Lunar Transient Phenomena Catalog Extension

Winifred Sawtell Cameron

July 2006

LTP Image: 11/15/1953 0200 U.T. by Leon H. Stuart – Tulsa, OK USA

Additional entries complementing the original catalog

National Space Science Data Center
World Data Center A For Rockets & Satellites
78-03

NSSDC/WDC-A-R&S 78-03

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Cover Photo

Note the bright flare near the middle of the terminator, between Pallas and Schröter.
Image photographed: 11/15/1953 0200 U.T. by Leon H. Stuart – Tulsa, OK USA
Photo courtesy the estate of Leon H. Stuart.

Lunar Transient Phenomena - Extension Catalog

Winifred Sawtell Cameron

July 2006

This catalog extends the earlier published catalog by this author in NSSDC/WDC-A-R&S 78-03 July 1978, the reports of Lunar Transient Phenomena (LTP). It covers observations reported in the literature and from observers all over the world, both independent and from those participating in the observing programs of several groups, including one conducted by WSC for the Association of Lunar and Planetary Observers (ALPO). This program, originated by her, ran from 1973-1994 when she resigned as the LTP Recorder. Other ALPO members have continued it. Her successor was David O. Darling.

Description of Table Headings

The format of the table, in columns, gives data of the reported observations and ancillary data for facilitating analyses of several hypotheses forwarded for causes of the phenomena by various scientists. These sources involve various relations on and by the Moon and its positions in its orbit around the Earth. One involves activity by the Sun that reaches Earth and Moon with certain effects.

There are 22 columns of information, numbered in order. Explanations of these columns is as follows:

Column 1: A running serial number for each report, starting with 1 for this catalog extension.

Column 2: Column 2 gives the date of observation in the form of month, day, year (mm dd yy). The year is within the century of the report. The century heading is at the top of each continuing page or within the page if needed.

Column 3: This is the time period of the observation given in U.T. (Universal Time), hhmm format.

Column 4: Name(s) of the lunar features involved in the observation.

Column 5: Shows the location(s) of the features observed, measured East or West from the central meridian and North or South of the zero latitude, which cross at the center of the lunar face.

Column 6: A brief description of the phenomena noted (LTP).

Column 7: Contains the dates of Perigee before and after the observation. Format is mm dd hh.

Column 8: The date of Apogee between the above Perigee dates. Format is mm dd hh.

Column 9: Shows the horizontal parallax for Perigee, Apogee and Observation in the same format as above. The upper number is the earlier Perigee and lower number is the later Perigee, the middle number is the Apogee and the rightmost number is the Observation. These data are from the Nautical Almanac published yearly by the U. S. Naval Observatory, Washington, D. C.

Column 10: Duration of the observation: format is hours (h), minutes (m), seconds (s).

Column 11: The age of the Moon in days for this lunar cycle.

Column 12: Tidal Anomaly is the anomalistic phase in decimals of the period ($_d$) from perigee to perigee (avg ~= 27.7 days).

Column 13: Terminator colongitude (0-180°) (The sunrise data 0-90° and the sunset data 90°-180°) as the upper number. The lower number is the distance in degrees of the feature from the sunrise (R) or sunset (S) terminator (from New Moon (NM) to Full Moon (FM), latter Full Moon to New Moon).

Column 14: Gives the Full Moon date and the days from FM where (-) = before FM and (+) = after FM.

Column 15: Solar gives the highest K_p index (A magnetic field datum) as the first no. and the sum of K_p for the day of observation, following no. and below these: s.c. = sudden commencement of a magnetic storm on Earth, or ms is magnetic storm in progress at time of observation. If one hits the Earth it also hits the Moon.

Column 16: Provides the name(s) of the observer(s).

Column 17: Location of the observer – City, State, Country

Description of Table Headings

Column 18: Telescope used, aperture in inches and power.

Column 19: Seeing conditions in several codes:

1) E – Excellent, VG – Very Good, G – Good, F – Fair, P – Poor.

2) 1 - 10 where 10 is the best seeing

3) I – V with I being the best seeing.

Column 20: The number given refers to the corresponding reference in the Reference Appendix of this publication.

Column 21: The phenomenon type(s):

V = Violet – Blue,

R = Reddish,

B = Bright,

D = Dark,

G = Gaseous (implies a medium such as dust or gas is involved).

Column 22: The value or weight of the observation as judged by WSC, 0-5 where:

0 = probably not an LTP,

1 = possibly an LTP,

2 = probably one,

3 = good, 4 = very good, often confirmed observation,

5 = excellent, often permanently recorded or confirmed independently by others.

The latter columns 7-15 are limits on parameters for determining relations to limits given in hypotheses of causes. Such as related to low-angle illumination, (SR – SS). Earth's magnetic tail influences on the Moon, solar activity that may hit the Moon and act on its surface, or tidal effects of the Earth on the Moon's tides.

Abbreviations are used profusely, especially in the descriptions. A list of these is included, as is the reference list. The author (WSC) has published papers using the data from the published catalog (NSSDC/WDC-A-R&S 78-03) and another using these and this extension catalog, analyzing them in respect to these hypotheses. The latter is not yet published. Parentheses () indicate remarks by the author.

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,100 A.D.				
1	08 10 63	2000			A guest star trespassed against the moon (meteor?)				
					1,300 A.D.				
2	05 03 56	1900-0000			A guest star trespassed against the moon (meteor?)				
					1,700 A.D.				
3	06 16 62	14:21:03 14:22:34	Limb		Closest parts of the moon at Saturn appearing from occult were "dull and hazy" there were some effects of the lunar atmosphere (high haze or halo around moon?)				0.5m
					1,800 A.D.				
4	04 17 26	2100 UT?	Palus Moeotes nr. Hevelius	66W 3N	Scarcely a trace of nebulae tonight. As long as to June 10 at 2000UT? A little blackness remained. (P. Moore thinks it was a LTP, WSC it was a permanent feature?) Drawing				m
5	05 08 59	0916	Limb		Saturn's rings were distorted before occult. Dark border observed around moon. Unusual sea-green color just after reappearance				
6	11 12 62	1030	Aristarchus	47W 23N	Noticed extraordinary brightness of crater, seen as a bright spot on the moon's disk. Seen in bright sunlight! (waning crescent phase?)				
7	07 31 68		Alpetragius a	2.5W 10S	Floor is darker than any surrounding soil, 3 authorities Lohrman, Madler & Schmidt make it lighter than surface of M. Nubium when observing in 1868. It is in region of Alpet. B, which is coord given here.				
8	03 06 83	0400?	E. Limb	90E?	Occult of lambda Gemenorum, contrarily light of star gradually diminished taking 3s. (lunar Atm.?). "L'occultation dl des Gemeneau-- au contraire pendantrois seconds et deux diximes"	F 11: Mar 09.2	F 24.2	6115	3.2s
					1,900 A.D.				
9	06 18 31	0210?-0240?			"Suddenly some flashes of light streaked across dark surface, but definitely within the limbs of the moon's outline. Then repeated at least 6-7x during 20-30 min (~every 5 min)				1/2 hr
10	06 24 64	0258-0345	Riccioli	75W 4S	During eclipse of moon, normal till crater came out of shadow. In NE the normal dark floor was not all the same hue, 2 light areas join. Emerging patches became less and less bright, disappear at 0345 when crater became normal.	Je 10 02 Jy 08 11	Je 23 12	6122, 5400, -6104	45m
11	07 01 64	0752	Aristarchus	47W 23N	S. floor albedo down to 4°, but no color. Did not see dullness or color again at 180° colong.	Je 10 02 Jy 08 11	Je 23 12	6122, 5400, -6104	hrs?

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,100 A.D.											
1	8.8		36	Aug 16, 00 -6.0d			Russia ?			1a, 2a	B	0
	1,300 A.D.											
2	2.5		300	May 15, 04 -11.5				naked eye		1a, 2a	B	0
	1,700 A.D.											
3						Dunn, S.	S. Chelsea, England			1, 2, 3	G, D	1
	1,800 A.D.											
4	10.4			Ap 22, -4.5**:**		Nevelius Emmett, J.	Boroughbridge, England	6L, 70, 130x		4	G, D	1
5						Challis, Pogson, N.	Cambridge, Eng. Hartwell, Eng.			2, 5	G, V	4
6						Stothard	Dublin, Ireland	naked eye?		2a, 6	B	3
7						Birt, W.	England ?			7	D	2, 3
8	25	0.885**:**	216: 54R							2, 8	G	2
	1,900 A.D.											
9						Giddings, N. & wife	Riverside, CA	naked eye		2, 9a, b	B	0
10	13.9	0.493	80 5R	Je 25 01 -0.9		Brittman, O.	Elgin, IL	3R, 6L, 250x		10	G	2
11	21.1	0746	12 59S	Je 25 01 +6.3		Bartlett, J	Baltimore, MD	4.25L?		11	D	4

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No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
12	07 17 67	0123-0147	Agrippa	11E 4N	Shadow of Central Peak barely distinguishable. Residual wall shadow normal black. Landslip very conspicuous. 1° intens.	Jy 14 20 Ag 9 15	Jy 28 14	5918, 5415, 5905, 5947	24m
13	09 02 67	0316-0418	Alphonsus	4W 13S	Series of weak glows, final flash @ 04h18m UT. Similar weak glows have been seen in Petorvius. From this position ~ Linne (?) obs. Prob. In his obs books.	Ag 9 15 S 6 08	Ag 25 09	5947, 5405, 5833, 6036.5	1h
14	12 11 72	2228	E edge of Mare Orientale	85W 25S	Streak of light. CMP Evans on Apollo 17 Orbiter, on Rev. 14, saw, a flash on E. edge of M. Orientale at end of a rille. Both seen in orbit. (There is a hill on floor with a s.c., probably volcanic -- source of flash?)	N 21 00 D 19 13	D 04 14		Secs
15	05 28-29 77	2124-2312	Gassendi	40W 16S	Alert to Ford and Amery, From Hedley-Robinson for possibly LTP. Ford. Could not confirm.	My 04 05 Je 01 15	My 18 18	6118, 5356, 5929**:** 6125	min?
16	05 30-31 77	2104	Gassendi	40W 16S	Loss of detail - not regarded as LTP. Also seen by Foley	My 04 05 Je 01 15	My 18 18	6118, 5356, 1056**:** 6125	
17	07 26 77	2300?	Gassendi	40W 16S	Foley - red color on CP & NE Wall. Moore & Jewett conf. (Fits Fitton's hypoth, Blinks were neg. (note conj between P & FM)	Je 30 09 Jy 28 02	Jy 12 08	6102, 5404, 6020	
18	11 03 77	2213	Gassendi	40W 16S	Flickering (Clouds on limb?)	O 15 09 N 12 12	O 31 08	6012, 5404, 5503 6102	5503
19	12 24 77	1930-2330			Albedo changes - time (hrs) 1930 2000 2100 2200 2230 2330	D 10 23 Ja 08 12	D 24 21	6128 5356 5356 6121	3h
			Aristarchus, CP	47W 23N	2.7 3.2 3.7 3.9 3.4 3.4				
			Aris. W. Wall (IAU)	47W 23N	2.9 2.9 3.2 3.9 3.3 3.3				
			Proclus	46E 16N	3.4 3.5 3.6 3.5 3.6 3.6				
			Pico, N. Peak	9W 46N	2.8 2.8 2.9 3.0 2.9 2.9				
			Piton	2W 39N	2.7 2.7 2.8 2.7 2.7 2.7				
			Censorinus	33E 1S	3.6 3.6 3.7 3.7 3.7 3.7 Note steadiness of all except some of Aristarchus.				
20	01 02 78	2300h?	Terminator	66.5E 29S	Flash surrounded by diffuse envelope 180"x120". Dissipated in 30 Sec First instance of so many photos registering activity	D 10 23 Ja 08 12	D 24 21	6128 5356 - 6121	1/2m
21	01 06 78	0100	a good sized crater		Orange light became a bright green. Did not repeat during many hours of observation. Did not think it was a meteor, but produced by intelligent being. (terrestrial meteor?).	D 10 23 Ja 08 12	D 24 21	6128 5356 6023 6121	10S
22	01 11 78	1530	between Adams & Hase	66.5E 29S	5 of 9 photos of 7S intervals, 1/15 to 2S exposure bright spot of 60x70km appeared. Seemed to be a luminous part of surface. Lasted 30S (LOIV 185-21 shows a small crater chain there. Chain ends at a rille that ends at a funnel-shaped central crater - vent? - volcanic? These are tangential to Petavius & farther away than N & E rims & don't look like the obvious secondaries from Petavius on the N sector) Arkhipov says that it occurred at the time of a seismic event.	Ja 08 12 F 05 21	Ja 21 02	6121 5400 - 6041	1/2m
23	01 12 78	1700	Snellius Petavius	55E 29S area	Observed Petavius area could not find Snellius - indistinct.	Ja 08 12 F 05 21	Ja 21 02	6121 5400 5848**:** 6041	

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	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
12	9.4	0.089	29.5 41R	Je 22 05 -4.6	2+, 9	Bartlett, J	Baltimore, MD	5L, 283x	S=6, T=3	12	G?	3
13	27.1	0.823 0.848	65 61S	Ag 20 02 +13.0	4+, 25	Whippey	Eng	6L, 64x	G, B	12	B	3
14	0.1	0.733	334 (39E) 111R	D 20 10 -8.5	2-, 6	Evans, H.	Orbiting Moon Apollo 17	naked eye	E	13	B	4
15	10.8:	0.870	42 2:R	Je 01 20.5 -3.9	3-, 14-1, 4-sc-0.6d	Hedley-Robinson Ford, Amery	Dundee, Scotland	-, 10L		15 a, b		1
16			66 26R	Je 01 20.5 -1.9	2, 10	Hedley-Robinson Foley, P., Findley, Taylor	Dundee, Scotland Eng. Eng.	10L?		15 a. b, c	C	0
17	10.5	0.960	43: 3:R	Jy 30 11 -3.5	1+, 6-	Foley, P. Moore, P. Jewitt	Eng.			16	R	2
18	22.0	0.694	182 (2W) 38S	O 26 20.5 +7.9	2-, 7	Foley, P.	Kent, Eng.	11L, 285x		16	B	1
19	14.2	0.500 0.490	83 36R 36R 129R 74R 81R 116R	D 25 13 -0.6	2, 11	Foley, P.	Kent, Eng	12L		18	B	4
20	23.3:	0.807:	66 0R	D 25 13 +8.5:	4-, 13+	Arkhipov, A. V. Kharkov, A. R.	USSR			19	B, 6	5
21	26.3	0.912	230	D 25 13 +5.5	6, 33-sc,ms to 6th	Amorati,	Firenze, Italy			20	B, R, V	1
22	2.4	0.110	333 40R	Ja 24 08 -13.7	3-, 15-	Marlov, S. R. Davidenko, V. V. Kharkov, A. R.	Ukraine, Russia	10.5L, 130mm		21	B, G	5
23	3.5:	0.148	310 5R	Ja 24 08 -11.6	2, 9-	Christie	Eng. ?	60x		17, 22	D, G?	1

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	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
24	01 20 78	1910	Gassendi	40W 16S	Foley obs. A red spot at S. edge of C. (Moore, P.) had neg from 1700-1750, 1940-0030 was alerted. Turner & several others - neg at 2201 Pedler noted yellow-orange tint to E. floor of Gassendi A. color faded in moments of bad seeing.	Ja 08 12 F 05 21	Ja 21 02	6121 5400 5400 6041	1/2h
25	03 21 78	2057	Aristarchus	47W 23N	Blue spot on floor. Obs does not think it was a LTP. (does not fit Fitton's hyp.) Obs diag says green-yellow on floor.	Mr 05 17 Mr 31 05	Mr 17 14	5946 5413 5536 5916.5	
26	03 24 78	1610-1745	Dionysius Censorinus Aristarchus	17E 3N 33E 1S 47W 23N	Faint twinkling star like point in crater Dionysius remained same until he used 155x at 1625. Twinkling was at limit of visibility and due to atm. No similar effect seen at Aris. At 1645 area became brighter and resumed normalcy at 1745. Cens. Seemed brighter than normal. .	Mr 05 17 Mr 31 05	Mr 17 14	5946 5413 5718 5916.5	1 1/2h
27	04 20 78	1930-2235	Promontory LaPlace Aristarchus	25W 46N . 47W 23N	Foley: Yellowish-Brown small area near tip of cape NE of the precipitous W edge in the face of the northward sloping face. Density varied diffused and indistinct while surrounding regions were very stable. No color elsewhere in diligent search, but no response on blink device. Amery confirmed at Aris. Blue in Aris. photos did not show phenom. Foley thinks spurious. .	Mr 31 05 Ap 26 08	Ap 14 10	5916.5 5413 5723 5955	Min?
28	04 23 78	2035, 2133	nr. Copernicus	20W 9N	Bright flash ~1/3S showing rays to the SE sidelooking in finder. Drawing according to Moore indicates area of Cop. (not if flash was in dark as reported in BAA circular - meteor?)	Mr 31 05 Ap 26 08	Ap 14 10	5916.5 5413 5920 5955	<1S
29	05 14 78	2140-2252	Aristarchus	47W 23N	High luminance in Earthshine, distinct blue, CED gave extraordinary reading of 0.9. Highest previous recorded was 0.3, no spurious color.	Ap 26 08 My 24 05	My 12 04	5955 5407 5443 6045	>1h
30	05 18 78	2045-2153	LaPlace	25W 46N	Brown color, gave no blink & was presumably a subjective effect (reported by others at times).	Ap 26 08 My 24 05	My 12 04	5955 5407 5734 6045	8m
31	05 19-20 78	2145-0330	Aristarchus	47W 23N	Crater very dull at first. Floor slate blue-gray cleared at 2245.Vivid green spot in inner SE appeared and disappeared abruptly. Duration 2255-0050. Not atrib to spurious color CED rdgs. 2.8 @ 2200, 3.7 @ 2345. Aris. started at albedo 2.8 at 2205 and remained near that till 2345 was 3.7 & dropped to 2.8 at 2350 and remained lower till around 3.0 from 2350-0315. Graph shows Proc. & Cens. Similar & Aris. Considerably different. Earthshine = 0.3.	Ap 26 08 My 24 05	My 12 04	5955 5407 5835 6045	1 1/2h
32	05 22-23 78	2200-0015	M. Crisium Proclus Sinus Iridum Grimaldi Tycho Aristarchus	60:E 17N 46E 16N 30:W 48:N 65W 5S 11W 42S 47W 23N	All features except Aristarchus were normal. Recorded it as >Tycho when normal, variation was 25%. Moon was low & yellow from terr. atmosphere. Observer considers phenomena real. Resolution = 0.7 x 7km.	Ap 26 08 My 24 05	My 12 04	5955 5407 6031 6045	2 1/4h

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	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
24	11.6	0.435	355 45R	Ja 24 08 -3.5	2, 6	Foley, P. . Moore, P. Wells . Jewitt Pedler	Kent, Eng . Sussex, Eng. Eng. . Eng. Eng.	12L? blink device 15L, 350x 12L, 132x, 266x, 12L, 260x 12.5L, 160x 320x	. . S=II-III, S=IV, . . S=III-IV	22	R	5
25	12.7	0.631	61 14R	Mr 24 16 -2.9	3+, 14					23	V	1
26	15.6	0.745	95 68S 52S 132.5S	Mr 24 16 0.0	3+, 11	Anderson	Eng.?	8L, 55x		17	B	1
27	13.3:	0.79	67, 42R 20R	Ap 23 04 -2.4	6-, 27 ms at 0-3h	Foley, P. Amery Moore, P. Ellis Mellier	Kent, Eng Scotland Sussex, Eng.	32L, 2-600x . 10L, 200x	S=II . S=III-IV	17, 23, 24	R, V, B	5
28	16.2	0.905	103 97:S	Ap 23 04 +0.6	4+, 28 ms-1d	Rawlings	Eng.?	finder, 50x		17, 23, 25	B	1
29	7.7	0.667	0 -47R	My 22 13 -7.6	3+, 18-	Foley, P.	Kent, Eng.	12L	II E	26	B, V	3
30	11.6	0.806	48 23R	My 22 13 -3.7	2, 10+	Cook	Sussex, Eng.	12L, 240x		17	R	3
31	12.8	0.849	62 15R	My 22 13 -2.5	2+, 4 9-, 14 sc-1	Foley, P.	Kent, Eng	12L	III-II	26	V, G, D	5
32	15.7	0.950	87 147R 133R 57:R 12R 76R 40R	My 22 13 +0.5:	5+, 28	Mellor Fitton	Eng. Eng.			27 17	R, B, V	2

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
33	05 24 78	0040?-0105	Aristarchus	47W 23N	Red along SE wall & S horn of crater. No color elsewhere but thought it was spurious. As moon rose the light effect decreased. Also saw red next night (May 25). Also on May 27, but absent on 29th.	Ap 26 08 My 24 05	My 12 04	5955 5407 6045 6045	1/2h
34	06 18 78	2100?	Plato Grimaldi Sinus Iridium Aristarchus Proclus Censorinus Dionysius	9W 51N 65W 5S 30W 45N 47W 23N 46E 16N 33E 1S 18E 3N	Spectacular display of spurious color, as on 5/22, in the same phase. Sees them more often than not. Not LTP .	My 24 05 Je 21 12	Je 08 18	6045 5359.5 6015**:** 6118,5	>1h?
35	07 19 78	2030?	Aristarchus Proclus Tycho	47W 23N 46E 16N 11W 42S	After moonrise no color effects at 1st, later on intense blue haze developed on it. Later colors on other peaks but not on Tycho. Colors probably due to refractor telescope chromatic aberration. Changed to 13" Astrograph (refl).	Je 21 12 Jy 19 21	Jy 06 00	6118.5 5355.5 6125 6125	
36	08 16-17 78	2000-0015	Plato	9W 5N	Floor along and over N. wall was indistinct effect like telescope out of focus. No obscuration in immediate surroundings clear & sharp. Used several eyepieces CED had no variations. Slight indication of dark in red in blink. Effect lessened rapidly from 2056-2110, difficult at 2113, gone by 0015 all normal. Moore alerted used 12L saw nothing unusual from 2200 after Foley's obs. Photos marked at loc. of phenom. .	Jy 19 21 Ag 17 06	Ag 02 03	6125 5357 6102 6103	4.25h
37	08 18-19 78	2200 0245-0400	Aristarchus	47W 23N	(Coates) At 2200 on the 18th saw in Aris. Inner bands hard to see, though seeing good and he has no trouble seeing them. Does not think there was any obscuring matter inside. Later, 4-6h, Porter saw blue & orange shine in it. Blue on NE corner and orange glow on SE wall. No motion or change in intensity. Tested by looking with both eyes and three color filters. W25 a red, W82 a blue and W47 a violet. Colors faded for 5m then came back. Saw well with right eye and suspected with left eye. SE wall appeared 0.5 step > rest of crater. Color persisted even in moments of good seeing. Faded gradually and were gone in 3+h later than beginning. Porter saw color on next night too. Checked other bright spots, but no colors on them. Filters confirm that SE wall definitely red. (Fits Fitton's hypothesis). .	Ag 17 06 S 14 10	Ag 29 13	6103 5404 6056 6018	6h
38	09 16 78	1828-1857	E. edge of M. Tranq. Proclus Dionysus Pico Aristotle Kepler Copernicus Manilius Menelaus	48E 10N 46E 16N 17E 4N 9W 46N 47W 23N 37W 7N 20W 9N 9E 14N 16E 16N	Bright star like point appx 3/4 brightness of Proclus at 1835. Proclus brightness unlike any crater and check of region showed no suitably bright crater there at 100x. 160x was still there but not as conspicuous. (higher power spread it out?) Grew fainter over next 15 min and disappeared at 1857. Soviet cosmonauts photographed in UV. Anderson saw Dion. As nebulous bright spot. (conf.) McKim noted Aris., Kep., & Cop. brightened & faded from 1930 in binoc. photos. Probably atm. during eclipse. .	S 14 10 O 11 16	S 26 06	6018 5411 5939 5928	1/2h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
33	16.8	0.993	111R 116S	My 22 13 +1.5	5-, 30+ ms	Moore, P.	Sussex, Eng.	12.5L, 300-400x	IV	17	R	0
34	13.0:	0.905:	67: 58:R 2R 37R 20R 113R 100R 85R	Je 20 20.5 -2.0:	3+, 21-	Mellor	Eng.			27	R, V	0
35	14.4:	0.000:	86: 39:R 132:R 75R	Jy 20 03 -0.3:	4-, 18+	Jewett	Eng.	10R, 120x, 13L		27	V, G	0
36	13.0	0.986	71 62R	Ag 18 10 -1.4	2+, 3+, 9-, 16+	Foley, P. Moore, P.	Kent, Eng Dublin, Ireland	8L 12R	II, II	28	G photos	5
37	14.9	0.057	93 46R	Ag 18 10	6, 26- sc at 18-28h	Coates Porter, A.	Eng? Naragansetts, RI	3R 6L	S=II S=6/10	28 29	R, V	0
38	14.1	0.081	86 138R 104R 109R 77R 39R 49R 66R	S 16 19 (eclipse) 0.0	3-, 13-	Searle Wallace Anderson	New S. Wales, Aust. Australia ?, Brisbane, Australia	8L 100x,160x photos 8L	S=III	28	B, G, D	5

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
39	11 08 78	0300	nr Beer & Timocharis	11:W 30:N	At 0300h saw a bright flash well within the dark area. Appearance of a diamond twinkling in the sunlight. Bright enough to dazzle the eye for a few moments. Terminator on W Archimedes. (wondered if it were a meteor?)	N 05 12 D 02 16	N 20 22	5925 5411 6017	<1 sec
40	11 08 78	2035-2158 2050-2150 1850-1910	Theophilus	26E 11S	(Cook) saw false colors in several places. At 2049 crater had orange color on ESE. Little shadow from E wall. No blink obtained. Somewhat faded by 2158 & more SE. Color confirmed by Foley. Hedley-Robinson saw no color, but seeing very bad, but area was darker intermittently, more noticible in blue than in red filter. Cook said area smaller at 2150 than at 2050, and saw no color elsewhere. Color changed somewhat if telescope moved from side to side. .	N 05 12 D 02 16	N 20 22	5925 5411 5855 6017.5	3h
41	11 15 78	1910-2215	Aristarchus	47W 23N	Viewed violet spot NW interior corner throughout period. Floor clear of color from 1910-2005 then abruptly became slate-blue/gray till 2145. No other color elsewhere. C.E.D. Measures: 1910-2000 4.7 2025- . 3.8 2008-2130 3.9 2145-2215 4.1 Observed Censorinus, Proc., Pico, Piton & Tycho. All normal	N 05 12 D 02 16	N 20 22	5925 5411 5548 6017.5	3h
42	11 16 78	1940-1945	Aristarchus Tycho Copernicus	47W 23N 11W 42S 20W 9N	N wall of Aris. electric blue, no false color seen in others, e.g. Tycho, Copernicus.	N 05 12 D 02 16	N 20 22	5925 5411 5520 6017.5	5m
43	11 19 78	2240-2305	Aristarchus	47W 23N	Blue color, could not be focused in that part but other parts were sharp. In blue filter, bright but obscured, darker in red. Checks on other craters were normal. Eyepieces alternated.	N 05 12 D 02 16	N 20 22	5925 5411 5415 6017.5	25m
44	11 20 78	0300-0500	Aristarchus	47W 23N	No spurious color throughout period. Intense violet/blue spot on NW. Interior corner, no color seen elsewhere, no variation in albedo.	N 05 12 D 02 16	N 20 22	5925 5411 5413 6017.5	2h
45	02 26 79	1640:	nr, Limb		Unusual unexplained effect at 1st & 4th contacts when an arc of sun ~40° seen to darken ~90s before contact. (Dust or gas or Sodium atmo?). Solar eclipse Alt. 21° near perigee 1/2 day before storm.	F 25 22 Mr 26 06	Mr 10 10	6115 5401 6109: 6034.5	90s
46	03 04 79	1815-2145 1820-1830	Aristarchus Grimaldi	47W 23N 65W 5S	(Foley) Abnormally bright Earthshine, radiating with eerie luminescence. N region more brilliant. No color. Other areas Earthshine less evident. CED of 0.3. highest previously recorded. Other features, except Grimaldi, were obvious. Photos of 60s exposure Pan F film support visual. (Amery) alerted by Foley noticed a bright luminous white patch with almost fluorescent appearance at 50x. At 200x Grimaldi shone with a brilliance to that of a thin crescent of 2-3d. Confirm Aris. at 50°. .	F 25 22 Mr 26 06	Mr 10 10	6115 5401	3.5h 10m

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
39	7.2	0.129	253	N 14 20 -6.7	4+, 22-sc	Darling, D.	Sun Prairie, WI, USA	12.5L, 95x	S=8/10	30a, b	B	2
40	8.1	0.121	12 38R	N 14 20 -6.0	4+, 22-aurora	Cook Fitton Hedley-Robinson Foley, P.	Eng. Eng. Eng. Eng.	12L, 187x	III-IV	30a, b, c	R	3
41	15.0	0.379	7 40R	N 14 20 +1.0	3+, 16-	Foley, P.	Kent, Eng.		S=III T=F	30	V, D	3
42	16.0	0.415	109 118S 82S 91S	N 14 20 +2.0	3-, 13+	Kidger	Eng.?	6R, 40, 200x	P boiling	30c	V, D	1
43	19.1	0.526	135 -2S	N 14 20 +5.1	4-, 21-A & sc at 21-24h	Pedler	Eng.?	12.5L, 200x filters	F	30c	V, G	4
44	19.4	0.540	150 -77S	N 14 20 +5.4	4+, 29-ms+1d, A	Foley, P.	Kent, Eng.		II	30c	V	3
45	0.0	0.028	270 0R	F 12 03 Mr 03 21 +14.6 -15.1	4+ 29-ms, -0.5d	Maunder	Lewiston, MT USA	naked eye?	G cirrus clouds but could see corona	31a, b	D	1
46	6.1	0.243	345 -62R -80R	Mr 13 21 -9.0	5, 31 s +0.5	Foley, P. Amery	Kent, Eng. Reading, Eng.	12L, 180x 19L 50-200x	<II-I 4/5	32a, b	B	5 photos C

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
48	04 02 79	2145-2214 2231-2246	Daniell	30E 34N	Bright white cloud over 3/4 of crater at 2145. At 2148 used yellow filter - cloud still white but thinner at 110x. At 2214 effect barely visible, no color seen. Buczynski alerter saw spurious color. Mellor photos later showed no color.	Mr 26 06 Ap 22 22	Ap 07 03	6034.5 5409 5537 5943	1/2h 1/4h
49	04 06 79	1800-2100	Plato	9W 51N	Obscour. W wall - darker than usual. Condition stays constant throughout obs. Period. Drawing shows extensive area on inner W wall.	Mr 26 06 Ap 22 22	Ap 07 03	6034.5 5409 5410 5943	3h
50	04 16 79	0430-0701	Isodorus K	34E 8S	Cigar shaped shiny object on S rim - hanging over a smaller crater. Looks like a bright aluminum can in the sun & cast a shadow on rim. Length 8-10 mi long. 1 mi wide at central point. tapered to points at both ends. Studied it for several hours. S term. ~60-70mi away. Not related to topog. Alt. 8°	Mr 26 06 Ap 22 22	Ap 07 03	6034.5 5409 5943	2.5h
51	05 04 79	2130-2200	Hipparchus L	9E 7S	Star like point strongly suspected inside it. Could not hold point except by averting vision. (It is an impact crater in highlands with a rill coming up to W ejecta blanket. Is smallest of a chain, each ~1/2 size of previous crater - all in highlands. The largest is Hind and has most of its floor covered by landslide on S floor is an elongated dome(?) with a s.c.. Some others are on W floor side.)	Ap 22 22 My 18 09	My 04 22	5943 5415 5415 5918 (at apogee)	1/2h
52	05 06 79	2030-2045	Daniell	30E 34N	NW interior was normal, but SE end seemed fainter & less distinct, applied to both gray interior and rim. Obs was not familiar w/ the crater, so does not know if normal or unusual. Sketch. (Crater has concentric rills, with a crater at an intersection in S. Phenom. could be an emination there, or the adjacent rill on S.E.) sketch.	Ap 22 22 My 18 09	My 04 22	5943 5415 5434 5918	1/4h
53	05 29 79	0250-0257	Aristarchus	47W 23N	In Earthshine blue glowing > surroundings, blue covering whole crater & surrounding areas. Brightness kept increasing until it dazzled the eye in the 'scope & could be seen with the naked eye. Est it at +3.5 mag. (Earthshine was 5th mag.) Lasted 7min Then returned to normal. Conf by his wife.	My 18 09 Je 13 16	Je 01 17	5918 5414.5 5514 5956	7m
54	05 30 79	0250-0257	Aristarchus	47W 23N	Saw a glowing patch in dark ~3rd mag star. First saw it at 0250, disappeared at 0257. At brightest, found it dazzeling.	My 18 09 Je 13 16	Je 01 17	5918 5415 5956	

1	11	12	13	14	15	16	17	18	19	20	21	22
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	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
48	5.8	0.275	337 7R	Ap 12 13 -9.6	6+, 34 sc(3-9h), ms	Madej, P.	Huddersfield, Eng.? Lancaster, Eng.	6 cm (L) 36-110x	II-III P	32a, b	B, G	3
49	9.7	0.417	25 16R	Ap 12 13 -5.7	4,-21 sc+1d	Crick	Eng.		II-III	31a	G	3
50	19.2	0.757	183 -8S	Ap 12 13 +3.8	5-, 23	Darling, D.	Sun Prairie, WI, USA	12.5L, 342x	9	30a, b 34a, b	B	3
51	8.3	0.471	8 14R	My 12 02 -7.2	3, 13+	Coates	Eng.	3R	II E	31a	B	2
52	10.2	0.545	31, 61R	My 12 02 -5.3	2, 12+	Price	Emg.		S=III T=P	31	D, G	2
53	3.1	0.407	303 -104R	Je 10 12 -12.4	7, 23- sc	Darling, D.	Sun Prairie, WI, USA	12.5L 78x		34	V, B	2
54	4.1	0.445	320 -87R	Je 10 12 -11.4	4-, 17- sc	Darling, D.	Sun Prairie, WI, USA	12.5L, 80x	S=II-I T=G-P	30a, b	V	1

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
55	06 05 79	2015-2110 2120-2125 2105-2126 2110-2130 2148-2154 2057-2210 2039-2300 2230-2300	Daniell Bullialdus Campanus Posidonius	30E 34N 22W 20S 27W 28S 29E 32N	(Price) Daniell S&E wall indistinct and almost opaque (sketch). Nearby regions checked, but no other obscurations seen tube was rotated & axis shifted. (Robinson) No blink (in Daniell) but Posidonius lacked sharpness of detail; seeing too poor for reliability. (Moore) No color visually, but slight blink in West floor.(of Danell). Slightly more pronounced at 2150. SE floor seemed blurred. At 2207 (after clouds) no blink & Dan was normal. (Amery) spurious blue on N limb (of moon). Dan appeared as a small round ring with a very dark center, W wall was bright & distinct, E wall was difficult to see, merged with surrounds. (Sketch). (Buczynski) Dan. bright elliptical ring evenly shaded w/ interior much darker. At 2154 seeing better & ring was seen to be broken at SE tip & a bright spot at its NW tip on outer edge. Floor now darker to NW - Sketch. (Foley) No color early, but later.SE rim & floor obscured, ill defined w/ respect to surrounds. S wall less bright but sharp. Condition persisted until all seemed normal by 2210. At 2115 a small area on floor near NW wall, spurious color at first (bad seeing) but later, SE floor obscured - ill defined. At blink indicated lightening in blue. Got same blink reaction in Bull. at 2125, but no response in Dan, Bull or Camp., CED was used and affected SE rim gave 2.0 at 2120 but 2.5 by 2210 when it was normal. Other regions were normal in CED Pico was 2.8, Piton 2.7, Cens. 3.8, & Proc. 3.7 (photos & drawing). (T. Cook) at 2039 noted floor of Dan darker than surrounds. SE rim was faint out-of-focus unlike other parts of rim. It was sharper in blue than in red. (J. Cook) Some spurious color on W rims of craters, no color in Dan.. Theop., La Place, Plato all normal. Dan was normal by 2150. At 2200 orange on Bull. E rim sketch. (M. Cook) used blink & Dan sharper in blue than red. No obscuration except for dark patch on SW rim. Camp. had entire floor purplish at 2200 but free of color at 2300 sketch. (Reading) no spurious col. Dan normal (but observed after time of others). .	My 18 09 Je 13 16	Je 01 17	5918.5 5415 5539 5456	~3h
56	06 30 79	0246-0319	Aristarchus region	47W 23N	Faint blue glow in region, not as bright as in May's but could be seen with relative ease. One streamer extended S, another NW, smaller ones in crater. Streamers began to disappear at 0304 and the blue glow became a blue spot, & by 0319 Aris returned to normal crater in Earth shine. .	Je 13 16 Jy 11 12	Je 29 11	5956 5408 6044	>1/2h
57	07 01 79	2200?	nr Halley	5E 9S	Flare in area, found in only one photo. Raden saw it with eye for ~3-4m, but not as bright as on photo. Sketch & photos. Slide 35s exposure.	Je 13 16 Jy 11 12	Je 29 11	5956 5408 5437: 6044	4m
58	07 03 79	2055-2120	. Messier Messier A	. 46E 3S 45E 3S	Messier was brighter than A (Pickering) in both red & blue filters	Je 13 16 Jy 11 12	Je 29 11	5956 5408 5542 6044	~1/2h
59	07 04 79	2040-2119	Daniell	30E 34N	E end of crater brighter & fuzzy, very ill-defined boundary to bright part. Sketch (pos same as in previous reports; same phase as June 5 observation).	Je 13 16 Jy 11 12	Je 29 11	5956 5408 5628 6044	3/4h
60	07 06 79	2115-2230	Daniell	30E 34N	Obscure - vis. Brightness of obscure spot on SE wall very well seen in W25a filter. Floor very dark. Other craters in vic. Checked, all normal. Sketch. (pos. same as in other reports).	Je 13 16 Jy 11 12	Je 29 11	5956 5408 5815 6044	1 1/4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
						1,900 A.D.						
55	10.8	0.700	38 68R 16R 11R 67R	Je 10 12 -4.7	2-, 8	Price Hedley-Robinson Moore, P. Amery Buczynski Foley, P. Cook, J., M., & T.	Eng. Eng. Sussex, Eng. Reading, Eng. Lancaster, Eng. Kent, Eng. Surrey, Eng.	6L 10L 15L, 360x 10L, 200x 12L, 163x 12L, 360x 12L	IV, G III, G IV III IV IV-II III-IV,G	35	G, R, V, B	5 C
56	5.6	0.590	338 -69R	Jy 09 20 -9.7	4-, 18-	Darling, David & Dan	Sun Prairie, WI, USA	12.5L 80x - 150x	S=5	30a,b	V, B, G	1
57	7.4:	0.655	356: 1:R	Jy 09 20 -7.9:	3-, 15- sc -2d	Raden, D. J.	Ft. Meade, FL, USA	10L		36	B	5
58	9.3	0.356	20 66R 65R	Jy 09 20 -6.0	4+, 21- <-0.5 sc	Hedley-Robinson	Tugmouth, Eng	10L	II	31b	B	3
59	10.3	0.392	32 62R	Jy 09 20 -5.0	3+, 15+ sc+1.5d	Saxton	Leeds, Eng.	9L, 250x	S=III T=G	31b	B, G	3
60	12.4	0.464	57 87R	Jy 09 20 -2.9	5, 25- sc 18-21h	Crick	Belgium	6L	S=II T=G	31b	R?, G	3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
61	07 18 79	0830-1000	.	.	These features observed to	Jy 11 12	Jy 26 22:	6044	1 1/2h
			Menelaus	16E 16N	glow, some w/ flashes & pulsate	Ag 08 19			
			Manilius	9E 14N	where, after a flash, would blow				
			Maskelyne A	34E 0N	up in area and brightness, all in				
			Proclus	47E 16N	Earthlight. At 0856 Cleo.				
			Tisserand	48E 21N	Glowing & disappeared at 0906.				
			Macrobius	46E 21N	At 0850 glowing after flash then				
			Delambre	18E 2S	later				
			Stevinus	54E 32S	another flash then faded at 0905.Steve & Reich glowed for a short time &				
			Reichenbach	48E 30S	then dimmed to invis. By 0940 saw 12 glowing patches, blue in color, several				
			several around		had flashes expanded from center out at different rates. Appearance				
			E Mare Crisium	60E 15N	of gas or atmos. effect.(Prob. clouds on Earth limb, also Moon at low				
			e.g C. Agarum	65E 17N	altitude.).				
			Condorcet	70E 12N					
			Cleomedes	55E 28N					
62	08 03 79	0200-0300			Area of Mare Imbrium was	Jy 11 12	Jy 27 00	6044 5400 5727	1h
			W of Helicon	23W 40N	extremely bright 8/10 on Elgar	Ag 08 19		6117	11m
			Bullialdus	22W 20S	scale. (From FM, photo, area				
					appears to be brightness of				
					Archmimedes 'floor' - 3.5/10.				
					Seeing exceptionally that night. In 2.4" scope obs. Could resolve Helicon B,				
					Carlini F but not Leverrier S (see plate 134-2 in LO IV Gazetteer. (terminator				
					only 3.5, would expect it to not be very bright.				
		2136-2147	Bullialdus	22W 20S	First noted area to E (IAU?) of	Jy 11 12	Jy 27 00	6044 5400 5812	~10m
			Darney	26W 14S	Bull A was much brighter in red	Ag 08 19		6117	
					than in blue. Clouds at 2141 &				
					at 2147, clear for 1m - noted W				
					edge of Bull also much > red				
					than blue. Crater Darney showed similar effect. Obs. Thinks due to atm as				
					Bullialdus Produced a blink in bad seeing.				
63	08 06 79	0640-0838			Aris. normal in red & blue filters,	Jy 11 12	Jy 27 00	6044 5400 6021	2h
			Aristarchus	47W 23N	but Cobra Head of SV quite a	Ag 08 19		6117	
			Cobra Head,	48W 24N	bit brighter in blue than red,				
			SV		very dull thru red. Not surprising				
					as he says whole				
					area around Aris. is brighter in blue. (experienced observer of Aris region >				
					10 yrs).				
64	08 07 79	0127-0311			Area not visible although area is	Jy 11 12	Jy 27 00	6044 5400 6050	1 3/4h
			W of Helicon	23W 40N	fairly bright at Full Moon. Was	Ag 08 19		6117	
					area of very bright patch one				
					nite. (Note comensurability of				
					Full Moon & Perigee).				
65	08 12 79	0700-1035			Cigar shape wing protuberance	Ag 08 19	Ag 23 07	6117 5357 5931	3.5h
			Römer	36E 25N	brilliant cast 20mi long shadow	S 06 06		6124	
					nestled in rill valley beside				
					Römer. Wife Edna confirmed.				
					Watched till sun set on it. Top				
					of obj. & 2 pts on crater rim reflected suns rays. It was as high as the crater				
					rim whereas the rill wall was not. Took photos. He has studied this area and				
					never saw such a phenom before. Photos did not show it.				
66	09 09 79	0800-0815			Photos of Römer noticed 2 cigar	S 06 06	S 19 10	6124 5358	1/4h
			Römer	37E 25N	shaped bright objects alongside	O 04 15		6102	
					each other in Römer, nearly				
					same size as (1987) thinks it				
					was a ridge. In Römer (LO IV				
					192-3, 2 shows a ridge on				
					inside wall that might look as in				
					the description.).				
67	09 14 79	1330-1442			Bottom half of N rim completely	S 06 06	S 19 10	6124 5358 5523	~1 3/4h
			Aristarchus	47W 23N	extinguished (A=0) in violet	O 04 15		6102	
					filter, but of normal brightness in				
					red & no filter. Has never seen				
					sunlit wall so darkened in				
					any color before - made crater U-shaped. Violet filter is very dense. (Obs. In				
					ALPO - LTP Program). Note closeness of P to FM.				

