

THE BRITISH ASTRONOMICAL ASSOCIATION



LUNAR SECTION CIRCULAR

Director Alan Wells
Assistant Director/Editor John Pedler

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Data on pages 7-8 are for Sep. 2006

Lunations 1035/1036

Aug. 2006

BAA/ALPO TRANSIENT LUNAR PHENOMENA

Tony Cook

Observations for June were received from: Geoff Burt (Society for Popular Astronomy, UK), Clive Brook (Plymouth, UK) and Gerald North (UK). A combination of the Moon's low altitude and vacations seem to be taking their usual toll on observations at this time of the year.

On 2006 June 5th Geoff Burt, a member of the Society for Popular Astronomy (UK), made a sketch of Copernicus at 21:30UT and noted an unusual white spot in the shadow, 2/3 of the way from the central peaks to the north rim. It did not seem to change in appearance during the sketch. An image by Brendan Shaw taken on 2005 Dec 10 at 17:44UT also shows a white spot, but much near the rim - in this instance it is just some highland emerging through the shadow. It is possible that the spot that Geoff Burt drew is similar in origin, but the displacement from the rim is more than in the Shaw image. Could this be due to the difficulty in portraying details inside the crater in a drawing? Whatever the explanation, if you have an image of Copernicus under similar illumination, please let me know as this could prove helpful in verifying the theory.

On 8th June, Clive Brook telephoned me to say that he thought that Aristarchus was shining exceptionally brightly at 20:30-20:45UT. I talked to him on my mobile whilst I dragged my Dobsonian outside to have a quick look. Obviously this is not a good thing to do as my scope had not cooled down, so seeing was very poor, but nevertheless I could confirm that Aristarchus was looking quite bright. However could this be that it was simply the crater emerging from the morning terminator and the slope of one of its walls was reflecting the sunlight well? In these situations, during a phone call such as this, there is often little time to observe myself as it is important to activate other observers immediately. Therefore I telephoned a limited alert to Brendan Shaw and Gerald North, sent a text message to Italian UAI and GLR groups, and emailed David Darling. Unfortunately it was not possible to alert everybody in the short observing window as Clive phoned me back at 21:01UT and said that the effect had already faded! The Moon was too low for Brendan Shaw, and Gerald North was just able to get it low above the horizon (20:57-21:48 UT, 216mm reflector, x93, seeing V), although of course by this time the effect had gone. Gerald emailed his observation and although noting that Aristarchus was bright, he supports my theory and Clive now considers this a possibility too. In future apart from the usual telephone alert system I plan to utilize an automated robotic observatory at the University of Nottingham to make rapid response observations using a filterwheel /CCD camera system.



Fig. 1 University of Nottingham, School of Computer Science and IT Robotic Telescope No. 2.

Finally it was nice to meet so many lunar section members at this year's BAA Exhibition meeting in Cambridge in June. Here I met also Peter Grego whom I wish the best of luck in running the BAA Lunar Section topographic section following in the footsteps of Collin Ebdon.



Fig 2. BAA Exhibition Meeting - with Ivor Clarke in the foreground.

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

Event: La Hire (Kein, 1887 Feb 2) can be seen on/from (UT): 2006 Aug 03 (19:50-21:37) - *[Please obtain detailed images/sketches of any bright streaks and see if there are any shadows coming from these?]*

Event: Plato (Bartlett, 1964 Nov 14) can be seen on/from (UT): 2006 Aug 03 (19:49-21:03) - *[Look for a brilliant white peak on the East wall, then see if you can see any colour at it's base or on the south wall]*

Event: SMART-1 impact site (ESA, 2006 Sep 03) can be seen on/from (UT): 2006 Aug 04 (19:49-21:03) - *[Although this is not the actual date/time for the SMART-1 impact, both the illumination and libration are similar to within +/-1 deg, so please just image the SE of the Moon, especially near the terminator - this could prove useful when comparing with the images obtained in September for features in Earthshine]*

Event: Schroter's Valley and Aristarchus (Greenacre and Barr, 1963 Oct 30) can be seen on/from (UT): 2006 Aug 06 (19:58-21:53) - *[Look out for color and determine whether this is spurious e.g. showing on other features]*

