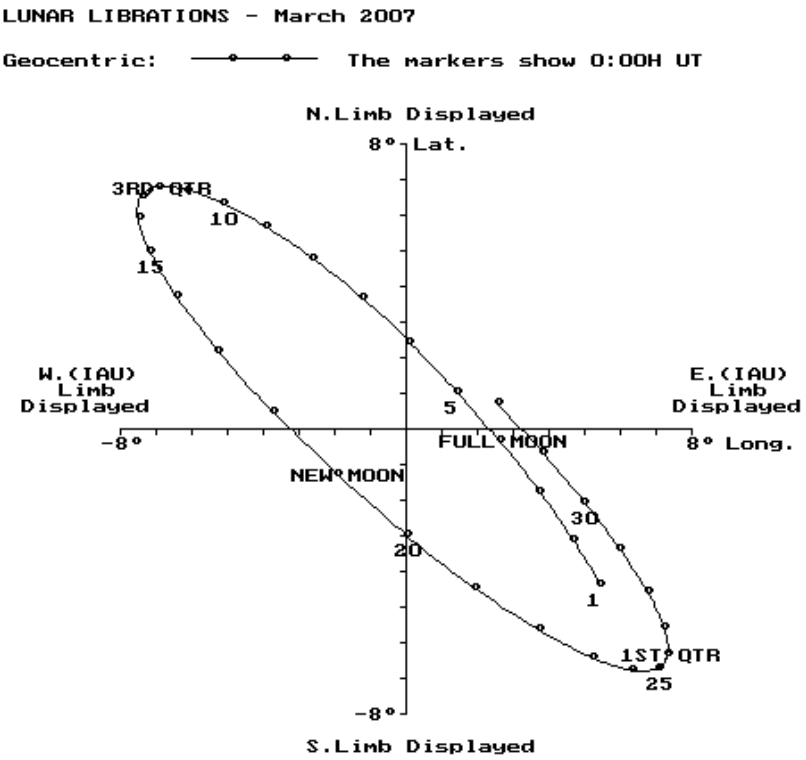
For those who may send their contributions via the Internet, it would help me considerably if drawings or other images were left out of the text and sent seperately as JPG files. The text can be DOC or RFT files. The reason is that whilst my DTP programme accepts DOC or RFT files quite happily, it simply ignores any images that my be included .

I then have to print out the file in Microsoft Word (which will show any images), scan the images and create my own JPG files. The other reason for my request is that it is much easier to juggle the text and images seperately to suit the space available in the making up of the issue. May I ask that you do not send items in PDF format. So, clear skies for you all in 2007

John

MAR 2007

Date	Libration amountø	PAø	Feature presented
1.0	6.5	234	Abel
2.0	5.3	241	Barnard
3.0	4.1	253	Behaim
4.0	2.9	275	Tacchini
5.0	2.5	314	Boss*
6.0	3.1	350	Baillaud
7.0	4.4	10	Anaximenes
8.0	5.8	21	Desargues
9.0	7.1	28	Cleostratus
10.0	8.3	33	Xenophanes
11.0	9.2	37	Repsold
12.0	9.8	41	Galvani
13.0	9.9	44	Gerard
14.0	9.7	47	Bunsen
15.0	8.9	51	Lavoisier
16.0	7.7	55	Ulugh Beigh
17.0	6.1	61	Voskresenski
18.0	4.1	72	Dalton
19.0	2.4	102	Rocca*
20.0	2.3	167	Wilson*
21.0	3.9	199	Helmholtz
22.0	5.7	212	Hanno
23.0	7.2	218	Lyot
24.0	8.3	223	Oken
25.0	8.8	227	Hamilton
26.0	8.8	230	Gum
27.0	8.3	234	Abel
28.0	7.5	238	Barnard
29.0	6.3	245	Hecataeus
30.0	5.1	254	Ritz
31.0	3.8	271	Peek



Program by Bob Roberts.
Observer at: Lat. 51.0øN, Long. 1.8øW
* indicates that the feature is not illuminated.