1	11	12	13	14	15	16	17	18	19	20	21	22
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	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
61	23.9	0.243	195: 31S 24S 49S 62S 63S 61S 33S 63S 69S 75S 80S 85S 70S	Jy 09 20 +8.6	4-, 24- -0.5 sc	Darling, D.	Sun Prairie, WI, USA	12.5L, 80x		30a, b	B	0
62	10.0	0.798	29 3.5R	Ag 08 03 -5.0	3+, 18+	Caruso, J.	Elmira, NY USA	2.4R; 3R	S=E	37 31a	B	3
	10.8	0.823	40 18R 14R	Ag 08 03 -4.8	3+, 18+		Eng.		V, P spur. Color	31a	R, G	0
63	13.2	0.912	67 20R 19R	Ag 08 03 -1.8	4, 26-	Louderback, D.	South Bend, WA	8L, 70-240x		38	V,G?	1
64	14.0	0.940	78 55R	Ag 08 03 -1.0	3+, 19+	Caruso, J.	Elmira, NY USA	2.4R	S=7 T=4	39	D	3
65	19.2	0.123	142 2S	Ag 08 03 +4.2	5+, 24- ms-1, ms+1	Darling, D. & wife	Sun Prairie, WI USA	12.5L 342x photos	S=9/10	30a, b 40 34	B	5
66	17.6	0.109	127 16S	S 06 11 +2.8	2, 10+	Darling, D. & wife	Sun Prairie, WI USA	12.5L, 75x photos	4/10 alt 52°	30b	B	2
67	22.8	0.314	191 126S	S 06 11 +8.0	4+, 14+	Louderback, D.	South Bend, WA	8L, 146x		40a 40b	R, G?	4

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
68	09 15 79	0200:	Copernicus	20W 9N	Madej saw small circ. Area of gray/white in S end of crater. Foley conf. Says it is normal that shadow was filling crater but sun was still illum. Higher terrain in shade area. (that is the roughest part of the floor.)	S 06 06 O 04 15	S 19 10	6124 5358 5505 6102	
69	09 16 79	0800-0900	4 new features near #60		Four new features of those seen on July 16 (#61) appeared in S part of Moon, could detect pin-point flashes within the bluish patches. After flash gas clouds brightened for a few seconds. (WSC thinks they were a result of moving clouds at Earth's limbs - such as mackeral sky). Saw ~1 doz glowing craters. (Some patches would brighten for a few Sec by 6x. . Same as those on July 18.)	S 06 06 O 04 15	S 19 10	6124 5358 6102	1h
70	09 25 79	0040-0051	Aristarchus	47W 23N	Setting Moon obs. Crater glowing blue ~4&5 mag fluctuated. Bright intensity first few mim. - slacked off then brightened again ~2x, then blended into background. (Earthshine normally ~5th mag. Clouds at Earths' limb?).	S 06 06 O 04 15	S 19 10	6124 5358 6102	11m
71	09 29 79	1000-1200	Plato Pico	9W 51N 9W 46N	E wall of Plato very bright (not unusual) at 2054 (1054U.T.) Noted a strong beacon like flash in no filter, moved back & forth (in blink). Change of eyepieces & FOV had no effect. Suspect area was E wall of Plato & Pico. Checking again at 1107U.T. w/ neg results. At 1118U.T. blinking commenced at Pico as more prominent than E wall of Plato and also SSW of Pico weakly. Blinking irreg. 5-10S occur at 1132 UT & on till 1200UT. When obs. stopped (variations are about the same as atmospheric scintillations reported by WSC's observers in ALPO-LTP program). .	S 06 06 O 04 15	S 19 10	6124 5358 5812 6102	2h
72	10 04 79	2024 2012-2125	Bullialdus Aristarchus Pico Piton Proclus Censorinus Tycho	22W 20S 47W 23N 9W 46N 2W 39N 47E 17N 33E 1S 11W 42S	(H-R) SW floor patch (2 br-pts in better seeing) brighter in red than blue (at 2012) blink. At 2036 still blinks some. At 2043-2048 normal. (Amery) alerted - spurious color, none in disk. Faint blue tinge on W limb, W wall had possible brownish tinge (sketch). Bright in red at 2055, but W wall in blue has darkish band. (Foley) at 2105 saw color in Aris. & Bull. Nowhere else. Blink in WSW corner darkened in blue. Rose tint along SW inner wall, also of blink. CED value of 2-3 on W wall remained same on Bull. Aris. had CED of 3.8 at 2105 & no color at this time. At 2340 had fallen to 3.4 & floor was at point slate blue/gray. Pico, Piton, Proclus,Censorinus & Tycho were constant. (Cook) at 2044 found spurious color only on the limbs. Pink on S rim of Bull., no color on Gassendi, Plato, Copernicus, La Place or Aristarchus. Color on Bull. did not respond to blink. Pink gone by 2133. Was certain it was a Lunar phenom. (Pedler) at 2055, no spurious color - Bull. Was a confused mass w/ bright & dusky spots & patches - no blink in it or adjacent areas. (Obs. Fit Fitton's Hypothesis), Conf. .	O 04 15 N 01 20	O 16 20	6102 5405 6101 6015	2 1/2h
73	11 07 79	2310-0000	Aristarchus	47W 23N	Very bright blue on inner wall rim & outer wall - SE floor slightly darker. NE very bright diffuse edge . At 2350, brightness reduced. Foley agreed. CED was 5.0 whereas is generally 4.9. No albedo variance. Conf. No obscuration, but diffuse.	N 01 20 N 29 00	N 13 14	6015 5412 5646 5923	50m

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
68	23.4	0.337	194 6S	S 06 11 +8.6	3, 17	Madej, P. Foley, P.	Eng. Kent, Eng.	--, 12L		41	B, G?	1
69	24.7	0.359	218	S 06 11 +9.9	4-, 23+	Darling, D.	Sun Prairie, WI USA	12.5L 62-97x	clear alt. low	30a 30b	B, V	1
70	3.6	0.669	314 -93R	O 05 20 -10.8	4, 26-	Darling, D.	Sun Prairie, WI USA	12.5L 62x	6/10 alt 10° (low)	30a 30b	B, V	0
71	8.1	0.831	10 1R	O 05 20 -6.3	3+, 17**:**	Turner, S.	Maryborough, Australia			42 43	B	0
72	13.4	.001 .018	75 -37R -62R -26R -17R 28R 42R -26R	O 05 20 -1.0	4, 13+	Hedley-Robinson Amery Foley, P. Cook, A. Cook, J. Pedler Price	Devon, Eng Reading, Eng Kent, Eng Surrey, Eng Surrey, Eng Bristol, Eng Eng.	10L,200x 12L, 200x 12L, 360x 6L, 166x & 12L, 144x 12L 6L, filter	IV-V II II III-IV III III-IV II-IV T=F	42 44	V, R, G conf.	0
73	17.9	0.228	131 96S	N 04 06 +3.7	4, 19+ sc+0.4	Richetts Foley, P.	Sussex, Eng. Kent, Eng.	10L, 300x 12L?	II II	42 43	B, V	4

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
74	11 08 79	0016	Aristarchus	47W 23N	No spur. color, slight color of crater but not conf. At 110x a small light orange spot seen slightly off center & suspicious around N flank	N 01 20 N 29 00	N 13 14	6015 5412 5644 5923	
75	11 09 79	1030-1105	Piton Pico	2W 39N 9W 46N	Rapid dimming of both S & N sunlit slopes of Piton followed by whole W flank turning fuzzy with no detail. Variations were 5s whereas seeing was 15s. Other mts including Pico did not have that effect. It was seen only in viol filter tho once seemed blurred in red. No changes, dimming was like a veil of mist covering the mtn. - swiftly, then dissipating as rapidly. Sketch. Phenomenon went on & off till 1100UT. Cloud was circ. In viol & spreadover mtn in 2s. Saw 6 rapid, spinning motions within the cloud like an explosion or tornado seen from above. Blurring in red was more elongated. Motion across it was like a heat wave. Whole event lasted ~35m but disappeared in a few secs. Albedos 7.4 cp, 7.5 pt A, 7 pt B.	N 01 20 N29 00	N 13 14	6015 5414 5539 5923	>1/2h
76	12 02 79	0036	midway between Aristarchus & Prinz	. . 46W 25N	Bright flash in light part of moon at 0036h. 1st time had seen flash in lighted part. Had seen in dark 11/8/78.	N 29 00 D 23 16	D 11 11	5923 5414 5415 5927	
77	12 11 79	0505-0528	Aristarchus Mersenius	47W 23N 46W 21S	Spectral Photometer recording - digital pics. With spectral slit. CED eff 2%	N 29 00 D 23 16	D 11 11	5923 5414 5415 5927	23m
78	12 24 79	1900?	Daniell	30E 34N	No spurious color. Sketch. Noted an area in relation to central area of floor was impossible to resolve, even with averted vision. Area just cleared term. Crater was sharp & well defined. Foley wonders if area was at pt of resolution for his scope.	D 23 16 Ja 20 02	Ja 08 08	5927 5411 5923: 6022	m?
79	12 27 79	0532	Mare Anguis	70E 23N	2 small high-sun areas nr. Eimmart - brightning around Mare Crisium, except for interior of Proclus - in blue light. They were brighter than 2 spots on Cap. Agarum rated 8.5 & Proc. 9. Not as bright next night. Probably a real blue light brightening.	D 23 16 Ja 20 02	Ja 08 08	5927 5411 5852 6022	m?
80	12 29 79	1745-1820	Plato	9W 51N	Viol colored dark spot NW inner wall. No detail seen on floor N of center. Other regions monitored all normal - sketch. Obs. Not sure whether it was a trick of seeing or spurious color. Foley says it was fully illuminated & would not expect a darkening of it & no color detected elsewhere, so no spurious color.	D 23 16 Ja 20 02	Ja 08 08	5927 5411 5759 6022	>1/2h
81	12 31 79 01 01 80	2254-2357 0000-0039	Aristarchus	47W 23N	At 0010-0021 susp. Floor to be slightly brighter in blue filter. No blink from 2354-2357 or later. Wondered if spur. Color as that is very hard to detect when so bright.	D 23 16 Ja 20 02	Ja 08 08	5927 5411 5657 6022	40m
82	01 21 80	0030-0130	Aristarchus	47W 23N	Glowing in dark, fluctuated & changed shape & had streamers. Obs. Similar to his 6/30/79 obs.	Ja 20 02 F 17 09	F 05 02	6022 5704 5716 6108	
83	01 26 80	2135-2225	Proclus Posidonius Daniell Plato Pico	47E 16N 29E 32N 30E 24N 9W 51N 9W 46N	Bright spot on N edge. In filters it flashed green, red & blue. Clouds. Clearing still reactive In filters. Checks made on Posidonius, Daniell, Plato & Pico - all neg (normal). Return to Proc. It had ceased. Obs. Wondered if due to poor seeing. (If so, why not on the other features?).	Ja 20 02 F 17 09	F 05 02	6022 5704 5716 6108	~1h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
74	17.9	0.228	131 96S	N 04 06 +3.7	4-, 22- sc-1, sc+1	Madej, P.	Huddersfield, Eng	6L, 48,110x	II T= VG	43	R	3
75	19.3	0.278	150 32S	N 04 06 +5.1	5-, 25 sc	Louderback, D.	South Bend, WA USA		4-2/10 F- p	45	G,V	4
76	12.2	0.216	49 2:R	D 03 18 -1.7	3+, 19	Darling, D.	Sun Prairie, WI USA	12.5L, 349x	9-10/10 alt 32°	30a, b	B	3
77	21.4	0.494	175 52S 51S	D 03 18 +7.5	2+, 10	Crotts, A.	Princeton, NJ	CCD spectrophotometer		46		5
78	5.3:	0.033:	339: 9:R	Ja 02 09 -8.4:	3-, 14-	Price	Surrey, Eng.	6L 64 128x	III-IV T=G	47	G	2
79	7.8	0.128	10 80R	Ja 02 09 -6.2	3+, 19+	Louderback, D.	South Bend, WA USA	6L, 240x	3-6/10 T=4	48	V, B	4
80	10.2	0.219	51 42R	Ja 02 09 -3.8	5, 34-	Crick	Merchtem, Belgium	6L, 140x	III	47	D,V,G	3
81	12.6	0.303	68 21R	Ja 02 09 -1.4	4-, 5 16, 28	Cook	Surrey, Eng.	12L, Wr 29a 44a filters	II_III T=P- mod	47	V,B	3
82	3.2	0.032	309 -98R	F 01 02 -11.1	3-, 11	Darling, D.	Sun Prairie, WI USA	12.5L, 62x	3/10 P alt. Low	30a, b	B	0
83	9.0	0.258	24 71R 53R 54R 15R 15R	F 01 02 -5.2	2+, 12+ sc+1	Blair	Renfrewshire, Scotland	10L, 83-276x	III-IV T=P	49	V,R,B	4

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
84	03 04 80	1030-1034	Pierce	53E 18N	Pin-point light seen at 1030 deep in shadowed region of Mare Crisium. Fluctuated for 4m, then disappeared then gradually brightened for 2.5m & declined in a like time (Scintilllation ~5-10s average. Terrestrial atmosphere at limbs?)	Ja 20 02 F 17 09	F 05 02	6022 5704 6108	4m
85	03 20 80	1900?	Mare Crisium N. Wall	62E 24N	Spot was very brilliant - bright on moon	Mr 16 21 Ap 14 07	Mr 30 12	6126 5358 5913: 6112	m?
86	04 18 80	2000-2220 2020-2120 2037-2150 2042-2122 1900-2140 2025-2110 2035-2050	Aristarchus Cassini Kepler Plato Pico Littrow Grimaldi Herodotus	47W 23N 4E 40N 37W 7N 9W 51N 9W 46N 31E 22N 65W 5S 48W 23N	(Foley) Aris. Dull, barely seen, no CEDs possible yet Cass., Kep., Plato & Pico were visible. At 2016 interior suddenly had flashes - like St. Elmow's fire in SE corner & spread rapidly to illuminate the whole interior. Duration of 5-10s (terr. Atm?) at 2017 great brilliance (CED 8) crater rims visible & area 10-15 miles around crater bathed in translucent radiance including Herodotus. At 2028 brilliance subsided - CED 3, but blue incandescence remained. At 2107 Star like point flash in SE corner & very brilliant CED 3-4. Grim. Monitored with CED was constant at 2. Variable contrast till 2220. (Amery) alerted at 2020 noted Aris. Easily visible as a small circular glow almost fluorescent. At 2040 at 150x bright terrain between Aris. & Herod. was also glowing like a flare from Aris. At 2055 at 200x still glowing and a flare to W. Whole crater glowed & individual features not visible near Cassini - haze. (Madej) at 2027 noted slight glow, small. No glow at 2046. At 2040 slight glow - ill defined (gas?) large area at 111x. (Ricketts) saw continuous blue emission, with variations of 5-10s cycle. (atm?). Sequence chart showed translucent effects & variations. (Saxton) at 2042 saw faint star like point. At 2047 could see the Aris-Herod island. At 2102 most prominent part of Earthshine was on limb S of Otto Struve. Variable till 2122. (Price) 1900-2140 thought Aris. <bright than should have been. (Cook) Spurious color on S limb of Moon. Seeing poor, could not see Aris. (Peters) saw it as a faint nebulous spot at 2025-2100 fluctuating irregularly. (Mady) 2 brilliant flashes at E edge of Littrow 40s apart. (Ricketts) saw blue flashes every 20-30s. (Foley) saw faint blue. (Foley) Aris. Dull, barely seen, no CEDs possible yet Cass., Kep., Plato & Pico were visible. At 2016 interior suddenly had flashes - like St. Elmo's fire in SE corner & spread rapidly to illuminate the whole interior. .	Ap 14 07 My 12 13	Ap 26 20	6112 5402 5827 6032	~2h
87	04 19 80	2040-2259	Taruntius	46E 5N	(Buczynski) alerted by colleague (Greenwood) who used filters W15 (IR), W25 (red), W44A (blue), & W58 (UV) and had located a possible blink in it. (Bucz) used W15, W44A & W25. C.P was very bright in W25 (red), dull but vis. In W44A (blue) & floor was noticibly darker in W44A than in W25. Bright cp vis. In W15 & floor was of a light shade. Other craters checked for color, none found. In 44A floor lost some definition (gas?). Sketches from Bucz. & Greenwood. (Pedler) at 2140, floor area around cp was seen in white & red as normal but blink was vis in white, darker in blue. Checks of other features were negative. (Amery) small dark center & small dark area - not shadow - under S wall. N wall obscured by dark area extending N onto surrounding mare. (normal?) which was difficult to focus (gas?). At 2155 N wall now sharper & dark area less intense. Craterlet Cameron in N wall clearly seen which was invisible 1/2 h earlier. (Saxton) whole crater flashed and blinked at 2155. Could see detail in brighter W 1/2 of crater - not seen earlier. At 2205 seeing poor, at 2215 it was normal. (Blair) at 2155 used red & blue filters & in blue it was darker than in red. W. wall not well defined. (J. Cook) saw spurious color on N & S rims. Saw a pink tinge on SE rim. (A. Cook) saw spur. Color on most craters as seeing deteriorated. Got a blink on SE region > red than blue. .	Ap 14 07 My 12 13	Ap 26 26	6112 5402 5728 6032	2h20m

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
84	17.5	0.541	130 3S	F 01 02 +3.3	2+, 8	Darling, D.	Sun Prairie, WI USA	12.5L, 344x	8/10 alt 51° (high)	30a, b	B	0
85	4.0:	0.140:	319: 21:R	Mr 31 15 -10.8:	2-, 9+	Anderson	Brisbane, Australia	16L?		50	B	3
86	3.6	0.159	313 94R 43R 84R 56R 56R 16R 112R 95R	Ap 30 08 -11.5	2, 9-	Foley, P. Amery Madej, P. Ricketts Saxton Price Cook	Kent. Eng. Berkshire, Eng. Huddersfield, Eng. Sussex, Eng. Leeds, Eng. Surrey, Eng. Surrey, Eng.	12L 10L 50-200x 3R 83-111x 10L 300x 11L 134x 6L 12L photos	II, III III V,G I G III-IV III	51 52 60	B,V,D	5 C photos
87	4.7	0.198	327 13R	Ap 30 08 -10.4	2+, 10	Buczynski Pedler Amery Saxton Blair Cook. J. Cook, A.	Lancaster, Eng Brested, Eng Reading, Eng Leeds, Eng Renfrewshire, Scot. Surrey, Eng Surrey, Eng	10L, 144x 12.5L, 200x 10L 8L 8L 12L 12L Filters	-- III-IV III III-IV III-IV V IV-V	52	R,D,B	5

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
88	04 20 80	1925-2245 1945 2035 2020-2105 2028-2201 2040-2109 2144-2343	 Aristarchus Fracatorius Petavius Piccolomini Copernicus Grimaldi Walter	 47W 23N 33E 21S 60E 26S 33E 29S 20W 9N 65W 5S 3E 34S	(Foley) Aris. Brilliant in Earth shine, blue incandescence light variable (atmos?) CED=5. Sometimes star like point on SE corner. Used high ground around Grimaldi for comparison which was at CED=2. Buczynski & Lord unable to see Aris.. (Greenwood) easily saw it - star like point surrounded by diffused glow. Corroborated by Buczynski & Lord. (Amery) at 2035 judged it > normal. (Pedler) saw it as small dim nebulous blue or blue-green. Invisible at 2027. Looked at other places, none seem affected. (Blair) in 8L from 2028-2201 could not see Aris. (Hedley-Robinson) not seen at 2040, but visible At 2055, diffuse in blue, seen again at 2107. (Ricketts) saw bluish emission w/ intermittent flashes at 5-10s intervals. (atm?). (Price) saw only Grimaldi at 2020, at 2027 faint then bright flash in area (Grim. or Aris?). (3-Cooks saw no features. Foleys' photos show it bright > Cop. But = Menelaus, the white spot in Walter almost as bright. Conf. & photo. (Hedley-Robinson) at 2112 saw floor patches in Frac. blink > blue than red. Floor to center oscillated in brightness in blue & red. (Peters) checked it in white light & SE-S wall faint orange & MB gave pronounced blink there with < blue than red. (M. Cook) noted spurious color on S rim & also in Picco. Blink on SE floor of Frac. were faint, hazy & blurred, not seen in white light. (A. Cook) at 2147 saw the permanent blink in the SE corner & fainter one in NW corner - slightly > red than blue. (J. Cook) saw no visible color in MB. sketch. (Foley) at 2122-2210 segment of floor blinked madly, very positive - very bright in red, dark in blue. Saw pink in SE wall from 2210-2245 but no blink. (Blair) at 2138 saw 3 patches in Petavius, still evident at 2145. At 2150 tested patches with filter - N one > in blue, S one in red & central one was even in both. Center one is a permanent patch. The crater is described as having dark patches colors are opposite to Fitton's hypothesis for dark features. (J. Cook) at 2005 found no detail visible in Earth-light possibly saw some bright spots in area of Cop.. At 2102 at 60x in 12L saw some flashes in its area	Ap 14 07 My 12 13	Ap 26 26	6112 5402 5638 6132	3.5h
89	04 21 80	2000?	N Wall of Mare Crisium	62:E 23N	Spot very brightest on Moon. Ceased to be brightest after F.Q. outshone Proclus. By the 22nd brightness less, but still one of the brightest on the Moon. Ellis examined many photos & observations & they showed that the region is very bright from colongitude 300°-350°, peaks at 320° & declines thereafter. .	Ap 14 07 My 12 13	Ap 26 20	6112 5402 5550: 6032	>1d
90	04 22 80	2030	SE Limb of Moon	90E 32S	Photos thru projection w/ exp time 1s on Ilford FP4 124ASA developed on microphen on 400ASA. One showed apparent ejecta curtain with a long ray at one edge. Edges of cone are at 90°. (WSC at first thought it was lens flare, very likely if through a Barlow lens). It did occur at max of Lyrids. Are any particulates large enough to produce such an impact?) Other photos did not show this effect. He estimated height of plume at ~ 40km. Ray ~140km. This may be similar to Stuart's photo of a spot near the center of the Moon taken 11/15/54. (WSC concludes that a Lunar impact was photographed.) .	Ap 14 07 My 12 13	Ap 26 20	6112 5402 5528 6132	min?
91	04 24 80	2335	Plato	9W 51N	Center of crater bright & opaque similar in appearance to Linne. Sketch. conf. by 2 others. (Petek is a keen experienced observer).	Ap 14 07 My 12 13	Ap 26 20	6112 5402 5416 6032	
92	04 28 80	0510	Aristarchus	47W 23N	Very bright red patch on SW rim, same side as white streak connecting area & Herodotus. Chrom. abber. showed blue where he saw red patch before. Thinks it was probably chromatic aberration but has seen no red in that position since. Patch was between his observation points A & C. Point C was 5 pts. brighter in red filter than in blue filter. sketch. (Prob. real phen.).	Ap 14 07 My 12 13	Ap 26 20	6112 5402 5409 6032	min?

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
88	5.6	0.230	328 -69R 13R 38R 12R -41R -86R -18R	Ap 30 08 -9.5	2+, 12	Foley, P. Buczynski Amery Pedler Blair Hedley-Robinson Rickett Price Cook, J., M., & A. Peters Greenwood Lord	Kent, Eng Lancaster, Eng Berkshire, Eng Bristol, Eng Renfrewshire, Scot. Devon, Eng Sussex, Eng Surrey, Eng. Surrey, Eng Kent, Eng Lancaster, Eng Lancaster, Eng	10L 6L, 10L, 12L 10L 8.5L, 200x . 10.5L, 180x 10L 6L 12L 8.5L,249x . 6L,10L,12L	II-III III-IV II T=F-G III, T=G Clr-stdy II III-IV II-III IV-V	51 52	R,V,G? B	4 C ph
89	6.6:	0.266:	350 52:R	Ap 30 08 -8.5:	2-, 10- sc-0.2	Anderson	Brisbane, Australia	16L		50	B	1
90	7.6	0.283	356 86R	Ap 30 08 -8.0	3+, 16+ sc at 0-3h	Röhslberger, R.	Hittfield, W. Germany (near Hamburg)	8L 170x 25mm ocular 300mm f.l. photos		53	B	5
91	3.8	0.166	315 -54R	Ap 30 08 11.3	3-, 13-	Petek	Porta Alegre, Brazil	7.5R (190mm)		54	G, B	5 conf
92	13.0	0.493	68 21R	Ap 30 08 2.1	2, 9+	Louderback, D.	South Bend, WA USA	8L, 2.5R		55	R, B	3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
93	04 30 80	0720-0852	Eimmart	65E 24N	Bright area over M. Anguis & Eimmart like a comet. Shone bluish color, changing in brightness. Seen in no & blue filters, but not in red, No other features showed changes. Suspected violet glare on Aris. & conf. in blue filter. Sketch of Eimmart. Brightness rated 8.5 (on a scale of 0-10) while nearby plain was 4 & Proclus at 9. Eimmart rated at 8 at 0730. Was certain something strange was happening. Area was opaque at times & dissipated at others. Transparency of sky was excellent. At 0852 it flared up again. On May 2 still a bright spot but dimensions not changing. .	Ap 14 07 My 12 13	Ap 26 20	6112 5402 5439 6032	
94	05 17 80	2100	Aristarchus	47W 23N	Dull in Earth-shine, barely discernable, other regions seen well.	My 12 13 Je 09 04	My 24 11	6032 5400 5731: 5443	
95	05 18 80	2100 2010-2230 2227 2135-2235 2217	Aristarchus Herodotus M. Crisium Taruntius	47W 23N 48W 22N 40E 4N 46E 6N	(Greenwood) Interior Aris. star like point surrounded by diffuse glow, blue-green, intermittent flashes over short irregular periods. Easily seen in W25(red) - low alt. (Foley) flashes in crater & sporadic & star like points, whole region bathed in blue, translucent glow - extended ~40 miles around Aris. CED varied from 6 to unmeasurable. High terrain near Grimaldi used to monitor stability in Earth-shine = 0.2, no variations. Moore, Cook & North report negative. 3 conf. (Moore) N. wall of M. Crisium very bright but< March & April. (Madej) Taruntius suddenly changed bright dense black to light gray - lasted 30s.	My 12 13 Je 09 04	My 24 11	6032 5400 5638 5443	2 1/3h
96	05 23 80	0140-0141 2114-2155 2230 2150-2218 2200?	nr. Littrow Aristarchus Copernicus Tycho	31E 22N 47W 23N 20W 7N 11W 42S	(Petek) Littrow & area dark mare SW from Littrow to Argaeus (A-17 landing area?) & Littrow abnormal darkness, rapid change of form. Also saw shadow extending SE from Campanus opposite to Sun. Foley says this is normal, caused by elongated depression heavily shadowed. Hedley-Robinson & Foley saw Aristarchus in no & blue filters but not in red. Conf. No other region seen in Earth-shine. Considered it remarkable that it was seen at all as it was close to terminator. Strong reaction in blink dark in blue filter. conf. Blaire saw a red tinge in Cop. along W wall ~20 miles long. It was invisible in W44a (red), probably not spurious because nowhere else seen in whole region. Suspected a short sharp white flash N of Tycho's N wall. nothing more seen. .	My 12 13 Je 09 04	My 24 11	6032 5400 5419 5411	1m 1/4h
97	05 25 80	2133-2254	Plato	9W 51N	Strong red glow along NNW border - much stronger than spurious. (fits Fitton's hypothesis). Effect decreased by 2155 and gone by 2254. Moved telescope R.A. & decl. to eliminate chroma effects.	My 12 13 Je 09 04	My 24 11	6032 5410 5418 5411	1 1/3h
98	07 03 80	2300?	Aristarchus	47W 23N	Extremely bright	Je 09 04 Jy 04 16	Je 21 06	5943 5415 5918: 5920	
99	07 04 80	1048	Alphonsus	4W 13S	Dark discoloration on E floor, directly adjacent to c.p. and the dark area on the W floor, directly S of the prominent dark area. Thinks it was a small crater on a secondary rill with slight venting discoloration, seen in Orbiter pics. Sketch, alerted BAA. Sketch matches dark spots in Alphonsus (normal aspects ?)(sketch looks just like aspect in Lick composite photo). Foley says dark at this phase is not normal. A British obs. looked at it about 14h later, it was normal. .	Je 09 04 Jy 04 16	Je 21 06	5943 5415 5918: 5920	min?
100	07 05 80	1900	Aristarchus	47W 23N	Extremely bright. (Moonrise at 2345 on July 4). Therefore Moon is 15° up.	Je 09 04 Jy 04 16	Je 21 06	5920 5414 5919: 5956	min?

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
93	15.1	0.582	93 22S	Ap 30 08 0.0	3, 15+	Louderback, D.	South Bend, WA USA	2.5R, 190x		55	V,B,G	4
94	3.3:	0.191:	307: -100R	My 29 21 -12.0:	2-, 5+	Foley, P.	Kent, Eng	12L		56	D	1
95	4.4	0.231	321 -86R -87R 22R 7R	My 29 21 -11.0	2, 8-	Greenwood Madej, P. Foley, P. Cook, M. North, G. Anderson	Morecombe, Eng. Huddersfield, Eng Kent, Eng Surrey, Eng Eng Brisbane, Australia	10L, 3R 12L -- -- -- 16L?	II-III V-G I-III II	50 56 57 57	B, V	2
96	7.8 8.8	0.379 0.412	5 36R 22 -25R 2R 11R	My 29 21 -6.8 -5.9	4+, 18	Petek Foley, P. Hedley-Robinson Blair	Porto Alegro, Brazil Kent, Eng Teignmouth, Eng Bridge of Weir, Eng	-- 10L 12L 9L	-- -- II-III II-IV	58 56 57 57	D V R B	0 1 3 conf 3
97	11.4	0.484	46 37R	My 29 21 -4.0	6+, 30+ sc?	North, G. Doherty	Seaford, Eng Eng	18L	III-IV	57	R, B	2
98	21.1:	0.973:	162: 65:S	Je 28 09 +5.6	2-, 8	Price	Surrey, Eng	6L		50	B	1
99	21.5	0.988	168 6s	Je 28 09 +6.0	3, 14-	Hobdell	St. Petersberg, FL	2.5R, 130x		59a,b	D	2
100	22.1:	0.011:	176: 51:S	Je 28 09 +6.5:	4, 24-	Moore, P.	Selsey, Eng	12L?		50	B	3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
101	07 22 80	2008-2150	Plato	9W 51N	Suspected hazy appearance on N wall & NW wall (in twilight). At 2024 was unsure of phenom. and normal at 2023 till 2150. Poor seeing and contrast effect. (prob not LTP)	Jy 04 16 Jy 30 23	Jy 19 00	5920 5414 5528 5956	1/4h
102	07 23 80	2200?	Aristarchus	47W 23N	Shadowed interior was light gray (Amery) Foley says light reflecting from walls (25% illum) & is normal. Erastothenes is most spectacular that way & has a misty look - sometimes photographed.	Jy 04 16 Jy 30 23	Jy 19 00	5920 5414 5611: 5956	
103	07 24 80	0200 2145-2305	Plato Tycho	9W 31N 11W 42S	Moore at 2210 using blink, area SE of c.p. & extend. to wall was exceptionally dark in blue but normal in red and no filter. Blinked several times till 2220. Returned to survey of others (normal) then returned to Tycho at 2255 & was normal & stayed normal till 2305 ending observation. Graham took photos at 0200 - badly out-of-focus shows a bright spot on W rim of Plato. (spot is sharp compared with the rest of the photo. Probably a defect). Not seen in finder of telescope. .	Jy 04 16 Jy 30 23	Jy 19 00	5920 5414 5656 5456	~2h mins.
104	08 21-80	2000?	Tycho	11W 42S	Blink response & mistiness on S floor. Conditions far from good. All due to poor seeing.	Jy 30 23 Ag 27 19	Ag 15 18	5956 5406 5703: 6046	
105	08 22 80	2015-2129	Manilius B. Aristarchus Menelaus	6E 13N 47W 23N 20E 11N	(H-R) Area SE of Man. > in red than in blue at 2015, same in red & blue at 2016, blink reappears at 2020. Area comes high in red at 2021, blinks strongly at 2032. Foley - agrees at 2101. Blink definite area bright in white. Blinks in red at 2115, SE area ceases blinking, but B blinks strongly at 2125. Sketch. Madej - Man. B seen to be normal at 2352 but by 2355 it is slowly encircled with a white ring coming & going irregularly. (Foley) saw immediately that Man. B was abnormal with vivid blue interior. Ring was jet black in blue, not visible in red, or white. CED meas. fluctuated from 1.9-2.4. Many other regions checked but were normal. Noted was violet on W wall of Aris. Price recorded possible blink in Man. B in poor seeing. (Man. B is an impact crater but is subdued, has c.p. with s.c.?. All in highlands. B is on a ridge.)	Jy 30 23 Ag 27 19	Ag 15 18	5956 5406 5757 6046	1 1/4h
106	08 25 80	0655-0710	Aristarchus	47W 23N	Normal at 0655 except W wall bands unusually faint. At 0700 band of pale red suddenly appeared in inner SE wall, extended from SW BS to W BS. (BS = bright spot). Lacked violet glare, lasted 2m then red faded. Concluded obs. at 0710. (WSC obs. ~4h earlier & saw no color. Following night suspected a smogish brownish color on W exterior area at juncture w/ wall to ridge to Herod).	Jy 30 23 Ag 27 19	Ag 15 18	5956 5406 5955 6046	1/4h
107	08 29 80	0732	Aristarchus	47W 23N	S wall showed a broad dark band at base that covered most of S 1/2 of crater. Albedo was 8.5 in blue & 4 in red. Band could be seen only in the red filter.	Ag 27 19 S 25 03	S 12 09	6046 5359 6028 6121	
108	08 30 80?	0800?	Proclus	46E 16N	N wall very bright in red filter - usually is > in blue. Eimmart = 8.7 but Proc. = 9.7 in red & 9 in blue no filter. He thought he detected an orangish-yellowish hue visibly then came clouds.	Ag 27 19 S 25 03	S 12 09	6046 5739 6003: 6121	min

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
101	10.5	0.688	34 25R	Jy 27 19 -5.0	3, 9-	North, G.	Sussex, Eng	8L, 144x & 207x	S=III-V T=F	60	G	1
102	11.6:	0.730:	47: 0:R	Jy 27 19 -3.9:	2, 9	Amery	Eng			58	B,G	1
103	12.6 11.8	0.768 0.738	59 48R 49 40R	Jy 27 19 -2.9 -3.7	3, 13 sc-0.5 sc-1.4	Moore, P. . Graham, F.	Sussex, Eng . E. Pittsburgh, PA, USA	15L 360x & 400x 6L photos	S=II	61 . 58	R, G? . B	4 . 2
104	11.0:	0.784:	40: 29:R	Ag 26 04 -4.4	3, 14+	Hedley-Robinson Moore, P. Cook, T. North, G. Foley, P.	Devon, Eng. Sussex, Eng. Sussex, Eng. Sussex, Eng. Kent, Eng.		poor	68	G, R? or V?	1
105	12.0	0.820	53 59R 6R 33R	Ag 26 04 -3.4	3, 19+	Hedley-Robinson Madej, P. Foley, P. Moore, P. Price	Devon, Eng. Eng. Kent, Eng. Sussex, Eng. Eng.	12L 200x 16L 12L 12L?	S=III S=II-V no spur color	60	R, V	5 conf. moon- blink CED
106	14.5 14.1	0.910	83 36R	Ag 26 04 -0.9	1+, 9	Bartlett, C. . Cameron, W.	Baltimore, MD . Silver Springs, MD	4.5L 40-150x . 3.5L Questar	S=4 T=4 S=F	62	R	4
107	18.5	0.053	131 96S	Ag 26 04 +3.2	3, 8-	Louderback, D.	South Bend, WA USA	8L 140x		63	R, D	3
108		0.088:	195: 10:S	Ag 26 04 +4.2	2+, 14	Louderback, D.	South Bend, WA USA	8L 140x	pt. cldy?	63?	R, B	3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
109	09 22 80	0500?	Cape Agarum	65E 15N	From his pt. A thru C to D the Cape was at least 5pts> in red than in blue, yet on Sept 25 the reverse was true. On 22nd the red brightness seemed to coincide with a narrow strip on the W border & did not penetrate to the interior of the cape. (W outside would be lit but perhaps there was shadow on the inside - but it was past local noon (LN) for the cape).	Ag 27 19 S 25 03	S 12 09	6046 5139 6003: 6121	min?
110	09 24 80	2155-2350 2134-2157 2105-2355 2135-2216 2142-2240 2215-2219 2055-2130 2048-2254	Plato Pico Fracastorius Aristarchus Daniell Proclus Messier & A (Theophilus Gassendi Copernicus normal)	9W 51N 9W 46N 33E 21S 47W 23N 30E 35N 46E 16N 46 & 47E 1S 26E 11S 40W 16S 20W 7N	(Moore) Plato normal till 2245 when loss of detail seen in NW wall - most noticeable in red but seen in blue. Slight but definite blurring. At 2248 definite signs of activity on floor. Four bright spots evident in white light, but not in red. In blue, central spot seen and from it issued some dark radial streaks to S wall and SE unlike anything he had ever seen before. Photos verify bands. At 2250 loss of detail. High thin clouds then came. Aris., Pico, Gass., Schickard, Posidonius, Daniell, & Proclus were normal. At 2308 floor dark in red, some detail visible in blue. Seeing down to III. Obscurations gone by 2335. (Hedley-Robinson) at 2134 saw Mess. + A, Picard, M. Cris., Theoph., Gass., Aris. & Coper. all normal. Fracastorius blinked on N side in red. Mess. > A. in red & blue. No blink in N floor of M. Cris.. Plato normal in blinks its floor & shadings clearer in red than blue. Floor detail lost at 2157, possibly due to seeing. (Blair) suspected dusty patch N of Plato, more obvious in red. Patch spread at 2113. Spread E at 2115, then N. Faded at 2125 but returned at 2135. Filters still reacting at 2150. At 2255 Aris. showed red tinge on E wall, but not confirmed in filter, gone at 2300. Plato event still strong then faded at 2350, normal at 2355. (sketch). J. Cook saw similar to Moore. Pedler also. Foley saw flashes between Plato & Pico. Others all normal.	Ag 27 19 S 25 03	S 12 09	6046 5359 6120 6121	2h
111	09 25 80	2020-2109 2022-2154 2130-2214	Plato Pico Aristarchus Chacornac Posidonus Grimaldi Tycho Proclus	9W 51N 9W 46N 47W 23N 32E 30N 29E 32N 65W 5S 11W 42S 46E 16N	(Moore) Plato's c.c easy in red blue & white. Streak on floor shifted to S & W. Floor dark Pico bright and reddish glow to its SW. Same glow in Aris. & others, so not LTP. (Peters) Plato's floor dark, darker in blue than red as was c.c. Proc. appeared orangish but there was a lot of spurious color in the area.	S 25 03 O 23 14	O 09 15	6121 5355 6115 6128	~2h
112	09 28 80	0500-0700	E Rim of Mouchez	27W 79:N	Straight edged tower like feature looked artificial, was 2-3x higher than other mtns and peaks there. (not an LTP - just a high peak? Not near term. though. Mouchez has a high silica cone w/ s.cc & looks higher. Could volcanoes be emitting gas?). See LOIV 140-H3, 152H3 & 164H3.	S 25 03 O 23 14	O 09 15	6121 5355 6128	2h
113	10 12 80	2330	Aristarchus	47W 23N	Crater faintly glowing. 3 photos showed it as a faint blue patch vis. on the dark disk. Exp 60-90s at prime focus of 12.5L. (Probably due to clouds at Earth's limbs (In Earthshine).	S 25 03 O 23 14	O 09 15	6121 5355 6128	min?
114	10 17 80	1840-1912	Alphonsus	4W 13S	Noted bright cp which seemed elongated. With higher power it separated from a bright point at 1841. Intensity ~6th mag. star. Filter check at 1843 bright point > in red. Intense bright point. Earthshine higher than he had ever seen. At 1910 bright point still 4th mag.. Alphonses normal at 2015 when reappeared from other obstructions.	S 25 03 O 23 14	O 09 15	6121 5355 5732 6128	~1/2h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
						1,900 A.D.						
109	12.8:	0.898:	63: 128:R	S 24 12	4-, 15+	Louderback, D.	South Bend, WA USA	8L 140x, 2.5R		63	R, B	3
110	15.5	0.993	276 -93S -93S -51S -131S -54S -34S -38S,-37S -58S -124S -104S	S 24 12 +0.4	1+, 3	Moore, P. Hedley-Robinson Blair Cook, J. Cook, M. Pedler Foley, P.	Selsey, Eng. Devon, Eng. Renfordshire, Scot. Surrey, Eng. Surrey, Eng. Bristol, Eng. Kent, Eng.	15L 50x 350x 10L 200x 8L 138x 275x 6L 144x 240x 6L 12L 200x 12L photos	S=III S=III S=I-II S=II-III S=II-IV S=II S=II	64	R, G, V	5 conf. filters
111	16.5	0.025	108 81S 81S 119S 40S 43S 137S 83S 26S	S 24 12 +0.5	3, 14-	Moore, P. Peters North, G. Foley, P.	Selsey, Eng. Kent, Eng. Selsey, Eng. Kent, Eng.	15L?, -- --, 240x,120x 18L 12L	S=III S=III S=V S=III	64	R, V, D, B	0
112	18.8	0.109	136 64S	S 24 12 +3.7	2+, 14-	Steed, W.	Ocean City, MD USA	3R, 45-220x		65	G?, B?	1
113	3.9	0.628	317 -90R	O 23 21 -10.8	3+, 19+	Darling, D.	Prairie du Sac, WI USA	12.5L, 75x photos	S=10/10	66a 66b 30b	V, B	3
114	8.6	0.793	15, 9R	O 23 21 -6.1	2, 11 sc-0.3	Blair	Renfrewshire, Scotland	8L, filters	S=II	67	R,B	4