Event: Aristarchus-Herodotus (Cowe and Cross, 1964 Sep 20) can be seen on/from (UT): 2006 Aug 08 (00:28-01:22) - *[Any sign of red spots between these two craters?]*

Event: Aristarchus (Alter, 1959 Jan 23) can be seen on/from (UT): 2006 Aug 08 (00:59-01:22) - *[Can you see any variability of blueness inside the crater?]*

Event: Near Ross D (Harris, 1964 Sep 20) can be seen on/from (UT): 2006 Aug 08 (01:08-01:22) - *[Any sign of obscurations/fuziness?]*

Event: Aristarchus (Le Croy, 1976 Feb 15) can be seen on/from (UT): 2006 Aug 08 (20:46-22:41) - *[Any sign of colour – compare crater in blue and red filters?]*

Event: Triesnecker Rille (Markov, 1915 Jul 03) can be seen on/from (UT): 2006 Aug 14 (21:58-22:48) - *[Image/sketch and compare with earlier records at the same illumination]*

Event: Aristarchus (Sekiyuchi, 1970 Jul 26) can be seen on/from (UT): 2006 Aug 17 (03:18-04:58) - *[Monitor brightness of crater and check it's appearance in polarized light]*

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!

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Sorry... Nothing to fill this space...Ed

With apologies but the top part of the grazing occultation table in last month's LSC became slightly mangled in transit, so I have reprinted the table here:-

TRACK NO.	DATE (2005)	USNO REF:	SAO/PPM REF:	D	MAG	%SUN- LIT	L	W.U.T. HH	M	M	CUSP ANGLE	T	STAR NAME	MAG1	MAG2	12	
AUG 17	ZC 773	76998	C 7.0	29-	N 23	50.9	7.5	D	B					7.1	8.7	13	SEP 2 ZC
2636	186531	6.8	69+	S	20	47.1	1.2	D	C								
14	OCT 10	ZC 539	76140	V	4.3	87-	N	6	24.2	4.6	B	B	19 q Tau (Taygeta)	4.6	6.1		
15	OCT 10	ZC 552	76199	K	2.9	87-	S	7	21.6	7.4	D	A	25 eta Tau (Alcyone)	3.0	4.6		
16	OCT 10	ZC 545	76172		4.1	87-	S	6	38.7	4.9	D	A	23 Tau (Merope)				
17	OCT 12	ZC 1008	78524		5.3	59-	N	23	33.0	6.0	D	A	49 Aur				
18	OCT 14	ZC 1169	79650		5.3	48-	N	5	25.8	4.0	B	C	76 c Gem				
19	OCT 30	ZC 3150	164433		6.6	60+	S	19	27.4	11.1	D	B	128 B. Cap				
20	NOV 7	ZC 647	76573	Y	5.4	96-	S	7	29.1	13.9	D	A	59 chi Tau	6.3	6.3		
21	DEC 8	ZC 1208	79864	M	6.4	88-	S	8	6.5	12.7	D	B	5 B. Cnc	6.5	9.8		
22	DEC 13	ZC 1708	138420	D	6.2	44-	S	4	12.1	12.3	D	A	9 B. Vir				

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

Letter in column after "CUSP ANGLE": - Column 'T' = Telescope size required: -
 'B' = Bright Limb 'A' = 4"
 'D' = Dark Limb 'B' = 6"
 'T' = Near Terminator 'C' = >6"

The only graze this month is on August 17, and the track crosses from west to east parallel to, and just north of, the English/Scottish border. Unfortunately it is not very favourable with the moon at low altitude in the north east, (below 10 degrees), and the star being magnitude 7. However the graze takes place against the dark northern limb of the waning 29% sunlit moon.