MOON MOSAIC by Michael Collins

Physical Data for Lunations: 1041/1042 — Computed by Gareth Williams

2007 MAR.	Age d	Phase	Earth's Selenographic Longø	Latø	Sun's Selenographic Colongø	Latø	R.A. h m	Dec. ø	Rises h m	Sets h m	Transit h m	Alt ø
1.0	11.3	0.917	5.4	-4.3	51.3	-0.16	08 39	21.9	14 49	06 14	22 48	55
2.0	12.3	0.963	4.7	-3.1	63.4	-0.13	09 29	17.4	16 06	06 29	23 32	50
3.0	13.3	0.991	3.7	-1.7	75.6	-0.10	10 15	12.3	17 20	06 41	.. ..	..
4.0	14.3	1.000	2.6	-0.3	87.7	-0.07	10 59	6.8	18 32	06 51	00 13	44
5.0	15.3	0.990	1.4	1.1	99.9	-0.04	11 41	1.1	19 42	07 00	00 52	39
6.0	16.3	0.963	0.1	2.5	112.0	-0.01	12 23	-4.6	20 53	07 08	01 32	33
7.0	17.3	0.919	-1.3	3.7	124.2	0.01	13 06	-10.1	22 05	07 18	02 11	27
8.0	18.3	0.861	-2.7	4.8	136.3	0.04	13 49	-15.3	23 19	07 30	02 52	22
9.0	19.3	0.789	-4.0	5.7	148.5	0.06	14 35	-19.9	23 19	07 44	03 36	17
10.0	20.3	0.707	-5.2	6.4	160.6	0.09	15 24	-23.7	00 34	08 05	04 23	13
11.0	21.3	0.615	-6.2	6.8	172.8	0.11	16 16	-26.6	01 48	08 34	05 13	10
12.0	22.3	0.518	-7.0	6.8	185.0	0.13	17 11	-28.3	02 56	09 17	06 07	9
13.0	23.3	0.417	-7.5	6.6	197.2	0.16	18 08	-28.5	03 53	10 16	07 03	9
14.0	24.3	0.316	-7.6	6.0	209.4	0.18	19 07	-27.2	04 35	11 32	08 00	11
15.0	25.3	0.220	-7.2	5.1	221.6	0.20	20 05	-24.3	05 04	12 59	08 56	15
16.0	26.3	0.134	-6.5	3.8	233.8	0.23	21 02	-20.0	05 26	14 30	09 50	20
17.0	27.3	0.065	-5.3	2.3	246.0	0.25	21 58	-14.3	05 42	16 02	10 43	26
18.0	28.3	0.019	-3.8	0.6	258.2	0.28	22 52	-7.7	05 55	17 33	11 35	33
19.0	29.3	0.000	-2.0	-1.2	270.4	0.31	23 45	-0.6	06 08	19 06	12 26	41
20.0	0.9	0.012	-0.1	-2.9	282.6	0.34	00 39	6.7	06 21	20 39	13 18	48
21.0	1.9	0.054	1.9	-4.4	294.8	0.37	01 34	13.5	06 35	22 14	14 12	55
22.0	2.9	0.122	3.7	-5.6	307.0	0.40	02 31	19.5	06 54	23 49	15 09	60
23.0	3.9	0.210	5.2	-6.4	319.2	0.43	03 31	24.2	07 21	.. ..	16 09	64
24.0	4.9	0.311	6.3	-6.8	331.4	0.46	04 33	27.2	07 59	01 16	17 09	66
25.0	5.9	0.419	7.0	-6.7	343.6	0.49	05 35	28.5	08 52	02 28	18 09	66
26.0	6.9	0.527	7.3	-6.3	355.8	0.52	06 36	28.1	10 01	03 21	19 06	64
27.0	7.9	0.630	7.2	-5.5	8.0	0.55	07 33	26.1	11 18	03 56	19 59	61
28.0	8.9	0.725	6.7	-4.6	20.2	0.58	08 27	22.8	12 37	04 20	20 47	57
29.0	9.9	0.809	6.0	-3.4	32.4	0.61	09 17	18.5	13 54	04 37	21 31	52
30.0	10.9	0.880	5.0	-2.0	44.5	0.64	10 04	13.6	15 09	04 50	22 13	46
31.0	11.9	0.935	3.8	-0.6	56.7	0.67	10 48	8.2	16 21	05 00	22 52	40
April 2007												
1.0	12.9	0.974	2.5	0.8	68.9	0.70	11 31	2.6	17 31	05 09	23 31	35
2.0	13.9	0.995	1.2	2.1	81.0	0.73	12 12	-3.1	18 41	05 18	.. ..	..
3.0	14.9	0.999	-0.2	3.4	93.2	0.75	12 55	-8.7	19 53	05 27	00 10	29
4.0	15.9	0.985	-1.6	4.6	105.3	0.78	13 38	-13.9	21 06	05 38	00 50	24
5.0	16.9	0.953	-2.9	5.5	117.5	0.80	14 23	-18.7	22 21	05 52	01 34	19
6.0	17.9	0.905	-4.1	6.2	129.7	0.82	15 11	-22.7	23 35	06 10	02 19	14
7.0	18.9	0.842	-5.2	6.6	141.8	0.84	16 02	-25.9	.. ..	06 36	03 08	11
8.0	19.9	0.765	-6.2	6.8	154.0	0.85	16 56	-27.8	00 45	07 13	04 00	9
9.0	20.9	0.677	-6.9	6.6	166.2	0.87	17 51	-28.5	01 45	08 06	04 54	9
10.0	21.9	0.579	-7.4	6.1	178.4	0.89	18 49	-27.7	02 31	09 14	05 50	10
11.0	22.9	0.475	-7.6	5.3	190.6	0.90	19 45	-25.4	03 04	10 34	06 44	13

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Contributions related to a specific sub-section should be sent to the appropriate co-ordinator, but send any material of a more general nature to the Editor at:

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Tel. No. 01980 622314 Email jhnpedler@aol.com

Items for the March 2007 circular should reach the Editor by February 10th