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
115	10 18 80	1755-1815 1930 1805 0015	Plato Manilius Fracastorius Bullialdus	9W 51N 8E 14N 32E 21S 22W 20S	(H-R) Floor patches of Plato easy in red, not well seen in blue. (Amery) Scanned at 200 & 300x saw slight shadow under E wall. Part of wall very bright. Sketch. General appearance of N & S walls normal. No false color, no blink. (H-R) Manilius' surrounds bright in red, dull in blue (a in Plato) might be permanent blink. (Amery) scan followed by a blink exam got a slight blink in NW part. Sketch> conf. (H-R) Inner wall of Fracastorius was > in red than blue. (Fitton's criteria for dark features.) Many other features examined were normal. (Amery) at 2015 Bullialdus had a slight blink where previously blinked. (permanent blink?) Spurious color only on bright limb of Moon.	S 25 03 O 23 14	O 09 15	6121 5355 5825 6128	20m, mea obs span 2h
116	10 19 80	0054	Cape La Place	24W 46N	It cast a very long shadow ~66km Stretching to outermost mountain of S Iridium. (gives mtn. height ~21,000 ft - 6.6km)	S 25 03 O 23 14	O 09 15	6121 5355 5842 6127	
117	10 25 80	0353-0521	Cape Agarum Eimmart Proclus M. Crisium	65E 15N 65E 24N 47E 16N 60:E 15N	Had a shade of light blue, similar to that seen on Eimmart before that he included a sample in his letter Dec 1980. Compared it with Eimmart & Proclus. Neither Eimmart nor M. Cris. had any color. Proclus had a yellowish shade on white, N wall - the latter may be an atmospheric aberration, but probably not the blue). Albedo of Eimmart was 8 & Proclus was 9	O 23 14 N 21 01	N 05 17	6128 5357 6102 6102	1/2h
118	10 30 80	0319-0341	Spitzbergen Mts	3W 33N	Series of flashes, from bright lunar gray to light orange. Frequency at first was 20-30s, finally extended to 45-60s. (probably not terr, atm., which is 8-12s). W15 yellow filter enhanced effect. W35 purple eliminated the mountain ranges, but the flashes penetrated. .	O 23 14 N 21 01	N 05 17	6128 5357 5643 6102	1/3h
119	11 11 80	1735-1815 1750-1828	Aristarchus	47W 23N	(Blair) immediately noted Earthshine extremely bright. All larger detail easily seen there. A1738 definite pale reddish brown tinge enveloped Aris. area. Got larger at 1739 & more intense W side > & larger. At 1745 still bright, c.p. magnificent (brightness due to bright Earthshine?) At 1750 faded from W. Slight revival at 1800 and still visible at 1815. Sketches. . (Foley) saw with naked eye that Earthshine was bright, seeing superb and saw Aris. with just eyes & it was bathed in violet. Rose in telescope. Detail in crater readily seen. C.E.D. 0.8(W), 0.9(V), 0.2(R), no spurious color. .	O 23 14 N 21 01	N 05 17	6128 5357 5529 6102	40m
120	12 18 80	1900? 2043-2347 2052-2358 2047-2110 2215-2240 2140-2215 2143 2149-2300 2140	Bullialdus	22W 20S	(T. Cook) at 2046 saw NW wall > red than blue, faded between 2129-2941, then not seen at all after 2240. Spurious color on outer NW wall. Photos & sketch. (M. Cook) c.p. very bright & diffuse, > red than blue from 2052-2057. At 2353-2358 c.p. very bright & previous area decreased in size. No detail in white or red, just visible in blue. Sketch. (J. Cook) Orange out on NW rim & on NW side of c.p.. Similar effects on several other craters. (Madej) c.p. & W rim wall very sharp. c.p. disappears in yellow but seen in purple. (Pedler) c.p. > red than blue but no obscuration. W wall interior dusky, darker in blue. T. Cooks photo shows c.p. very bright. .	N 21 01 D 19 05	D 03 04	6102 5403 6010 6011	4h
121	01 09 81	0030-0045	Aristarchus Menelaus Manilius	47W 23N 16E 16N 9E 14N	Although Aris. was glowing brightly in Earthshine, it was considerably outshone by Menelaus & Manilius. Could see them even when lighted portion was in view..	D 19 05 Ja 15 04	D 30 23	6011	1/4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
115	9.6 - 9.7	0.828 0832	26 17R 34R 58R 4R	O 23 21 -5.1 to -5.0	4+, 28-sc+0.8	Hedley-Robinson Amery	Devon, Eng. Reading, Eng.	10L, filters 10L conf.	S=III-IV T=4/5	68	R, G?, B	3 conf.
116	9.9	0.839	30, 6R	O 23 21 -4.8	3+, 20 sc+1	Hobdell	St. Petersburg, FL USA	2.4R	S=I	69	D	1
117	16.1	0.056	105, 10S 10S 28S 15S	O 23 21 +1.4	4+, 30-	Louderback, D.	South Bend, WA USA	2.5R 173x	S=1-2 T=2	63	V	3
118	21.0	0.232	165, 18S	O 23 21 +6.3	3, 18-sc-0.3	Madej, P.	Yorkshire, Eng.	6L - filters W15, W35	S=I-II T=G	67	R,B	3
119	3.7	0.669	319 -88R	N 22 07 -10.7	5, 31:	Blair Foley, P.	Renfrewshire, Scot. Kent, Eng.	8.5L 12L	S=II T=E	67 70	R, B, V	4 conf.
120	11.2	0.989	50, 28R	D 21 18 -2.9	4, 22+ sc-0.5	Cook, T. Cook, M. Madej, P. Pedler Peters Evans Chapman	Surrey, Eng. Yorkshire, Eng. Bristol, Eng. Kent, Eng. Selsey, Eng. . Surrey, Eng.	12L 40-250x 6L 36-73x 12.5L filters 8.5L 60-240x 10L 190x	S=IV T=G S=IV T=VG S=III-IV S=II T=G S=3-4 T=G S=III-IV T=F S=II-III	68 71	R, G	5 conf. photos
121	2.7	0.770	308 -99R -36R -43R	Ja 20 08 -12.7	3, 11	Darling, D.	Prairie du Sac, WI USA	12.5L 75x	S=8/10 clear alt 7º	30b	B	1

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
122	02 10 81	1920-2010 2055-2115 2138-2218 2106-2140 2146-2204 2201-2208	 Messier Messier A Aristarchus Grimaldi	 46E 3S 45E 3S 47W 23N 65W 5S	(H-R) Mes. > Aris. in red & blue filters, but difficult to see. Later was invisible, lost in bright streak, Aris. was clear. (Amery) Aris. could be found sharply, but Mess. very indistinct, not sharp. (Cook) Mess. not so distinct as A. due to a large shadow in A. E wall of Mess. tends to merge w/ Mare. W rim somewhat > than surrounds. (Pedler) Sunlit wall of Mess. was normal, but shadow-filled part of crater was grayish & ill-defined, unable to focus. This shadow was changing from gray to black in periods of 2-3 minutes down to a few seconds, all the while A. was perfectly defined. The phenomenon was visible in red & blue & no blink effect. By 2023 had steadied to a mid gray but ill defined. (North) throughout observation A. well seen but Mess. definitely indistinct, w/ misty/hazy appearance. (Moore) Mess. & A. seemed normal though Mess. < distinct than A., but this is usual under this lighting. Saw gray interior & nothing abnormal. (Price) Area washed out w/ gray interior, but this may be normal. (Ratcliff) Nothing unusual. Mess. smaller and no detail. (Madej & Taylor) Sketch showed gray interior & merging E wall w/ mare. (Foley) Mess. pale gray interior opaque and not focusable. A. was very sharp. Says would expect gray interior & E wall merge w/ mare at this phase, but complete loss of focus and variation not normal. (On Kuiper Atlas Plate 20-6 Col 340, Mess. is distinct w/ dark interior, E wall may merge w/ mare & Mess & A. are equal in size. Orbiter IV shows distinct light gray interior). Madej saw a 2 mag. star on NE rim of Aristarchus Price at 2146 - 2 brief flashes and one at 2149. North also saw flashes from c.p. Only other feature seen in Earthshine was Grimaldi. (Foley) saw Aristarchus in blue translucent glow. Moore, Pedler & Ratcliff did not see Aristarchus in earthshine. .	F 08 23 Mr 08 12	F 24 17	5933 5410 5920 6026	3h
123	02 17 81	0210±5min	 Aristarchus	 47W 23N	Orange glow on S wall - other regions checked but no color seen. Sketch. No spurious color.	F 08 23 Mr 08 12	F 24 17	5933 5410 5707 6026	5m
124	03 11 81	2037-2130 2130-2207	 Aristarchus	 47W 23N	(Cook) Faint white pinpoint - flash & in same position whitish glow around crater, no more flashes seen. From 2117-2130 glow still visible but not easy to locate. (Foley) Aristarchus barely visible in Earthshine, though Plato, Reiner, Grimaldi & others clearly seen. (Foley's observations at end of Cooks?). .	Mr 08 12 Ap 05 19	Mr 24 09	6026 5403 5926 6109	~2h
125	03 12 81	1925-2030	 Aristarchus Plato Reiner Grimaldi	 47W 23N 9W 51N 55W 10N 65W 5S	(Butler) Aris. not seen despite prominent Earthshine & prolonged search. (Foley) barely visible though Plato, Renier & Grimaldi clearly seen.	Mr 08 12 Ap 05 19	Mr 24 09	6026 5403 5847 6109	~1h
126	03 17 81	2240-2325	 Aristarchus Proclus Tycho	 47W 23N 46E 16N 11W 42S	Used blink & CED - Aristarchus not only brightest point on disk but startling so filter 9 - could identify Aris. & maria but not Proclus or Tycho. (Descrip. as if in ashen light, date wrong.)	Mr 08 12 Ap 05 19	Mr 24 09	6026 5403 5547 6109	3/4h
127	03 28 81	0145-0245	 Aristarchus	 47W 23N	Aristarchus very bright, nothing else unusual.	Mr 08 12 Ap 05 19	Mr 24 09	6026 5403 5403 6109	1h
128	04 08 81	0035-0109 2145-2200	 Aristarchus Copernicus Kepler Bullialdus Gassendi	 47W 23N 20W 7N 38W 8N 22W 22S 65W 5S	(Hobdell) Aris. sporadic flashes whitish-orange in averted vision superimposed over blue glow. Color more pronounced in low power. Timed sequence 0035, 0040, 0053, 0055. could not establish pattern (but they are several minutes apart, therefore not atmospheric). At 0119 bright blue glows - sporadic. All features are Earth lit and easily seen Cop., Kep., Bull. & Gass. are in bluish haze. (Blue over such a large area similar to Dunlap et al's moon blink observations). (Foley) Aris. highly luminous, bluish & variable, CED at 2145 = 0.5, & 0.2 at 2200. Saw series of flashes on E rim, white 2s dur. (same behavior but for 2h).	Ap 05 19 My 04 05	Ap 20 16	6109 5359 6026 6125	~21h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
122	5.9	0.065	347 33R, 32R 60R, -52R	F 18 23 -8.2	1+, 6-	Hedley-Robinson Amery Cook Pedler North, G. Moore, P. Price Ratcliffe Madej, P. Taylor Foley, P.	Eng. Eng. Sussex, Eng. Eng. Eng. Sussex, Eng. Eng. Eng. ? Eng. . Kent, Eng.	. . . 12L	S=II T=G S=II T=G S=III S=III-IV T=G T=G S=III-IV S=IV-II T=G	72	B, V, R, G	5 conf.
123	12.2	0.295	63 17R	F 18 23 -1.9	2+, 12+	Butler	London, Eng.	11L		72	R	3
124	5.4	0.117	340 -69R	Mr 20 15 -8.9	3-, 14- sc-0.8	Cook, J. Foley, P.	Surrey, Eng. Kent, Eng.	12L 12L		73	B	0 conf.
125	6.4	0.152	352 -55R -17R -63R -74R	Mr 20 15 -7.9	4-, 18 sc	Butler Foley, P.	London, Eng. Kent, Eng.	10L 32-64x 12L		73	D, B	0 conf.
126	11.5	0.332	54 7R 101R 43R	Mr 20 15 -2.7	5-, 26	Moore, P.	Sussex, Eng.	15L blink & CED	S=III	74	B	4 MB, CED
127	21.7	0.693	178 47S	Mr 20 15 +7.5	3, 22-	Mobberly, M.	Suffolk, Eng.	14L		73	B	3
128	3.2	0.077	311 -96R	Ap 19 08 -11.3	4-, 19-	Hobdell . Foley, P.	St. Petersburg, FL USA Kent, Eng.	2.4R . 12L		73 75	V,R,B	1 conf.

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
129	04 09 81	1944	Aristarchus Grimaldi Mare Imbrium Oceanus-Procellarum	47W 23N 65W 5S 20W 40N 45W 20N	(Price) Earthshine clear, Grimaldi visible & mare Imbrium, Oceanus Procellarum just visible. At 1944 a "surge" in brightness lasted 4s, nothing else unusual. (Foley) Aristarchus luminous & translucent in Earthshine.	Ap 05 19 My 04 05	Ap 20 16	6109 5359 5908 6125	min?
130	04 15 81	0627-0640 2215-2235	Eimmart Censorinus Proclus	65E 24N 33E 1S 46E 16N	(Louderback) W wall bright spot took on mysterious brightening & shading. Variable 2-3m intervals. Spot looked like a flare with apex at crater wall. Blurring effect at spot. Sketch. Seeing worse at this time. Spot decreased in size from normal during phenomena. On 18th & 19th back to normal. (LOIV Plate 192-3.2 shows p.m. condition. No bright spot or anything to cause phenomena. In atlas of LOIV - outline lies over this and is the only photo showing Eimmart.) (M. Cook) found Censorinus extremely bright and glowed compared to nearby craters and > Proclus. No longer visible on 16th. .	Ap 05 19 My 04 05	Ap 20 16	6109 5359 5515 6125	~1/4h, 1/3h
131	04 16 81	0734 2100?	Aristarchus	47W 23N	(Hobdell) Bright white area on NW wall fluctuating. Other objects minor fluctuations not as severe as in Aristarchus. Bright area was orange, no color detected elsewhere. (Fluctuations - atmospheric? - color opposite to Fitton's hypothesis.) (Foley) Floor was slate blue-gray, no color elsewhere.	Ap 05 19 My 04 05	Ap 20 16	6109 5359 5358 6125	min?
132	07 17 81 04 17-18 81	2210 2320-0114	Aristarchus	47W 23N	(Mobberly) Saw yellow/brownish streaks in Aristarchus. Sketch. Locates it as extending from a point on E floor to NW corner into the bands on the W wall. (Butler) Radial bands blurred and difficult, at 2354-0012; Two bands easy to see, trace of third seen. At 0105 orange glow on SW wall seen with several eyepieces. Intensified at 0110-0114 orange extended to S-most band. Varied from sec to sec. (atm?). Butler said air tremors were present. However, checks in other regions - not & no color seen elsewhere. .	Ap 05 19 My 04 05	Ap 20 16	6109 5359 5417 6125 6109 5359 5419 6125	3h
133	04 18 81	1950-2210	Aristarchus	47W 23N	Faint yellow-brown streaks still visible but less prominent. (Bartlett saw this coloring in S floor).	Ap 05 19 My 04 05	Ap 20 16	6109 5359 5407 6125	2 1/2h
134	05 01 81	1000-1005	Lacus Mortis Plinius	25E 45N 24E 15N	Blue flashes for 2m at 1000. Lacus Mortis at 1005 small blue flash (in Plinius?) in Earthshine (atmos?)	Ap 05 19 My 04 05	Ap 20 16	6109 5359 6010 6125	5m
135	05 07 81	2030-2120	Aristarchus	47W 23N	Through period crater was highly luminous with blue cast. Slow flashes seen inside color white, not brilliant, each flash ~2/3s duration. (Interval between flashes in Earthshine).	My 04 05 Je 01 14	My 17 18	6125 5358 5931 6109	~1h
136	05 08 81	0000-0245	Aristarchus	47W 23N	Persistent brightening in Earthshine. (No time intervals given for pulsations - atmos.? Atmosphere turbulence generally has 8-12s intervals.) conf. by Foley.	My 04 05 Je 01 14	My 17 18	6125 5358 5921 6109	2 3/4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
129	5.0	0.141	33 -74R -93R -47R	Ap 19 08 -9.5	4, 13+	Price Foley, P.	Surrey, Eng. Kent, Rng.	6L 58-117x 12L		73	B	0
130	10.5	0.335	39 104R 72R 85R	Ap 19 08 -4.0 -3.4	3, 16	Louderback, D. . Cook, M.	South Bend, WA USA Surrey, Eng.	3R 134x . 12L	S=4.5-5 T=5-0 clouds	76 77	B,G B	3 3
131	11.5, 12.0	0.370 0.387	52, 59: 5R, 12:R	Ap 19 08 -3.0 -2.5	4, 21	Hobdell Foley, P.	St. Petersburg, FL Kent, Eng.	2R? 12L	S=I-II S=II	76	R, B V	1 1
132	13.2	0.426	72 25R	Ap 19 08 -1.4	5-, 26+ sc-0.6	Mobberly, M. Butler	Suffolk, Eng. London, Eng.	14L 10L	S=I-II	73 76	R, G, R	4 4 conf
133	14.0	0.458	83 36R	Ap 19 08 -0.5	4+, 21- sc+0.4	Mobberly, M.	Suffolk, Eng.	14L	S=P T=P	76	R	3
134	26.6	0.901	236 -81S	Ap 19 08 +12.1	4, 23+	Hobdell	St. Petersburg, FL	2R?		76	V,B	1
135	3.6	0.127	315 -92R	My19 00 -11.2	2-, 10	Foley, P.	Kent, Eng.	12L?	S=II	76	V, B	1
136	3.8	0.134	317 -90R	My19 00 -11.0	4-, 19- sc-0.7	Hobdell	St. Petersburg, FL	2R?		76	B	1 conf.?

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
137	05 10 81	0216-0220 0222-0225 0252-0312	Aristarchus	47W 23N	NNW rim brightened, extended to all of arc of E wall. Bright flashes in two time periods. Two yellow spots at 5 o'clock and 8 o'clock position on E rim. At 0244 bright yellow flash on NNW wall. At 0249 whole crater very bright, especially W wall. 0252 bright flashes, Sketch. At 0311 many bright blue points. At 0312 obscuration not by clouds - clear sky. No spurious color. (Moon approaching horizon, , Prob atmos.).	My 04 05 Je 01 14	My 17 18	6125 5358 5724 6109	10m
138	05 12 81	2200?	Censorinus Proclus (neg)	33E 1S 46E 16N	Cens. extremely bright, diffuse at times > Proc. (Foley & Amery with CED's normally find Proc. > Cens. and did during Apr & May '81, but Chapman gets the reverse.	My 04 05 Je 01 14	My 17 18	6125 5358 5521 6109	min?
139	05 16 81	2156 2214 2215 2228	Aristarchus	47W 23N	Faint orange glow on S wall interior crater appeared normal at all other times than those given. No spurious color.	My 04 05 Je 01 14	My 17 18	6125 5358 5400 6109	~1/2h
140	05 17 81	2352-2359 2100?	Aristarchus	47W 23N	(Butler) Orange glow on S rim & a little beyond. (Foley) Inner NW corner strong violet (blue) several bright spots. Sketch. (Pedler) no color elsewhere. (Foley sensitive to blue - Pedler not?). conf. (Fits Fitton's hypothesis).	My 04 05 Je 01 14	My 17 18	6125 5358 5358 6109	3h?
141	06 05 81	0108-0204	Aristarchus Tycho Menelaus Manilius LaPlace Promon. Copernicus	47W 23N 11W 42S 16E 16N 9E 14N 25W 44N . 20W 9N	Brightness in Aris. at 0108, 0110 & 0115 yellowish at SE corner. After clouds, looked like a 4th mag star. At 0145 two very bright yellow glows of long duration in SE. At 0158 twin flashes there. At 0159 white flash. At 0201 long bright blue, then other ones. Visibility in Earth light was exceptional. All the other craters mentioned bathed in blue haze. (Intervals between were ~1min, longer than Terrestrial atmospheric scintillation). .	Je 01 14 Je 29 19	Je 14 03	6109 5402 5931 6031	~1h
142	06 06 81	2130	Aristarchus	47W 23N	Crater appeared quite distinctly even in twilight & Moon's altitude. Remaining dark areas just visible.	Je 01 14 Je 29 19	Je 14 03	6109 5402 5838 6031	
143	06 07 81	0230-0300	Aristarchus Schröter's Valley Copernicus	47W 23N 48W 24N . 20W 9N	At 0230 twin flashes one from Aris. the other from S.V.. At 0245 becoming difficult to see & sporadic bluish appearance. At 0300 Aris barely seen. Visibility on dark side exceptional. Cop. very bright blue.	Je 01 14 Je 29 19	Je 14 03	6109 5402 5740 6031	1/2h
144	06 08 81	0148-0245	Aristarchus	47W 23N	(Hobdell) barely visible - at 0148 bluish brightening of 3min long. At 0220 bright flash. At 0225 crater very bright. At 0245 crater was invisible.	Je 01 14 Je 29 19	Je 14 03	6109 5402 5646 6031	~1h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
137	5.9	0.208	342 -65R	My19 00 -8.9	7, 29- sc-0.5 ms+0.6	Hobdell	St. Petersburg, FL	2R?		76	B,R,V,G	0
138	8.7:	0.306:	17: 50:R 63:R	My19 00 -6.1:	4-, 21+	Cook, M.	Surrey, Eng.	12L		76	B, G	3
139	12.7	0.447	66 19R	My19 00 -2.1	6+, 42 sc-0.6 ms	Butler	London, Eng.	9L	S=100%	76	R, B	3
140	13.8	0.486 Foley 0.479 Pedler	79 32R	My19 00 -1.0	5+, 19- sc	Butler Foley, P. Pedler	London, Eng. Kent, Eng. Bristol, Eng.	9L 12L 12.5L	S=III-II . S=III	76	R, V, B	4 conf.
141	2.5	0.124	299 -108R -72R -45R -52R -86R	Je 17 15 -12.5	2+, 12	Hobdell	St, Petersberg, FL	10L 4L	S=II	78	B, R, V	0
142	4.3	0.184	321 -86R	Je 17 15 -0.8	5-, 21- sc+0.3	Amery	Berkshire, Eng.	10L	S=III	78	B	0
143	4.6	0.195	324 -83, -84R -56R	Je 17 15 -10.5	7-, 39+ 2 scs sc-0.3	Hobdell	St. Petersberg, FL	10L 4L	S=I	78	V, B	0
144	5.6	0.230	337 -70R	Je 17 15 -9.5	5-, 22+ sc	Hobdell	St. Petersberg, FL	10L 4L		78	V, R, B	0

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
145	06 12 81	2110-2223 2119-2310 2135-2225 2120-0002 2150-2231 1706-1735?	Plato Mare Crisuim	9W 51N	(Moore) At 2110 found S wall of Plato indistinct with obscur. & on to S part of floor - all other areas were sharp. Obscur. still vis. at 2142 - less marked. No blink anywhere. At 2144 - trace of obscur. left but some detail now visible. At 2148 some vertical streaks across floor coming from obscur. area - partic. in red filter but not in blue. Undefinable patches on floor not normal. At 2155 could now see craters on floor not visible earlier. Plato normal at 2223. (Foley) alerted by Moore saw massive dense obscur. on S wall, S floor & S outer glacis to mare. At 2150 phenomena had diminished and was gone at 2203. Orange translucent haze across 1/2 of floor. Craterlets seen in & out of visibility though seeing was IV. At 2200 floor near N wall milky & misty. No detail visible at 2115. Variability of floor continued till 2310 at end of observation. Sketch. (Hed-Rob) alerted at 2135. At 2141 had no response in blue or red but S wall indistinct. Sketch. At 2200 break in S wall less distinct. At 2217 normal. (Mobberly) At 2120 saw a white spot on floor where usually see crater & others on floor. Alerted at 2140 color photos from 2145-2155 & blue from 2210-2337. Sketches show variability of floor, dark lines & patches at NW inner corner. Concluded Plato was abnormal. Altitude low. Two of the color photos show loss of detail at S wall & beyond & change in floor markings. S wall more out of focus than rest of crater. (North) whole NW wall at 2150 was strangely reddish, more so than the spurious color. Rest of wall sharp at 2220 - yellow filter. Large white patch on center of floor & rest of floor as light as M. Imbrium. Conf. photos. (Arsyukhin) with naked eye & binoculars saw similar effects on W wall. He & several others saw 3 dark spots suddenly appear on M. Crisium & disappear 1/2h later. .	Je 01 14 Je 29 19	Je 14 03	6109 5402 5408 6031	1 1/2h
146	06 13 81	2048-2108	Plato Aristarchus	9W 51N 47W 23N	Craterlets on floor unusual because usually can only see them when seeing is better than II. Possible blink on N wall. Area enhanced in red. Sketch. Aris visible just past term. W wall less bright than normal. Bright flash in/on NW wall.~ same place as Pedler's May 17 sketch. .	Je 01 14 Je 29 19	Je 14 03	6109 5402 5403 6031	1/3h
147	06 14 81	2158-2250	Plato Billy Zupus	9W 51N 50W 14S 50W 16S	(Foley) Plato's NE corner detail became fuzzy on rim and adjacent interior while immediate vicinity remained sharp with no variation. Effect was discrete & at times extended to floor center. Not as strong as on June 12th. Normal at 2250. (Moore) floor darker than mare & seemed normal at 2128. Alerted by Foley at 2204 confirmed loss of detail on inside SE wall at Position Angle 210-270°, slight blurring. Floor seemed lighter than earlier & < dark than Billy or Zupus. Strange patchiness on floor as on June 12. At 2215 normal. (LOIV 127-3 plate shows many volcanic features on wall and on floor.	Je 01 14 Je 29 19	Je 14 03	6109 5402 5405 6031	~1h
148	06 15 81	2130-2200 2148-2212	Plato	9W 51N	(Amery) rim at ~4 o'clock pos. (NW corner?) had a dark smudge extending from floor across wall onto external terrain & was quite obvious even under poor conditions. Sketch. (Foley) before alerted by Amery, at 2148 noted dark, shadowy patch in NW corner lying across rim and apparently some distance from wall both on floor & external slopes. At 2212 S=V - too bad.	Je 01 14 Je 29 19	Je 14 03	6109 5402 5413 6031	1/2h
149	08 09 81	0508-0521	Eimmart	65E 24N	Bright patch that usually covers S part of crater was seen only in red & was 5 pts brighter than in blue & no filters. (Area between A, C & D in his index.) In no filter, bright spot was confined to close around E wall br. spot when change was seen on 4/15/81. (Large landslip on S floor with a dome & elongated s.c.. E wall has a crater.) .	Jy 27 09 Ag 21 21	Ag 08 12	5942 5416 5418 5919	~1/4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
145	10.4	0.401	36 27R	Je 17 15 -4.7	2-, 8-	Moore, P. Foley, P. Hedley-Robinson North, G. Arsyukhin, E. V.	Sussex, Eng. Kent, Eng. Dover, Eng. Sussex, Eng. Moscow, USSR	15L 360x, filt. 12L filters 10L 15L eye, binoc's	S=III-II S=II-IV T=G S=II-III S=II-III S=IV T=F	78	G, B, D	4
146	11.3:	0.433	47 38R 0R	Je 17 15 -3.8	3-, 10-	Price	Surrey, Eng.	6L, mb	S=III	78	R, B	4
147	12.4	0.472	60 51R 10R 10R	Je 17 15 -2.7	2, 8-	Foley, P. Moore, P.	Kent, Eng. Sussex, Eng.	12L 15L	S=III-II T=G S=III poor	78	G, D	5 conf.
148	13.4	0.507	72 63R	Je 17 15 -1.7	3, 20	Amery Foley, P.	Berkshire, Eng. Kent, Eng.	10L 12L	S=IV-V T=4/5 S=III-V	78	D, G	4 conf.
149	9.0	0.028	15 80R	Ag 15 17 -7.5	3, 12+ sc-0.5	Louderback, D.	South Bend, WA USA	3R filters		79	R, B	4

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
150	08 11 81	2105-2136	Plato	9W 51N	(North) observed darkening of crater floor in green filter. No similar response from other areas. (Hedley-Robinson) saw inner SSE rim & beyond a triangular segment was hazy in green, blue, yellow & red at 2105, but only in green & blue at 2136 - no response from other areas.	Jy 27 09 Ag 21 21	Ag 08 12	5942 5416 5510 5919	1/2h
151	09 03 81	1915-1955	Messier Messier A	46E 3S 45E 3S	(Evans) at 1920 local obscuration in Messier prevented detection of the crater. Messier A was normal as was the surrounds. At 1922 slight shadow barely visible, not focusable. 1930 crater rim not detectable. No detail of crater was visible. Stopped observations at 1955, alt = 8°. photos. (North) despite turbulence Mess A resolved, a little internal shad. Messier not identifiable at all. A light patch occasionally glimpsed in its location. At 2022 conditions hopeless. (Foley) Mess. A well defined with relief & shadowed floor. Mess. completely lost in ray structure. A little darker at location of floor, but no detail. conf.	Ag 21 21 S 17 04	S 05 07	5919 5413 5424 5958	3/4h
152	09 06 81	0100-0115 0130	Pitiscus	30E 50S	Eruption of gas and/or dust in it. Cloud moved & spread out & obscured surface. (photos show phenomenon as extremely bright & in two locations apparently it originated at the c.p. and moved over a craterlet on the Moon. 25s exposure, 15m between exposures. During second period the phenomenon faded. No other anomalous areas appeared visible less dense than photo & did not luminesce. Looked gray w/ possible tinge of red. Blink device did show change & movement in it but not elsewhere. Then clouds obscured Pitiscus A.	Ag 21 21 S 17 04	S 05 07	5919 5413 5416 5958	~1/4h
153	09 08 81	2128-2134	Plato	9W 51N	Slight orange cast or cloud very transparent origin, from inner NE corner & extending across floor. Shape & size variable, edges not uniform. Conf.	Ag 21 21 S 17 04	S 05 07	5919 5413 5526 5958	6m
154	09 20 81	0800-0940	Archimedes	4W 29N	Could see small crater in its W rim but not the one on E floor. Both same size & should be seen, at 342x seeing superb. Smaller craters seen. Thinks it was obscured by vapor. Alt high.	S 17 04 O 15 02	O 03 01	5958 5406 6050	3/4h
155	10 11 81	0005-0200 0445-0503	Plato Aristarchus	9W 51N 47W 23N	(Hobdell) saw brightening on floor of Plato. 4 bright spots appear & disappear. A 5th seen briefly, c.p. or bright spot became very bright periodically. At 0014 cc brightened followed by a haze permeating entire floor, heaviest in N quadrant. Came from 2 S peaks or white spots, shaped like a boomerang extending to presumed c.p. (c.c. ?).White flashed at 0052 from it cloud changed shape - spread N. At 0136 brightening from c.c. area. 0419 dissipated. All white spots seen clearly at 0200. Its outer flanks seen clearly whole time. (Louderback) saw violet hue on dark nimbus of Aris. At 0513 could see crater but hue had gone. Thinks it was atm. was same brightness in violet filter as with no filter, but somewhat lighter in blue. Noted it again on Dec 12 but not nearly so prominent.	S 17 04 O 15 02	O 03 01	5958 5406 5842 6050 . 5841	2h . 1/4h
156	10 15 81	0603-0637 0629-0651	Piton Cobra Head (SV)	2W 39N 48W 24N	Piton albedo different of 4 high sun bright spots in red & blue filters. Appeared as a cross, The 2 points A & D on his sketch (index) were affected. They were 10 pts dimmer in red than blue. Not due to poor seeing as they did not fluctuate (as did the seeing) Cobra Head was rated 8 when usually it is low 7's for albedo. Opposite occurred on Nov 10. atm. blow-ups =4s.	O 15 02 N 12 11	O 30 16	6050 5359 6050 6122	1/2h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
150	11.6	0.606	48 39R	Ag 15 17 -3.9	5-, 22+	North, G. Hedley-Robinson	Eng. Devon, Eng.	filters filters	S=P	80	D, G, V, R	5
151	5.2	0.688	327 13R 12R	S 14 03 -10.3	3, 17+	Evans North, G. Hatfield Foley, P.	Newton Solney Sussex, Eng. Sevenoaks, Eng. Kent, Eng.	10L 6.5L 3.5L Questar 6R	II-III T=F V, T=G III, T=G	81	G	5 conf.
152	7.4	0.576	343 13R	S 14 03 -8.1	3-, 15+	Slayton, G.	Ft. Lauderdale, FL	8L ASA 64EK7 f/170 Kodak Kodachrome		82a,b, c	G, R, B	5 photos
153	10.3	0.684	31 22R	S 14 03 -5.2	4+, 14+ sc	Madej, P. 3 others	Huddersfield, Eng. Yorkshire, Eng.	16L	III-IV T=G	81	G, R	4 conf.
154	21.8	0.115	171 13S	S 14 03 +6.2	3-, 17+ sc+0.3	Darling, D.	Sun Prairie, WI USA	12.5L 342x	S=E	30a,b	G	3
155	12.8 . 13.0	0.853 . 0.860	62 53R 64 17R	O 13 13 -2.5, -2.3	6-, 38 ms sc-0.4	Hobdell Louderback, D.	St. Petersberg, FL South Bend, WA USA	4R 3R	S=3 T=5	83 84	G, B V	3 0
156	17.1	0.007	114 68S 114S	O 13 13 +1.7	4+, 27+ ms+0.3 sc-0.9	Louderback, D.	South Bend, WA USA	3R	S=1-2 T=5	84	V, G, B	3 3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
157	10 21 81	1135-1148 1340-1345	Plato Aristarchus	9W 51N 47W 23N	(Hobdell) S peak of Plato on floor began to glow at 1135 whitish, milky color spread all around floor which had been completely shadowed. Caused the spire like crater shadows to be distinguishable though the sunlight (at dawn on Earth) had washed it out before. The cloud which had emanated at 1148, washed out by daylight. The cloud conformed to the white area except a tail that reached to the center of Plato. No spurious color seen. (Louderback) round white glow in NE corner of Aris. extended down to center of crater and overlapped E wall's bright spot (Bartlett's EWBS). Gave crater a diamond ring effect.	O 15 02 N 12 11	O 30 16	6050 5359 5722 6122	13m, 5m
158	11 10 81	0754-0822	Cobra Head (SV)	48W 24N	Blue light intensity dropped back to normal 7, except point D (W wall) which went down to 6.5 (was 8 on Oct 5) , usually blue > red.	O 15 02 N 12 11	O 30 16	6050 5358 6033 6122	1/2h
159	11 23 81	1031	Taruntius E. or in ridge near it	40E 7N	Three very bright yellow star like flashes at ~ 30s intervals. Continued looking but no more. (prob. not atm. when it usually varies ~10s. Taruntius E is a small impact crater).	N 12 11 D 11 00	N 26 21	6122 5355 5428 6128	secs
160	12 12 81	0031	Between Pico & Plato	. 9W 48:N	Series of flashes in that region	D 11 00 Ja 08 12	D23 23	6128 5401 6117 6055	secs
161	12 19 81	0100-0500	Plato	9W 51N	Crater > Aristarchus by several times! Very clear high quality image.	D 11 00 Ja 08 12	D23 23	6128 5401 6055	4h
162	01 09 82	1846-2137 2142	Aristarchus Plato Le Verrier Cape Fresnel W. Limb Censorinus Copernicus Schmidt	47W 23N 9W 51N 21W 41N 5E 29N 90W 33E 1S 20W 9N 19E 1N	Both Aris. & Plato underwent albedo & color abnormalities during lunar eclipse at 1950-1955 glimmer in E. seen contrast in both camera and screen turned up to max. At 2124 Aris., though still bright faded. Many noted how bright it was during eclipse. At 2133 definitely faded & at 2137 <= Coper. Henderson, Sykes & Radley (colleagues of Madej) saw unusual form of obscuration near Le V., completely circ halo-shaped with dark mare showing through it for 15m. (conf.) (Bouron) noted dark orange at W limb. (Heath) photos show Aris. very bright after umbra inversion. Others noted a glow near C. Fresnel & Censorinus the latter exceptionally bright. At 2007 Madej noted a slight anomaly in Plato. Mobberly saw Censorinus & Schmidt very bright relative to surrounds & thought Aris. bright perceptively 3rd mag after third contact.	Ja 08 12 F 05 14	Ja 20 12	6055 5405 6040 6003	3h
163	02 03 82	2000?	Proclus Censorinus	46E 16N 33E 1S	Got an abnormally low reading for it, Censorinus was normal.	Ja 08 12 F 05 14	Ja 20 12	6055 5405 5946 6003	
164	03 04 82	2000?	Censorinus Proclus	33E 1S 46E 16N	Cens. > Proc. in white light , but in CED Cens. was 4.6 & Proc. 4.0. (Foley) Attributes visible response due to area size as Proc. > Cens.	Mr 04 05 Mr 29 06	Mr 17 05	5917 5415 5915 5937	
165	03 08 82	2249-2257	Daniell	30E 34N	Alerted network of albedo & color anomaly seen at crater. Filter response obtained. (This crater is med-sized with several rills on dark floor & at least one crater on S rill with a N-S rill coming into it. Phenomena in it may be real).	Mr 04 05 Mr 29 06	Mr 17 05	5917 5415 5807 5937	8m