Predictions for 52°27'41.4"N 1°44'44.0"W (Birmingham) – September 2006

Day	Time-UT	P	Object	O	Max Sp	% Elg	Sn	Mn	Mn	CA	PA	Watts	a	b	Star's	apparent	
	H	M	S	D	Reference	V	Mag	Snlt	Alt	Alt	Az	Angle	Min/°		RA	Dec	
9/01	13	41/R	PPM 143278	95	6.9 K0	98-	162		39	181	44S	198	220	-.5	1.5	1409.4	12524
9/02	48	09/R	PPM 143321	95	7.3 M1	97-	161		36	210	27S	181	203	-.1	2.4	1701.3	15325
ABOVE STAR IS A VARIABLE STAR AND OCCULTATION CLOSE TO SMOOTH-MOON TERMINATOR																	
9/22	38	14/RK	FK5 36	89	4.4 K0	93-	149		30	120	79S	234	255	-.5	1.7	10318.6	75543
10/00	29	25/R	PPM 144270	96	6.9 F0	92-	148		42	150	48S	202	224	-.5	1.9	10659.7	82354
10/01	00	51/R	PPM 144276	85	7.7 A3	92-	148		45	160	90N	244	265	-1.0	.9	10716.0	84126
10/03	32	07/RA	PPM 144343	95	7.2 G0	92-	147		43	211	50N	284	305	-1.4	-1.2	11116.5	93609
11/00	49	23/RK	PPM 117881	76	6.8 K0	85-	134		46	136	72S	229	248	-.7	1.6	20213.2	150607
11/04	04	44/RK	PPM 117971	95	7.5 K0	84-	132		51	207	29S	186	205	-.4	3.0	20826.8	155020
11/23	03	49/R	PPM 92061	85	7.3 K0	76-	121		29	94	50N	290	306	-.7	1.2	25513.4	202410
12/00	42	22/R	FK5 1081	78	5.8 F0	76-	121		43	115	75N	266	282	-.9	1.2	25829.0	204152
12/04	08	56/RX	PPM 92186	66	7.4 K0	74-	119		59	190	63N	278	293	-1.3	-.4	30438.9	213005
12/20	29	24/R	PPM 92859	66	4.2 B5	67-	110		3	53	67N	278	291	.6	1.3	34643.9	235815
12/20	31	02/R	M 45	89	1.6	67-	110		3	53	26N	319	332	.1	.6	34712.4	240822
ABOVE PREDICTION IS FOR CENTRE OF GALACTIC NEBULAR OBJECT - DURATION ~423.6 MIN																	
12/20	52	28/RK	FK5 139	79	3.0 B5P	67-	110		6	57	49N	296	308	.3	1.2	34753.5	240740
12/21	17	13/RU	PPM 92930	75	6.6 F0	67-	109		9	62	50S	216	228	.8	2.1	34921.4	235247
12/21	32	05/RU	FK5 142	69	3.8 B8	67-	109		11	64	89S	255	267	.4	1.7	34934.2	240433
ABOVE STAR IS A VARIABLE STAR																	
12/21	33	30/RK	PPM 92936	68	4.8 B8	67-	109		11	64	74N	272	284	.3	1.5	34935.6	240933
ABOVE STAR IS A VARIABLE STAR -- MINIMUM MAGNITUDE = 5.5.																	
12/21	28	44/RW	PPM 92961	85	6.8 B9	67-	109		10	64	23S	189	201	1.4	3.1	35022.5	235216
12/21	56	17/R	PPM 92975	76	6.8 A0	66-	109		14	68	37S	203	215	.9	2.6	35116.9	235901
14/00	25	31/R	PPM 93894	66	7.5 K0	55-	95		29	82	87N	266	272	-.3	1.6	45559.8	271254
14/02	19	28/RA	PPM 93952	67	6.8 B9	54-	94		46	105	64S	238	244	-.5	2.1	50019.0	272014
14/04	53	42/R	PPM 94035	68	6.5 A2	53-	93	-7	64	156	89N	265	271	-1.2	.5	50503.3	274225
14/22	51	55/R	PPM 94967	67	5.6 K0	45-	84		9	56	85N	275	276	.4	1.4	55123.4	275818
15/01	27	23/R	PPM 95146	65	8.4 A0	44-	83		31	82	53N	308	308	-.7	.5	55806.5	281736
15/02	38	23/R	PPM 95207	67	7.0 K5	43-	82		41	96	71S	252	252	-.5	1.9	60030.4	280741
15/04	48	25/R	PPM 95332	65	8.4 K2	42-	81	-9	59	130	90N	271	271	-1.1	.7	60441.6	281809
15/23	00	54/R	PPM 96583	75	6.6 A2	34-	72		4	48	56S	243	239	1.1	1.9	64935.1	271105
16/01	40	43/R	PPM 96755	65	8.1 A2	34-	71		24	76	68S	255	251	.1	2.1	65612.9	271432