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
157	23.5	0.201 0.219	190 1S 127S	O 13 13 +8.0	6-, 33- ms sc+0.4	Hobdell Louderback, D.	St. Petersberg, FL South Bend, WA USA	10L 3R		83 84	G, B B	3 3
158	13.5	0.923	70 22R	N 11 22	4, 21-	Louderback, D.	South Bend, WA USA	3R filters	S=3-2 T=5	84	V, D	3
159	26.4	0.382	230 +90S	N 11 22 +11.5	4+, 27	Hobdell	St. Petersberg, FL USA	3R?	S=I exc.	85	R, B	1
160	15.4	0.035	97 88:R	D 11 09 +0.6	5-, 29- sc	Madej, P.	Eng.			86	B	3
161	22.5	0.288	183 6S	D 11 09 +7.8	3+, 18- sc-0.25	Arsyukhin, E. V.	Moscow, Russia	3L	exc.	21	B	3
162	14.4	0.046	87 40R 78R 66R 92R 3R 120R 67R 106R	Ja 09 20 0.0	2-, 8	Moore , P. Henderson Sykes Radley Brown Heath Hollis Madej, P. Mobberly, M.	Birmingham, Eng. Huddersfield, Eng. Huddersfield, Eng. Huddersfield, Eng. Kiner, Lyn, Eng. Long Eaton, Eng. Cheshire, Eng. Huddersfield, Eng. St. Edmunds, Eng.	TV Camera 16.5R 12L 14L		86	D, B, R, G	5 photos conf.
163	9.6:	0.936:	31: 77:R	F 08 08 ~4.5:	5, 35+ ms?	Cook, M.	Surrey, Eng.	C.E.D.		87	D	3
164	8.9:	0.012:	24: 57:R 70:R	Mr 09 21 -5.0:	4,20	Cook, M. Cook, J.	Surrey, Eng. Surrey, Eng.	C.E.D.		88	D	4
165	13.0	0.188	74 44R	Mr 09 21 -0.9	4+, 18				S=I-II	89	B or D	3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
166	04 03 82	2000?	Copernicus Proclus Bullialdus Tycho	20W 9N 46E 16N 23W 20S 11W 42S	Observation projected in low power to a white paper with a yellow stripe of fluorescent ink. In white light the moon was yellow on the ink & white on the paper. A wratten 35 filter (UV) some red got through. Moon was dark-violet + purple on the paper & bright yellow on the stripe. Thus a UV image was detected. The listed craters were bright in UV - on the W wall of Coper. & Bull., Tycho & all of Proc.	Mr 29 06 Ap 25 21	Ap 14 00	5937 5411 5743 6029	
167	04 04-5 82	2330-0005	Daniell	30E 34N	Observer (Madej) alerted B.A.A. network. He found crater's albedo low and was coupled with pale-yellow. Foley tried to confirm, but by time (0009) in telescope crater was normal.	Mr 29 06 Ap 25 21	Ap 14 00	5437 5411 5738 6029	1h10m
168	05 26 82	2025-2040	Aristarchus	47W 23N	In ashen light (very visible) features: Kepler, Copernicus, Aristarchus, Herodotus, Grimaldi & O. Procellarum well seen in preparation for occultation of star ZC1191 7.0 mag., he saw @ 2025 Aris. blink non-regularly. Shortly in white color Aris. reached the brightness of a star of similar color, 7.0 (red). Change of eyepiece & movement of telescope had no effect on shape or position. Aris. was brightest feature on darkside even without moon blink. Observed from 2030 to 2040 when it disappeared.	My 24 03 Je 21 12	Je 07 23	6108 2359 6006 6119	10m
169	05 27 82	1700? 1705-1735	Lacus Somniorum, Endymion	30E 36N . 54E 56N	L.S. appeared anomalously bright - luminous mist. On May 28 was normal but was abnormal on 29th, 30th & 31st. Color invariable. Endym. had a dark spot in center for 30m - sudden appearance & disappearance	My 24 03 Je 21 12	Je 07 23	6108 5359 6119	1/2h
170	06 02 82	2200?	Plato	9W 51N	(Mobberly) No crater visible on floor. (Foley) June 2-5 c.c. just visible reduced albedo compared with other lunation. (North) Floor seems nearly black, but much brighter in green x144 filter. All observer made comparison observations with other regions. Confirmed.	My 24 03 Je 21 12	Je 07 23	6108 5359 5505: 6119	
171	06 05 82	2200?	Plato	9W 51N	(Chapman) x2 yellow filter - again it was thought that c.c. visibility appears & disappears during observation. (Foley) June 2-5 c.c. only just visible - reduced in albedo compared with previous lunation, not measured on CED. Floor very dark. Confirm?	My 24 03 Je 21 12	Je 07 23	6108 5359 5411: 6119	
172	06 30 82	0205-0215:	between Erastothenes and Bode E	7:W 13:N	Appearance of darkening (cloud) which contained darker points within.	Je 21 12 Jy 19 21	Jy 05 01	6119 5359 5527 6108	10m
173	07 01 82	0223-0232 0241-0258	Pytheas	21W 21N	Note W wall very bright, almost glowing > Proclus. It was bright yellow-white at higher magnification. Shown to be very bright edge of crater. At lower mag. was brightest area on lunar surface. (unusual).	Je 21 12 Jy 19 21	Jy 05 01	6119 5359 5450 6108	~1/2h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
166	9.4:	0.203:	30: 10:R 76:R 8:R -19:R	Ap 08 10 -4.6:	6, 39+ ms	Cook, T.	Surrey, Eng			90	V	3
167	10.6	0.246	44 14R	Ap 08 10 -3.4	5, 28+ ms	Madej, P. Foley	Huddersfield, Eng Kent, Eng.			90	D, R	3
168	3.6	0.095	317 -90R	Je 06 16 -10.9	5, 28	Kalauch	Berlin ?, Germany	9R, 60x	T=1 (best) Scintil-lation = 2	91	R, B	2
169	3.9:	0.130	320 10R 14R	Je 06 16 -9.9:	6+, 41 ms	Arsyukhin, E. V.	Moscow, Russia	3L		21	G, B, D	3
170	10.7:	0.345:	43: 34:R	Je 06 16 -3.8	5, 23+	Mobberly, M. North, G.	St. Edmunds, Eng. Sussex, Eng.			92	D, G?	5 conf.
171	13.7:	0.451:	79: 70:R	Je 06 16 -0.8:	2, 13- sc-0.2	Chapman Foley, P.	. Kent, Eng.	12L		91	D	4 conf.
172	8.6	0.304	15 8:R	Jy 06 08 -6.2	7-, 34 ms	Petek	Port Allegre, Brazil			93	D, G	3
173	9.6	0.339	27 6R	Jy 06 08 -5.2	4+, 26	Robotham	Springfield, Ont. Canada		S=II	93	B, R	2

1	2	3	4	5	6	7	8	9	10
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	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
174	07 03 82	2100-2200 2133-2243 2045 2113 2245 2108 2133-2148 2150 2138 2202-2249 2245-2327 2055 2315 2216 2255-0108	Plato Aristarchus Mare Frigorus Proclus	9W 51N 47W 23N . 46E 16N	Plato - alert all experienced observers , with spurious color (Amery) NE wall at 8:00 o'clock was indistinct color. (T. Cook) E wall fuzzy & diffuse attributed to seeing in fine detail. (J. Cook) floor dark with orange and red color on N rim. (fits Fitton's hypothesis). Narrow part of M. Frig., N of Plato pink at 2045. At 2113 orange/red still on N rim. (M. Cook) yellow along N rim. (Foley) at 2118 could not focus area ~30 miles NNE from rim - isolated in this effect from other areas. (Madej) could not focus area N to NE from rim & N part of Plato. Effect in yellow greater - one of strongest LPT he had ever seen. (Mobberly) red & yellow & blue on S wall, also on N wall thought it was due to spurious color (probably was). (Price) spurious color blinks all over the place - obscuration? (H-R) at 2150 did not see fuzziness at 2155 N wall sharp & in good seeing. (Moore) distinct brownish hue to part of N wall - sure it was real - at 2216 no spurious color. (North) indistinct and impossible to focus. Flashes near Alps & M. Frigorius. confirm. (Saxton) Wall of Plato from 7 to 9 o'clock position not sharp, thinks real though seeing not good. S rim sharp but N rim indistinct. At 2223 spurious color gone. At 2227 N wall fairly well defined, but though < hazy, whitish area real. In blue filter N edge of floor fuzzy compared with S edge. For Aristarchus (Moore) exceptionally brilliant all the time. Extra albedo real. (J. Cook) CED variable 3.8-4.1 reading & varying 3-4x as much as Proclus & Censorinus. (Foley) crater variable at 2055. CED 3.6 from 2255-0118 (Jy 4th) 4.1-4.9. At low readings the color was slate-blue gray in interior. Other areas were more steady. (Mobberly) at 2315 nothing unusual except crater seemed dimmer than normal. (Price) at 2216 CED = 3.7 which is 2 points high compared with other readings that night. Conf. (but alerted). .	Je 21 12 Jy 19 21	Jy 05 01	6119 5359 5403 6108	2h
175	07 09 82	0105-0125	Aristarchus Grimaldi A Grimaldi	47W 23N 72W 5S 65W 5S	Struck by continued brilliance of Aristarchus, slightly bluish. Next brightest spot on Moon was Grimaldi A. Suspected blink on S floor of Grimaldi. (Moore's vision not very responsive to blue).	Je 21 12 Jy 19 21	Jy 05 01	6119 5359 5442 6108	20m
176	07 18 82	0412-0422	Plato? region	9:W 51:N	At 0412 looked at faint crescent moon facing SE. Suddenly from top of crescent came a bright flash as if a photoflash. Seemed to be coming from Plato (many seen there before). Two more seen at 0422 and were split second duration. 2nd flash much fainter. Sketch. (sketch supplied by Foley showed flashes adjacent to border between illuminated and darkened zone - [terminator] N, possibly in Plato region. Waning crescent). Sun arose at 0422. .	Je 21 12 Jy 19 21	Jy 05 01	6119 5359 6108	10m
177	07 28 82	2038-2048	Alphonsus	4W 13S	c.p. > red than blue. At 2038 - difficult to see in the blue, becoming invisible. Varied in bright in red. No such changes seen in white light. c.p. of Arzachel > Alphonsus, but no blink on Arz. but it did fade slowly. (Blink in Alph probably due to poor seeing & low Alt. & heat wave off roof?? but why not in Arz. too?). .	Jy 19 21 Ag 17 02	AG 01 10	6108 5405 5458 6030	10m
178	08 01 82	0000-0100 2050	Plato LaPlace A	9W 51N 26W 44N	(Marshall) struck by shading on E floor of Plato - lighter than rest. Sketch. This is unusual according to Foley. Seen with both low & high powers. Three craterlets easily seen. Center one by far the brightest - as bright as walls. On August 5 craterlet C was much less prominent & whole floor evenly dark. Normal shading 19h later where the SW corner is lighter. (Mobberly) LaPlace A is quite conspicuous, while usually not noticed, especially in bad seeing. It was more conspicuous than on Plate X of the "Guide to the Moon" by P. Moore. .	Jy 19 21 Ag 17 02	AG 01 10	6108 5405 5405 6030	1h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
174	12.4 12.5	0.438 0.442	63 16R 53R	Jy 06 08 -2.4 -2.3	2+, 12	Amery Cook, T., J., & M. Foley, P. Madej, P. Mobberly, M. Price Hedley-Robinson Moore, P. North, G. Saxton	Berkshire, Eng. Surrey, Eng. Kent, Eng Yorkshire, Eng. Suffolk, Eng. Surrey, Eng. Devon, Eng. Selsey, Eng. Sussex, Eng. W. Yorkshire, Eng.	. 12L 18L 12.5L 320x	S=III-IV V-III V-IV II-III S-I III-IV IV-V IV-V for Aris III-IV III II-III III-IV IV-V	93	G, R, V	5 conf but fits Fitton's hypoth.
175	17.5	0.618	124 103S 128:S 121S	Jy 06 08 +2.7	4-, 18+	Moore, P.	Selsey, Eng.	12.5L?	S=III	93	B, V	4
176	26.7	0.943	236 -47S	Jy 06 08 +11.9	5, 29	Ansari, A.	Queen Mary College, Eng.	naked eye		94	B	3
177	8.0	0.318	65 1.5R	Ag 04 23 -7.1	4+, 28 high activity	Cook, T.	Surrey, Eng.	12L	S=IV-V spurious color	95	R	3
178	11.2, 12.0	0.431 .0459	45 36R 55 29R	Ag 04 23 -3.9 (BSF) -3.1	3+, 21-ms+0.6	Marshall, K. . Mobberly, M.	Medellin, Columbia S. America Suffolk, Eng.	12L . 14L	S=I-II . S=III-IV	95	G B	3 3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
179	08 02 82	2259-2310	Piton	2W 39N	Definition was poor on N point. Appears to merge into surroundings. Thinks this is often the case at this phase, but was exaggerated by the unusual transparency which caused loss of definition.	Jy 19 21 Ag 17 02	AG 01 10	6108 5405 5412 6030	11s?
180	08 04 82	1926	Aristarchus Copernicus	47W 23N 20 W 9N	Aris. brighter for 3m. Coper. flashed for 5m. Both started simultaneously & suddenly. LTP's disappear suddenly, too. Moon low above horizon.	Jy 19 21 Ag 17 02	AG 01 10	6108 5405 6030	3-5m
181	08 26 82	2100?	Poisson	11E 30S	Seemed hazy. (Poisson α is a dome with several s.c.'s - volcanic? Gas from α which is on W rim of Poisson & possibly the c.p. of a larger partial ridge that includes Poisson & α.)	Ag 17 02 S 13 18	Ag 29 00	6030 5411 5940	
182	08 29 82	0213-0230	Pytheas	21W 21N	W wall very bright at 97x power. At 160x is very noticeable. Characteristics very similar to Foley's July 1, 1982 observation. Robotham found that the bright glowing effect is best seen at lower magnification (97x) & its wall is one of brightest spots on Moon at this time.	Ag 17 02 S 13 18	Ag 29 00	6030 5411 5412 5940	1/4h
183	08 11 82	0330-0415	Plato	9W 51N	Sketch & photo showed needle-like shadow extending from prominence on W wall to a point just short of C.C.. Also seen quite well on the photo. The other four craterlets not visible.	Ag 17 02 S 13 18	Ag 29 00	6030 5411 5914 5940	3/4h
184	09 24 82	2245-2340	Theophilus	26E 11S	Opaqueness on SW wall at juncture with Cyrillus. Whole area tinged with red/mauve color best seen in 12mm ortho eyepiece. The area seemed bright in W15 filter. By 2340 opacity decreased a lot when seeing improved. Lot of fine detail between Theophilus & Cyrillus.	S 13 18 O 09 01	S25 19	5940 5416 5418 5917	~1h
185	09 29 82	0552	SW ~7-8 diams from Aristarchus	72:W 15:N	Star like point in dark part beyond terminator. Couldn't tell whether on limb or on disk. Thinks it was latter. Maybe have been a star occultation but did not see it reappear.	S 13 18 O 09 01	S25 19	5940 5416 5515 5917	secs
186	10 08 82	0415-0430	Clavius Aristarchus	13W 58S 47W 23N	Noted Clavius had a "D" shaped crater tangent to it making it look as if it had a ridge crossing it. Suspected blue on NW rim & brown/red on SE rim of Aris. Tried other bright spots but no similar color. Couldn't seem to focus as well as others. (fits Fitton's hyp. but I don't think there was a temp. inversion.)	S 13 18 O 09 01	S25 19	5940 5416 5915 5917	1/4h
187	10 22-23 82	2345-0010	Proclus	46E 16N	W-NW rim very bright & red. Could not see effect elsewhere. Opposite to Fitton's hypothesis.	O 09 01 N 04 10	O 23 15	5917 5414 5415 5959	1/2h
188	10 26 82	2041-2222 2131	Yerkes - Picard	51E 13N 54E 14N	(Madej) could not focus Yerkes as well as could Peirce. By 2041 effect extended to Picard (~3.5°). In W15 filter not apparent, but albedo change was very marked in W25 red filter. (M. Cook) at 2222 noted faint orange around Yerkes E. Spurious color seen in other areas. Color around Yerkes intermittent. In blue filter it was still orange. (J. Cook) at 2131 noted S rim of moon was orange & seeing was such that it was fizzing. Around Yerkes only orange tint - tending intermittent. Dark in around Picard bright illum.	O 09 01 N 04 10	O 23 15	5917 5414 5509 5959	~1.5h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
179	13.2	0.502	69 67R	Ag 04 23 -1.9	6+, 40- ms	Price	Camberly, Surrey, Eng.		S=II-III	95	G	1
180	15.0	0.566	92 45R (135S)	Ag 04 23 -0.1	4, 24- high activity	Arkhipov, A. V.	Ukraine, Russia			21	B	0
181	7.7:	0.351:	0: 11:R	S 03 12 -7.7:	5, 27	Arsyukhin, E. V.	Moscow, Russia	3L		21 96	G	3
182	10.0	0.435	28 7R	S 03 12 -5.4	6-, 36- ms	Robotham	Springfield, Ont. Canada	--, 97x, 160x		97	B	3
183	23.0	0.909	187 2S	S 03 12 +7.7	3+, 22+	Mobberly, M.	Suffolk, Eng.			98	D	4 photos
184	7.5	0.447	356 20R	O 03 01 -8.0	5-, 28 sc-0.8	Marshall	Medellin, Colombia South America		S=II	97	G, R, V?	2
185	11.8	0.617	49 23:R	O 03 01 -3.7	3-, 17	Louderback, D.	South Bend, WA	8L, 240x		99	B	1
186	20.7	0.968	157 36S 70S	O 03 01 +5.2	4+, 28	Cameron, W.	Silverspring, MD	3.5L, 160x Questar	S=VG	100	R, V, G	1
187	6.0	0.530	338 24R	N 01 13 -9.5	3-, 10	Marshall	Medellin, Colombia South America			101	B, R	3
188	9.9	0.678	26 77R 80R 78R	N 01 13 -5.6	5+, 31- sc+0.7 ms	Madej, P. Cook, M. Cook, J.	Yorks, Eng Surrey, Eng. Surrey, Eng.		S=II T=G S=II T=G	101	G, R	5 conf. filter

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
189	11 11 82	1700-1730	Mare Crisium	60:E 24:N 55:E 10:N 65:E 7:N	Sudden appearance of three motionless dark spots around the mare. One to the N, & two to the SW-S. lasted ~1/2h & disappeared suddenly. (can't be this date as moon not visible at 1700. Time: 0500-0530 A.M.?).	N 04 10 D02 11	N 20 11	5959 5406 6051	1/2h
190	11 27 82	2130-2210 2013 2200?	Aristarchus	47W 23N	(Hedley-Robinson) Bands seen better in red than blue filter. (North) crater ~40% filled with shadow, but sunlit interior part very bright white. (How bright compared with what?). (M. Cook) kaleidoscope of color in & around crater. Ranged from turquoise - orange - yellow - red & purple. (spurious?) (conf.?).	N 04 10 D 02 11	N 20 11	5959 5406 5817 6051	~2h
191	12 18 82	1500?	Cusps		Both Lunar cusps prolonged to dark side as blue threads where they were closed. Color of Earthshine was brown.	D 02 11 D 30 22	D 18 02	6051 5358 6126	1/2h
192	12 22 82	1920 1955-2010	Messier Messier A	46E 3S 45E 3S	(Hedley-Robinson) two craters not distinguishable but comet tail ray very bright in both telescopes. (Moore) could see A clearly but Messier obscured. Could see only W wall, but comet rays abnormal, not divided and no more brighter than N-S rays. Did not look normal. conf. .	D 02 11 D 30 22	D 18 02	6051 5358 5527 6126	~1h
193	12 27 82	2054 2300 2325 2347	Piazzi-Smyth Piton Pico	4W 43N 2W 39N 9W 45N	P-S crater >> than Piton & Pico (both normal) at 2300 - several CED readings - expected it to be > Kirch but < Piton but was > than on Hatfield's Photo Atlas plates bc & bd. Alerted network at 2235. Blinked it at 2347. At 0003-0013 CED readings similar to earlier ones. Had a 1.0 density filter in when observing Piton, Pico &P-S. (Price is familiar with region - studied it for years).	D 02 11 D 30 22	D 18 02	6051 5358 6005 6126	3h
194	12 30 82	1009-1058	Aristarchus Römer	47W 23N 36E 25N	(Darling) at 1009 in eclipse when the umbra passed over Aris. it glowed a brilliant blue until 1014 when deep in the umbra. Saw flashes at 1015 like flickers ~1/10s. (Harris) saw flashes at 1018 estimated 9 or 10th magnitude. Darling saw one at 1024. Nothing seen on Moon with 7x35 binoculars. Far edge of Moon had a nebulous gray glow - looked like a planet neb. At 1028 Moon could hardly bee seen in 6 inch. Römer had a faint blue glow. At 1034 Harris saw 2 more flashes - like firefly's. Nothing more, at 1058, when moon became visible (flashes due to Terr. atm. at Earth limbs as seen from Moon?). conf. .	D 02 11 D 30 22	D 18 02	6051 5258 6126	3/4H
195	01 05 83	2200?	Aristarchus	47W 23N	Color effects on crater	D 30 22 Ja 28 11	Ja 14 05	6126 5356 5717: 6123	
196	01 08 83	0100?	Aristarchus	47W 23N	Color effects on crater	D 30 22 Ja 28 11	Ja 14 05	6126 5356 5549: 6123	
197	01 19 83	1800? 1900?	Aristarchus Messier	47W 23N 46E 3S	Aris. not visible in Earthshine when other less brilliant regions were. Messier was difficult to define. (Cooks not in on these observations). All observers agreed - very low albedo. conf.	D 30 22 Ja 28 11	Ja 14 05	6126 5356 5526: 6123	

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
189	25.7:	0.242:	211: 91:S	N 01 13 +9.7	4+, 28-	Arsyukhin, E. V.	Moscow, Russia	3L		96	D	3
190	12.5	0.836	60 13R	D 01 00 -3.1	4-, 25+	Hedley-Robinson North, G. Cook, M.	Devon, Eng. E. Sussex, Eng. Surrey, Eng.	filters		102 103	B, R, V	5 conf.
191	3.2:	0.567:	306: 126:R	D 30 12 -11.9:	6, 36+ ms	Arsyukhin, E. V.	Moscow, Russia	3L		96	V, R	2
192	7.4	0.715	358 44R 43R	D 30 12 -7.7	7, 32+ ms	Hedley-Robinson Moore, P.	Devon, Eng. Sussex, Eng.	10L, 150x 12L, 230x	S=IV-V S=III	102	D, G	5 conf.
193	12.6	0.898	61 57R 59R 52R	D 30 12 -2.5	5-, 25 sc-0.3	Price	Surrey, Eng.	C.E.D.	S=III T=G	102	B	4
194	15.1	0.986	91 44R 127R	D 30 12 0.0	4, 24-	Darling, D. Harris, M.	Sun Prairie, WI USA Sun Prairie, WI USA	12.5L 342x 6L 72x	S=9/10	104	B, V	5
195	21.5:	0.210:	169: 58:S	D 30 12 +6.4:	3, 12-	Madej, P.	Eng.			102	R?, V?	2
196	23.6:	0.283:	195: 32:S	D 30 12 +8.5:	3, 17-	Madej, P.	Eng.			102	R?, V?	2
197	5.6:	0.696:	339: 68:S	Ja 28 22 -9.1:	4+, 25- ms+1	Amery Moore, P. Cook, J. Cook, M. Foley, P.	Eng. Sussex, Eng. Surrey, Eng. Surrey, Eng. Kent, Eng.			102 103	D, G	2 conf.

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
198	01 29 83	2035-0230 2125-2315 2230-0035 2240 2220-0100	Toricelli B Linné Censorinus B Moltke Arago B Toricelli A	29E 2.5S 12E 27N 33E 3S 24E 1S 21E 3N 30E 4.5S	(Foley) saw Toricelli B very bright CED off scale(>5.5) highest had ever seen. Aris. was 3.6, Cens. 3.2, Tori. B had electric blue halo around inner rim at 2240 brilliance had reduced to 2.7 - still abnormally high for the region. Color > to a rose/purple which remained all observers (0230). Mobberly alerted saw it illuminated by an almost UV & unmistakenly odd. Color unlunar and eye-catching - like UV lamp. Crater seemed to be emitting light, rather than reflecting it. Was different from spurious color detected on ENE of bright craters, e.g. Censorinus red yellow seen on WSW walls w/ bright craters. At 2209 noted Moltke was exceptionally bright & Arago B had tinge of violet but << Tori. B blue, but not brilliant, at 2410 blue on N rim. Other craters checked were normal. In blue filter saw deep, dull purple all around it. CED values at 2345 to 0048 were 2 for Toricelli B, Cens. 4.0 in white & 3.6 in blue. (Moore) unable to detect any color. (Amery) noted nothing unusual. (He & Moore not sensitive to blue below 4010Å. (Sykes) noted Linné suddenly brightened for about 20m appearing as a definite point. (conf,) (Toricelli. B - is a small impact crater.) .	Ja 28 11 F 25 22	F 10 05	6123 5359 6104 6052	~2h
199	01 30 83	2345	Toricelli B Censorinus	29E 2.5S 33E 3S	(Foley) Region of crater CED 2.3 still high. Slight blue cast. (Chapman) recorded Censorinus as of low albedo.	Ja 28 11 F 25 22	F 10 08	6123 5359 6024 6053	
200	02 03-04 83	2355-0130	Toricelli B	29E 2.5S	Translucent blue glow in Earthshine only a short distance from terminator. (Note: comensurance of FM&P)	Ja 28 11 F 25 22	F 10 08	6123 5359 5641 6053	>1/2h
201	02 08 83	0630	Toricelli B	29E 2.5S	Plainly viewable in Earthshine as a luminous patch. (it's a small impact crater)	Ja 28 11 F 25 22	F 10 08	6123 5359 5414 6053	
202	02 15 83	1800?	Aristarchus	47W 23N	Not visible when other less brilliant were seen in Earthshine. (conf)	Ja 28 11 F 25 22	F 10 08	6123 5359 5538: 6053	
203	02 16 83	1800?	Aristarchus	47W 23N	Not visible when other less brilliant were in Earthshine. (conf)	Ja 28 11 F 25 22	F 10 08	6123 5359 5540: 6053	
204	02 17 83	1900?	Aristarchus Messier	47W 23N 46E 3S	Aris. not visible in Earthshine when other less brilliant regions were. Messier was difficult to define. Conf.	Ja 28 11 F 25 22	F 10 08	6123 5359 5615: 6053	
205	02 18 83	1900?	Toricelli B S. M. Crisium	29E 2.5S 60:E 22:N	Mid morning over region, interior of Toricelli B steel blue extended 10-15 mi outside. Could be seen too well for its size. 6 mi. S M. Crisium covered by grayish pale haze.	Ja 28 11 F 25 22	F 10 08	6123 5359 5652: 6053	
206	02 19 83 02 20 83 02 21 83	2000?	Toricelli B	29E 2.5S	Observer noticed color in it & described as deep steel-blue with light color 10-15mi exterior. Concluded region too well seen for its size.	Ja 28 11 F 25 22	F 10 08	6123 5359 5733: 6053	
207	03 19 83	0456-0554	Eimmart	65E 24N	At 0515 crater dimmer than at first measured. Bright flash on N rim fluctuated at rate of 9s. Whereas blow-ups were 11-12s. Vis. in blue filter but not red. He thinks it was a true event.	F 25 22 Mr 25 22	Mr 09 23	6053 5406 5731 6000	1h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
198	15.7	0.049	101 50S 67S 46S 55S 58S 49S	Ja 28 22 +1.0	5, 22+	Foley, P. Mobberly, M. Cook, J. Cook, M. Moore, P. Amery	Kent, Eng Suffolk, Eng. Surrey, Eng. Surrey, Eng. Surrey, Eng. Reading, Eng.	12L 14L - - 12L? 6L	S=II T=G S=III T=E S=II-III T=mod. S=III T=mod.	103	B, V	5 conf CED filters
199	16.8	0.088	114 37S 32S	Ja 28 22 +2.1	4, 26	Foley, P. Chapman	Kent, Eng. Eng.	12L		103	B, V, D	4
200	20.8	0.229	163 12S	Ja 28 22 +6.1	3-, 14+ (8-, 31+ on 4th) sc, ms	Foley, P.	Kent, Eng.	12L		103	V, B	2
201	25.1	0.380	214 63S	Ja 28 22 +10.4	5-, 24- ms+0.7	Foley, P.	Kent, Eng.	12L		103	V, B	2
202	2.7:	0.641:	305: -102:R	F 27 09 -11.7	5-, 30+ ms+0.7	Amery Moore, P. Cook, J. Cook, M. Foley, P.	Eng. Sussex, Eng. Surrey, Eng. Surrey, Eng. Kent, Eng.			103	D	2 conf.
203	3.7:	0.676:	317: -90:R	F 27 09 -10.7:	5+, 33- ms?	Amery Moore, P. Cook, J. Cook, M. Foley, P.	Eng. Sussex, Eng. Surrey, Eng. Surrey, Eng. Kent, Eng.			103	D	2 conf.
204	4.8:	0.715:	331: -76:R -17:R	F 27 09 -9.6:	4-, 25	Amery Moore, P. Cook, J. Cook, M. Foley, P.	Eng. Sussex, Eng. Surrey, Eng. Surrey, Eng. Kent, Eng.			103	D, G?	2 conf.
205	5.8:	0.750:	343: 12:R 43:R	F 27 09 -8.6: -8.7:	4-, 22+	Foley, P. Arsyukhin, E. V.	Kent, Eng. Moscow, Russia	12L 3L		103 105	V, G	3 3
206	6.8:	0.785:	356 25:R	F 27 09 -7.6:	3+, 18 ms-1	Foley, P.	Kent, Eng.	12L		103	V	3 conf
207	4.5	0.761	328 33R	Mr 28 19.5 -9.6	5, 32- ms	Louderback, D.	South Bend, WA	3.1R	S=1-2 T=4	106	D, V, G	4

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
208	03 21 83	2105-2200	Piton	2W 39N	Totally illuminated > Aris. surrounded by circular shaped illuminated area. Brilliant white no shadow. Size ~10 miles. Inside, no details seen on it but features around showed sharp shadows. Photos. Foley says photos inconclusive. Terminator appearances are tricky - gives diffusion and details lost. (I have since received the originals & phenomenon may be real). Brightest on Moon, no variance.	F 25 22 Mr 25 22	Mr 09 23	6053 5406 5849 6000	
209	03 24 83	2000?	Toricelli B	29E 2.5S	Both saw slight wisp of blue? color present. Conf.	F 25 22 Mr 25 22	Mr 09 23	6053 5406 5953 6000	
210	03 25 83	2000?	Toricelli B	29E 2.5S	Blue tinge in & around crater. Observations on 19, 20, 21 & 24th were negative as to color. Halo around it has lost brilliance as seen on Jan. 29, 1983. conf.	F 25 22 Mr 25 22	Mr 09 23	6053 5406 5959: 6000	
211	04 16 83	0200-0300	Eudoxus? or Aristotele's	16E 45N or 17E 50N	As darkness settled, saw a bright spot become visible, phosphorescent, gray-green like tritium-lighted on an LCD watch, but much lighter than the higher areas in the vicinity. Appeared near Eudoxus or Aristotle (in ashen light).	Mr 25 22 Ap 21 08	Ap 06 18	6000 5413 5814 5913	1h
212	04 19 83	2145	Censorinus	33E 1S	White patch around it was grayish at 2145, momentary glow outside the crater to NW, but did not become diffuse. C.E.D. was 4.0 for Cens. & Proc. was 4.4 Observer had expected to get a lower C.E.D. from its visible appearance. Foley says Cens. Is normally > Proc. phase. On Jan 29, 1983 Chapman got an extreme high albedo for that spot. .	Mr 25 22 Ap 21 08	Ap 06 18	6000 5413 5913 5913	min?
213	04 23 83	2100?	Toricelli B	29E 4S	Blue tinge in and around crater. Halo around it lost brilliance that was seen with it on 1/29/83, observed on 4/19, 4/20 & 4/28 conf.	Ap 21 08 My 16 16	My 04 13	5918 5416 5908: 5939	
214	04 24 83	2100?	Toricelli B	29E 4S	All saw blue tinge in and around crater. Marshall recorded bright spot in center of floor, thought it might be a c.p.. No c.p. on LO-IV photos 77-2, 78-1 & 79-3.	Ap 21 08 My 16 16	My 04 13	5918 5416 5847: 5939	
215	05 15 83	2030-2105 2130-2230	Aristarchus Plato Copernicus	47W 23N 9W 51N 20W 7N	(Foley) did not see Aris. yet Plato, Cop. & other regions clearly visible. M. & J. Cook saw Aris. clearly at 2130-2230 (later than Foley)	Ap 21 08 My 16 16	My 04 13	5918 5416 5936 5939	2h
216	No data								
217	No data								
218	No data								
219	05 16 83	2035-2210	Aristarchus	47W 23N	Foley saw it in Earthshine but dull for a brief period (2138-2149). Floor was rose/violet & luminous (Earthshine due to clouds on Earth's limbs as seen from Moon)	My 16 16 Je 13 06	Je 01 08	5939 5411 5939 6028	~1/2h
220	05 17 83	2013-2040 2010	Aristarchus	47W 23N	Madej saw normal till 2019, at 38x saw small blood-red disc. At 83x disc was large = 6th mag star in bright twilight. No variation in color but brightness varied from 4-6 over a period of 1.5-3m & was on inner SW wall. Foley at 2210 saw Aris. same as on 16th rose/violet color. .	My 16 16 Je 13 06	Je 01 08	5939 5411 5934 6028	~2h?

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	Age	Tidal Anomaly	Colong., Term. Dist	Full moon date, days from FM	Solar	Observer	Location	Telescope: Aperture Kind Power	Seeing	Ref.	Phen. Type	wt
	days	d	o	m,d,h, d	K_{pmax}, ΣK_p			Ap, K, PW				
	1,900 A.D.											
208	7.1	0.857	2 0R	Mr 28 19 -6.9	4+, 21	Horne, P. Horne, J. Hutton (2)	Hertz, Eng. Hertz, Eng. --	11L 180 330x		107 108	B, G?	5 conf photos
209	10.1:	0.961:	37: 66:R	Mr 28 19 -4.0:	3+, 19- ms-0.6	North, G. Foley, P.	Eng. Kent, Eng.	-- 12L		105	V?	4 conf.
210	11.1:	0.996:	50: 79:R	Mr 28 19 -3.0:	6+, 40 ms	Cook, M. Marshall Mobberly, M. Foley, P.	Surrey, Eng. -- -- Kent, Eng	-- -- -- 12L		109	V	5 conf.
211	2.8	0.803	309 -35R	Ap 27 07 -11.2	5, 34+ ms end	p.c. to W. Haas				110	V, B	2
212	6.6	0.947	355 28R	Ap 27 06 -7.4	3, 18-	Cook, M.	Surrey, Eng.			109	B	3
213	10.5:	0.098:	31 60:R	Ap 27 07 -3.5:	5, 24-	Cook, M. Marshall Mobberly, M. Foley, P.	Surrey, Eng Eng. Eng. Kent, Eng.			109	V, D	5 conf.
214	11.5:	0.138:	56: 85:R	Ap 27 07 -2.5:	6, 43+ ms	Cook, M. Marshall Mobberly, M. Foley, P.	Surrey, Eng Eng. Eng. Kent, Eng.			109	V, B	5 conf.
215	3.0	0.965	312 -95R	My 26 19 -11.0	4, 28-	Foley, P. Cook, M. & J.	Kent, Eng Surrey, Eng	12L		109	D, B	0 2 conf.
216		No data										
217		No data										
218		No data										
219	4.0	0.007	324 -83R	My 26 19 -10.0	3, 18+ sc-0.1 ms-0.4	Foley, P.	Kent, Eng.	12L		109	B, V	0
220	5.0	0.043	336 71R	My 26 19 -9.0	7+, 40 sc-0.7 ms	Madej, P. Foley, P.	Eng. Kent, Eng.	- 38, 83x 12L		109	R, G?	0 0

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
221	05 20 83	0000-0300	Piton Proclus Censorinus	2W 39N 46E 16N 33E 3S	mt. seemed odd - too bright near terminator, surrounded by shadow. sketch. Appeared segmented with one thin shadow line. Looked like a Mexican Sombrero. Foley says terminator appearance is tricky - can be diffusion with loss of detail. C.E.D. values were normal, 3.6 for Piton, 3.5 for Proclus & 3.7 for Censorinus.	My 16 16 Je 13 06	Je 01 08	5939 5411 5901 6028	3h
222	05 28 83	0150-0300	Aristarchus Herodotus Schröter's Vly	47W 23N 48W 22N 48W 24N	Weird - never saw it like that before, whole region around all 3 was blue and impossible to focus. Interior was invisible. C.E.D. readings & sketch.	My 16 16 Je 13 06	Je 01 08	5939 5411 5524 6028	1.5h
223	05 31 83	0345-0430	Aristarchus Herodotus Schröter's Vly	47W 23N 48W 22N 48W 24N	Whole region blurred & violet. Barely could see interior. Herodotus was barely visible. S.V. was unrecognizable. Similar to May 28th. sketch.		Je 01 08	5939 5411 5417 6028	3/4H
224	07 20 83	1850-2240 2129 2153 2128 2136-2145	Plato	9W 51N	(Foley) S wall all indistinct at 11o'clock position where there is a large cleft in the wall. Both sides of cleft obscured & deep red color along valley & exterior of wall. Color gone at 2240. Other parts of wall sharp & fine detail. (M. Cook) sketch showed obscuration at some positions at 2203. At 2208 red shrank to red line & gone by 2237. Obscuration on S wall varied in size. Sketches showed red on S wall & possible obscuration at 7 o'clock position. (J. Cook) verified Foley & M. Cook. All detail in crater was sharp & distinct. Color opposite to usual. conf. Price seeing marred by ripples. (North) at 2136 saw odd appearance on S wall, undefined for 40°, no shadow or relief. Terrain S of crater also no detail. Rest of crater sharper at 2145 N part of crater was reddish - hazy.	Jy 11 10 Ag 08 19	Jy 26 07	6106 5358 5519 6123	4h
225	07 21 83	2102-2318 2105-2205 2055 2130-2343 2330--0300	Plato	9W 51N	(Foley) again noted area around breach quite indistinct - turbulent conditions continued till 2318 when it cleared suddenly & sharpness returned. Unusual dark patch extended from inner wall at 12 o'clock position onto floor 8-10m. Triangular in shape with broad base against wall. Fine detail everywhere else. (M. Cook) Obscured again from SE-SW but not as indistinct as last night. Dark patch had 2 white bands on the side. (J. Cook) SW wall indistinct as on 20th, but color not seen. Two light patches on floor. (Mosley) S wall at 120x wall at 11 o'clock ill defined. Using yellow filter saw a white mistiness on crest of S wall. Only cleft on SE wall could be seen. no color noted. 2240-2300 cleared up some. (Marshall) noted nothing unusual from 2230-0300. Sketch indicated light patch on floor at 11 o'clock position. All observers noted turbulence, but with good transparency. (Mosley) did not note dark triangular patch on floor. (LOIV 127 & 128 show a light triangular patch at the 1 o'clock position.)	Jy 11 10 Ag 08 19	Jy 26 07	6106 5358 5454 6123	2h
226	08 19 83	0538-0548 0704-0711 0715-0730?	Piton	2W 39N	Sunlit side of mtn (E) brighter points C & D coincided with blurring at 0715. Darkside between C, A & B not as dark in red as in blue. (In previous observations at high sun opposite was true. Has been a color change since he last observed. In red the whole Mtn looked fuzzy & ill-defined as if Moon was out of focus. Saw 1s brightness on E face, whole mtn sharp in blue - low altitude though. Albedos were 4 in blue & >=4.6 in red & so ill-defined almost blended into plain. (telescope was probably out of focus on blue as he did not adjust for red as usual.) .	Ag 08 19 S 06 05	Ag 22 09	6123 5359 5428 6110	~1.5h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
						1,900 A.D.						
221	7.2	0.123	3 1R	My 26 19 -6.7	5, 13	Marshall	Medellin, Columbia South America			108	B	3
222	15.3	0.413	101 126S 127S 127S	My 26 19 +1.3	2+, 9+	Marshall	Medellin, Columbia South America			108	G, V	3
223	18.4	0.525	139 88S 89S 89S	My 26 19 +4.4	3+, 20+	Marshall	Medellin, Columbia South America			108	G, V	3
224	10.3	0.331	38 29R	Jy 24 23 -4.2	3-, 15-	Foley, P. Cook, M. Cook, J. Price North, G.	Kent, Eng. Surrey, Eng. Surrey, Eng Surrey, Eng. Eng.	12L	S=II-III S=III S=II-III S=IV-V T=F	111 112	B, G, R	5 conf.
225	11.4	0.366	51 42R	Jy 24 23 -3.2	2+, 14+	Foley, P. Cook, M. Cook, J. Mosley Marshall	Kent, Eng. Surrey, Eng. Surrey, Eng Coventry, Eng. Surrey, Eng.	12L	S=III T=G S=III T=mod S=III-IV T=F S=IV T=VG	111	B, G	5 conf.
226	10.5	0.370	38 36R	Ag 23 15 -4.3	4, 15- sc-1	Louderback, D.	South Bend, WA USA	3R 150x		113	R, G, B	4 filters

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
227	08 22 83	0544-0548 0614-0633	Aristarchus Cobra Head Piton	47W 23N 48W 24N 2W 39N	Albedo 7-7.5 usually 8-8.5 diffused white patch, later spot. Second albedo measurement noted brightening then nearly extinction at S wall similar to changes seen on Eimmart before. Watched fluctuation compared to Cobra Head, they were similar but more pronounced at Aristarchus & more noticeably in blue than red, but did note some brightness in red too. Four timings of fluctuations: 7S on first two, 9-10s on last two which coincided with seeing measurements of blow-ups. Brightness > in blue than red. Noted that Cobra Head less bright than observed last year and dimmer at 2nd set of observations than first. Piton was still lighter in red than blue than normal & opposite to July measurements. (Fluctuating terrestrial atmosphere).	Ag 08 19 S 06 05	Ag 22 09	6123 5359 5359 6110	~1/3h
228	09 15 83	0520-0524	Eimmart	65E 24N	W wall unusually bright (8.3) which almost rivaled WEBS (of Aris?) at its brightest. It was normal on Sept 20 & 26.	S 06 05 O 04 11	S 18 17	6110 5403 5455 6028	4m
229	09 20 83	0508-0613	Aristarchus Herodotus Cobra Head	47W 23N 48W 22N 48W 24N	Purple around Aris. deepest in N & NW outside walls. No internal violet, glare, but central area very bright, but could not see c.p.. LTP albedo = 4.5, normally 3 (nimbus). Near big plain = 7. Seeing poor and chromatic aberration on limb, but not on interior. Chromatic aberration was violet and as vivid as ever seen at Aris. Violet on N rim of Herodotus and head of Cobra Head. It appeared dark blue in the blue filter, the surrounds remained gray. On the 26th the ring was still dark with faint violet - nearly normal. Spurious color on limb was violet. (LTP due to it, probably).	S 06 05 O 04 11	S 18 17	6110 5403 5412 6028	1h
230	10 19 83	2109-2236 2130-2340	Aristarchus	47W 23N	(North) Very bright, slight blue, no color elsewhere. (Foley) on alert, at 2208 CED showed extreme high albedo with blue-violet cast - stronger in inner W wall. Despite good seeing saw no detail in it.	O 04 11 N 01 03	O 16 08	6028 5411 5458 5937	2h
231	10 20 83	2340	Aristarchus Censorinus Menelaus Proclus	47W 23N 33E 1S 16E 16N 47E 16N	Aris. noted as > than usual & much > Censorinus, Menelaus & Proclus which came next in order. CED Aris. brightness more marked than usual. (Moore is a very good & experienced observer.)	O 04 11 N 01 03	O 16 08	6028 5411 5530 5937	
232	10 22 83	2300	Aristarchus	47W 23N	Very bright & difficult to see detail internally. CED noted excessive range (>5.0?). Some spurious color at limb.	O 04 11 N 01 03	O 16 08	6028 5411 5600 5937	