16/01	45	02/R	PPM 96757	67	7.0	B9	34-	71	24	76	77S	264	259	-.1	1.8	65621.0	271645
16/04	02	53/RK	SAO 78968	77	7.2	K2	32-	69	44	103	48S	236	230	-.6	2.8	70122.8	270858
16/04	20	52/R	PPM 96902	66	8.2	A0	32-	69	47	107	79N	289	284	-.9	.6	70149.3	272221
17/01	49	03/R	PPM 98035	75	8.2	F5	25-	59	16	69	86S	279	269	.1	1.4	75121.5	250544
18/02	07	08/RV	FK5 1228	99	4.7	A0	16-	48	9	66	26S	224	210	1.5	5.2	84339.7	212648
18/03	43	46/R	PPM 99030	75	8.5	K0	16-	47	23	84	68N	311	297	-.5	.4	84658.0	213644
18/04	08	19/R	PPM 99039	76	8.1	K0	16-	47	26	88	80N	299	284	-.5	.7	84737.2	213114
19/04	29	51/R	PPM 126616	95	8.4	K0	9-	35	19	87	42N	341	324	-.6	-.9	93641.3	171208

N.B. Don't forget to add 1 hour to the above times during British Summer Time!

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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Tabulated data for May 2006

<u>Observer and location</u>	<u>Excellent</u> <i>days</i>	<u>Cloudy</u> <i>days</i>	<u>Overcast</u> <i>days</i>	<u>Hazy</u> <i>days</i>	<u>No watch</u> <i>days</i>
P.Burt (Chatham)	7 (23%)	8 (26%)	16 (52%)	0 (0%)	-----
A.Bytnar (Mansfield)	2 (6%)	6 (19%)	4 (13%)	0 (0%)	21 (68%)
M.Cook (Cromer)	7½ (24%)	4 (13%)	18½ (60%)	1 (3%)	-----
K.Hall (Warrington)	7 (23%)	11½ (37%)	11½ (37%)	1 (3%)	-----
A.Heath (Nottingham)	7 (23%)	8 (26%)	16 (52%)	0 (0%)	-----
J.Wrigley (Reading)	4½ (15%)	12 (39%)	13 (42%)	1½ (5%)	-----

Tabulated data for June 2006

<u>Observer and location</u>	<u>Excellent</u> <i>days</i>	<u>Cloudy</u> <i>days</i>	<u>Overcast</u> <i>days</i>	<u>Hazy</u> <i>days</i>	<u>No watch</u> <i>days</i>
P.Burt (Chatham)	17 (57%)	5 (17%)	7 (23%)	0 (0%)	2 (7%)
A.Bytnar (Mansfield)	3 (10%)	3 (10%)	7 (23%)	2 (7%)	15 (50%)
M.Cook (Cromer)	6½ (22%)	6½ (22%)	17 (57%)	0 (0%)	-----
K.Hall (Warrington)	8½ (28%)	10½ (35%)	10 (33%)	1 (3%)	-----
A.Heath (Nottingham)	6 (20%)	11 (37%)	13 (43%)	0 (0%)	-----
J.Wrigley (Reading)	4 (13%)	14 (47%)	10 (33%)	2 (7%)	-----



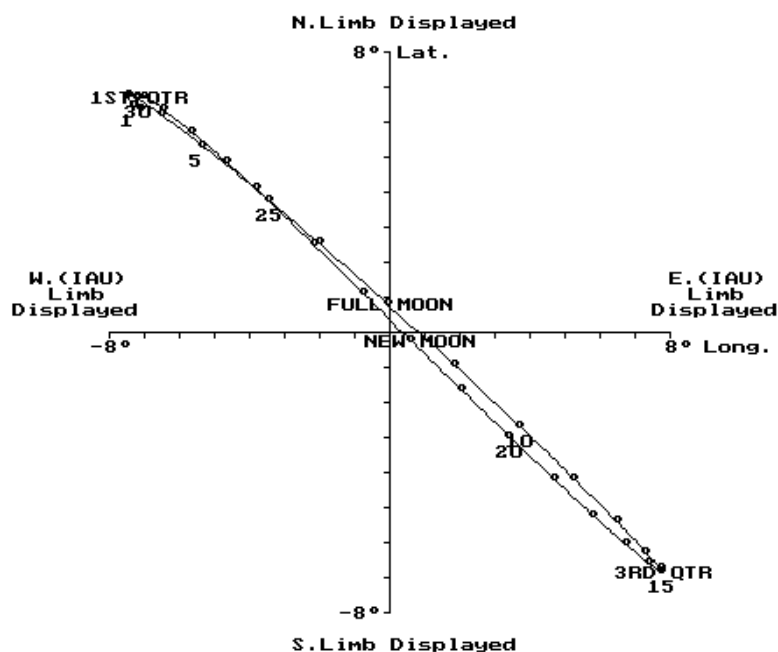
No details

LIBRATION Sept 2006

Date	Libration amount \emptyset	PA \emptyset	Feature presented
1.0	10.7	47	Bunsen*
2.0	11.0	47	Bunsen*
3.0	10.8	46	Bunsen*
4.0	10.0	46	Bunsen*
5.0	8.6	44	Gerard*
6.0	6.6	42	Galvani*
7.0	4.2	36	Volta*
8.0	1.7	13	Poncelet
9.0	1.7	264	Widmannstatten*
10.0	4.2	243	W. Humboldt*
11.0	6.5	238	Abel*
12.0	8.3	235	Abel*
13.0	9.6	234	Abel*
14.0	10.2	234	Abel*
15.0	10.3	234	Abel*
16.0	9.9	234	Abel*
17.0	9.1	234	Abel*
18.0	7.8	235	Abel*
19.0	6.3	237	Abel*
20.0	4.5	240	Barnard*
21.0	2.6	249	Schorr*
22.0	1.0	295	Liapunov*
23.0	1.9	18	Desargues*
24.0	3.8	34	Xenophanes*
25.0	5.6	39	Galvani*
26.0	7.3	41	Galvani*
27.0	8.7	43	Gerard*
28.0	9.8	45	Gerard*
29.0	10.5	46	Bunsen*
30.0	10.8	47	Bunsen*

LUNAR LIBRATIONS - September 2006

Geocentric: —•—•— The markers show 0:00H UT



Program by Bob Roberts.

Observer at: Lat. 51.0 \emptyset N, Long. 1.0 \emptyset W

* indicates that the feature is not illuminated.