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
227	13.5	0.475	74 27R 26R 72R	Ag 23 15 -1.3	5, 21+ ms-1	Louderback, D.	South Bend, WA USA	3R 150x		113	D, G, V?	3
228	8.1	0.318	7 72R	S 22 07 -7.1	5-, 27- ms-0.4	Louderback, D.	South Bend, WA USA	8L 3R	S=P	114	B	3
229	13.2	0.495	67 19R 18R 18R	S 22 07 -2.0	4+, 28+ ms tail	Louderback, D.	South Bend, WA USA	3R 150x		114	V, B	3
230	13.3	0.554	69 22R	O 21 22 -2.0	3, 11+	North, G. Foley, P.	Bexhill on Sea, Eng. Kent, Eng.	- 12L	S=III S=II no spur. color	115	B, V, G?	5 conf
231	14.5	0.598	83 36R 116R 99R 130R	O 21 22 -0.9	2+, 10	Moore, P.	Sussex, Eng.	15L?	S=II	115	B	4
232	16.5	0.670	107 120S	O 21 22 +1.1	5, 23+	Amery	Reading Berkshire, Eng.		S=III-IV	115	B, G?	4

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
233	10 23-24 83	1850-0215 2330-0021 2056-2310 2035-2156 2000-2151 2000-2200 2050	Aristarchus	47W 23N	(Foley) 1900-2030 bright patch on & over wall > rest of crater:. Sporadic star-like glistening. Interior partly obscured. From 2030 effect slowly diminished, normal at 0130. Of 14 . observers, 9 sent in reports, 6 able to identify abnormal variable seeing encountered - from very good w/ no color to poor with much spurious color. In early stages effect so pronounced that even in poor seeing, easily. detected. (One of their best documented LTP's). It extended to rim and beyond from c.p.. All CED readings were very high. (Moore, Nicholson & Clarke) at 1911 with 5" reflector saw it abnormally bright - blob on E wall at 1914. Nicholson saw very bright star like point on E rim. c.p. not well defined as it usually is. All agreed on bright E wall. (Bartlett's EWBS?) In 15"L at 2243 still very bright. At 0107 used the blink - could see the bright blob in blue, less in red but no blink. Crater reverting to normal by 0115. (M. Cook) saw very large diffuse spot E of Aris. either on its E rim or wall, > in blue than red CED readings confirm brightness. (J. Cook) sketch indicates blob extension on E wall. CED readings high & gave wealth of detail in interior. (T. Cook) remarkable details. sketch showed extreme of blob on outer E wall. CED readings high. (North) saw a bright point on E wall & Wooller saw NW wall was dirty yellow. No color observed in or around Aris. (color opposite to expected on Fitton's hypothesis). (Mosley) saw whole crater bright. sketch showed extension of blob on E wall & much detail in interior. (Amery) saw it brilliant splash against dulled background in violet filter, especially in polarizing filter. CED + polarizer readings high, but not as high as previous night. (Mobberly) spurious color a total mess around Aris. & nothing abnormal seen. Photo at 2050 shows blob & entire detail. (Peters) checked Aris. with UV screen from 2015-2123 it was very bright but no variation between white & UV. Checked w/ blink - radial bands clear in white, < in blue (opposite to other observations this night).	O 04 11 N 01 03	O 16 08	6028 5411 5657 5937	4 1/2h
234	12 17 83	1725-1920	Aristarchus	47W 23N	Interior dull - bluish cast taken to be spurious, at 1920 at 240x looked pink but colorless at 120x. Struck him as odd.	N 26 02 D 22 18	D 11 01	5917 5411 5737 6006	2h
235	12 25 83	2330-2350	Aristarchus	47W 23N	Crater light rose color (chromatic aberration?)	D 22 18 Ja 19 22	Ja 07 20	6006	20m
236	12 28 83	0330-0500	Aristarchus	47W 23N	Some structure within shadow visible at rare moment. Internal brightness extends to E wall at 9 o'clock position. Not seen beyond rim. Less bright at 11 o'clock position.	D 22 18 Ja 19 22	Ja 07 20	6006	1 1/2h
237	01 08 84	1630-1840 1737	Aristarchus	47W 23N	(P. Moore) Earthshine at 1835, 60x, 1/2° field now seen easy, maria & Tycho seen but not Aris. very strange. (Foley) saw Aris as a soft blue patch. (North) saw it as brightest feature in Earthshine in interior & much of tail to Herodotus (conf of Foley? although earlier). .	D 22 18 Ja 19 22	Ja 07 20	6006	~2h
238	01 14 84	2000	Aristarchus	47W 23N	Emerging from terminator was < bright than normal. Could make no precise measurements.	D 22 18 Ja 19 22	Ja 07 20	6006	
239	01 15-16 84	2000? 2100-0300 2045-0125 2310-0015	Aristarchus	47W 23N	(P. Moore) saw W wall normal. (Foley) saw it as strongly colored & dull. (times did not coincide: Moore's UV intensity is low, Foley's is high). (Mosley) at 2210 brightening of outer E wall. At 0110-0125 interior had a faint yellow-green cast. (Cook) color confined to crater, green beyond E rim at 9 o'clock position. Orange interior. SE corner to floor blue/mauve beyond N rim NW/WSW. Foley said one would expect orange and blue/mauve to be spurious, but not green. (So many colors suggest chromatic aberration, but they should know.) .	D 22 18 Ja 19 22	Ja 07 20	6006	4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
						1,900 A.D.						
233	17.4	0.703	119 108S	O 21 22 +2.1	5, 24	Foley, P. Moore, P. Nicholson Cook, M, J, & T. North, G. Mosley Amery Mobberly, M. Peters	Kent, Eng Surrey, Eng Surrey, Eng. Surrey, Eng. Sussex, Eng. Covington, Eng. Berkshire, Eng. Suffolk, Eng. Kent, Eng	12L 5R, 15L 230-350x	S=II S=III S=III S=III-IV S=III-II S=IV-III S=III S=III-IV S=III-II	115 116	B, G, V	5 conf
234	13.2	0.812	66 19R	D 20 02 -2.4	2+, 9	Mosley	Covington, Eng.	120x 240x	S=III spurious color	117	V, R	3
235	21.5	0.117	167: 60:R	D 20 02 +5.9	3-, 12	Jean, P.	Outermont,Can.	4R?	S=G	118	R	0
236	23.7	0.195	193 34S	D 20 02 +8.1	3+, 23+	Mosley	Covington, Eng.		S=V-IV T=G	117	B, G?	3
237	5.5	0.603	60: 13:R	Ja 18 14 -9.9	2-, 6+	Moore, P. Foley, P. North, G.	Sussex, Eng. Kent, Eng. Sussex, Eng.	15L? 60x 12L?	S=III - S=IV-V	117 - 118	B, V, R - D	0
238	11.6:	0.819	42: -5:R	Ja 18 14 -3.8	3-, 12+	Moore, P.	Sussex, Eng.			117	D	3
239	12.8	0.862	54 7-10R	Ja 18 14 -2.6	3, 12	Moore, P. Foley, P. Mosley Cook	Sussex, Eng. Kent, Eng. Covington, Eng. Surrey, Eng.	15L? 12L	- - II, G III, G	117 118	B, V, R - D	0

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
240	02 12-13 84	0140-0400 2058 2325-0220	Plato Moltke	9W 51N 35E 4N	(Marshall) at 1st no craterlets seen even though Moon is high in sky and should have been seen. At 0145 NW corner red, which no other craters showed Surrounding wall seemed too bright. CED gave high readings and could not focus. 0200-0250 variability of craterlets. At 0348 c.c > before and c doublet had brightened but s was invisible. (Marshall is a very experienced observer, especially with Plato.) Moltke was very bright & indistinct violet hue could not be focused. Had never seen it before like that. (T. Cook) made photodiode scan of Plato. Values of NW wall > bright area on W wall - conf. Marshall. (Mosely) saw a darkened area on Plato's floor adjacent to S wall from position 11-1 o'clock. Prominent white spot on floor. c.c. seen but held with difficulty in good condition. (Doesn't mention NW & W wall brightness seen by Cook & Marshall earlier).	Ja 19 22 F 17 09	F 04 09		2 1/2h 3 1/2h
241	02 14-15 84	2135 2154-2158 2158 2210 2230-0045	Plato Pico	9W 51N 9W 46N	(Moore) Plato darker than mare. No detail on floor & E wall ill-defined hazy & obscured. At 2340 still some dimming of NE wall, no detail on floor not as hazy as before. (Cook) E floor close to wall - misty, no details in floor. (Amery) All parts of wall sharp & distinct but slight darkening in NW & slight obscuration. E wall quite distinct. (Mosely) c.c. well seen. From position 8 o'clock - 6 o'clock difficult to define. (This tendency has been noted such previously at this colong says Foley. Streak ray across floor of Plato to Pico. (North) filter reading obtained. (Moore) Thought something odd about Pico - very bright and a good impression of a crater.	Ja 19 22 F 17 09	F 04 09		2 1/2h 3 1/2h
242	02 17-18 84	1945-2001 2000-2031 2110-2220 0505-0630 0038-0100	Reinhold Aristarchus	23W 3N 47W 23N	(Madej) Reinhold blood red spot on N terraces. (at base of inner wall is a s.c. on the last of a crater chain? or ridge descending from top to floor.) Color in Aris. alerted network. (Mosely) at 2115 Aris. was bright and ill-defined at first normal spurious color (red to S blue to N) replaced by violet. At 2130 T=F central area bluish, W wall creamy white. N & S walls brilliant white. 2200-2220 seeing improved, crater unusual - center area violet, W wall duller, off-white. At 0535 difficult to define. (Cook) Four bands seen in good seeing. N rim fuzzy < E wall - hazy. (Moore) crater normal at 0400 (later than others)	F 17 09 Mr 16 21	Mr 02 11		1/4h 1h 1 1/2h
243	06 05 84	2000?	Proclus	46E 16N	Unusual darkening of floor coupled with irregular shape.	My 12 03 Je 07 11	My 24 01		
244	06 09 84	0455-0514	E. of Kies	22W 27S	In dark zone a few miles E of Kies, a bright point. Foley comments at the position on the drawing there appears no feature of adequate elevation to give such an effect, though there are some domes there. (LOIV 125-1shows a white patch there lying alongside a line of domes or ridge. Kies is a ghost crater, a broken crest with a partial narrow ejecta blanket - maybe a dike?)	Je 07 11 Jy 02 03	Je 20 20		20m
245	07 03 84	0555-0607	E. of Theophilus	30:E 11S	Possible obscuration E of Theophilus' crater.	Jy 02 23 Jy 30 12	Jy 18 14		15m
246	07 04 84	2205 2208-2309 2234-2240	W of Theophilus Censorinus Toricelli B Proclus	22:E 11S 33E 1S 28E 4S 46E 16N	(Richardson) Mountain peak W of Theophilus - deep blue color not seen elsewhere. Alerted Foley saw dome E of Kant? as blue - no color elsewhere. conf? (could be same area and nearly same time. see LOIV 84-1) (Foley) Censorinus dull CED 58% of normal other monitoring points normal. Toricelli B much lower albedo than usual & remained so through lunation. (J. Cook) Cens. quite dull, barely above background. Proclus variable. (M. Cook) Cens. extremely dull compared to Proclus. Spurious red, generally. conf.	Jy 02 23 Jy 30 12	Jy 18 14		~1h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
240	10.1 10.8- 11.1	0.814 0.825	25 16R-28R 60R	F 17 01 -4.9 -4.2 -3.9	5+, 20 sc sc+0.3 ms	Marshall Cook Mosley	South America Surrey, Eng Covington, Eng.		S=III-II no spur. S=II-III	118 123	B, G R, D	5 3
241	12.8	0.909	71 62R 62R	F 17 01 -2.2	5-, 26- ms	Moore, P. Cook, M. Amery Mosley North, G. Foley, P.	Sussex, Eng Surrey, Eng. Berkshire, Eng. Kent, Eng. Sussex, Eng. Kent, Eng.	15L? - - - 12L 12L	S=III IV, P II-I, 3/5 III-II, G-P II, G	118	G, D B	5 conf.
242	15.8- 16.2	0.018- 0.028	101 102S 126S	F 17 01 +0.8 +1.2	3+, 15+	Madej, P. Mosley Cook, T. Moore, P.	Eng. Covington, Eng Surrey, Eng. Sussex, Eng.	50x	S=III-IV S=III	118	V, R, B G	3 conf.
243	6.1	0.936	350: 36:R	Je 13 15 -7.8:	3, 17+:	Marshall	Covington, Eng.			119 120	D	3
244	9.5	0.067	31 9R	Je 13 15 -4.4	4:, 20+:	Jean, P.	Outremont, Canada			121	B	3
245	4.2	0.010	326 4R	Jy 13 02 -9.9	2:, 10+:	Jean, P.	Outremont, Canada		S=II-IV	122	G	3
246	5.8	0.069	346 8:R 19R 14R 32R	Jy 13 02 -8.2	3, 13:	Richardson - Foley, P. Cook, J. Cook, M.	Swinton, Yorkshire, Eng. Kent, Eng Surrey, Eng. Surrey, Eng.	- - 12L	S=VE S=II	122	G	4 conf.

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
247	07 05 84	0000-0125 2105-2135	Censorinus Proclus	33E 1S 46E 16N	(Marshall) much < Proclus. Though Censorinus so dull, region easier to focus. CED readings confirm dullness. (T. Cook) used photodiode showed 10% increase in 20m. photodiode yet needs calibration. Proclus at 2117 > Censorinus & variable readings. conf. for Censorinus. Proclus was stable. (M. Cook) Proclus > Censorinus, latter at which > than last night. conf.	Jy 02 23 Jy 30 12	Jy 18 14		2/3day
248	07 06 84	2029-2045 2005-2015 2250 2308 2119-2137 2155-2200	Proclus	46E 16N	(Madej) at 2029 light green spot in center, no color elsewhere. Grew lighter at 2043 & ceased by 2045. Alerted (Foley) sketched it at 2010. Noticed small extending of darkening in SE floor, which it did not have 2h earlier. More fine detail on floor than before. Normal by 2250. (Foley) glare reduced visibility 2210-2248 confirmed by CED readings. (Amery) at 2215 discrete dark spot in SE. darkening in sketch shows sizable area. (Mobberly) sketched region, no detail on floor but general color same as mare. Some conf. .	Jy 02 23 Jy 30 12	Jy 18 14		3h
249	07 08 84	2010-2205	Proclus	46E 16N	Floor marginally darker than usual, seeing not good.	Jy 02 23 Jy 30 12	Jy 18 14		25m
250	09 30 84	1732-1800 1803-1845 1830-1840	Aristarchus	47W 23N	(Madej) Twilight Earthshine at 1732, 83x light-darker blue by 1800. Looked like a star of mag. 3-4 with no variations. Spot moved slightly from side to side, not correlated with alignment or optical. Luminescence may have expanded and contracted, but not sure. Other regions in Earthshine not seen. (Mobberly) saw Earthshine with naked eye. Aris seen before clouds came. Earthshine > normal T=E. (Foley) took CED readings which confirm the brilliance of it. No other features could be measured in Earthshine.	S 25 03 O 23 14	O 08 05		~1/h ~3/4h 10m
251	11 05 84	1800	Plato	9W 51N	Absent was normal brightening on floor adjacent to S most craterlet.	O 23 14 N 20 21	N 04 23		
252	11 10 84	1915-1950	Aristarchus	47W 23N	From c.p. to floor & over E rim unusual appearance. Eight bands seen, two on E wall of c.p. strongest, surrounding collar gray increasing intensity outward. Band at 2 o'clock position very dark. Bright spot on W wall at 4 o'clock position. Sketch shows bands on either side with bright patch.	O 23 14 N 20 21	N 04 23		1/2h
253	11 11 84	2100?	Plato	9W 51N	(Similar to Nov 5) normal brightness on floor absent to most Southern-most craterlet.	O 23 14 N 20 21	N 04 23		
254	11 28 84	1730-1805	Hubble	85E 22N	Short term creamy white oval patch 2x> than surrounds. Size not estimated because of foreshortening.	N 20 21 D 18 10	D 02 15		1/2h
255	12 01 84	2000?	Autolycus Aristillus	2E 31N 2E 34N	Detail sketch of each. Much detail on floor of Aristillus, none on Autolycus. Details usually seen at this phase according to Foley.	N 20 21 D 18 10	D 02 15		

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
247	5.9-6.7	0.073-0.101	347-357 20-30R 43R	Jy 13 02 -7.3 to -8.1	3, 12:	Marshall Cook, T. Cook, M. Foley, P.	Medellin, Columbia Surrey, Eng. Surrey, Eng. Kent, Eng.	- - - 12L	S=III S=II-III S=IV	122	D	3 conf.
248	7.7	0.138	9 55R	Jy 13 02 -6.3	3, 12:	Madej, P. Foley, P. Amery Cook, M. Cook, J. Mobberly, M.	York, Eng. Kent, Eng. Reading, Eng. Surrey, Eng. Surrey, Eng. Suffolk, Eng.	- 12L	S=I S=III S=IV - S=III	122	V, D	3 conf.
249	9.8	0.214	34 80R	Jy 13 02 -4.2	2, 11+	Moore, P.	Surrey, Eng.		S=IV-V	122	D	1
250	5.5	0.196	336 -71R	O 10 00 -9.3	1+, 5	Madej, P. - - - Foley, P. - Mobberly, M.	Huddersfield, York, Eng. - - Kent, Eng. - Sufflok, Eng	83x - - - 12L - 1R, 14L	S=I-II, T= V,G no spur color S=II T=E T=E	123	B, V	0 conf.
251	12.2:	0.465:	57: 48:R	N 08 18 -3.0:	4, 21+	Marshall	Eng.			124	D, G	2
252	17.3	0.645	119 108S	N 08 18 +2.2	5, 25+	Mosley	Coventry, Eng.		altitude low	124 125	D, G?	2
253	18.3:	0679:	131: 58:S	N 08 18 +3.2	5,26	Marshall	Eng.			124	D	2
254	5.7	0.286	334 59R	D 08 11 -9.8	2+, 10	Madej, P.	Huddersfield, York, Eng.			124 125	B	3
255	8.8:	0.399:	16: 18:R 18:R	D 08 11 -6.7:	4,20	A junior member of British Astronomical Society	Eng.			126	G?	2

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
256	12 07 84	1930 2020-2320 2156-2302 2150-2300	Aristarchus Herodotus Schröter's Valley	47W 23N 48W 22N 48W 24N	(Mobberly) Aris. 2 patches on E wall either side of bright area (contrast?). Band from central 10 mi wide area dark on E wall. (Foley) Aris. dull except band (described by Mobberly though ~1h later) Dark areas strong green murky, bright in green yellow & blue, dark in orange & red filters. Color gone at 2238. Crater > at 2242-2320. (Cook) definite brightness bulge on E Aris. Data indicate bright band seen by all > in red than IR. Conf. T. Cook's corrected albedos say constant level over crater, but 2 other points seen. Bright patch at Cobra's Head & a point between midway along E wall of Aris. & passes Herodotus. Filters W29, W87 & combined W29-W87. In W29 albedo dips at 2220 at Schröter's Valley and rose in bright ray. Both to normal at 2230. B & D showed a lot of scatter. .	N 20 21 D 18 10	D 02 15		3 1/2h
257	12 26 84	0030-0050	Cape Agarum Aristarchus Schröter's Valley Copernicus Menelaus Manilius	66E 14N 47W 23N 48W 24N 20W 9N 16E 16N 9E 14N 18:E 2S	All craters and Tycho ray were glowing brightly in blue. Bright flash in Delambre region (2 small craters) in one of the glowing patches.	D 18 10 Ja 12 03	D 30 12		1 1/3h
258	12 31 84	1955-2040	near Delambre Aristarchus	47W 23N	Crater in dark, small bright spot, blue almost UV = star of mag 2-3. Flashed at interval of 30s with color change from UV to blue. Terminator close (28°). Alerted network. Mobberly & J. Cook didn't see much, though J. Cook may have seen something, but elsewhere. (Confirmed??). .	D 18 10 Ja 12 03	D 30 12		3/4h
259	02 04 85	2140-2355 2330-2335	Aristarchus	47W 23N	(Amery) White thin brilliant rim c.p. & bands, well seen "tongue" or white flare over ESE wall opposite to position of bands. (Foley says recorded before but is not usual.) High readings in CED. (M. Cook) readings at 2335 > her scale of 4.9+. Report reversal of spur. color with orange to N & blue to S. No other observer reports spurious color. (must have been a very local effect, but not temperature inversion as colors are opposite.) Brightness confirmed. Mosley suspected albedo change in inner E wall at pos. 8 o'clock.	Ja 12 03 F 08 04	Ja 27 10	5920 5412 5906 6012	1 1/3h
260	03 01 85	2000?	Toricelli B	29E 3S	(Moseley) Violet band around crater (M. Cook) saw a dusky band on an earlier photo. Moseley's band tapered to apex near center of crater - merged into collar to E exterior. No terminator shadow in crater.	F 08 04 Mr 08 08	F 24 04	6012 5405 5633: 6100	
261	03 02 85	2000?	Censorinus Proclus	33E 1S 46E 16N	(Marshall) very low CED readings compared to Proclus. (normal)	F 08 04 Mr 08 08	F 24 04	6012 5405 5627: 6100	
262	03 03 85	2000?	Censorinus Proclus	33E 1S 46E 16N	Got an odd comparison between blue & white light CED readings, compared to Proclus. (Continuation of the activity on 2nd?).	F 08 04 Mr 08 08	F 24 04	6012 5405 5823 6100	
263	04 23 85	2000?	Bullialdus, between Aris. & Sinus Iridum	22W 21S 40:W 30:N	Saw two massive glows in Earthshine. One was W of Bullialdus & other between Aris. & Sinus Iridum.	Ap 05 18 My 04 05	Ap 19 17	6125 5356 5542: 6118	

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
256	14.9	0.616	88 41R 40R 40R	D 08 11 + to -0.6	4-, 27:	Mobberly, M. - Foley, P. Cook, T.	St. Edmunds, Eng. - Kent, Eng. Surrey, Eng.	Spur color - 12L no sp col CED (12L?)	S=IV-V T=G S=II-III T=E S=III-IV T=mod.	125 127	B, V, D	5 photos
257	3.5	0.389	308 14R -99R -100R -72R -36R -43R -34R	Ja 07 02 -12.1	3+, 15	Darling, D.	Sun Prairie, WI, USA	12.5L, 61x	S=3/10	30	B, V	0
258	9.3	0.543	19 -28R	Ja 07 02 -6.3	5, 29+	Madej, P. Mobberly, M. Cook, J.	Eng. St. Edmonds, Eng. Surrey, Eng.		S=I-II T=F	125	V, B	4
259	14.8	0.878	85 38R	F 05 15 -0.7	1, 6 sc-0.2	Amery Cook, M. Moseley	Reading, Eng. Surrey, Eng. Eng.		S=II no color no spur color	128 - 126	B, R, V	4 conf.
260	10.0:	0.769:	29: 0:R	Mr 07 02 -5.3:	6, 20: ms end	Moseley Cook, M.	Eng. Surrey, Eng.			126 127	D, V	3
261	12.0:	0.804:	53: 86:R	Mr 07 02 -4.3:	4+, 29:	Marshall, K.	Medelline, Colombia South America			126	D, V	3
262	13.0:	0.840:	65: 98:R	Mr 07 02 -3.3:	5, 20:	Cook, M.	Surrey, Eng.			126	D, V	3
263	3.6:	0.635:	314: -68:R -86:R	My 04 20 -11.0	4, 24:	Smith	Eng.			127	B	1

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
264	04 25 85	2134 2145	Toricelli B Aristarchus	29E 3S 47W 23N	(M. Cook) Probable obscuration of Toricelli B - darkish, blue splodge filled area where crater should be. Shadow seen through the splodge to the E. floor but no rim visible. Estimated shadow filled 1/3 of crater. No other features visible in or around crater, but mountain to SSW was clearly seen and no other craters displayed effect. (Miles) saw Aris within Earthshine. (Foley) 1h earlier than Miles found it bright. Checked it after alert & found it had dulled & was blue with very bright patch W of crater, on Aris. ψ. At 2145 saw a series of 6 star like flashes on floor. They repeated a few minutes later & again at 2204. At 2145 the bright patch had gone. Smith, too had seen the flashes and another glow more N than Foley's. Miles conf. Smith's glow N of Aris.	Ap 05 18 My 04 05	Ap 19 17	6125 5356 5544 6118	~1/2h
265	04 26 85	0000? 0220 2200	Aristarchus Campanus Hevelius Hecataeus	47W 23N 28W 28S 68W 3N 79E 22S	(Johnson) Photo of Moon showed Aris. as a red spot similar to one obtained on 4/21/88. Frame #15 with 3 exp. on it shows a dim star like point near Campanus on 1st exposure. 2nd shows it a little E on Earth lighted part & 3rd shows it off SE limb. 20m later took 2 exp. frame 18 was a double, the 2nd exp. shows an object farther from the limb but 1st exp. doesn't show it. The two high power exp. don't show it. (I could not see spots he described on the slides, but saw spots (defects?) on the 8s or 12s exp. near Hevelius & on the 20s exp near Hecataeus only. (BAA members observed star like flashes a few hours earlier - near Aris.) (Madej) saw green glow in Aris. in two places in two eyepieces. .	Ap 05 18 My 04 05	Ap 19 17	6125 5356 5513: 6118 5551	4h?
266	04 26 85	2000	Aristarchus	47W 23N	In Earthshine seemed to glow with a faint luminescence in green color moving from side to side. A bright blue spot, centrally disposed was seen. Green was seen in two different eyepieces.	Ap 05 18 My 04 05	Ap 19 17	6125 5356 5624 6118	
267	04 27 85	2200?	Toricelli B Aristarchus Limb	29E 3S 47W 23N	All observers reported much shadow in crater despite high sun (local noon). photo by Mobberly. Mobberly & Foley report Aris. very conspicuous in Earthshine. Little detail seen in dark except prominent brightness on W limb. Confirm moving side to side. Saw bright blue spot in center. .	Ap 05 18 My 04 05	Ap 19 17	6125 5356 5709 6118	
268	05 02 85	1948-2000 2020 2038	Aristarchus	47W 23N	(Jean) Intermittent rose hue on it. (In correspondence with her many years ago I don't think she understands chromatic aberration & has a 4" refractor.) British observers at this time saw phenomenon but only one saw color - blue. Conf. of activity, but not in color. (Miles) saw S wall indistinct with rim indistinguishable. (Foley) S wall was featureless and two craterlets located high on inner wall at 1 o'clock position were obscured, yet immediately N of them was fine detail. Also last remnant of shadow on E wall was opaque. Crater was slate/blue interior & dull. By 2028 it brightened by 0.4 on the CED & craterlets plainly visible. (J. Cook) at 2020 suspected indistinctness over S rim and hazy interior shadow. (M. Cook) noted break in clarity in break on S wall. .	Ap 05 18 My 04 05	Ap 19 17	6125 5356 6058 6118	~20m
269	05 03 85	1959: 2330	Aristarchus	47W 23N	Both observers saw unusual bright patch on exterior E wall at 9 o'clock position, brilliant and extensive.	Ap 05 18 My 04 05	Ap 19 17	6125 5356 6118: 6118	3 1/2h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
						1,900 A.D.						
264	5.7	0.709	340 9R -67R	My 04 20 -8.9	5-, 25+: sc-1	Cook, M. Miles, H. Foley, P. Smith	Surrey, Eng. Eng. Kent, Eng. Eng.	- - 12L		129 127	G, B, V	3 conf.
265	5.8: 5.9	0.705 0.716	337: -70R -51R 56R	My 04 20 -8.7	4+, 26 sc-0.6	Johnson, G. Madej, P.	Swanton, MD USA Eng.	2R f12 prime focus photos		130a,b 129	B, R	2 photos
266	6.7	0.744	352 55R	My 04 20 -7.9	4+, 26	Madej, P.	Eng.			129	V, B	2
267	6.7:	0.779	5 34R -42R -85R	My 04 20 -6.9	8, 43: ms	Mobberly, M. Foley, P.	Suffolk, Eng Kent, Eng.	- 12L		129 135	D	5 conf.
268	12.6	0.951	52 5R	My 04 20 -2.0	7, 34: ms	Jean, P Miles, H. Foley, P. Cook, J. & M.	Outremont, Canada Eng. Kent, Eng. Surrey, Eng.	4R?		129 135	R G, V, D	5 conf.
269	13.6	0.986	64 17R	My 04 20 -1.0	3, 15:	Cook, M. Mobberly, M.	Surrey, Eng. Suffolk, Eng.			131	B	5 conf.

1	2	3	4	5	6	7	8	9	10
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	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
270	05 04-05 85	1952-0030?	Alphonsus Endymion Atlas M.Tranquillitatis Aristarchus Herodotus Copernicus	4W 13S 57E 53N 44E 47N 30:E 7:N 47W 23N 48W 22N 20W 9N	During lunar eclipse, abnormal luminosities in these. Flash in Copernicus at 1952. Other flashes at Endymion, Atlas and M. Tranquillitatis	My 04 05 Je 01 13	My 17 00	6118 5400 6114 6043	3/4h
271	05 05 85	2325-2358	Aristarchus	47W 23N	Yellowish cast on S wall. No color elsewhere.	My 04 05 Je 01 13	My 17 00	6118 5400 6049 6043	~1/2h
272	05 09 85	2250-0310	Aristarchus Toricelli B	47W 23N 29E 3S	Aris. entire crater vivid violet, no color elsewhere in lighted regions. Torr B brilliant in Earthshine with high level of blueness.	My 04 05 Je 01 13	My 17 00	6118 5400 5813 6043	~1/3h
273	05 23 85	1741	Between Proclus C & unnamed crater in Palus Sommii	41E 13N	Photographed (on frame 4) a flash on terminator near it, of not >16s. (max time between photos) areas calculated as 530km. Albedo was 0.85 that of lunar limb and seemed above lunar surface. Densitometry shown in graph. Authors think it was a piezoelectric phenomenon from release of gas and heat form the sun. It was in an area where Apollo mission detected Radon and Polonium. Only one photo showed spot out of seven exposures. James says that in June 1990 Sky & Telescope that an artificial satellite was in line-of-sight right then & close to the position of the flash. Motion would explain elongation of spot on an 16s exposure and rotating satellites sometimes produce pinpoint flashes.There are features in the area, one with s.c.. .	My 04 05 Je 01 13	My 17 00	6118 5400 5556 6043	secs
274	05 24 85	2101-2240 2122-2230	Aristarchus	47W 23N	(Foley) In Earthshine it was brilliant with strong intermittent red/rose color & floor glowing. Detail seen in relief. Albedo variable. (Mobberly) whole floor glowing. Photos of Earthshine remarkably good.	My 04 05 Je 01 13	My 17 00	6118 5400 5632 6043	1 1/2h
275	05 26 85	2127	Abulfeda	14E 14S	Had a bright spot at a point still in dark on E wall. All observers agreed. Looking at professional photos couldn't agree where it was, as there seems to be no prominence there.	My 04 05 Je 01 13	My 17 00	6118 5400 6043	
276	05 30 85	2010-2236 2038-2044 2105 2016-2354	Aristarchus	47W 23N	Moore, P. & Doherty independently saw unusual brightness on N wall between 2020 & 2036. Area on N wall was pink/red and lessened ~2038-2044. M. Cook noted N rim as red/purple. After 50m it had gone. She confirmed a V-notch in shadow NW of crater - was larger than usual. North saw pink tinge on N wall - later a ruby red along shadow on NW wall. Gone in 50m. (conf.) (Probably not Fitton effect as color opposite usual location. This is in area of circle of domes on N floor of Aris. I think are a volcanic ring dike?) Mosely confirmed color, no spurious color. . Hather - N rim bluish.	My 04 05 Je 01 13	My 17 00	6118 5400 6021 6043	~1/3h
277	05 31 85	2023-2218 2135-2146 2200?	Toricelli B	29E 3S	(North) at 2023 crater very bright and mauvish. Color gone at 2029. Varied in albedo 2s then image blurred at 5-10s (atm.) at 2034 became pink. (Mobberly) at 2135 no shadow but white patch with a bright center and a flash from there. (Foley) at 2030 in superb seeing, no color and albedo varying, bright splotch on floor, variable from 2215-2225 then expanded over rim. (flash seen by 2 observers at same time and place. The observers were separated by 70 miles. Flash appeared to be ~mag 8. conf. .	My 04 05 Je 01 13	My 17 00	6118 5400 6029 6043	~2h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
270	14.6	0.025	89 85R 146R 133R 119:R 42R 41R 69R	My 04 20 +0.4	3+, 19:	Kurchin, V. V.	Volgograd, Russia	2L 88x		2	B	2
271	15.8	0.064	103 124S	My 04 20 +1.2	3, 14	Moore, P.	Sussex, Eng.?			129	R	3
272	18.9	0.173	141 86S 10S	My 04 20 +4.3	3, 15:	Foley, P.	Kent, Eng.			129	B, V	2
273	3.8	0.689	318 0R	Je 03 04 -10.5	2+, 9	Kolovos, G.	nr Bafra Serrain, Greece	4R photos	S=E	131 132	B, V	5 if lunar photos
274	4.9	0.728	332 -75R	Je 03 04 -9.4	3-, 10:	Foley, P. Mobberly, M.	Kent, Eng. Suffolk, Eng.	12L		133	B, R	5 conf., photos
275	6.9	0.799	358 12R	Je 03 04 -7.4	3+, 17+	North, G. Cook, M., J. & T. Mobberly, M. Foley, P.	Sussex, Eng. Surrey Eng. Sussex, Eng. Kent, Eng.	- - - 12L		133	B	5 photo
276	10.9	0.940	47 0R	Je 03 04 -3.4	2, 4	Moore, P. Doherty Foley, P. Cook, M. North, G. Madej, P. Hather Miles, H.	Sussex, Eng. Sussex, Eng. Kent, Eng. Surrey, Eng. Sussex, Eng. Yorkshire, Eng. Yorkshire, Eng. Cornwall, Eng.?Scot?	15L 15L 12L 111, 233x 8L		133	R, B	5 conf.
277	12.0:	0.979:	60: 89R	Je 03 04 -2.3:	3, 11	North, G. Mobberly, M. Foley, P.	Sussex, Eng. Sufflok, Eng. Kent, Eng.	- - 12L	turbulent - S=E	134	B, R, V	5 conf.

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
278	06 29 85	2256	Toricelli B	29E 3S	Brightness = mountain to its SW, no color (Similar to Marshall's observation of July1). (crater is near Hypatia rille.)	Je 29 06 Jy 25 18	Jy 11 08	5956 5415 5955 5919	
279	07 01 85	0200-0300	Toricelli B	29E 3S	High albedo level , confirmed by CED readings, no color.	Je 29 06 Jy 25 18	Jy 11 08	5956 5415 5939 5919	1h
280	09 04 85	2215	M. Tranquillitatis	25E 1N	Bright flash, duration ~1s, dimension < 2 arc seconds, the limit of resolution	Ag 20 04 S 16 19	S 04 21	5941 5410 5411 6031	1s
281	12 25 85	0546-0602	Aristarchus Cobra Head Cape Agarum	47W 23N 48W 24N 65E 15N	Aris. S wall creamy deep yellow. Strong fluorescent blue on W wall of Cobra Head-SV resembled violet glare on Aris. sometimes. Violet on ground between Aris. & Cobra Head. Seeing poor. Brightening of spot near Point C occur 15-20s apart - lasts 1/2s (seeing variations = 8.5s so not due to Earth's atmosphere. sketch. A 0.2 step drop in albedo on point A (twin spots. (point C had declined 0.6 step. Rest of crater stable. No changes in Cape Agarum on 12/26/85 at 0500.	D 11 01 Ja 08 07	D 23 07		1/4h
282	02 26 86	0500	Funerius	66E 37S	Photo shows two bands above limb looking like ejecta plumes. (probably a flare from eyepiece, especially if a Barlow.)	F 05.1: Mr 01.9:	F 17.5:	5927 5414 5844 5923	
283	04 26 86	2100?	Aristarchus	47W 23N	Crater still brighter in moments of better seeing. Could make out rim as a complete circle. Foley says it indicated a high level of high interior illumination.	Ap 25 18 My 24 03	My 10 23	6101 5358 6048: 6124	
284	05 05 86	2145	Plato	9W 51N	Featureless in calmer moments Spectra showed no abnormalities.	Ap 25 18 My 24 03	My 10 23	6101 5358 5524 6124	
285	05 18 86	2045-2225	Plato	9W 51N	c.c. easy object as a white splodge. On video found with difficulty. Video is more sensitive at IR by Foley. wonders if it was due to reflected light stronger in UV?	Ap 25 18 My 24 03	My 10 23	6101 5358 5757 6124	>2.5h
286	06 04 86	0915-0933	Reiner	55W 7N	Black spot > shadow ~60 mi W of terminator. Much darker than Earthshine. At 0925 could start to see silvery filaments in the patch. Patch faded from 0925-0933 & disappeared. Patch covered whole crater & surrounds 40-50 sq. miles at largest point. This was his first dark event, 9 other events were bright and misty.	My 24 03 Je 21 13	Je 07 02	6124 5356 5418 6116	1/3h
287	10 11 86	0456-0512	Piton	2W 39N	Change in albedo of point D from first observation about 0456-0459. Affected whole E flank. Bright then dim. Brightness > in blue than red. Variable from 8-11s. (probably atmospheric as blow-ups were 10s & altitude low). Albedo stabilized at 0512, then resumed variations until end of observation. Aristillus did not change, when brightness of Piton held for 5s. No changes on it next night (normal on 12th)	O 07 10 N 04 02	O 23 06	5942 5408 5853 6000	1/4h
288	10 20 86	0330	Aristarchus	47W 23N	Color on crater rim. Thin red line on S rim, blue on whole inner N wall - blue was washed-out gun metal color. Another observer saw it & agreed with Slager. conf. sketch (fits Fitton's hypothesis).	O 07 10 N 04 02	O 23 06	5942 5408 5446 6036	

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
278	11.4	0.020	54 83R	Jy 02 12 -2.6	4, 23+	Cook, M.	Surrey, Eng.		S=P	134	B	3
279	12.6	0.065	68 97R	Jy 02 12 -1.4	5, 20	Marshall, K.	Medellin, Colombia			134	B	4 CED
280	18.5	0.501	157 +2S	Ag 30 09 +5.5	2, 5+	Arkhipov, A. V.	Russia	3L, 150x		2	B	3
281	13.2	0.501	67 20R 19R 132R	D 27 08 -2.1	4, 12-:	Louderback, D.	South Bend, WA USA	8L	S=P 1.5-2/10	135	R, V, D	4
282	17.2	0.847	114 0S	F 24.9: +1.2:	6-, 30 ms	Kohman, T.	Pittsburgh, PA USA	3.5L Questar 1/4s exp.		136	B	0 photo
283	17.5:	0.031:	121: 106S	Ap 24 12: +2.3:	3, 14	Miles, H.	Cornwall, Eng? Scot?			137	B	3
284	26.6	0.359	232 +43S	Ap 24 13 +11.4	5+, 22+ ms	North, G.	Sussex, Eng	30L coudé wide focus	S=IV-V	138	G	1 spect.
285	10.0	0.813	29 20R	My 23 21 -5.0	2+, 11	Mobberly, M.	Sussex, Eng,		S=II-IV	138	B	1 video
286	26.5	0.401	230 5S	My 23 21 +11.6	3-, 16-	Darling, D.	Sun Prairie, WI USA	12.5L 78x, 174x & 155x	S=6/10	30a 139a, b	D, G	4
287	7.3	0.133	4 2R	O 17 19 -4.4	2-, 7+	Louderback, D.	South Bend, WA USA	4R 95x	S=1-2-1 T=4	141	D, B, V	1
288	16.3	0.458	113 114S	O 17 19 -2.3	4-, 23-	Slager	Grand Rapids, MI USA			142	R, V	1 conf

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
289	11 09 86	2300	Unnamed ridge points toward Pico	5W 46N	Two bright points~100x (5 mag.) > anything else on the Moon. Alpine valley points to directly between the two points. Came from apparently featureless areas. Both points about the same size, but different shapes ~ width of alpine valley. Tried four powers of 49, 98, 116 & 305x. Points > at lower powers. Other specks of light in the darkness around the N point.	N 04 02 D 02 01	N 19 22	6036 5400 5745 6116	
290	12 13 86	2000?	Plato	9W 51N	Obscurations seen in NE part of crater. Seen again 1/11/87. Mobberly submitted CCD video sequence on tape, not easily seen on it because video is more sensitive to IR.	D 02 11 D 30 23	D 17 05	6116 5357 5427: 6129	
291	01 07 87	1910-2030	W Limb in Earthshine	90W	(Miles) At positions 4 o'clock & 5:30 o'clock saw two bright patches. First one defined by the dark limb & brightness faded rapidly inward from it. Centered at 60° along limb from N pole. sketch. ~10-15° along it. Second one at 0530, similar but smaller & less bright just W of N pole. (Foley) also saw the patches. One was close to the rising terminator and must have been from unusual illumination.	D 20 23 Ja 28 11	Ja 13 05	6129 5357 6104	1 1/3h
292	01 11 87	1815-2300 2155-2245 2000-2045	Plato Aristarchus Archimedes Autolycus Aristillus	9W 51N 47W 23N 5W 30N 2E 31N 2E 34N	(P. Moore) Floor of Plato much darker than M. Imbrium and decided loss of detail over NE wall extending over a localized part of floor. Everywhere else definition was normal. Loss of detail less at 2300 & Plato appears normal. (M. Cook) at 2155 (alerted) saw obscuration region but it was a lot narrower than last month. She thought she was observing at tail end of the phenomenon as it was variable,. Gradually dimming from 2155-2245 Archimedes, Autolycus & Aristillus normal. (North) seeing was too poor & did not see much. (Davies) saw slight obscuration in NE corner at 200x, it was a gray misty feature. Obscuration easily seen. (Grego) sketched Aristarchus showing 2 luminous patches on outer W wall were circular and < bright than inner wall, but > outer wall.	D 20 23 Ja 28 11	Ja 13 05	6129 5357 6104	4 3/4h
293	02 01 87	1800?	Copernicus Aristarchus Tycho Abulfeda?	20W 9N 47W 23N 11W 42S 14E 14S	Photo of Moon showing Earthshine very well. Cop. & Aries > in it than in Horne's picture of 4/29/88 but seas darker, also everything is sharper than 1988 photo. Shows Jupiter also with 3 of its moons. Shows Tycho & Abulfeda as quite bright.	Ja 28 11 F 25 16	F 9 16	6104 5403 5841: 6016	
294	02 02 87	0015	Manilius Menelaus Delambre Copernicus Tycho ray Aristarchus	7E 14N 16E 16N 17E 2S 20W 9N 25W 25S 47W 23N	Saw six features glowing sea-blue in darkness. Brightest was Aristarchus, 5-6mag, Manilius & Menelaus close in brightness. Copernicus, Delambre & Tycho ray looked like a glowing aurora streamer. (confirmed independently in photos for Cop. & Aris. by Ossola in Switzerland).	Ja 28 11 F 25 16	F 09 16	6104 5403 5824 6016	
295	02 03 87	0030	M. Crisium	60:E 15:N	>> bright light. Looked like a gigantic nuclear bomb explosion. Expanded and then dissipated. Located at center of M. Crisium near a raised crevice. Confirmed by father. Area ~1/8 size of mare at max. Yellow in color, flickered at rate of 1/10s. Edge of cloud looked rough, like debris being emitted. (It is prob a LTP as it did not move across the Moon, therefore not a terrestrial meteor or spacecraft. Probably an impact on Moon or, less likely, a volcanic eruption.	Ja 28 11 F 25 16	F 09 16	6104 5403 6016	

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
289	7.7	0.208	7 2R	N 16 12 -6.5	1+, 6+	Quinn	Glenview, IL USA	8L 49-305x		143	B	3
290	12.1	0.396:	62: 53:R	D 16 07 -2.5:	5, 18	Cook, M. North, G. Davies Mobberly, M.	Surrey, Eng. Sussex, Eng. Eng. Sussex, Eng.			144a 144b	G	5 conf.
291	7.7	0.274	10 -80R	Ja 15 02 -7.3	3-, 9	Miles, H. Foley, P.	Cornwall, Eng? Scot? Kent, Eng.			145	B	2 conf.
292	11.7	0.418	54 45R 7R 49R 56R 56R	Ja 15 02 -3.3	3-, 10+	Moore, P. Cook, M. North, G. Ramsay Davies Grego	Sussex, Eng. Surrey, Eng. Sussex, Eng. Edinbourgh, Scot. Swanson, Eng. Birmingham, Eng.	15L 12L - - 4L100, 200x 6L	S=III-IV S=III S=P S=P S=III S=III	144a 145	G, D, B	5 conf.
293	3.1:	0.149:	305: -75:R -102:R -65:R -41:R	F 13 21 -12.1:	3-, 14	Ossola	Muzzano, Switzerland	6R		146	B	2 photo
294	3.4	0.160	309	F 13 21 -11.8	2, 8+	Darling, D.	Sun Prairie, WI USA	12.5L 79x	S=E T=4	147	V, B	1
295	4.4	0.234	326 23R	F 13 21 -10.8	2-, 8	de Carlo, J.	Little Falls, NJ USA	4.5R 260x - 350x	S=VG	148	G,B	3 conf.

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
296	02 06 87	0335-0405	Piton	2W 29N	Mt. became > like a shimmering block of ice or a jewel in the sun. Phosphorescent glow like mother-of-pearl. Got still brighter. Mt. shape became fatter & blunter both N-S & E-W. Glow peaked after 15m & mother-of-pearl began to fade. Albedo < 8 or 9 and it was > feature at that time.	Ja 28 11 F 25 16	F 09 16	6104 5403 5508 6016	1/2h
297	02 10 87	2000?	Plato	9W 51N	NE ray distinct & also floor E of it, not indistinct as on Dec 13 & Jan 11, while March 10, 11 & 12 seen by Price, North, Peters, Foley & M. Cook where rim was clear & sharp.	Ja 28 11 F 25 16	F 09 16	6104 5403 5408: 6016	
298	03 03 87	1900-1930	Aristarchus Darney - Agatharchides	47W 23N 26W 14S 30:W 18:S	Earth lit bright & pink. Most large craters & features seen. Brilliant star like point seen in Aris. A similar spot < brilliant in Darney-Agatharchides region. Tests conducted, but spot persisted. Foley also saw Moon rising as pink, had never seen that color before.	F 25 16 Mr 24 19	Mr 09 11	6016 5411 5634 5926	1/2h
299	03 04 87	1903-1947	Aristarchus	47W 23N	At 1903 sky not yet dark, crater easily seen in Earthshine, exceptionally bright, seen even without blotting out lighted side. At 1910 still bright, faded at 1920. At 1947 Earthshine no longer visible. CED values < usual & interior blue/gray which in past which has been associated with lesser brightness.	F 25 16 Mr 24 19	Mr 09 11	6016 5411 5647 5926	3/4h
300	03 09 87	2000?	Pico	9W 46N	CCD video showed it with some puzzling appearances.	F 25 16 Mr 24 19	Mr 09 11	6016 5411 5411 5926	
301	03 13 87	0200-0300 2052	Aristarchus Pico	47W 23N 9W 46N	(De Groof) NW part of Aris. when Moon at alt +20°-+30°N saw a blood red shimmering filling the whole crater. (Mobberly) video shows variation in Aris. (Foley still has not reconciled video). (Hatfield) has film of it, not studied yet. At 2052 Mobberly obtained CCD video tape of Pico & Aris.. Pico varied in NE part of mt.. Aris. also gave a visual oddity in SE corner. CCD gives image in near IR, which at times can give varying light to the scene in integrated light. No anomalies on March 14th.	F 25 16 Mr 24 19	Mr 09 11	6016 5411 5508 5926	18h
302	06 04 87	0228-0336	Piton	2W 39N	Brightest feature on Moon, brightest he had ever seen it. Another person observing independently at this time remarked about brilliance. Did not see mother-of-pearl effect as was seen on Feb 6. Brilliance was dazzling & variations were shimmering giving a silvery or metallic sheen.	My 15 23 Je 13 01	My 31 20	6018 5404 5458 6102	8m
303	06 14 87	0443 0500-0630	Aristarchus Euler or Lambert?	47W 23N 29W 24N or 20W 26N	(Curtis) 3 mags < surrounds (moon red at moonrise). Aris. red & green rim and glow was opaque. Could not see interior. Alerted Jacobs & Manske. Jacobs thought it was chromatic aberration but 3 telescopes showed the same thing. Was not caused by low albedo as it wasn't in all craters. Sketch shows red on W rim, green on E rim. (Jacobs) in 3 telescopes saw Aris. as redder than rest of Moon. Color, size & shape changed as time passed (all were at an astronomical meeting). (Manske) saw both features as red & blue & obscured. Shape was amorphous. Phenomenon washed out as Moon altitude became higher. (Darling said it could have been a temperature inversion in weather conditions. (fits Fitton's hypothesis).	Je 13 01 Jy 11 10	Je 28 04	6102 5357 6043 6123	1 3/4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
296	7.5	0.305	359 3R	F 13 21 -7.7	3, 14-	Darling, D.	Sun Prairie, WI USA	12.5L 342x	S=E T=3-4	147	G, B	4
297	12.2:	0.472:	57: 48:R	F 13 21 -3.0:	3, 16	Cook, M. North, G. Davies	Surrey, Eng. Sussex, Eng. Eng.			144	B	5 conf.
298	3.8	0.225	312 -95R -68:R	Mr 15 13 -11.7	2+, 13	Miles, H.	Cornwall, Eng? Scot?	5R 30x		149	R, B	1
299	4.8	0.262	324 -83R	Mr 15 13 -10.7	4-, 18	Miles, H.	Cornwall, Eng? Scot?	5R 30x	S=clear	149	B, V	2
300	9.8:	0.446:	23: 15:R	Mr 15 13 -5.7:	4-, 15-	Mobberly, M.	Sussex, Eng.			149	B, G?	5 CED
301	13.2- 13.8	0.572	66 19R 66R - (later obs.)	Mr 15 13 -2.3	3, 16-	DeGroof Mobberly, M.	Belgium Sussex, Eng.	8L 150x video	S=clear S=VG	150a 150b	R, G G	5 conf.
302	7.6	0.682	359 -3R	Je 11 21 -7.7	2, 13	Darling, D. ?	Sun Prairie, WI USA		S=G T=4	151	B, G	5 conf.
303	17.7	0.042	120 105S 87S or 78S	Je 11 21 +2.5	3-, 12-	Curtis - Jacobs Manske, R.	Brooklyn, WI USA - Brooklyn, WI USA Brooklyn, WI USA	8L 80x - 17.7L 35x 2.4R 112x	S=VG T=5.5-6 S=G S=VG T=5.5	152	D, R, V	5 conf.

1	2	3	4	5	6	7	8	9	10
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	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
304	07 05 87	2345-2405	Copernicus	20W 9N	Object moved straight line as a black oval shape. Neighbors confirmed. Took 20m. Had 4-5 tentacles, saw its shadow on the Moon. Zigzagged, then landed in Copernicus, leaned on E wall. Rose repeatedly and went out from the limb. Saw a similar phenomenon on Oct 14th. Weird! .	Je 13 01 Jy 11 10	Je 28 04	6102 5357 5748 6123	20m
305	09 04 87	0300	Bianchini G Heraclides E Helicon G	33:W 47N 33W 43N 25W 42N	Bianchini G invisible yet Heraclides E & Helicon G & others still smaller, 2 small mts. in the vicinity & the mare ridge near it were all easily visible. (gas or dust?) He says it is far more obvious than the others. Normally is same size as Heraclides E. The seeing was good. .	Ag 08 19 S 06 03	Ag 21 14	6118 5400 5821 6045	
306	09 05 87	2100?	Gassendi	40W 16S	Saw a brightness anomaly (conf?)	Ag 08 19 S 06 03	Ag 21 14	6118 5400 6043: 6045	
307	10 03 87	0100? 0200?	Sinus Iridum	32:W 48:N	Sunlight glints off rocks on walls in a dazzling display of colors. Red on bottom, White & even gold in center and blue on topmost edge of rim. Sketched from floor to top. The white or gold band being thin compared to the others. Nothing like the Aris. display seen in June. He thinks it was atmospheric.	S 06 03 O 04 01	S 18 03	6045 5407 5950: 5954	1h?
308	10 04 87	0220	Proclus	46E 16N	N rim had highest reading he had ever made - other points were: albedo 9 and nearby plain was 6.5.	O 04 01 O 30 03	O 15 21	5954 5413 5953 5915	
309	10 13 87	1600 (?) was local noon in NY?	Aristarchus	47W 23N	Quite bright, seemed to have a trench trailing off to the NW limb. Easily 2-3x>Tycho and brighter on surface. Size ~25x90 miles. Visible at 85x & trench seen at 135x. No surface details seen through it. No flashes or color. Remained this way for 3 days then back to normal. Crater had an opaque dome over it. Other times it seemed to be illuminated from opposite direction from sun.	O 04 01 O 30 03	O 15 21	5954 5413 5439 5915	
310	10 14 87	0000?	terminator	168 (12E)	Saw similar phenomenon as on July 5 where object moved along terminator for 1/2 its length then disappeared into dark part. Object was 1/4 mile in length. (Weird)	O 04 01 O 30 03	O 15 21	5954 5413 5432: 5915	
311	10 17 87	1700-1800 daylight obs.	Aristarchus	47W 23N	A long trench appeared off to NW limb. On 18th it had a more cloud-like appearance, bright white and opaque. (Trench = Schröeters Valley? Similar to 10/13/87).	O 04 01 O 30 03	O 15 21	5954 5413 5442 5915	1h
312	11 02 87	0100-0130	Gassendi	40W 16S	Blink from bright point S of central peak. Sketch. It is same point that P. Moore & P. Foley noted bright abnormality on 9/5/87.	O 30 03 N 24 15	N 12 18	5915 5414 5853 5946	1/2h
313	11 13 87	0045-0110	Aristarchus	47W 23N	Vivid blue/green color - varied - filling large circular patch, brightly illuminating to the ESE-SSE (IAU?) spilling over wall and rim. Shadows inside crater were very large and elongated. Filter > in blue than in yellow and red. Microfiche. Some spurious color noted in other regions. (Not spur color in Aris?).	O 30 03 N 24 15	N 12 18	5915 5415 5414 5946	1/2h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
304	9.8	0.810	28 8R	Jy 11 04 -5.1	2, 13	de Carlo, J.	Little Falls, NJ USA	3R 170x		153	D	0
305	10.6	0.929	42 9:R 9R 17R	S 07 18 -3.6	2+,14	Caruso, J.	Middletown, CT USA	3L 155x	S=6/10 T=8/10 G	154	G	3
306	12.3:	0.954:	63: 23:R	S 07 18 -1.9:	2+,14	Foley, P. Moore, P.	Kent, Eng. Sussex, Eng.	12L 15?L		155	B	5
307	9.9:	0.964:	35: 3:R	O 07 04 -4.2:	6, 32- ms	Manske, R.	Brooklyn, WI USA	8L 226x		156	R, V, B	0
308	11.0	0.004	49 95R	O 07 04 -3.1	4, 21-	Darling, D.	Sun Prairie, WI USA	12.5L 170x	S=8 VG T=5	151	B	3
309	20.6	0.372	164 63S	O 07 04 +6.5	5-, 29+ ms?	Moeller, J.	Kerkville, NY USA	6L		157a 157b	G, B	1
310	20.9:	0.383	168 0S	O 07 04 +6.8:	6-, 33 ms	de Carlo, J.	Little Falls, NJ USA	3R 120x		158	D	1
311	24.6	0.525	213 14S	O 07 09 +10.3	5-, 24+	Moeller, J.	Kerkville, NY USA	6L 80-135x		159	G	1
312	10.3	0.114	41 1R	N 05 17 -3.8	5+, 27- sc-0.6 ms	Jean, P.	Outremont, Quebec Canada			155	R?, V? prob. R	4
313	21.3	0.545	174 53S	N 05 17 +7.4	5, 26	Cook, M.	Surrey, Eng.		S=III-II	155	V	3 filters

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
314	11 27 87	2043-2104 1935-1942 2001-2049	Proclus Censorinus	46E 16N 33E 1S	Spurious color on floor and rim, 2 bright spots on W wall rim & brighter one on NW rim (IAU?). Saw >>N-NW lip 2100 blink in red. Conf by T. Cook at 2104. At 2056 Cens. quite dull & diffuse, spurious color but no blink. Sketches.	N 24 15 D 22 11	D 10 14	5946 5408 5906 6040	20m 7m 3/4h
315	11 28 87	0416-0445 2044	Cape Agarum Proclus Censorinus Langrenus Eimmart	67E 15N 46E 16N 33E 1S 60E 8S 65E 24N	Noted whole Agarum plateau looked strikingly dull & grayish (usually tannish) even > sunlit areas, & twin craters at his point A which are always > spots on plateau. At 0420 whole plateau sank into complete darkness, hard to distinguish from mare plain. Albedo dropped to 5 from initial 6.8 reading. Nearby plain was nominal 5 so phenomena had not spread to it. At 0424 Cape started to reappear to albedo 6 until 0445, when it returned to normal, but not sharply defined - like through haze. Detail better in red than in blue filter, sketches. Later measurement of Langrenus were normal, also Eimmart. Phenomenon appeared as being eclipsed. (Mobberly) saw Proclus N crescent very bright for First Quarter. Streaks halfway up wall and varying in brightness & length in seconds. At first thought it was due to seeing, but less certain in time. Another totally bright streak varied every 5m (not atmosphere). Video. Confirm, Sketch. (M. Cook) had definite blink > red. (conf. Louderback). Estimated NW wall 3x > Censorinus. Censorinus varied in albedo in CED. (Foley) N wall >> brighter in Proclus - off CED scale. Censorinus seemed normal. (Moore & Mason) agreed N wall of Proclus >> brighter & dancing in poor seeing, but saw no bright spots. (T. Cook) noted N wall of Proclus >> brighter. At end of observation, N wall < brighter, which may have been due to eyepiece misting.	N 24 15 D 22 11	D 10 14	5946 5408 5909 6040	1/2h
316	01 02 88	0557-0602 0641-0708	Cape Agarum Aristarchus	67E 15N 47W 23N	On Cape, points B & D suddenly dimmed from 7 to 6.4 for B, & 6 for D at 0605. At 0613 back to normal. At Aris. at 0656 floor point F suddenly brightened from 5.2 to 6, then at 0708 back to normal. Wall bands varied every few minutes. Looked like mist on floor. Red penetrated haze but in blue could not see any detail.	D 22 11 Ja 19 21	Ja 07 06	6040 5401 5502 6119	5m 1/2h
317	02 20 88	2225-2234	Promintorium Olivium	40:E 16:N	Rapid increase in brightness at 2225. 4m later saw fluctuation 3 times & phenomena over in 9m & back to normal. Bluish light point on darkside of it. (Observer Aguirre, in Greece, saw a lunar flash but no date given).	F 17 10 Mr 16 21	Mr 01 12	6124 5359 5935 6059	9m
318	02 25 88	2000?	Aristarchus	47W 23N	Visible in dark - region was very bright, no other features visible. Brightness was stronger in UV end. (Cloud cover on Earth effect?).	F 17 10 Mr 16 20	Mr 01 12	6124 5359 5520 6059	
319	03 23 88	0115-0130	Aristarchus Proclus Theophilus Cyrillus Censorinus	47W 23N 46E 16N 26E 11S 25E 13S 33E 1S	(Wisniewski) >> Earthshine. Nothing else visible. Est 5th mag., Blue-white star like point steady, not well defined. Also seen in polarizing filter. Glows only when Earthshine prominent. (Darling) Observed Proclus, Theophilus, Cyrillus & Censorinus. All normal. Sketch of Proclus.	Mr 16 20 Ap 13 23	Mr 29 00	6059 5405 5647 6011	1/4h
320	03 26 88	2000?	Censorinus	33E 1S	Foggy/fuzzy appearance not seen in other nearby regions. < Proclus visible but CED gave same brightness. Sketches.	Mr 16 20 Ap 13 23	Mr 29 00	6059 5405 5427: 6011	

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
314	6.5	0.115	354 40R 27R	D 05 08 -7.5	5-, 27+	Cook, M. Cook, T. Mobberly, M.	Surrey, Eng. Surrey, Eng. Eng.		S=IV-V	160 167	B, R, D G?	5 conf. video
315	6.9, 7.5	0.129	358 65R 52R 39R 58R 63R	D 05 08 -7.1	3+, 18-	Louderback, D. Moore, P. - Mobberly, M. - Cook, M. Cook, T. Foley, P.	South Bend, WA Sussex, Eng - Suffolk, Eng. - Surrey, Eng Surrey, Eng Kent, Eng.	3L 150x	S=E S=III T=Fair S=IV-III sp. col. S=III-IV - S=IV-V	161	D, G, R B - B	4 5 conf. video
316	12.5	0.382	66 133R 19R	Ja 04 02 -1.8	5+, 29 ms?	Louderback, D.	South Bend, WA USA	8L	S=4/10	162	D, R, G	4
317	5.2	0.127	309 -11R	Mr 03 16 -11.8	2+, 10	Rodriguez, H. Moreira	Fortaleza, Brazil	4R		163a,b 163c,d	V, B	3
318	8.1:	0.296:	9: 38:R	Mr 03 16 -5.9:	4, 22+	Foley, P.	Kent, Eng.	12L		164	V, B	1
319	5.0	0.223	328 -79R 14R -6R -7R 1R	Ap 02 09 -10.3	3-, 10+	Wisniewski, M. Darling, D.	Chicago, IL USA Sun Prairie, WI USA		S=F T=2	165	B, V	0
320	8.7:	0.355:	14: 47:R	Ap 02 09 -6.6:	6, 33- ms?	Cook, M.	Surrey, Eng.	12L	S=III	166	G	4 CED

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
321	03 27-28 88	2330-0030?	Censorinus Proclus	33E 1S 46E 16N	Foggy/fuzzy appearance not seen in other nearby regions. Proclus > visually but CED gave same brightness. Sketches.	Mr 16 20 Ap 13 23	Mr 29 00	6059 5405 5409 6011	1h
322	04 01 88	0115-0320	E of Lichtenberg	65:W 32:N	Extensive rosy areas ringing N edge of lava sheet. Thinks it might be some phenomenon as seen by Mädler (Germany) & Barcroft (USA) & Baum in 1951. First time seen by Hill. Color effect unmistakable and not due to atmospheric dispersion or other false effects. Checked other features. (Often reported before. A ghost crater?, ring dike? It is to the NW of Lichtenberg which covers its SE portion.)	Mr 16 20 Ap 13 23	Mr 29 00	6059 5405 5438 6011	2h
323	04 03 88	0225-0230	North-central part of M. Tranquillitatis	45:E 7:N 37E 10N 32E 14N 28E 12N 26E 9N	Saw flashes, some lasting seconds, others several minutes. ~20 flashes appeared & disappeared, not in same places. 5 small star-like points could be located - and were craterlets. sketch. Spots lined up E-W at N of 10° latitude. No color, no variations. Had seen such phenomenon before but didn't record them.	Mr 16 20 Ap 13 23	Mr 29 00	6059 5405 5524 6011	5m
324	04 18 88	1900?	Aristarchus?	47W 23N	Glowing crater in Earthshine. Weier saw it easily in 7x50 binoculars. Spain saw no LTP & did not see Aris. in Earthshine. (Terrestrial clouds at limb?)	Ap 13 23 My 10 22	Ap 25 19	6011 5413 5838: 5925	
325	04 19 88	0115 0319 0324-0329 0121-0137 0340-0400	Aristarchus Cape Agarum Copernicus Kepler	47W 23N 67E 16N 20W 9N 37W 8N	Photo in August issue of S & T crescent Moon with Earthshine. Aris. bright with Venus near the Moon. Several members of Madison, WI Ast. Soc. observed bright, showing crater in Earthshine, one saw streaks and flashes. Crater abnormally bright. (Manske) rest of Moon appears normal in binoculars. Photos by Spain. Terminator on Cape Agarum. (Fryback) crater > conf. Fryback's photos show Aris. only same brightness as featured Copernicus & Kepler. Altitude quite low ~4°. .	Ap 13 23 My 10 22	Ap 25 19	6011 5413 5731 5925	3h
326	04 20 88	0206 0240-0300	Aristarchus Kepler Copernicus Pico	47W 23N 37W 8N 20W 9N 9W 45N	(Fryback) Aris. looked like a city from high above glowing under a cloud. (Spain) Saw streak & flashes, but Aris. not glowing. It was brightest spot in Earthshine, but Kepler & Copernicus were bright too. In photos, Aris. > in 3, 4 & 5s and dimmer on 7 & 9s exposures. On 5 exposures Pico is >est spot, if not a defect. Conf. Photos.	Ap 13 23 My 10 23	Ap 25 20	6012 5413 5650 5925	3/4h
327	04 21 88	0128 0153 0200 0201 0400 0143-0153 0114-0228	Aristarchus center of disk	47W 23N 0 0	(Fryback) Took 16 photos with 400mm telephoto lens on 8 inch reflector. Show Aris. as a luminous patch. One photo recorded a red spot near Aris.. To the eye in the telescope not excessively bright. (Spain) saw a narrow streak of magnitude 5 or 6 lasting 1/2s covering a distance of 100 - 200 miles. It occurred near center of Moon at 0153. It was white. Another similar streak occurred except for direction. Then saw two tiny red flashes at 0200 & 0201 of magnitude 7 for < 1s near Aris.. Only highlands could be discerned. There was an aurora seen April 21-22. (Fryback photo sent to WSC is similar to G. Johnson's on 4/26/85. (I can't see red spots but do see two bright points on it, which might be dust specks on the film). sketches.	Ap 13 23 My 10 22	Ap 25 20	6011 5413 5601 5923	3 1/2h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
						1,900 A.D.						
321	9.9	0.393	28 61R 75R	Ap 02 09 -5.4	6, 33-	Cook, M.	Surrey, Eng.	12L		166	G	4 CED
322	14.0	0.543	78 ~11:R	Ap 02 09 -1.3	3+, 22+	Hill	Lancaster, Eng.	10L 286x	S=7/10- 4/10	167	R	3
323	16.0	0.613	103 22S 30S 45S 49S 51S	Ap 02 09 +0.8	8, 33+ sc-0.6 ms	Culver	Harker Heights, TX USA	Meade 2045/L 40x	S=Turb	167	B	2
324	2.3	0.178:	294: -113:R	My 02 00 -13.2:	3-, 14- sc-1.4 & 0.8	Manske, R. Weier, D. Spain, D.	Madison, WI USA Madison, WI USA Fairfield, KY USA	- 7x50 binoc's - 40x		168	B	0
325	2.7	0.193	298 -109R 5R -82R -99R	My 02 00 -13.0	3-, 14-	Horne, J. - Manske, R. Weier, D. Spain, D. Fryback, D.	Steadman, NC USA - Madison, WI USA Madison, WI USA Fairfield, KY USA Madison, WI USA	8L Kodak VR-G film 8L 97x 7x50 binoc's 8L 8L	S=4/10 - S=E - - S=VG	169a 169b 169c	B, G	- photos conf.
326	3.6	0.227	310 -97R -87R -70R -59R	My 02 00 -11.9	3, 12+	Fryback, D. Spain, D.	Madison, WI USA Fairfield, KY USA	8L 8L	S=3-4 S=VG	169c	B, V	conf. photos
327	4.6	0.264	322 -85R -38:R	My 02 00 -10.9	3+, 15 aurora	Fryback, D. Spain, D. Manske, R.	Madison, WI USA Fairdale, KY USA Madison, WI USA	- 3.5L ? 60x 8L	- S=G	169c	R, B	1 photos

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
328	05 18 88	0200-0230 0220-0235 0100-0159	Aristarchus Copernicus Kepler	47W 23N 20W 9N 37W 8N	Darling & Spain saw Copernicus & Kepler as bright patches > Aristarchus (unusual) in Earthshine. Aris. a starlike point in binoculars by Darling & Weier. Lubke independently reported to Darling that Aris. glowed like an out-of-focus star varying with the atmosphere. Spain did not see Aris. .	My 10 22 Je 05 00	My 23 14	5923 5417 5634 5930	1 1/2h
329	05 19 88	0221-0230 0114-0200 0210-0225	Aristarchus Copernicus Kepler	47W 23N 20W 9N 37W 7N	Darling - Earthshine could see Cop., Kep. but barely Aris. not at all in 7x35 binoculars. Spain saw nothing. Darling saw nothing of bright areas in Earthshine. Lubke saw Aris. as > surrounds but << then 5/18/88, (Not LTP, due to atm.)	My 10 22 Je 05 00	My 23 14	5923 5417 5930	1h
330	07 21 88	0100?	Proclus	46E 16N	Darkening on floor, seen by several, some independently. 5 contacted. (normal conditions?)	Jy 02 06 Jy 30 08	Jy 18 00	6017 5404 5447: 6100	
331	07 22 88	0231-0400 0235-0245 0215 0224-0249	Proclus	46E 16N	Sketch dark area of floor shows large anomaly dark area & what it should be normally if from shadow (Sun at >50° & should be no shade) Research of earlier drawing by BAA memb. showed similar phenom. When E. Wall illuminated but "shadow" on floor (different shape tho than on 7/22/88) conf w/ 3 groups, 1 Alerted others independently. Foley said area affected stretched from Proclus - Theoph. Many obs. darkening of E floor - not shadow. Seen in USA & Britain albedo readings obtained of c.p. was 3.5, rest of fl = 5.5 placement different among some of the observers. .	Jy 02 06 Jy 30 08	Jy 18 00	6017 5404 5510 6100	~1/2 Hr
332	07 23 88	0307	Proclus	46E 16N	Dark floor in Proclus still there but <, shape changed. More diffuse in green. Change with two other filters, Polarizer gave a circular shape with a knot on SE side & W58 in White. Albedo of Proc were 9 on 3 sides & 8.5 on W. Wall, floor-5.5, but dk sp = 4. Sketches ind. Plato, Coper., Eratosth., Alph., Ptol. & Bull. all normal. .	Jy 02 06 Jy 30 08	Jy 18 00	6017 5404 5602 6100	-
333	07 24 88	0201- 0256	Proclus	46E 16N	At 02:13 Gray was 1/3 of July 22 and V shaped and fanned out across floor. Could see hint of knot seen before. Craters named in 7/23/88 (#319) were all normal this time too.	Jy 02 06 Jy 30 08	Jy 18 00	6017 5404 5746 6100	<1h
334	07 25 88	0315	Proclus	46E 16N	(Davis) It looked normal except for a slightly darker area in SW (Ast) SE (IAU) corner	Jy 02 06 Jy 30 08	Jy 18 00	6017 5404 5746 6100	-
335	07 31 88	0709 - 0810	Proclus	46E 16N	Saw no hint of darkening In SE corner, but saw 2 linear mounds.	Jy 30 08 Ag27 17	Ag 14 12	6100 5359 6051 6123	1h
336	08 28 88	2200 ?	Aristarchus	47W 23N	Red Glow along outer W. Wall, 99% sure it is not an LTP, There had been burning near here and so thinks it was atmospheric. Color seen on S. wall usually.	Ag 27 17 S 25 04	S 10 15	6123 5357 6109 6118	-
337	10 20 88	1830	Plato	9W 51N	Red hue seen along inner wall at 4 to 7 o'clock pos (NE-NW)? Short duration, other regions did not display the effect. Sketch (Foley has it) (along. term. Would have been E Wall, not N or S.	S 25 04 O 23 12	O 07 20	6118 5401 5947 6041	-

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
328	2.2	0.287	292 -115R -88R -105R	My 31 11 -13.4	5, 24	Lubke Darling, D. Weier, D. Spain, D.	Middleton, WI USA Sun Prairie, WI USA Sun Prairie, WI USA Fairdale, KY USA	8L 130x 20x60 binoc 20x60 binoc 7x35 & 20x60 binoculars	- - - S=6/10	170	B, G	0 conf.
329	3.2	0.327	304 -103R -76R -93R	My 31 11 -12.4	3-, 13	Darling, D. Spain, D. Lubke	Sun Prairie, WI USA Fairdale, KY USA Middleton, WI USA	7x35 binoc 3.5L 30-277x 8L 130x, 75x	S=7/10	170	B	0 conf
330	7.1:	0.668:	353: 39:R	Jy 29 03 -8.1:	6-, 27+ sc-0.1					170	D	1 conf.
331	8.2	0.705	6 52R	Jy 29 03 -7.0	5-, 31+ s,c +1d	Foley, P. Darling, D. Davis, H. Graham & Palmer Cook, M. Spain, D. Manske, R.	Kent, Eng. Sun Prairie, WI, USA Metairie, LA, USA Pittsburgh, PA, USA Fairdale, KY, USA Madison, WI, USA Surrey, Eng	11L 12.5L 6R, 250x 2.4R, 188x		171 a,b,c, d	D	2 Conf. Photo
332	9.2	0.740	19 65R	Jy 29 03 -6.0	4-, 18+	Darling, D.	Sun Prairie, WI, USA	12L, 150x	S=6/10	172	D, G	1 filter polar
333	10.2	0.776	32 78R	Jy 29 03 -5.0	2+, 15-	Darling, D.	Sun Prairie, WI, USA	12L, 150x	S=7/10 T=3	172	D, G	5
334	11.2	0.811	43 89R	Jy 29 03 -4.0	2+, 13-	Davis, H.	Madison, WI, USA			172	D	0
335	17.4	0.035	119 15S	Jy 29 03 +2.2	3, 16+	Darling, D.	Sun Prairie, WI, USA	12.5L,6,4mm eyepiece	s=7/10 T=3	172		0
336	16.4:	0.042:	108: 119S	Ag 27 11 +1.4:	3+, 17+	Moore, P.	Sussex, Eng	5R, 260x	P	171	R	1
337	9.8	0.901	32 23R	O 25 05 -4.5	4, 26+	Davis, H.	Llamandel, Swansea, Scot?	3R	-	173	R	0

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
338	11 14 88	1725 -1830	Aristarchus Copernicus Jura Mtns	47W 23N 20W 9N 35W 47N	(Davis) Saw it as a white circular patch, ill defined in shape. At 17:45h>> brighter (prob due to darker sky) Cop. just vis. as a white patch. Jura mtns seen but not as white. Aris. > as time passed & saw a bright point on W. wall at 120x & 60x. It was fainter at 1854 & < At 1830. (Foley) said Earth-shine cond. Superb with many regions clearly seen, but Aris. was dull. (Cooks) in hazy condition could not detect Aristotle. .	O 23 12 N 20 10	N 04 11	6041 5409 5802 5949	1h
339	11 15 88	1915 1007-1040 (0507LT?)	Censorinus, SE of Eudoxus	33E 1S 18E 43:N	(Holmes) Area to E. of Cens blurred out include rim. sketch. (Jean) Saw a luminescent zone just beyond term (in dark?) cone shaped & copper colored. (low sun angle effect? WSC has seen such along term. but on bright side). At 10:25 a very dark line S. of cone, E. of term (in light?) It was SE of Eudox. and the line lay along the S. flank sketch (Foley has) Foley says cone has no relationship to terrain.	O 23 12 N 20 10	N 04 11	6041 5409 5802 5949	1/2 h
340	11 16 88	1820	Censorinus Torricelli B. Proclus	33E 1S 27E 5S 46E 16N	Saw a ray NE of Censorinus as very diffuse throughout the observation, unlike Proclus which remained clear. Toricelli B. also had a change in albedo at times so thinks it was a transparency change. Censorinus apron was diffuse E-W while N part was dull but not diffused This area is the same as Holmes' area according to sketches. Same phenomena on two nights. .	O 23 12 N 20 10	N 04 11	6041 5409 5802 5949	mins?
341	12 12 88	1732	N.E. Limb	90E 68N	While preparing to time occult of SAO189425 at position angle<45°, he saw a point of light flash up, disappear at the limb at a position angle about halfway between N. Cusp and star entry. (meteor in Earths atmo or on Moon?)	N 20 10 D 16 04	D 02 06	5949 5414 5841 5912	sec?
342	12 18 88	2025	Proclus Censorinus Dionysius	46E 16N 33E 1S 17E 3N	On TV a live shot of moon (channel 3) showed it as >> much > Censorinus or Dionysius - was > spot on moon, much >> than anything else on moon. It was photog. at San Juan, Puerto Rico. (TV broadcast time was 11:25pm)	D 16 04 Ja 10 23	D 30 04	5912 5414 5856 5951	-
343	01 10 89	1800?	Aristarchus	47W 23N	Both noted crater highly luminous in Earth-shine & had a bright line along W. wall. (WSC thinks brightness with Earth-shine is due to amount of cloudiness on Earth's limbs as seen from Moon).	D 16 04 Ja 10 23	D 30 04	5912 5414 5949: 5951	-
344	01 14 89	1915-1930	Mare Crisium . Toricelli B.	52:E 18:N 56:E 22:N 27:E 5:S	2 areas on floor of Cris. gave strong filter response Area 1 extreme W. of Cris. Adj to Proc. Area 2 Patch NNW but clear of edge of mare. sketches. Other regions - Eudoxus, Aristotle, Theophilus & Proclus gave neg response. Peters picked up possible blink in several areas but seeing was III-IV (poor). Holmes noted Torr. B. as being dull & inconspicuous. .	JA 10 23 F 07 22	JA 27 00	5951 5408 5828 6045	1/4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
338	5.1	0.796	336 -71R -44R -59R	N 23 16 -8.9	3+, 20	Davis, H. Foley, P. Cook, M. Cook, J.	Ft. Minver Cornwall, Eng Kent, Eng Surrey, Eng	5R? 60x,120x 12L - 3.5L -	Clear - -	173	B, G	0
339	6.2, 5.8	0.835 0.800:	350 345	N 23 16 -7.8	4, 22	Holmes, D. Jean, P.	Rockdale, Eng Outremont, Quebec, Canada	8.5L 4R?	S = III T = G	173	G, R	3
340	7.1	0.867	2 35R 29R 48R	N 23 16 -6.9	4+, 25+	Cook, M.	Surrey, Eng.			173	G, D	3
341	3.4	0.866	316 46R	D 23 05, -10.6	5, 21+ s.c.+0.5d ms+0.4	Middleton	Birghting Sea, Eng.			173	B	1
342	9.6	0.101	31 77R 64R 48R	D 23 05 -4.4	5-, 30+ s.c.+1.3d ms	Cameron, W.	Sedona, AZ	TV camera telephoto		174	B	5 Photo
343	2.9:	0.988	309: -98:R	Ja 21 22 -11.2:	4-, 21- s.c.±1d	Holmes, D. Foley, P.	Rockdale, Eng Kent, Eng	. 12L		175	B	1
344	7.0	0.136	359 51R 55R 26R	Ja 21 21, -7.0	5-, 20	Hedley-Robinson Holmes, D.	Devon, Eng. Rockdale, Eng	5L, 150x	S=III-IV	175	R, D	5

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
345	01 16 89	2000?	Toricelli B.	27:E 5S	Poss albedo var saw color in it. Took spectrum of 10M exp. where 30min are req'd not known yet (Feb) if anything was recorded. Clouds set in after 10min exp. (Jan 14 Holmes saw it dull).	JA 10 23 F 07 22	JA 27 00	5951 5408 5758: 6045	min.
346	01 18 89	2159-2303	Toricelli B.	27:E 5S	Estimated a brightening of it between times given.	JA 10 23 F 07 22	JA 27 00	5951 5408 5659 6045	1h
347	01 26 89	0245 CET, 0345 UT	Copernicus	20W 9N	Pure white light flashed up from the crater. Lasted just a few secs.	JA 10 23 F 07 22	JA 27 00	5951 5408 5411 6045	secs
348	02 08-09 89	23 50-00 15	W. Limb S of M. Humorum	90W 40:W 34:S	Darling noted Earth lit limb & shimmering. Weier also noted that it was a star-like point S. of Mare Hum. which was 2x > Aris. In Earthshine3x it lasted a few secs. 18h later Brit group noted bright limb. (If reflected from flat facet of rock, should last > a few secs & steady. Could be intermittent clouds on Earth limb as seen from Moon).	F 07 22 Mr 08 08	F 23 14	6045 5401 5929 6119	1/4 hr
349	02 09 89	1800 ?	Cape La Place (S of poss. Helicon A?)	25W 47N	(Ashton) Green glow in peninsular region alerted BAA Lunar section. Also saw br of dark limb (conf. Darling, etc.). Foley - bright pinpoint glow surrounded by blue-green halo seen in blue filter, not in red. Suspected albedo variability. Aris. Barely vis. Because of limb br. Cop, faint smudge. (J. Cook) saw distinctive white glow in Cape region. Impression was glow was composed of pinpoints. No other places showed glows, not even Aris. Sketch. (Moore) saw nothing unusual. (M. Cook) saw a bright point source near the tip of LaPlace perhaps Maupertuis D (or LaPlace D?). Seen in blue but not red & limb br. cape seen as faint patch. (Holmes) saw Aris. in Earth-shine very dull. Did not see glow in S. Iridium region (North) saw Earth-shine as vaguely visible in finder but not in telescope. (Conf. 18h after Ames obs.)	F 07 22 Mr 08 08	F 23 14	6045 5401 6019 6119	
350	02 10 89	1900 ?	Proclus Aristarchus nr Prinz	46E 15N 47W 23N 45:W 25:N	(Edmonds) Bright red coppery color in NW corner. No color elsewhere, he thinks it was atmosphere. But normally blue is seen in N. and red in S. when it's spurious cal and in Fitton's hyp. (Holmes & Wooler) Aris. Bright but also 2nd area nr. Prinz seen by both.	F 07 22 Mr 08 08	F 23 14	6045 5401 5946: 6119	
351	02 11-12 89	2330-0139 2355?-0005?	Proclus	46E 16N	(Darling) Again saw linear feature E-W in crater sketch. (Weier) NNW> normal. Saw bright linear feature crossing shadow of E. floor and it extended to M.Cris. (Manske) noted a second streak parallel to Weier's. They think they are elevations on floor. (There don't seem to be linear features on Proc. floor to produce streaks).	F 07 22 Mr 08 08	F 23 14	6045 5401 5859 6119	>1h
352	02 14 89	0345-0438	Proclus	46E 16N	Patch in SE corner sketch albedo 9.0 N wall, 6.0 floor, 7.5 W wall, 7.5 S wall & 4.5 patch. Remarks: patch not as dark as on 7/22/88 (dark patch is normal).	F 07 22 Mr 08 08	F 23 14	6045 5401 6119	1h
353	02 15 89	0315-0330	Mare Humorum	35:W 25:S middle	In 7x35 binoculars saw a pin point light very bright in lower left quad. In or near M. Humor. Watched for 5m then it was gone	F 07 22 Mr 08 08	F 23 14	6045 5401 5358 6119	5m
354	02 16 89	0246-0301	Proclus	46E 16N	Albedo NW rim 9.0 (normal?)	F 07 22 Mr 08 08	F 23 14	6045 5401 5617 6119	1/4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	Age	Tidal Anomaly	Colong., Term. Dist	Full moon date, days from FM	Solar	Observer	Location	Telescope: Aperture Kind Power	Seeing	Ref.	Phen. Type	wt
	days	d	o	m,d,h, d	K_{pmax}, ΣK_p			Ap, K, PW				
	1,900 A.D.											
345	9.0	0.208:	23:, 50:R	Ja 21 21 -5.0:	6-, 38 ms?	North, G.	Herstsmonceaux Sussex, Eng	30L		175	B, R?	3
346	11.1	0.283	49 76:R	Ja 21 21 -3.0	4, 23	Cook, M.	Surrey, Eng.			175	B	3
347	18.3	0.183	136 64S	Ja 21 21 +4.2	3, 19+	De Groof	Belgium			176	B	3
348	2.7	0.040	303 -147R -97R	F 20 16 -11.6	4-, 22+	Darling, D. Weier, D. Davis. H.	Sun Prairie, WI USA Sun Prairie, WI USA Eng?	3R, 36x	S=7/10 T=6 S=II T=E	177a 177b	B	1 (conf)
349	3.4:	0.063:	314: -71R	F 20 16 -10.9:	4+, 27-	Ashton Foley, P. Cook, J. & M. Moore, P. Holmes, D.	Stafford, Eng. Kent, Eng. Surrey, Eng. Sussex, Eng. Lanes, Eng.	- 12L - 12L 30L? or R?	S=V	176	B, V	2 conf
350	4.5:	0.099:	328, 14:R -79:R -77:R	F 20 16 -9.9:	4, 18	Edmonds Holmes, D., Wooler	Eng. Lanes, Eng. Lanes, Eng			178	R, B	3 conf
351	5.7	0.144	342 28R	F 20 16 -8.6	4-, 18	Darling, D. Weier, D. Manske, R.	Sun Prairie, WI USA WI WI	12.5L, 159x 11L, 378x	S=7/10 S=8 T=6	177b	B	5 (conf)
352	7.9	0.222	9, 37R	F 20 16 -6.4	4, 21	Darling, D.	Sun Prairie, WI USA	12.5L, -, 3R, 90x	S=3/10 T=5	177b	D	0
353	8.8	0.253	21 14:R	F 20 16 -5.6	4+, 20+	Dixon, M.	Palenque Ruins, Mexico	7x35 binocular		179	B	1
354	10.0	0.296	32 78R	F 20 16 -4.5	5-, 24-	Darling, D.	Sun Prairie, WI USA	3R, 140x	S=6/10	177b	B?	0