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2006 SEP.	Age d	Phase	Earth's Selenographic		Sun's Selenographic		R.A.		Dec. ø	Rises		Sets		Transit		Alt ø
			Longø	Latø	Colongø	Latø	h	m		h	m	h	m	h	m	
1.0	8.2	0.506	-7.3	6.5	8.0	0.50	16	25	-26.8	15	12	21	38	18	26	9
2.0	9.2	0.609	-7.5	6.8	20.2	0.48	17	23	-28.5	16	17	22	35	19	25	9
3.0	10.2	0.711	-7.3	6.7	32.4	0.45	18	24	-28.5	17	06	23	51	20	25	10
4.0	11.2	0.806	-6.6	6.2	44.6	0.42	19	26	-26.9	17	41	..	..	21	25	14
5.0	12.2	0.889	-5.4	5.4	56.7	0.39	20	27	-23.4	18	04	01	20	22	23	19
6.0	13.2	0.952	-3.9	4.1	68.9	0.35	21	27	-18.4	18	22	02	55	23	18	25
7.0	14.2	0.990	-2.1	2.6	81.1	0.32	22	23	-12.2	18	36	04	31	..	..	..
8.0	15.2	0.999	-0.1	0.8	93.3	0.28	23	18	-5.2	18	48	06	05	00	10	32
9.0	16.2	0.977	1.9	-1.0	105.4	0.24	00	12	2.1	19	00	07	37	01	00	40
10.0	17.2	0.927	3.7	-2.7	117.6	0.21	01	05	9.2	19	14	09	10	01	53	47
11.0	18.2	0.852	5.3	-4.2	129.8	0.17	02	00	15.7	19	31	10	42	02	46	54
12.0	19.2	0.760	6.5	-5.4	142.0	0.14	02	56	21.1	19	55	12	14	03	40	59
13.0	20.2	0.658	7.3	-6.3	154.2	0.11	03	54	25.3	20	28	13	39	04	37	63
14.0	21.2	0.551	7.7	-6.7	166.4	0.08	04	53	27.8	21	15	14	52	05	35	66
15.0	22.2	0.446	7.7	-6.8	178.6	0.05	05	53	28.7	22	16	15	48	06	32	66
16.0	23.2	0.345	7.4	-6.6	190.8	0.03	06	51	28.0	23	28	16	27	07	27	65
17.0	24.2	0.254	6.7	-6.0	203.0	0.00	07	46	26.0	00	44	16	53	08	19	62
18.0	25.2	0.173	5.8	-5.2	215.2	-0.02	08	38	22.7	00	44	17	11	09	07	59
19.0	26.2	0.107	4.7	-4.1	227.4	-0.04	09	26	18.5	02	00	17	25	09	52	54
20.0	27.2	0.055	3.4	-2.9	239.6	-0.06	10	11	13.6	03	14	17	36	10	33	49
21.0	28.2	0.020	2.0	-1.6	251.9	-0.09	10	55	8.3	04	26	17	45	11	13	43
22.0	29.2	0.002	0.6	-0.2	264.1	-0.11	11	37	2.7	05	36	17	53	11	52	37
23.0	0.5	0.002	-0.8	1.2	276.3	-0.13	12	18	-3.0	06	46	18	02	12	31	32
24.0	1.5	0.021	-2.2	2.6	288.5	-0.15	13	00	-8.6	07	57	18	12	13	10	26
25.0	2.5	0.056	-3.5	3.8	300.8	-0.17	13	44	-13.9	09	10	18	24	13	52	21
26.0	3.5	0.109	-4.7	4.9	313.0	-0.19	14	29	-18.7	10	26	18	40	14	37	16
27.0	4.5	0.177	-5.7	5.8	325.2	-0.21	15	18	-22.9	11	43	19	02	15	26	12
28.0	5.5	0.258	-6.5	6.4	337.4	-0.23	16	11	-26.1	12	59	19	35	16	18	10
29.0	6.5	0.351	-7.0	6.8	349.6	-0.26	17	06	-28.1	14	06	20	23	17	14	9
30.0	7.5	0.452	-7.3	6.8	1.8	-0.28	18	05	-28.7	15	00	21	29	18	12	9

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1.0	8.5	0.559	-7.1	6.4	14.0	-0.31	19	05	-27.6	15	39	22	51	19	10	12
2.0	9.5	0.666	-6.6	5.7	26.2	-0.34	20	04	-24.9	16	06	20	07	16
3.0	10.5	0.769	-5.7	4.7	38.4	-0.37	21	03	-20.6	16	25	00	21	21	02	22
4.0	11.5	0.860	-4.4	3.3	50.6	-0.40	21	59	-15.0	16	40	01	54	21	54	28
5.0	12.5	0.932	-2.8	1.6	62.7	-0.44	22	53	-8.5	16	53	03	27	22	46	36
6.0	13.5	0.980	-0.9	-0.2	74.9	-0.47	23	47	-1.3	17	05	04	59	23	37	43
7.0	14.5	1.000	1.0	-1.9	87.0	-0.51	00	41	6.0	17	18	06	32	..	..	..
8.0	15.5	0.988	3.0	-3.6	99.2	-0.54	01	35	12.9	17	34	08	07	00	29	50
9.0	16.5	0.948	4.7	-4.9	111.3	-0.58	02	32	19.0	17	55	09	42	01	25	57
10.0	17.5	0.883	6.2	-6.0	123.5	-0.61	03	31	23.8	18	24	11	14	02	23	62
11.0	18.5	0.801	7.2	-6.6	135.7	-0.64	04	32	27.1	19	07	12	36	03	22	65
12.0	19.5	0.706	7.8	-6.8	147.8	-0.67	05	34	28.6	20	04	13	40	04	22	66

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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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Items for the September 2006 circular should reach the Editor by the 10th August 2006