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
355	02 17 89	0055	Proclus	46E 16N	Albedo N wall 9.0, NW wall 9.5, W wall 5.2, E floor 5.5, E wall 8.2 (normal?)	F 07 22 Mr 08 08	F 23 14	6045 5401 5549 6119	
356	02 20 89	1656	Plato	9W 51N	During eclipse in 1 of 3 photos some areas of brightness were seen just below the crater did not appear in photos taken at 16 56 32 or 16 56 56. Foley says the plates are grainy and therefore cannot be positive about it.	F 07 22 Mr 08 08	F 23 14	6045 5401 5427 6119	min?
357	02 22 89	0348-0358	Proclus	46E 16N	Floor was uniform gray, E. wall bright.	F 07 22 Mr 08 08	F 23 14	6045 5401 5402 6119	10m
358	03 23 89	0500?	nr N. pole Plato	9W 51N	Photo shows apparent ejection over Plato. Plume traversed rest of disk to limb & against sky, conical shape. Resembled solar loop prominence. (Lowell Obs astronomer said it is a lens flare as it was taken through eye piece projection.)	Mr 08 08 Ap 05 20	Mr 22 18	6119 5358 - 6123	
359a	04 09 89	0000?	Copernicus	20W 9N	In Earth lit photo >> Aris & Kep. Compare with diag p405 S&T Apr 89. Although Earth lit phenom. can be ascribed to terrestrial cloud cover at limbs, it is unusual as Aris. is almost always brightest. Cop. is nearer term, but still quite far from it.	Ap 05 20 My 04 05	Ap 18 21	6123 5359 5951: 6056	
359b	04 09 89	0001 0116 0200-0309 0059-0445	Mare Crisium Aristarchus Herodotus Cleomedes Cleomedes B Dionysius Grimaldi Tycho Manilius Menelaus Erastothenes Plato	60E 15N 47W 23N 48W 22N 56E 27N 56E 27N 17E 4N 65W 5S 11W 42S 8E 14N 16E 16N 12W 14N 9W 51N	5 members of Madison Astro. Soc. Saw exceptional Earthshine events. (Xerox copy shows it very bright). Could distinguish Tycho & Grim.. Sketch by Darling of M. Crisium. Manske, from 0201-0309 saw on S. limb at 0201 wondered if reflection of gegenschein. Brightness conf. by Weier & Norman. At 0213 Aris. not bright in binoculars. Darling conf. at 0231 Aris. quite bright in 17L could barely see Herodotus. Tycho also glowed. Weier reported Aris. visible to naked eye. Albedo meas. for Aris. at 0208 = 5.0 for 4 rdgs. Darling could see c.p. of Tycho.	Ap 05 20 My 04 05	Ap 18 21	6123 5359 5945 6056	3.75h
360	04 10 89	0130-0200	Aristarchus Aristarchus Z	47W 23N 48W 26N	Earthshine much less than last night (4/9/89) ~1/4<Aris star like & Aris. Z glowing faintly. Maria very faint, Manske saw Aris. Fluctuate, couldn't see Aris. At all at 0423. (Variations due to Terrestrial limb clouds?).	Ap 05 20 My 04 05	Ap 18 21	6123 5359 5850 6056	1/2h
361	04 13 89	0325	Proclus	46E 16N	Albedos: N. wall = 9.0, floor = 6.5, SW wall = 8.5, S wall = 8.0, E wall = 7.0, (nearby plain) = 7.0. Saw an intense black spot on SE wall in 3" R, in 12.5L found it to be shadow from rim. Sketch.	Ap 05 20 My 04 05	Ap 18 21	6123 5359 5543 6056	
362	04 26 89	1022-1044	Plato	9W 51N	E 1/2 of crater quite dark in several eyepieces. Banding disappeared at 140x, seems to be function of power. Higher power broke it into bands till highest one when they disappeared.	Ap 05 20 My 04 05	Ap 18 21	6123 5359 5622 6056	~1/3h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
355	10.7	0.320	43 89R	F 20 16 -3.6	2+, 11-	Darling, D.	Sun Prairie, WI USA	12.5L, 248x		177b	B?	1
356	14.3	0.417	88 79R	F 20 16 0.0 (eclipse)	4, 28	Kolovos, G.	Thessoloniki, Greece			180	B	1 photos
357	15.7	0.504	87 133R	F 20 15.5 +1.6	4, 22-	Darling, D.	Sun Prairie, WI, USA	3R, 56x	S=4/10 T=4	177b	B?	2
358	15.5:	0.509:	100: 99:S	Mr 22 10 +0.8	6, 35+ ms?	Kilbury, G.	Lakeside, CA, USA	8L		181	B	0 photo
359a	2.9:	0.113	304: -96:R	Ap 21 03 -12.1:	4, 23+	Horton, R.	N. Scituate, RI, USA	6L, Fujichrome P1600D		182	B	5 photos
359b	3.0	0.116	306 6R -101R -102R 2R 2R 37R -119R -65R -46R -38R -66R -63R	Ap 21 03 -12.0	4, 23+	Darling, D. Weier, D. Manske, R. Norman, E. Eichman, T. and others	Sun Prairie, WI Sun Prairie, WI Waunake, WI	11L, 3R 8L 17L 8L	S=9/10 T=6 exc.	177a, b 183a, b	B	3 conf.
360	4.0	0.151	317 -90R -91R	Ap 21 03 -11.0	3-, 16- sc-1.6	Darling, D. Manske, R.	Sun Prairie, WI Waunake, WI, USA	12.5L, 64x 8L, 222x	S=E	183	B	1 conf.
361	7.1	0.261	355 41R	Ap 21 03 -8.0	4, 25+ sc-0.8	Darling, D.	Sun Prairie, WI			183	B,D	0
362	10.3	0.725	157 32R	Ap 21 03 +5.3	7-, 46 ms	Darling, D.	Sun Prairie, WI	3R, 36-140x		183	D	0

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
363	05 10 89	0230-0350	Aristarchus Grimaldi Aristarchus Z	47W 23N 65W 5S 48W 26N	Wisniewski - Aris. Glowing at mag 8 brightness decreases near end of obs. Tycho ray toward Aris. Unusually bright but faded after 20m. Aris. Was not star point but ~1crater diam. Color blue/white. Used polarization filter. Weier at 0154 saw a flash due E of Grimaldi like a small electrostatic charge - radiated out like a decorative plasma lamp, sharp - not fuzzy. Darling saw it but dismissed it as he had seen it many times before (in same loc.?) Aris. Z bright & diffused then went to point (limb clouds on Earth), but not overhead at observer. .	My 04 05 Je 01 05	My 16 09	6056 5406 5708 6010	1 1/3h
364	05 17 89	0130-0300	W of Aristarch. N of Herodotus (nr cobra head)	48W 24N	Pale blue aspect in ridges W of Aristarchus & N of Herodotus along term. & on dark side. Aris was color free. It was only area with such color though there were numerous others of similar elevation and relation to term. Saw the color in a 4" Cass. At 0230 but no color in the 8L with same eyepieces. (a function of aperture? Larger aperture spread color out to white?). Sketch suggests it was Herod. & ridge he mentioned is part of S.V. - Cobra Head?	My 04 05 Je 01 05	My 16 09	6056 5406 5708 6010	1 1/2h
365	06 12 89	2120 2102-2130 2130-2225	Toricelli B Censorinus Proclus	29E 3S 33E 1S 47E 16N	(North) at 2118 found Toricelli B barely visible - probably due to poor seeing. (M. Cook) at 2102-2130 it was extremely dull - impossible to judge shadows on floor in contrast to Cens, (Holmes) at 2130 saw it very faint, hard to locate at powers <200x. Increase in brightness easily seen at 55x, by 2200 no increase in Proc. or Cens.. (Foley) found it very dull CED = 3.4 for Cens. & 3.3 for Proc. & 0.5 for B. At 2210 it > but Proc. & Cens. were same brightness as before. B=1.6 (conf). Dulling is common on it at high Sun but illumination doesn't seem to be the cause or related. Proc. & Cens. normal.	Je 01 05 Je 28 04	Je 13 02	6010 5413 5414 5926	1 1/2h
366	06 17 89	0633-0716	Aristarchus Herodotus	47W 23N 47.5W 22.5N	Sketch. Nebulous spot near Herod. At 0649. Vis in red & blue & yellow filters, but fainter in red. Gassendi, Piton & Proclus all normal.	Je 01 05 Je 28 04	Je 13 02	6010 5413 5525 5926	~3/4h
367	06 20 89	0628-0658	Aristarchus	47W 23N	Blue on NW wall & red on SE wall (Fitton hyp.) at 0639. Seemed to see the blue but not the red. No color on Tycho. Suspected pinkish tinge all over moon. Red was on outside wall and blue on the inside wall.	Je 01 05 Je 28 04	Je 13 02	6010 5413 5629 5926	1/2h
368	06 21 89	0703-0727	Aristarchus S. Iridum Plato Cassini	47W 23N 15:W 50:N 9W 51N 5E 40 N	Saw pink & blue on Aris. As on night before (#367) but also orange on back (N?) wall of Sinus Irid. & on M. Imbrium all the way past Plato up to Cassini - maybe atm. At high power (8mm eyepiece) & no filter. Saw no hint of color (due to smearing at high power?). .	Je 01 05 Je 28 04	Je 13 02	6010 5413 5733 5926	1/3h
369	06 28 89	0839-0900	La Hire La Place prom.	28W 26N 25W 46N	LaHire most brilliant feature on moon. LaPlace also very bright, both on terminator. LaHire albedo = 7.0, LaPlace = 7.5. Thinks not LTP as did not have mother-of-pearl appearance as seen on Piton at times. (prob not LTP).	Je 28 04 Jy 23 07	Jy 10 21	5926 5415 5925 5931	1/3h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
363	4.6	0.211	324 83R 101R 84R	My 20 18 -10.6	2, 9-	Wisniewski, M. Weier, D. Darling, D.	Chicago, IL Sun Prairie, WI Sun Prairie, WI	8L, 6L, 123x 12.5L, 50x? 12.5L, 50x?		184	B, V	2 conf
364	11.6	0.461	49 1R	My 20 18 -3.5	3-, 15+	Fabian	Chicago, IL	4L, 35-50x		185	V	2
365	9.0	0.430	16, 45R 49R 63R	Je 19 07 -6.6	3+, 20+ sc-1.2	North, G. Cook, M. Holmes, D. Foley, P.	Hertsmonceau, Eng Surrey, Eng. Rockdale, Eng. Kent, Eng.	Coudé 8L 8L 12L	S=V S=IV S=II/III S=III-IV	186	D	5 conf CED
366	13.5	0.337	70 23R 24R	Je 19 07 -2.0	3+, 10-	Manske, R.	Sun Prairie, WI, USA	1R		183	G, V	3
367	16.5	0.296	118 60S	Je 19 07 +1.0	5+, 31- ms-0.6	Manske, R.	Sun Prairie, WI, USA	1R		183	V, R	1
368	17.5	0.744	122, 105S 73S 67S 53S	Je 19 07 +2.0	2-, 9+	Manske, R.	Sun Prairie, WI, USA	1R		183	V, R	0
369	24.6	0.008	206 1R 1R	Je 19 07 +9.1	3-, 14	Darling, D.	Sun Prairie, WI, USA	3R, 36x		183	B	0

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	πp πa π	
					1,900 A.D.				
370	07 13 89	2104-2138 2115-2130	Proclus Censorinus	46E 16N 33E 1S	(M. Cook) Circular patch, very dark & > in size seen previously. Filled floor from N-NE. sketch. In blue filter saw slightly less dark area extend in S direction away from intense one - both filled ~1/2 floor. (Moore) saw it to have bright patch on its NW wall (normal) & floor itself unusually dark ~ same intensity as in M. Crisium. None of Proc > Cens. .	Je 28 04 Jy 23 07	Jy 10 21	5926 5415 5501 5931	1/2h 1/4H
371	07 14 89	0328	Proclus	46E 16N	Darkening of crater reported by Darling. Sketch shadow drawn by M. Cook & P. Moore to W of crater on 13th not present, therefore short lived. (Darling's was only a few hours later).	Je 28 04 Jy 23 07	Jy 10 21	5926 5415 5507 5931	
372	07 15 89	0420-0435 0359-0415 0200, 0200, 0200-0301 0400-0415	Aristarchus	47W 23N	(Smith) orange, friend, saw pink or reddish orange on S rim & around other areas too. Prob. Atm. (Spain) saw pinkish or bright red glow along W wall - chromatic aberration? But thinks 80% chance of real LTP. (Weier) saw glimmer but no color. (Curtis) saw blue-green color. Others saw color. Weier thinks true LTP of a pink, thin, translucent cloud near surface. (WSC saw no color for 15m obs. after being alerted. - 8L, 111x & 225x in good seeing). Several observers all over US saw color & others did not. conf.	Je 28 04 Jy 23 07	Jy 10 21	5926 5415 5553 5931	
373	08 17 89	0110-0420 0102 0120-0420? 0130-0400? 0243-0314	Aristarchus Puisseux D Herodotus Agrippa Alphonsus C LaPlace Gassendi M. Crisium Piton Plato Tycho Proclus	47W 23N 36W 26S 48W 24N 11E 5N 4W 13S 25W 46N 40W 16S 60E 15N 2W 39N 9W 51N 11W 42S 46E 16N	Photometry during eclipse, crater isolated, gradual reduction in brightness over Moon, but 20% increase at Arist. Graph supplied to Foley. Photos also supplied & CCD & photometry from T.Cook. A slide by Conway at beginning of eclipse shows a bright white spot. Confirmed by several. Analyses of photos conclude variances possible. confirmed, permanent record.	Jy 23 07 Ag 19 12	Ag 07 15	5931 5412 5940 6017	>2.5h
374	08 20 89	1355	Proclus region?	46:E 16:N	Pin-point flash on Moon, 1s duration in middle of lower right quadrant near Full Moon. Sketch. Foley says, bright position marked was Proclus region (same quad as photo of Aug 17 during eclipse, but was later determined as lens flare).	Ag 19 12 S 16 15	S 04 08	6017 5403 6011 6103	1s
375	09 12 89	0058-0225	Aristarchus Gassendi	47W 23N 40W 16S	Similar light conditions as July 15, 1989 at 0200 saw pink on Aris. SW Rim. At 0124 comet tail ray was yellowish. Whole Moon had yellow-gray tinge, At 0156 saw chromatic aberration effect. Gass. had no color. Rim on Aris. had unusual appearance at 0210 - looked different from other crater rims. sketch. (Area is near same as Greenacre & Barr's LTP (1963) & about same age, also Fd=0.90 is similar). .	Ag 19 12 S 16 15	S 04 08	6017 5403 5818 6103	1 1/2h
376	09 18 89	0605	Furnerius	60E 35S	Area of darkness overlapping NW rim. It was visible through this area of obscuration. Sketch	S 16 15 O 15 01	O 01 20	6103 5356 6038 6128	

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
370	10.6	0.622	35 81R 68R	Jy 18 18 -4.8	3-, 14-	Cook, M. Moore, P.	Surrey, Eng. Sussex, Eng.	12?L? 5R 150x	S=III T=F-6 S=II	187		
371	10.9	0.633	38 84R	Jy 18 18 -4.6	2, 9	Darling, D.	Sun Prairie, WI, USA			188	D	2
372	12.0	0.677	51 4R	Jy 18 18 -3.5	2+, 13	Smith, R. & friends Spain, D. Weier, D. Curtis Cameron, W. & many others	Los Angeles, CA Fairdale, KY Madison, WI Madison, WI Sedona, AZ Wisc, USA	8L,370x 4L, 30-60x 11L,350-408x 11L,350-408x 8L 111x 225x 11L, 350x	S=G 2-3/10 5-6/10 T=4 S=G S=F	183 189a, b	R, G, V	5 conf. or 0
373	15.4	0.915	93 134S 123S 135S 76S 91S 112S 127S -27S 89S 96S 98S 41S	Ag 1703 0.0	3+, 22 ms	Kolovos, G. Conway, Weier, D. Darling, D. Conway James Holmes, D. Mobberly, M. Melvin	Thessaloniki, Greece Sun Prairie, WI Madison, WI Sun Prairie, WI Eng. Eng. Eng. Sussold, Eng.	4L 20L f/8		180 189a,b 191 192 196	B, V	5
374	18.8	0.036	135 -1S	Ag 17 03 +3.4	2, 9+ sc-1	Lucas, M.	Melbourne, Australia	naked eye		180 188	B	2
375	11.9	0.840	50, 3R 10R	S 15 12 -3.4	3+, 20+	Darling, D.	Sun Prairie, WI USA	12.5L 159x	S=7/10	193	R	1
376	18.1	0.060	127 -7S	S 15 12 +2.8	8-, 36+ sc-0.2	Jean, P.	Outremont, Canada	4R?		180	D,G	3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
377	09 24 89	2316:8-16s	E? Limb	90E	5-8s before emergence of star ZC1297 from occultation the m15 like nebula appears ~1s as if the "star" had been born from the "neb." at PA 222° (pos angle meas from N pole to selen W.)	S 16 15 O 15 01	O 01 20	6103 5356 5556 6128	8 secs
378	10 13-14 89	2000 2100-0500	Aristarchus	47W 23N	U.K. observers noted an effect (on floor?) as an impression of two craters. Sketch sent by Foley to A. Johnson but no details mentioned by Foley. (Note almost synchrony of FM and perigee). (T. Cook) unusual appearance of two craters conf. by Foley. Region divided in two, inner E & SE showed too much detail for phase. The unusual bright area - blot on E rim was elongated & bright. (Bartlett's E W BS?) was > c.p.! Became variable & dulled gradually till 0140 on 14th, when it then > & var. rest of night. A spot on S wall became >> & unusual. conf by T & M Cook & Holmes. (conf. by widely separated observers ~4000mi). Probably not due to clouds on Earth.	S 16 15 O 15 01	O 01 20	6103 5356 6117 6128	8h
379	10 14 89	1900? 2200?	Aristarchus	47W 23N	Albedo seemed stable but still too much interior detail seen for normal. Appear. as 2 craters, often seen by Bartlett.	S 16 15 O 15 01	O 01 20	6103 5356 6126: 6128	3h
380	10 15 89	0038-0217	Aristarchus Herodotus Schröter's Valley	47W 23N 48W 22N 48W 24N	(Darling) saw bright glitter on Aris. Then a flare at 0038:05 on the comet ray, then saw one on NE rim of Aris. Both flares = c.p. br. Another flash at 0049 S of Herod. & on the comet-ray. Two more flares at 0056 on NW rim of Aris.. He thinks due to atm. - (WSC agrees). Weier thinks they were true LTP. Albedos by Weier were 8.0 for SW rim of Herod., 9.0 for a spot Cobra Head (S.V.), +7.5 for C.H.. WSC did not see flashes but did see unusualness of interior of Aris. Spain did not see anything unusual. .	S 16 15 O 15 01	O 01 20	6103 5356 6129: 6128	1 1/2h
381	11 19 89	0700	Aristarchus	47W 23N	Noted crater later seemed to be divided in two. Did not see this effect 'till later on the following morning.	N 12 13 D 10 23	N 25 04	6118 5359.5 5608 6041	
382	12 05 89	2218-2336 2311-2353 2330-2345	Proclus	46E 16N	Darling saw 2 dark spots on SE floor. 1st in a 3R then in a 12.5L. Got darker at 2300, wall spot less defined. Weier alerted, came over & conf. Darling. (Jamieson predicted this aspect). Also saw reflecting glint as from glass that he'd never seen before. Caruso alerted confirmed the spots. (These are not likely shadows as sun elev was 51° and highest slope ever measured was 52° - not in Proc.) Cameron's seeing too poor. (WSC catalog shows this is common). .	N 12 13 D 10 23	N 25 04	6118 5359.5 1554 6041	1/4h
383	12 06 89	2309-2334	Proclus	47E 16N	Dark spots not as dark as ones in No.382 (12/5/89). Used 2 tel., in larger one, saw some shading in floor ~1/3 as intense as night before. Sketch. At 2334 event over. (Couldn't be shadow, sun elevation too high)	N 12 13 D 10 23	N 25 04	6118 5359 5902 6041	1/2h
384	12 16 89	0255-0259	Aristarchus Herodotus	47W 23N 48W 22N	Darling, alerted by Keyes saw Aris >> brighter obj on moon (as it normally is) Comet ray & N rim of Herod. >> could see no detail - Aris. except two bands, moon was pale yellow (low alt.) with halo around it. Nothing unusual elsewhere.	D 10 23 Ja 07 19	D 22 19	6041 5407 5741 5945	min

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
377	24.8	0.296	208 +118S	S 15 12 +9.5	3-, 14-	Kurchin, V. V.	Volgograd, Russia	2.5L, 88x		2	B,G?	3
378	13.9- 14.1	0.958- 0.965	77 30R- 33R	O 14 21 -0.8- -1.0	2-, 2	Johnson, A. Cook, A. & M. Foley, P. Darling, D.	Knaresborough, Surrey, Eng. Kent, Eng. Sun Prairie, WI USA	. 12L 12L 12L		194 192	B,D,G	5 conf
379	15.0:	0.996:	91:, 44:R	O 14 21 +0.1:	1-, 1+	Foley, P. & many others	Kent, Eng. Eng.	12L		192	B,D	5 conf
380	14.9:	0.000 0.000	92 45R 44R 44R	O 14 21 +0.4	3-, 8	Darling, D. Weier, D. Cameron, W. Spain, D.	Sun Prairie, WI USA Sun Prairie, WI USA Sedona, AZ Fairdale, KY	12.5L 59x 12.5L, 59x 8L, 100x __		193 189 194 195	G,B,D	5 conf
381	20.7	0.239	173 54S	N 13 06 +6.0	3, 16+	Beaumont, S.	Windermere, Eng			194	D?	3
382	7.6	0.824	5 51R	D 12 16 -6.7	5+, 18+	Darling, D. . Weier, D. Caruso, J. Cameron, W.	Sun Prairie, WI USA . Sun Prairie, WI USA Cambridge, MA Sedona, AZ	12.5L, 36x & 154x . 6.5R, 284x 8L, 100x	S=10 T=5 S=3/10	195 196a	D,B	1 conf.
383	8.6	0.860	17 64R	D 12 16.5 -5.7	2, 11-	Darling, D.	Sun Prairie, WI USA	3R 36x 90x 12.5L 64x	S=7/10 T=4	196a	D	0
384	17.7	0.183	128 99S 100S	D 12 16.5 +3.4	4, 23+	Keyes, J. Darling, D.	Madison, WI Sun Prairie, WI USA	3R 36x, 90x	S=6/10 T=3	196a	B,R	0 conf.

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
385	01 01 90	1655-1845	Aristarchus Copernicus	47W 23N 20W 9N	In Earthshine at 1655 visible before limb was visible. 1705 Aris>>1723 fading 1727 > again. 1729 Cop. Had a faint glow in it. 1740 Aris. << and just visible at 1845. Foley suspects that Aris. Flared up prior to 1655 & then gradually died down.	D 10 23 Ja 07 19	D 22 19	6041 5407 5755 5945	~2h
386	01 07 90	2020-2058	Toricelli B	29E 3S	Suspected dullness in it (can't be shadow)	Ja 07 19 F 02 03	Ja 19 16	5945 5413 5943 5914	1/2h
387	01 08 90	0055	Aristarchus Prinz	47W 23N 44W 26N	(Weier) Anomalous black bar across Aris. Nearly diagonal to terminator. Prinz had interesting shadow patterns, pointed ones - probably due to rising sun on E rim & reflected down. At 0224 W wall had a break in it & a diffuse glow where it should not be. Manske thinks it was Earthshine effect. At 0305 Weier saw Manske's bar - with diffused light and flicker like an aurora - like a gas with electric charge. At 0325 saw a strange glow in Aris. but may be due to atm. though thought it to be a LTP. Darling had never seen such effects before (flickering implies a medium in it).	Ja 07 19 F 02 03	Ja 19 16	5945 5413 5944 5914	2 1/2h
388	01 13 90	2215-2305	Aristarchus	47W 23N	Blue area on N end partly in partly out not sharply defined, diffuse but rim could not be found. Rim of crater normal as were other features observed. No spurious color. No blink obtained but in blue filter area was bright & rim indistinct, while in red looked normal. By 2230 gone & rim seems normal. Sketches. After clouds moved over all was normal. (Atm. Inversion passed over, within?).	Ja 07 19 F 02 03	Ja 19 16	5945 5413 5630 5914	3/4h
389	01 14 90	0114-0155	Aristarchus	47W 23N	Alerted at 2234 on 13th took long time to observe all features in sketch as seeing was poor. However, from 1st observation could see it did not look normal for this for this phase. N 1/2 was 2x>S 1/2. 2 white patches of apron material near Herod were 1/2 of brightness of S 1/2 of Aris. - so 3 levels of brightness. S 1/2 had a circle, dull patch on inner S wall with a bright point shining through it. (Bartlett's EWBS?). Foley at 0230 on 13th in moments of better seeing confirmed M. Cook.	Ja 07 19 F 02 03	Ja 19 16	5945 5413 5640 5640	3/4h
390	01 18 90	0525	Plato	9W 51N	Floor blank apart from well known tonal differences. Sketch.	Ja 07 19 F 02 03	Ja 19 16	5945 5413 5425 5914	
391	02 28 90	0005-0013	Lambert Aristarchus	21W 26N 47W 23N	Fryback saw Lambert as star like point, 9th mag. (due to geometry of sun-moon, terrain & Earth-light & power of telescope). Sketch. Darling saw Aris. Flare up several times 2x> before. Thinks it's due to solar activity & not to cloud cover, too rapid for latter (WSC thinks due to cloud cover although ms. occurred then).	F 02 03 F 28 08	F 16 13	5914 5414 5957 5957	~1/2h
392	03 01 90	0059-0220 1830-1850 1935-1945	Lambert Aristarchus Sirsalis A	21W 26N 47W 23N 63:W 14:S	Fryback again sees Lambert as a star like point & Darling could barely see Aris. But later (0215) saw it flare up 2x conf.> brightness blue winking spot near Sirsalis A till at 1915 when it faded & haloed, loss of detail.	F 28 08 Mr 28 00	Mr 16 08	6048 5407 5955 5957	1 1/3h
393	03 02 90	1935-1950	Gassendi	40W 16S	Orange-yellow glow in it at 1935 at 1940 turned brilliant white then faded to nothing in 10m. In Earth-shine at 178x it seemed to be a small illuminated crater .	F 28 08 Mr 28 08	Mr 16 08	5957 5407 5928 6048	1/4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	Age	Tidal Anomaly	Colong., Term. Dist	Full moon date, days from FM	Solar	Observer	Location	Telescope: Aperture Kind Power	Seeing	Ref.	Phen. Type	wt
	days	d	o	m,d,h, d	K_{pmax}, ΣK_p			Ap, K, PW				
	1,900 A.D.											
385	4.6	0.781	329 -78R -51R	Ja 11 05 -9.5	4, 25- sc-0.4d	Miles, H.	Cornwall, Eng			197	B	0
386	10.7	0.004	43 72R	Ja 11 05 -3.4	3-, 11+ sc-0.8	North, G.	Herstmonceaux, Eng			197	D	3
387	10.9	0.008	47 0R 3R	Ja 11 05 -3.2	4, 17+ sc-0.5	Weier, D. Manske, R. Darling, D.	Sun Prairie,WI USA Sun Prairie,WI USA Sun Prairie,WI USA	12.5L 159x	S=7/10 T=6 S=8/10	198a 198b 199	D,G	3 conf.
388	16.8	0.241	118 109S	Ja 11 05 +2.7	3-, 18-	Pedler	Bristol, Eng		S=III T=E	197	V, G	5 conf
389	17.0	0.249	120 107S	Ja 11 05 +2.9	3+, 15-	Cook, M. Foley, P.	Surrey, Eng Kent, Eng		S=P T=var	197	B,D,G	4 conf
390	21.1	0.411	170 19S	Ja 11 05 +7.0	3, 17-	Butler	London, Eng		S=V	197	B?	0
391	2.6	0.981	307 -74R -100R	Mr 11 11 -11.5	6, 32- ms?	Fryback, D. Darling, D.	Madison, WI Sun Prairie, WI USA	8L 3R 36x		198	B	0
392	3.7	0.028	320 -61R -87R -103R	Mr 11 11 -10.4	4, 28-	Fryback, D. Darling, D. Holmes, M.	Madison, WI Sun Prairie, WI USA Rockdale, Eng.	8L 3R 36x		198a 198b 200	V, B	0
393	5.4	0.089	341 -59R	Mr 11 11 -8.7	3+, 23+	Williamson, P.	Shropshire, Eng	14L, 178x	S=G steady	200	R, B	1

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
394	03 03 90	0012-0013	Proclus	47E 16N	Saw long plume of light. Brightness & albedo = to wall region. Went from S rim 1/2 way across to center in Northerly. At higher power plume not visible & wall was normal. (She is an experienced observer & would recognize any internal reflection in the telescope). Proclus was in sunlight, not ashen light (If plume had been in an E-W direction it could have been sunlight, but N-S direction is puzzling).	F 28 08 Mr 28 08	Mr 16 08	5957 5407 5924 6048	1m
395	03 07 90	0300	Gassendi	40W 16S	Strong Flash in crater (in dark)	F 28 08 Mr 28 08	Mr 16 08	5957 5407 5731 6048	
396	03 29 90	1900?	Aristarchus	47W 23N	(Todd) In Earth-shine it was very prominent, blinked occasionally (Foley) saw it & it varied. Conf.	Mr 28 08 Ap 25 17	Ap 12 20	6048 5400 6031 6119	
397	03 31 90	2130	Gassendi	40W 16S	Reddish glow in Earth-shine. Sketch. Gassendi often exhibits reds but seldom in Earth-shine. Foley says sketch indicates prob. Gassendi.	Mr 28 08 Ap 25 17	Ap 12 20	6048 5400 5936 6119	
398	04 04 90	2130-2150	Copernicus	20W 9N	White flame in it. sketch. From sketch Foley says loc. E of Copernicus, poss. reflection from terminator?.	Mr 28 08 Ap 25 17	Ap 12 20	6048 5400 5631 6119	1/3h
399	04 05 90	0043-0146	Bullialdus Tycho Copernicus	22W 20S 11W 42S 20W 9N	Several features were normal but Bull. was pink on edge of rim. Lasted from 0115-0144. Crater was in shadow. Could make out terrace on W wall. Compared it to Tycho & Cop. (were normal).	Mr 28 08 Ap 25 17	Ap 12 20	6048 5400 5634 6119	1h
400	04 26 90	1930-2030	Aristarchus Grimaldi	47W 23N 65W 5S	In Earth-shine at 2030 which was very bright, outlines of maria clearly visible & W limb particularly bright. Grim. seen well, Aris. bright point which waned and flickered. (probably due to terr. atm. especially as moon was at low altitude, near setting). .	Ap 25 17 My 24 03	My 10 00	6119 5357 6196 6222	1h
401	04 27 90	2000-2030	Oceanus Procellarum	56W 25:N 1/2 way between Sch Valley & Briggs	Bright light, sometimes 3 lights in form of triangle. Haze surrounds as a mist or fog, poss. < at end of obs. May have been due to contrast as Earth-shine was strong. Foley wonders if it wasn't Aris. No repeat of fluctuations, probably not due to Terrestrial atmosphere .	Ap 25 17 My 24 03	My 10 00	6119 5357 6122	1/2h
402	04 28 90	0000-0030 0119-0125	Gassendi	40W 16S	(Graham) intended to observe grazing occult of X6493 but clouds came in 2 min before. Saw Gass.>>, >Aris or anything else. Was a milky luster. Another group may have obtained a video of Moon in Earth-shine. (Darling) in binoc - couldn't see Earth-shine as sky too bright (Sky must have been still > for Graham. Note synch between apogee and FM). .	Ap 25 17 My 24 03	My 10 00	6119 5357 6031 6222	1/2h 6m
403	05 03 90	0203	Alphonsus	4W 13S	Point bright inside it just N of c.p. along center ridge. Saw it again midway between c.p. & edge of NW wall along the ridge. Exam of LOIV-105 H2 found no craterlets in flash points. Other features were normal.	Ap 25 17 My 24 03	My 10 00	6119 5357 5538 6121	

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
394	5.6	0.104	343 30R	Mr 11 11 -8.3	3, 19	Cook, M.	Surrey, Eng.	3.5L Questar		200	B	1
395	9.7	0.243	33 7R	Mr 11 11 -4.4	3, 16+	Jean, P.	Outremont, Canada	4R		199	B	3
396	3.1:	0.053:	311: -96:R	Ap 10 03 -11.3:	5+, 30 sc-0.5	Todd, L. Foley, P.	Eng? Kent, Eng			199	B	1 conf.
397	5.0	0.124	322 -78R	Ap 10 03 -9.2	2+, 16	Jackson, L.	Eng?			190 199 200	R, B	2
398	9.1	0.269	24 4R	Ap 10 03 -5.2	3, 18+	LeFranc, B.	France?			199	B	2
399	9.3	0.276	26 4R	Ap 10 03 -5.1	3, 17+	Darling, D.	Sun Prairie, WI USA	3R, 90x		201	R	3
400	1.6	0.042	291 -116R -136R	Ap 10 03 -13.3	5+, 20+	Beaumont, S.	Cambridge, Eng.		S=II V.G.	202	B	0
401	2.6	0.077	304 -112:R	Ap 10 03 -12.3	4, 24-	Mugridge, P.	Surrey, Eng.		S=E	202	B,G	1
402	2.8	0.084	306 -94R	My 09 20 -11.8	4+, 27+	Graham, F. Darling, D.	Marshall TWP, OH Madison, WI USA	6L binoc 20x60		198 201	B	0
403	7.9	0.263	8 4R	My 09 20 -6.7	4+, 25+	Darling, D.	Sun Prairie, WI USA		S = steady	190	B	3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
404	05 09 90	0824-0828	Cape Agarum	67E 15N	At 0824 W point (C) dropped in brightness to 6.5 then resumed its normal brightness (7). (These are wedge readings = to a change of 1/2 step in Elgar's scale. No other part showed this. Sky was clear.	Ap 25 17 My 24 03	My 10 00	6119 5357 5559 6222	4m
405	06 27 90	0217-0300	Aristarchus	47W 23N	Flared up at 0225 as a point of light then went down, lasting only a moment. Earth-shine quite bright, all other features normal.	Je 21 11 Jy 19 11	Jy 03 16	6053 5406 5721 6008	sec's in 3/4h
406	08 08 90	0747-0900	Piton Cape Agarum Pico Proclus	2W 39N 67E 15N 9W 49N 49:E 16N	W flank of CA >>, even > Proc. interior. (SS) Piton's all pts were << but nearby plain was normal. Ridge at 5.3 at B, C, D but 3 alb at B, C, D (norm = 7) but nearby plain was normal. At A 3, was hazy but ill defined. Parts of mt brightened but others didn't. Times between brightenings were 6-8s.Similar to seeing fluctuations. In red mt stayed dull & steady. In blue it blinked. Pico - no blink. s.c. of Piton also dull. Activity still up to 0900 when abs. ceased. (probably a real LTP).	Je 21 11 Jy 19 11	Jy 03 16	6008 ---- 5726 5924	1 1/4h
407	08 26 90	0230-0330	Proclus Piccolomini Theophilus Hercules Posidonius Atlas	47E 16N 32E 29S 26E 11S 38E 47N 29E 32N 44E 46N	N rim of Proclus > rest of it. W wall of Theophilus reddish (on term.), but Posidonius also on term. & no color anywhere else along it. Proclus & Piccol. both had pink in their whole interior (I now think effect not due to terminator effect as Piccol. was 5° from it & Proc. was 20°, Theoph. maybe as it was only 1° from term.). At > power (220x) definite prismatic effect on term. in Theoph. & others even on W rim of a crater due W of Theoph.. Piccol. pink with deeper color on c.p., W side. (magnetic storm occurred 2 hr later). CED meas Proc. at 100x 4.0, 4.0; at 200x 3.4, 3.4; Theop. 3.5, 3.9; 3.5; Herc. 2.5, 2.75; 3.5; Atlas 2.8, 2.5, 3.0; Posidonius 3.0 (First and only time such effect seen by WSC).	Ag 15 10 S 09 11	Ag 28 03	5924 5415 5436 5931	1h
408	08 30 90	0211-0236	Proclus Copernicus Censorinus	47E 16N 20W 9N 33E 1S	At 0211 saw color on W rim of Cop. unusual appearance, but saw same effect on others along the term. Dazzling bright spot on E rim. Rotated eyepiece but no change. N rim of Proc. bright interior uniform gray. Saw 6 flashes in Cop. in lighted part. Had seen flashes before but never so many in such a short time. (prob. chrom. aberration as tele. was a refractor).	Ag 15 10 S 09 11	Ag 28 03	5924 5415 5434 5931	~1/2h
409	09 01 90	2130-2200	Encke B? (nr Encke)	36W 3N	Saw a very bright crater had never noticed before. (Probably Encke B which is a fairly prominent smaller crater).	Ag 15 10 S 09 11	Ag 28 03	5924 5415 5558 5931	1/2h
410	09 16 90	1030-1107 1045-1052	Earth-lit area between M. Crisium & Proclus	49E 16N	Alerted by Darling, Castle found Proc. region > rest of Earth-lit. With averted vision at 102x saw Proc. as brighter object in center of faintly glowing area. Size was ~3 Proc diam E-W & 4-5 diam N-S. East of glow not well defined. Darling saw a brightening in Earth-lit in this region, alerted Brit. but they were clouded out.	S 09 11 O 06 18	S 24 22	5931 5410 5735 6022	1/2h
411	09 30 90	0339-0425	Proclus Piton Copernicus Plato Gassendi	47E 16N 2W 39N 20W 9N 9W 51N 40W 16N	Gassendi, much detail. Blink one spot on W wall bright red, faint in blue for over all of observation period. Tried blinks on all the others, but no blinks. Examined other craters for color, but saw none. sketch. At 0355 alerted Brit. but they were clouded out. (did not blink others on term.).	S 09 11 O 06 18	S 24 22	5931 5410 5627 6022	3/4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
404	14.1	0.481	82 149R	My 09 20 -0.5	4+, 24+ ms-1d	Louderback, D.	South Bend, WA USA	3L, 150x	S=clear	203	D	3
405	4.3	0.200	320 -87R	Jy 08 01 -10.9	5-, 17+	Darling, D.	Sparta, WI USA	3R, 36x		204	B	0
406	17.2	0.732	114 68S 1S 75S 19S	Ag 06 14 +1.6	3-, 11+	Louderback, D.	South Bend, WA USA	3R, 173x		203	B,D,G, V	4
407	5.6	0.426	333 20R 5R 1R -11R 2R 17R	S 05 02 -10.0	7-, 40 sc-0.1	Cameron, W.	Sedona, AZ USA	8L, 110x, 220x	S=G	174	R, B	3
408	9.6	0.586	22 69R 2R 55R	S 05 02 -6.0	5+, 30- sc+1.4	Darling, D.	Sun Prairie, WI USA	3R, 90x	atm. boiling	205	R, B	0
409	12.3	0.697	54 18R	S 05 02 -3.2	7-, 25- sc-0.4	Blanco, J. Vidal	Gijon, Spain	3R, 72x		163b	B	1
410	27.0	0.254	222 -100 -86S	S 05 02 +10.4	5-, 28+	Darling, D. Castle, D.	Sun Prairie, WI USA Rock Island, IL USA	3r, 56x 8L, 51x, 102x		198 206a 206b 206c	B	1 conf
411	11.2	0.754	41 88R 39R 21R 32R 1R	O 04 12 -4.3	2+, 9+	Darling, D.	Sun Prairie, WI USA	12.5L, 159x		207	R, B	5

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
412	10 01 90	0044-0124	Gassendi Aristarchus	40W 16S 47W 23N	Gass. still had a blink. Aris. did not. Blinked with a W38A (blue) & W25A (red) filters> in red. Therefore red event conf. by Weier. Sketches. Albedo rdgs Gass. at 0100 NW wall 7.5, SW wall 8.0, S wall 7.5 S floor 6.0, E outer wall 8.0, NE wall 8.0, N floor 5.5; Gass. A W wall 9.5. Aris. W floor 8.0, NW wall 8.0,shad floor 0, E wall outer 7.0, NBP 5.5. Area between Aris. & Herod. 6.0, comet tail E8.2, W8.5. conf.	S 09 11 O 06 18	S 24 22	5931 5410 5707 6022	2/3h
413	10 02 90	0225-0245	Plato Gassendi Aristarchus	9W 51N 40W 16S 47W 23N	Blink on W wall of Plato, bright in blues, disappears in red. Therefore blue event No blinks on Gass. or Aris. (not spur. color as it is on W not S).	S 09 11 O 06 18	S 24 22	5931 5410 5802 6022	1/3h
414	11 30 90	0054-0135	Aristarchus Herodotus Prom. LaPlace Schröter's Vly (Cobra Head)	47W 23N 48W 22N 25W 45N 48W 24N	Hint of color on SW rim of Aris. (red?). Albedo normal in Aris. & Herod. Looked at Sinus Iridium - no color. LaPlace cast a very dark shadow. Color on Aris. not visible at 0115 at 159x.	N 03 23 D 02 11	N 19 03	6104 5357 6034 6128	1/2h
415	12 02 90	0401 0158-0444 0345-0430	Cobra Head SV Aristarchus Herodotus	48W 24N 47W 23N 48N 22N	(Graham) photos of CH in SV phenom. was blue, cloud extend ~50km in diameter & scattering of light indicated high density. (Darling) CH very obscure & varied from clear & bright - diffused. (Cameron) alerted noted circles of variations lasting ~30s & suspected red tinge on E crest of Aris but nowhere else at 0240 at 110x. At 220x (Darling) blue filter enhanced it, & disappear in red. Blinked at 0255 but no blink CH looked washed out and fuzzy. Conf by Weier. Saw 2 dark spots in CH, saw in blue but not in red. Albedos of CH 6.0,Herod floor 5.5, NW wall 7.5, S wall 7.0, Aris. S wall 9.0, W wall 9.0, S wall 7.0, E wall 8.0, C.P. 10.0 (normal, note coincidence of FM & perigee).	N 03 23 D 02 11	N 19 03	6104 5357 6128 6128	2 3/4h
416	12 03 90 12 04 90	2300-0130:	Aristarchus	47W 23N	c.p.> & extended to a circular area due E in the crater spout area (Bartlett's EWBS?) beyond the rim to E was >>. In filters nothing showed up. Sketch. Note coincidence of perigee and FM.	D 02 11 D 31 00	D 16 04	6128 5356 6105 6118	2 1/2h
417	12 10 90	1031-1241 1215	Tycho Aristarchus Schröter's-Valley Herodotus Copernicus Bullialdus	11W 42S 47W 23N 48W 24N 48W 22N 20W 9N 22W 21S	on E Photo at 1215 of glowing c.p. (could see it on his slide but not when magnified in a slide projector or 10x magnifier). Exp time 2s saw it as a fuzzy star part of c.p. continued for 2h. Also saw an arch of light from NW all over c.p. and back down to N wall. Also several star like points. Appearance of other features along terminator did not show any of this. Thinks c.p. really glowing and not reflected light. All other features normal.	D 02 11 D 31 00	D 16 04	6128 5356 5541 6118	
418	01 19 91	0315-0325 1853-1912 1734-1800	Mare Crisium- -E. Limb Aristarchus	65E 15N 90E 47W 23N	(Jean) Unusual halo effect along bright limb & a reddish glow in dark area. Foley & M. Cook think it was terr. atm. & so does WSC. At 1025 red glow on NW limb near Carpenter - a few s duration. Sketch. (Foley) with naked eye saw Earthshine strong. In telescope saw Aris. bright as expected. T. Cook videoed moon - showed variations (most likely terr. atm.)	D 31 00 Ja 28 09	Ja 12 11	6118 5401 5556 6034	10m 1/2h
419	01 26 91	2326-2350	Gassendi Aristarchus	40W 16S 47W 23N	Blinked Gass. & Aris. with 12.5L, filters. Gass. showed no anomaly, but Aris. did > in red than blue on W rim in red. Blinked them in 3R got same as in 12L.	D 31 00 Ja 28 09	Ja 12 11	6118 5401 6034	24m

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
						1,900 A.D.						
412	12.0	0.790	52 12R 5R	O 04 12 -3.5	2-, 4+	Darling, D. Weier, D.	Sun Prairie, WI USA Sun Prairie, WI USA	12.5L, 159x 12.5L, 159x		207	R	5 conf
413	13.1	0.831	65 56R 25R 18R	O 04 12 -2.4	2+, 11-	Darling, D.	Sun Prairie, WI USA	12.5L, 159x		207	V	4
414	12.6	0.912	62 15R 16R 37R 16R	D 02 08 -2.3	3+, 17-	Darling, D.	Sun Prairie, WI USA	3R, 140x 12.5L, 159x		208	R, B, D	3
415	14.8	0.989 0.990	88 40R 39R 40R	D 02 08 -0.3	2, 10-	Darling, D. Weier, D. Cameron, W. Graham, F.	Sun Prairie, WI USA Sun Prairie, WI USA Sedona, AZ E. Pittsburgh, PA	12.5L, 159x 12.5L, 159x 8L,110&220x 7R	S=9/10 s=9/10 T=6 S=6 Thinhaze	209a,b,c	V, B, G	5 conf photos
416	16.6	0.053	110 117S	D 02 08 +1.7	4+ 25+	Cook, M.	Surrey, Eng.			210a 210b	B, D	3
417	23.1	0267 0.281	189 2S 38S 39S 39S 9S 13S	D 02 08 +8.2	1-, 3+	Darling, D.	Sun Prairie, WI USA	12.5L 159x	S=7-8/10 T=5	210 210b 211c	B, G	5 photo conf.
418	3.2 3.8	0.676 0.69**:**	308 315 13**:** -99R	Ja 30 06 -11.1 -10.5	2, 7	Jean, P. Foley, P. . Cook, T.	Outremont, Canada Kent, Eng. . Surrey, Eng.	12L	S=III, T=G	210a	B, G, R	0
419	10.0	0.916	47 7R 0R	Ja 30 06 -3.3	4-, 19-	Darling, D.	Sun Prairie, WI USA	12.5L 159x 3R 90x		212	R	4 filters

1	2	3	4	5	6	7	8	9	10
No.	Date	UT Time	Feature	Selenographic Coordinates	Phenomena Description	Perigee dates	Apogee Dates	Horizontal Parallax	Dura-tion
	mm/dd/yy	hhmm		λo o		m, d, h	m, d, h	πp πa π	
					1,900 A.D.				
420	02 25 91	0126-0312	Gassendi	40W 16S	Bluish on W wall, bright red, diffuses in blue. Sketch.	F 25 01 Mr 22 05	Mr 09 01	5939 5414 5939 5917	1 3/4h
421	04 17 91	0122-0225 0215-0232 0151-0237	Gassendi Aristarchus	40W 16S 47W 23N	(Spain) Orange flare & a few brightenings in Gass. saw a glowing spot in Earthshine with naked eye, was Gass. in tele. Sketch. Aris small point. (Darling) though alerted did not see anything abnormal. (Herzog) same phenomena as Spain, (indep? conf.) (Orange due to low altitude?).	Mr 22 05 Ap 17 17	Ap 05 21	5917 5414 5957 6000	1 1/4h
422	04 18 91	0200-0253 0200-0220: 0202-0302	Aristarchus	47W 23N	Spain saw it only with averted vision. Herzog saw it go through 3 minute cycle of glowing, down to Earthshine brightness. Dembrowski took photos - recorded nothing unusual. Herzog couldn't detect Copernicus, Kepler or Tycho	Ap 17 17 My 15 17	My 03 15	6000 5409 5959 6047	1h
423	04 19 91	0210-0221	E. Limb	90E 25?N	Photos and slides submitted as possible ejecta plume at bright limb (most probably lens flare upon inspection by photo expert).	Ap 17 17 My 15 17	My 03 15	6000 5409 5949 6047	1m
424	04 22 91	0038-0115	Atlas Piton Piazzi-Smyth Proclus Censorinus	44E 47N 2W 39N 3W 43N 47E 16N 33E 1S	In red & blue blink, Atlas normal, Piton normal, P-S bright in red but diffused in blue. Proc. same brightness as Cens.. Later, blink in Atlas dark spot had dark nucleus in blue light. Gave albedos for Piton, Atlas, Proclus & Censorinus.	Ap 17 17 My 15 17	My 03 15	6000 5409 5843 6047	1/2h
425	04 25 91	0147-0237	Atlas Gassendi	44E 47N 40W 16S	At 0147 craters were normal. Later blinks in Atlas & Gass.. Blinks in Gass. brighter in red. Spots in Atlas more intense in blue. Aris., Plato, Coper., Herschel, Bullialdus, Tycho & Clavius all normal - no blinks.	Ap 17 17 My 15 17	My 03 15	6000 5409 5710 6047	50m
426	05 19 91	2100?	Censorinus	33E 1S	Observed it for 5 consecutive days (19-24), it was dull, white, sometimes diffused and sometimes not. On this date apron was dull, gray.	My 15 17 Je 13 00	My 31 03	6047 5402 5908: 6117	
427	05 21 91	0530 0540 0545 0610 0615	Mt. Agassiz	2E 41N	Bright source, band stretching E & N of Cassini. Three exposures made 10m apart show gradual widening toward Cass.. On 3rd exposure it is touching and later obliterating Cass.. Fan out in NE & WSW direction - later in form of rays. Later were also seen in view finder of camera. (Effect might be lens flare, but would that be seen in the finder? It could be an eruption from Agassiz. It has an irregular s.c., volcanic? Many times before similar phenomena have been seen in the vicinity. #s 248, 287, 313, 418, 563 & 556 in published Catalog - W.S.C. author 1978).	My 15 17 Je 13 00	My 31 03	6047 5402 5754 6117	3/4h
428a	05 24 91	0005-0008 2000?	Jansen B&H? (Gazateer rept says F&K)	32E 11N	Circular cloud (LOIV 78-2 shows the area between F& K which are SE of Jansen, there is a dome with a s.c. near the event coordinants and is likely the source of the LTP) crater of the event 100km diam. compared to Copernicus, dark with crescent obscured region below it. Was S of Jansen. A circular depression there was before LTP in darkness. Wonders if circ. depr. was shadow of cloud? Barruzo says WSC Catalog No.'s 1083, 1088, 1120, 1161 & 1362 LTP are similar - 1161 was in Jansen. Sketch. Possibly electrostatic dust seen at sunrise but the observation was > 4d after sunrise.	My 15 17 Je 13 00	My 31 03	6047 5402 5544 6117	3m

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
420	10.4	0.000 0.004	41 1R	F 28 18 -3.6	4-, 18+	Darling, D.	Sun Prairie, WI USA	12.5L 248x filters	S=10/10 T=G	213	R, G	4
421	2.3	0.997	302 -98R -105R	Ap 28 21 -11.7	4-, 21+	Spain, D. . Darling, D. . Herzog, K.	Fairdale, KY . Sun Prairie, WI USA . Racine, WI USA	3.5l 30-111x . 3R 56x . 2.5R 28x	S=5/10 T=5.5 S=7/10 T=5 S=G T=6-7	214	R, B	1 conf.
422	3.3	0.014	314 -94R	Ap 28 21 -10.7	4, 21+ sc-1.2	Spain, D. Herzog, K. Dembrowski, W. Darling, D.	Fairdale, KY Racine, WI USA . Sun Prairie, WI USA	3.5L 1K 6R 38x . 3R 56x	S=6/10 S=G T=6-7	214	B, G	1 photo conf.
423	4.3	0.050	327 57R	Ap 28 21 -9.7?	4, 21+ s.c.+0.3	Stroud, R.				215	B	1
424	7.2	0.154	3 47R 1R 0R 50R 36R	Ap 28 21 -6.8	3-, 16	Darling, D.	Sun Prairie, WI USA	12.5L 99x	S=7/10	214	V, D, G	3
425	10.3	0.264	40 84R 0R	Ap 28 21 -3.7	5-, 23+ S.C.+0.5	Darling, D.	Sun Prairie, WI USA	12.5L 64x		214	R, V	4
426	5.6:	0.145:	342: 15:R	My 28 12 -8.7:	2+, 8	Cook, M.	Surrey, Eng.	12L?	S=III	216	D	1
427	7.1	0.198	359 1R	My 28 12 -7.2	3, 14- s.c.-0.7	Green, J.	Orangevale, CA USA	11L photos		217a 217b 217c 217d	B, G	5 photo
428a	9.8 10.6	0.293 0.322	33 47	My 28 11.5 -4.5 -3.7	5, 30	Lourencon	Sao Palo, Brazil	60mmR (2.5in)	S=III	218a, b	D	3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
428b	05 24 91	0005-0008 2000:	Censorinus	33E 1S	Apron very dull, grayish, not diffused as on 5/22 & 5/23 when apron was white. Sketch. M. Cook , exp. observer says apron, when dull, has detail, but white glares are diffused. Foley says angle of illumination may play a part.	My 15 17 Je 13 00	My 31 03	6047 5402 5544 6117	
429	06 16 91	2030-0030	nr M. Crisium	52.5E 21.5N or 53.6E 22.3N	Large white spot with tail Eastward shore of M. Crisium. Taped on video. Seen for several nights. Faded away on 20th.	Je 13 00 Jy 11 10	Je 27 07	6117 5359 5919 6117	~4h
430	06 17 91 to 06 19 91	2030	nr M. Crisium	52.5:E 21.5:N	Spot seen this night too - slight variation. Taped on video. Varies from 7.5-9.5 albedo. It is found to be very bright on LOIV 54-3 probably is a normal aspect but with s.c. maybe vol.	Je 13 00 Jy 11 10	Je 27 07	6117 5359 6117	Long
	06 18 91	2130?	nr M. Crisium	53.5:E 21.5:N	Same spot seen several nights.				Long
	06 19 91		nr M. Crisium	53.6E 22.3N 54.8E 21.4N	Westfall also taped the above features. Spot faded on 6/20/91. Though familiar with it had never seen it like this.				
431	07 31 91	0750	Piton Aristarchus	2W 39N 47W 23N	Piton, whole mt. unusually dark. Points D, C (E & S resp), usually brightest points were not bright at all. Whole mt was as dark as W wall usually is at this time. In violet filter Piton disappeared completely, but was a little brighter in red filter and points D & G showed. Color not seen by eye. No albedo measured. Suggests red event. Aris. S floor yellow - almost gold, spilled over S wall on ray toward Herodotus. Bartlett often saw yellow floor but not spill over to ray. Louderback's refractor refracts more in blue than yellow - obs. not likely chromatic aberration. .	Jy 11 10 Ag 08 18	Jy 24 11	6117 5402 5600 6053	
432	08 23 91	0219-0249	Schröter's Valley	48W 24N	Flashing spot at end of SV fluctuated. Herzog, Darling & Weier confirmed spot but not fluctuation. Spot brighter in red than blue, but Cobra Head was bright in blue. No other region was abnormal.	Ag 08 18 S 15 19	Ag 20 23	6053 5407 5325 6008	1/2h
433	08 29-30 91	0000:	Kant	20E 10S	E wall brighter than other nearby craters. (Foley says this is normal. I agree, probably negative.)	Ag 08 18 S 15 19	Ag 20 23	6053 5407 5723: 6008	
434	09 02 91	0734-0840	Tycho	11W 42S	c.p. star like point, some times nebulous patch. At 248x seeing not steady interior luminesced c.p. flared up. Sketch shows unusual arches. Albedos 9.0 E wall, brighter in red filter also c.p., W wall 8.0, S wall 7.0, N wall 7.0. Not visible in blue. Due to seeing, other features are normal. .	Ag 08 18 S 05 19	Ag 20 23	6053 5407 5907 6008	~1h
435	10 14 91	0412	Büsching	20E 40S	Sudden changes in feature	O 02 18 O 27 16	O 15 11	5921 5416 5424 5931	min?
436	12 09 91	2353-0012 2250	Grimaldi W. Limb	67W 5S 90W	Flash in it. Others had seen flashes there earlier. There was a meteor swarm. Fritschel saw 3 flashes in it and at W limb. Many reports before for flashes, inc'l H. Schmitt on Apollo 17.	N 24 02 D 22 09	D 10 02	6025 5402 5402 6118	2.1m

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
428b	10.6	0.322	43:	-3.7		Cook, M.	Surrey, Eng.			219b	D,G?	3
429	4.3	0.134	324 16R	Je 27 03 -10.3	2, 10 sc-0.8	Castro, T. Westfall, J.	Sao Palo, Brazil San Francisco, CA	24L 500x		217 217b 219b 219c	B	5 conf. videos
430	5.3	0.169	336:	Je 27 03 -9.3	7+, 40- sc+0.4	Castro, T.	Sao Palo, Brazil	24L 500x		219 220	B	5
	6.3	0.200	349:	8.3	5, 31	Castro, T. Lobo	Sao Palo, Brazil	24L 500x			B	5
				7.3	5, 31	Westfall, J.	San Francisco, CA	video taped			B	5
431	19.5	0.703	147 -35S	Jy 26 18 +4.6	2, 12+	Louderback, D.	South Bend, WA USA	3R		221	D, G	3
432	13.0	0.512	66 13R	Ag 25 09 -2.3	4, 20	Darling, D. Weier, D. Herzog, K.	Sun Prairie, WI USA Sun Prairie, WI USA Racine, WI USA	12.5L 159x	S=7 T=3	222	R, V, b	5 conf.
433	19.9:	0.758	150: 10:S	Ag 25 09 +4.6:	5-8, 37 sc-0.5	Brook, C.	Eng			223	B	1
434	23.2	0.875	190 0R	Ag 25 09 +7.9	6-, 29+ ms	Darling, D.	Sun Prairie, WI USA	12.5L 159-248x	S=7/10 T=3	222	R, B, G?	2
435	6.2	0.460	340 0R	O 23 11 -9.3	3, 15	Numi, M.A.L.	Jeddah, Saudi Arabia			224		1
436	3.8	0.562	313 -114R	D 21 10 -11.4	3+, 17+	Darling, D. Weier, D. Fritschel	Sun Prairie, WI USA Sun Prairie, WI USA Madison, WI USA	3R 36x 3R 36x eye		225a, b, c	B	5 conf.

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
437	12 23 91	2250	Cleomedes	55E 27N	Noticed an oval, pear-shaped glow for 2m - then sudden disappearance. Sketch. (CDR Hatfield detected, 11h before this an outburst of solar activity.)	D 22 09 Ja 19 22	Ja 06 12	6110 5357 6050 6130	2m
438	01 18 92	2234-2348	Plato	9W 51N	Saw 4 craterlets & a couple of rays on its floor. Moore, w/ larger tel. & power could not see any detail there on 12/28/91 at 0210.	D 22 09 Ja 19 22	Ja 06 12	6110 5358 6120 6130	64m
439	01 20-21 92	2349-0015	Plato	9W 5N	Saw central craterlet & the unnamed one NW of Pico. (Were this & No. 429 LTP or just good seeing?)	Ja 19 22 F 17 16	F 02 11	6130 5357 6118 6112	26m
440	02 16 92	0105-0135	Langrenus	60E 8S	Struck by the brilliance and mistiness of the N wall. Did not think it was a LTP so didn't call anyone.	Ja 19 22 F 17 16	F 02 11	6130 5357 6056 6112	30m
441	02 21 92	0300-0355	Janssen K	42E 46S	Crater (Janssen K) on floor of Janssen very bright. He reported a similar one on 9/15/92. I considered that one as a LTP.	F 17 10 Mr 16 17	F 29 21	6112 5401 5913 6030	55m
442	03 16 92	0039 0052-0114 0055	Cobra Head, SV Aristarchus	48W 24N . 47W 23N	Weier saw faint illumination in shadow projected over c.h., soft & diffused w/ a sharp appearance along its edge. Both conclude that it was a LTP. Darling started photos at 0051, 20 in all. Drawing & visible & photos. 1st 3 photos showed it was normal, 4 showed abnormal. Seeing was stunning - Aris w/ much detail, but c.h. washed out and shadows near it were illuminated. Conf. & Recorded. .	F 17 10 Mr 16 17	F 29 21	6112 5401 6027 6030	1/2h
443	04 06 92	0045-0203	Aristarchus Kepler Copernicus Gassendi	47W 23N 37W 7N 20W 9N 40W 16S	Johnson saw Aris. in ashen light, but at higher power was diffused star. Didn't see it later when returned to telescope. Darling, Weier & Graham observed independently but could not see it 0124. Sketch by Graham & photos (probably due to atmospheric turbulence with flare-up). .	Mr 16 17 Ap 13 07	Mr 28 15	6030 5410 5726 5938	1 1/2h
444	05 11 92	2030-2100	Plato Copernicus	9W 51N 20W 9N	Something crossed the field in < 1s (meteor?). Later Cop. had almost no disturbance. Flash was seen between 2236:30 & 2236:40. Thus 10s.	My 08 12 Je 04 02	My 23 05	5914 5414 5853 6008	10s
445	05 13 92	2040-2112 2116-2140	Plato Gassendi	9W 51N 40W 16S	Plato - many observations show craters. In others there were different seeing conditions. Some were: Anton III-IV, another V. (I=Best, V=Worst). Foley saw floor bright (S=III-IV). Saw craterlets on the floor in the better seeing. Had video monitor in which it appears normal. WNW spot misty at times, gray. Moore saw it in bad seeing (V). J. Cook tried a CCD at 2211. Gassendi at 2230 Turner noticed a white spot WSW (IAU) wall which he had not seen earlier. .	My 08 12 Je 04 02	My 23 05	5914 5414 6001	2h
446	05 19 92	0100-0205	Aristarchus Pico	47W 23N 9W 46N	At 0125 S & SE wall with the "spur" were a red-orange glow very unmistakable. Chapman saw it easily though not a lunar observer. By 0133 had faded to only a hint. Did not send out an alert because S slope of Pico also tinted and seeing was poor. Although other features checked did not show it. .	My 08 12 Je 04 02	My 23 05	5914 5414 5526 6001	65m

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
437	20.1	0.053	156 31S	D 21 10 +2.5	4-, 23+	Mizon, R.	Eng.	8L		226a, b		
438	14.0	0.968	79 70R	Ja 19 21 -0.8	3-, 13	Cook, T.	Surrey, Eng.	8L	S=III	226a	B	2
439	17.2	0.039	121 +68S	Ja 19 21 +1.2	4-, 23-	Cook, M.	Surrey, Eng.	3in, 130x	S=III	226a	B	2
440	12.2	0.951	60 120R	F 18 08 -2.3	5+, 29+ sc-1.3	Moore, P.	Sussex, Eng.	12.5L 200-360x	S=III	226a, b	B	1
441	17.4	0.134	123 15S	F 18 08 +2.8	7+, 49+ ms	Brook, C.	Eng.?	3R? or L? 116x	S=II	226b 233	B	2
442	11.4	0.975	53 5R	Mr 18 18 -2.7	3+, 21+	Darling, D. Weier, D.	Sun Prairie, WI USA Sun Prairie, WI USA	11L 11L	exc.	225a 227	G, B	5
443	2.9	0.739	310 70R	Ap 17 05 -11.1	6-, 27 ms?	Johnson, G. Darling, D. Weier, D. Graham, F.	Swanton, MD Sun Prairie, WI Sun Prairie, WI Pittsburgh, PA photos	3.5R 36x 3R . 7L		225 a? b?	B photos	0
444	9.1	0.124	26 17R	My 16 16 -4.9	7+, 44- 2sc's at 1557 & 1957	Amendsensvej, R.	Esbjerj, Denmark	10L 333x		225c	B	1
445	11.2	0.203	52 43R 8R	My 16 16 -2.8	5, 27+	Foley, P. Cook, M. Moore, P. Cook, J. Turner, R. (Gass)	Kent, Eng. Frimley, Eng Selsey, Eng Frimlay, Eng Wolverhampton, Eng	12L 3.6L 15L 3.6L 3.6R 50x	III-IV III-IV V II-III	227 228	B, G	5 Plato conf. video CED
446	16.4	0.398	114 113S	My 16 16 +2.4	4+, 21- sc+0.2	Moore, P. Chapman, A.	Kent, Eng.	15L 260x	IV-V	228	R, B	0-V conf.

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
447	05 20 92	1115	Aristarchus	47W 23N	In sparkling clear morning sky saw it and area very bright to eye. In 7x50 binoc very sharp & distinct > anything else on Moon. (He only scans the sky and only reports something unusual).	My 08 12 Je 04 02	My 23 05	5914 5414 5447 6001	min?
451	07 16 92	0832-0931	Aristarchus Cobra Head	47W 23N 48W 22N	Saw yellow on S wall with no filter, darker yellow in yellow filter & duller than normal. Measured 1 step brighter on 2nd measurement, on all points in it. Comet tail was broken into 3 segments & mottled. Cobra Head showed changes in brightness.	Jy 02 00 Jy 30 08	Jy 17 11	6048 5401 6117	1h
452	08 21 92	0805-1123	Tycho	11W 42S	Video & photo progress to sunset on Tycho. visibility noted diffuse over main c.p. and into shadow, extending NE & SE. (Examined video, some of effect is from seeing, but not all? Dr. Arlin Crofts took CCD spectra at same time but missed Tycho. Thinks it may not have been LTP). Five other features examined but were all normal. P. Castle later saw it normal.	Jy 30 08 Ag 27 18	Ag 13 16	6117 5358 5706 6121	3h18m
453	09 14-15 92	2130-0025 2214-0101 2130-2300	Janssen K	42E 46S	Crater > & similar one was sharp EW wall especially bright. Floor in shadow. No obscur. on floor but no detail in bright part could be seen. At 2320 haddimmed slightly, continued to do so. At 0040 was noticeably <. Began to see detail 0025, LTP over. G. North took photos in this time K was grayish, not very bright. C. Brook noticed K very bright condition its rays 1/2 length. Harris photos showed no variation.	Ag 27 18 S 25 03	J 09 19	6121 5408 5509 6055	~3h
454	10 04 92	0215-0318	Piton Eimmart M. Crisium Cape Agarum pt A	2W 39N 65E 25N 60E 24N 67E 14N	Found Piton very bright, as bright as Proclus (9), no filter; violet filter 7.5, red 9.3 (9.2 for Proclus). In blue both features = (9?). points on Piton affected were B, D & C (S, W & N resp.) D in violet was fuzzy - ill defined. Cape Agarum, Eimmart & M. Cris. all > in blue than red.	S 25 03 O 23 05	O 07 06	6055 5406 5453 6006	63m
455	10 10 92	1857-1904	Plato	9W 5S	At 1857 a star point in crater = brightness of Alphonsus' c.p.. Lasted 90s then weakened till it disappeared at 1904	S 25 03 O 23 05	O 07 06	6055 5406 5429 6006	7m
456	03 08 93	2230	Plato	9W 5S	Brilliant white area on N wall, floor < Mare Imbrium.	Mr 08 08 A 05 19	Mr 21 18	6129 5356 6126 6111	min?
457	03 30 93	1930	Alpine Valley	1:E 48N	Crater at end of valley unusual. M. Cook checked it and saw it normal.	Mr 08 08 A 05 19	Mr 21 18	6129 5356 6111	
458a	03 30 93	1935-2115	Alphonsus	4W 13S	At 1935 saw c.p. seemed extra bright. Normal later. Thinks may be a contrast phenomena.	Mr 08 08 A 05 19	Mr 21 18	6129 5356 6111	1h 20m
458b	03 31 93	1935-2115	Alphonsus	4W 13S	c.p. was very bright. Not confident enough to send out an alert.	Mr 08 08 A 05 19	Mr 21 18	6129 5356 6111	1h 20m
459	04 03 93	2338:30- 2338:45	Proclus Gassendi	47E 16N 40W 16S	D. Weier saw two flashes in Proclus. C. Adams saw translucent orange in Gassendi covering a sector of ~35° with apex at center - rim (row of 3 c.p.'s extending W. The most western c.p. seems to be a dome with s.c.)	Mr 08 08 A 05 19	Mr 21 18	6109 5356 6041 6111	10s
460	04 06 93	2300?	Toricelli B	29E 3S	Noted that it was > yellow but only visible in mauve + yellow combined.	Ap 05 19 My 04 00	Ap 18 05	6111 5401 6057 6028	

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
447	17.8	0.451	132 95S	My 16 16 +3.8	3, 16-	Weier, D.	Sun Prairie, WI	eye, 7x50 binoc	exc.	229	D, G	2
451	15.8	0.505	106 59R	Jy 14 19 +1.5	3+, 20-	Louderback, D.	South Bend, WA	3R, 134x		234	R, B, D	3
452	22.6	0.781	187 6S	Ag 13 10 +8.0	5+, 23	Darling, D. Darling, Michelle D. Darling, Lael D. Castle, P.	Sun Prairie, WI Sun Prairie, WI Sun Prairie, WI Rock Island, IL	16L video photos spectra 6R 245x		230	G, B	5 videos
453	17.2	0.641	126 12S	S 12 02 +2.8	3+, 16- sc+1.4	Brook, C. Harris, L. Worth, N.	Eng. Plymouth, Eng. Herstmonceux, Eng.	4R, 216x 10L, CCD 18L photos	S=3 S=II	235a,b	B, D, G	5 5
454	7.7	0.356	0: 21R	O 11 18 -7.6	4-, 12+	Louderback, D.	South Bend, WA	3R, 80x		234	V, B, G	4 filters
455	14.3	0.555	80 71R	O 11 18 -1.0	3+, 17+ sc+1	Brukhanov, I.S.	Minsk,Belarus	6R 40x 98x		96	B	3
456	15.4	0.021	96 95S	Mr 08 10 +0.5	5:, 34:	Titford, R.	Eng.	8.5L	S=III	232	B, D	3
457	7.5	0.789	87R 2R	Ap 06 19 -7.0	4+, 21	- Cook, M.	Reading, Eng. Frimley, Eng.			232	?	0
458a	7.5	0.795	3 1R	Ap 06 19 - 7.0	4+, 21	Knott, J.	Eng.	8.5L 180x	S-II T=G	235	B	0
458b	8.5	0.825	15 11R	Ap 06 19 -6.0	3, 17	Knott, J.	Eng.	8.5L 216x		232	B	1
459	11.7	0.937	54 101R 14R	Ap 06 19 -2.8	2-, 8+	Weier, D. Adams, C.	Sun Prairie, WI FL	7x50 binoc 24L 168x		236	B, R G?	3
460	14.7:	0.043	90: 119R	Ap 06 19 +0.4:	5-, 22	Cook, M.	Frimley, Eng.	filters		232	R, G?	4

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
461	05 28 93	2102-2130	Proclus	47E 16N	M. Cook reports lack of sharpness of interior of E side - rims. She thinks effect due to sun angle. T. Cook took CCD image which showed same effect still seen 1h later, Conf.	My 04 00 My 31 11	My 15 22	6028 5914 5937	1/2h
462	06 02 93	0430-0545	Cobra Head SV	48W 24N	Saw shadow very definitely lighter and more diffuse than was seen at C or B rim which are black vs medium grey for c. h. At 0545 was gone.	My 31 11 Je 25 17	Je 12 17	5937 5417 5927 5920	1h15m
463	06 26 93	2330-2352	Julius Caesar	16E 8N	CCD of visible bright spot in S part (at location seems to be a dome with s.c.). Westfall thinks spot in steep E slope of mtn mass forms S wall. CCD disc & prints (reversed images so view through back (dome or crater is bright in Pickering's 7-M Alt =16° - same as this observation. Therefore normal?? .	Je 25 17 Jy 22 08	Jy 10 11	5922 5414 5918 6002	22m
464	06 27 93	1955-2021 2024-2104	Alphonsus	4W 13S	Kane found c.p. very bright > red, not prominent in blue. North & Cook found it normal, but did not use filters.	Je 25 17 Jy 22 08	Jy 10 11	5922 5414 5809 6002	26m
465	09 02-03 93	2230-0015	Cleomedes α, 2 adjoining craters	55.5E 27.5N	>>bright compared to plate 4C Hatfield's Atlas. Attention drawn to it at 2250. At 2307 was < but seeing was less.	Ag 19 04 S 16 15	S 03 17	6050 5400 5401 6120	1 1/2h
466	09 03 93	2200-2310 to 0430	Cleomedes α, 2 adjoining craters	55.5E 27.5N	Attention called to strikingly visible "splodge" in black shadow. Splodge had asymmetric halo extending. most in E. Wondered if it was just mountain catching last rays. Declined faint at 2310. J. Cook recorded bright spot but not halo. Concluded it was reflection & not anomalous. M. Cook saw same as J. Cook. After 2250 brightness declined, hard to detect at 2327. Dr. Roscoe observed at 0430. Sketch did not show spot (which had gone by then). S. Beaumont observed at 2320 and reported as normal. .	Ag 19 04 S 16 15	S 03 17	6050 5400 5400 6120	1h10m 6h
467	09 10 93	1240	Tycho	11W 42S	At sunset saw interior in shadow with c.p.'s visible as a fuzzy nebulous object, not like a typical c.p. in the sun. (This is the way I [WSC] saw it on 10/9/93 at sunset, though not nebulous, just as a gray patch. Once I thought I saw 1 or 2 points - perhaps the 2 c.p.'s). .	Ag 19 04 S 16 15	S 03 17	6050 5400 6120	min?
468	09 28 93	0430-0610	Cobra Head Herodotus	48W 24N 48W 22N	NE edge of Herodotus seemed to be a highland area spilling over into C-H border or overlook it. Shadow on the elevation contiguous with a similar shadow across the Cobra Head like a darkening of the terrain. Shadow appears softer diffused without sharp bounds of most Lunar shadows. Sketch. S edge of crater started to appear at 0615. .	S 25 09 O 11 18	O 07 26	6055 5406 6006	15m
469	12 19 93	1600-1700	Theophilus	26E 11S	c.p. > reddish brown tint to SW (on peak?). She thinks it was likely spurious color. There was no color later.	D 10 14 Ja 06 01	D 22 08	6000 5413 5450	
470	12 31 93	0500-0740	Cleomedes α	55E 27N	Saw patch of hazy light to NW (from c.p. α) at 0550 craters B & J shadow of α had not reached E wall yet, but at 0536 it did. α > at 0550. Craters B & J to SE had faded, vanished at 0630. Hazy patch remained around peak, α low mainly to NE like a comet's tail. Slightly reddish tinge to E wall. (shown in sketch.)	D 10 14 Ja 06 01	D 22 08	6000 5413 5802 5914	2h40m

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
461	7.2	0.702	3 50R	Je 04 13 -7	4+, 29+	Cook, M. Cook, T.	Frimley, Eng.	3.3" Questar 80-130x	S=haze T=poor	236	G	5
462	11.4	0.091	293: 123R	Je 15 05 -12.6	3-,12-	Beaumont, S.	Cambridge, Eng.			237	D,G	3
463	6.9	0.049	0, 16R	Jy 04 00 -7.0	3-, 15	Colesanti, C.	Mayrink, Brazil	14L		238	B	5
464	7.7 7.9	0.079	11 7R	Jy 04 00 -6.2	2, 12+	Kane, D. North, G. Cook, M.	Eng. ? Herstmonceaux,Eng Frimley, Eng.	4R 6L, 135x 4L, 80-130x	--- V III- IV	239	R, B, D	3
465	16.2	0.479	110 14S	S 01 02.5 +1.9	2+, 17+ 6-, 33+ ms-0.6	Brook, C.	Devonshire, Eng.	4R, 100x	III	240	B	3
466	17.1	0.479	122 3S	S 01 02.5 +2.8	2+, 17+ 6-, 33+ ms-0.6	North, G. Cook, J. Cook, M. Roscoe, B. Beaumont, S.	Sussex, Eng. Surrey, Eng. Surrey, Eng. Worceter, Eng. Cambridge, Eng.	18L, 144x 8.5-14L, 140x 3.5L, 130x 3.5L, 130x 5R	V+ terrible III-IV II III	240	B	5 conf.
467	23.7	0.788	202 +111S	S 01 02.5 +9.4	2-, 9	Olivarez, J.	Wichita, KS	8L, 195x	S=4 T=4	241	G, B	3
468	11.9	0.567	59 11R	S 12 12		Beaumont, S.	Cambridge, Eng.		exc.	237	D, G	2
469		0.345	342 8R	D 28 23 -9.3	4, 21-	Beaumont, S.	Cambridge, Eng.	12L 230x	P?	242	B, R	3
470	17.9	0.784	123 -3S	D 28 23 +2.3	5, 26- ms?	Beaumont, S.	Cambridge, Eng.	12L	S=II-III	242	B, G, R	3

1	2	3	4	5	6	7	8	9	10
No.	**Date**	**UT Time**	**Feature**	**Selenographic Coordinates**	**Phenomena Description**	**Perigee dates**	**Apogee Dates**	**Horizontal Parallax**	**Dura-tion**
	mm/dd/yy	**hhmm**		λo o		**m, d, h**	**m, d, h**	**πp πa π**	
					1,900 A.D.				
471	01 04 94	2100**:**	Tycho & vicinity	11W 42S	Photo shows large crescent of light centering in Tycho, but including Longomontanus, Wilhelm & Lilius, but not to Clavius. (WSC suspects lens flare, but is quite large). photo.	D 10 14 Ja 06 01	D 22 08	6000 5413 5409 5914	
472	01 16 94	1930-2050 2002-2110	N. of Aristarchus	47W 25**:**N	Saw bright spot in Earthshine, P. A. 30° to 40°, only a little way in from limb, slightly N of Aris. looked like a star through haze, a few sec of arc diameter. Observed during occultation of ZC3453. Vis.>1h till 2050 seemed to have dimmed some. J. & M. Cook, from 2002-2110 (overlapping Strachen) saw nothing in Earthshine. .	Ja 06 01 Ja 31 04	Ja 19 05	5914 5414 5941	1 1/4h
473	02 11 94		Picard	54E 15N	On TIFF images taken during Clementine mission showed a big crescent-shaped area inside the crater on one of his images. Soulsby images sent to D. Darling in Sun Prairie, WI for further examination using MIRA software. Soulsby had seen a brightening visually on his screen. Photos. .	Ja 31 14 F 27 22	F 13 18		35m
474	04 03 95	0330	Cobra Head, SV	48W 24N	Best observation of darkening ever seen by him. Transparency very good all over the valley allowing it to be seen well. Sketch.	Mr 28 06 Ap 25 17	Ap 12 00	6115 5357 6013 6125	
475	09 03 95	1940-2015	Alphonsus C. Agarum Messier A**:** Plato	4W 13S 65E 15N 37E 2S 9W 51N	Floor of Plato very dark > normal, no craters seen (should have been) very illusive white patch at c.c. North tried to observe but Moon was too low and seeing was too bad.. (others normal?)	Ag 08 14 S 05 01	Ag 20 12		~3/4h

1	11	12	13	14	15	16	17	18	19	20	21	22
No.	**Age**	**Tidal Anomaly**	**Colong., Term. Dist**	**Full moon date, days from FM**	**Solar**	**Observer**	**Location**	**Telescope: Aperture Kind Power**	**Seeing**	**Ref.**	**Phen. Type**	**wt**
	days	**d**	**o**	**m,d,h, d**	**K_{pmax}, ΣK_p**			**Ap, K, PW**				
	1,900 A.D.											
471	22.5	0.881	178: -13S	D 28 23 +6.8	3+, 12+	Nibbering, J.	Rosendaal, Netherlands	------- photo		243	B	5
472	4.2	0.429	321 106R	Ja 27 13 10.7		Strachen, D. Cook, J. & M.	Eng. Surrey, Eng.	4R,21x,143x 12L 143x		244	B	1
473		0.403:		F 16 02		Soulsby	Eng.			245	B	5
474	12.0	0.481	57 +9R	Ap 19 02 +4.1				TIFF on Clementine mission		245	D	3
475	5.6	0.953	342 -22R	S 09 04 -5.4		Moore, P. Doherty, F. North, G.	Sussex, Eng . Eng.	15L 400x	2-3	245	D	3

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145 B.A.A. Circ. 22 (2), 13, 1987 (Feb)

146 Sky and Telescope 76 (2), 217, 1988 (Aug)

147 p.c. from Darling, D. to W.S.C., 5/23/1987

148 p.c. (telephone) from DeCarlo, J. to W.S.C., 2/3/1987

149 B.A.A. Circ. 22 (4), 31, 1987 (Apr)

150 (a) B.A.A. Circ. 22 (6), 49, 1987 (June)

(b) B.A.A. Circ. 22 (5), 41, 1987 (May)

151 p.c. from Darling, D. to W.S.C., 10/13/1987

152 p.c. from Darling, D. to W.S.C., 7/28/1987

153 p.c. (telephone) from DeCarlo, J.. to W.S.C., 7/17/1989

154 p.c. from Caruso, J. to W.S.C., 9/8/1987

155 B.A.A. Circ. 22 (12), 91, 1987 (Dec)

156 p.c. from Darling, D. to W.S.C., 7/17/1989

157 (a) p.c. from Moeller, J. to W.S.C., 10/19/1987

(b) p.c. from Moeller, J. to W.S.C., 11/19/1988

158 p.c. (telephone) from DeCarlo, J. to W.S.C., 10/1987

159 p.c. from Moeller, J. to W.S.C., 11/1/1987

160 B.A.A. Circ. 23 (1), 3, 1988 (Jan)

161 p.c. from Louderback, D. to W.S.C., 12/7/1987 (LTP Program for ALPO)

162 p.c. from Louderback, D. to W.S.C., 2/17/1988 (LTP Program for ALPO)

163 (a) p.c. from Aguirre, J. to W.S.C., 6/1/1990

(b) p.c. from Aguirre, J. to W.S.C., 9/3/1990

Extension Catalog References

Ref. No. Reference

(c) Zodiacs (amateur journal)

(d) Universe 10 (31),1990

164 B.A.A. Circ. 23 (4), 30, 1988 (Apr)

165 B.A.A. Circ. 23 (8), 66, 1988 (Aug)

166 B.A.A. Circ. 23 (5), 40, 1988 (May)

167 (a) p.c. from Culver to W.S.C., 11/15/1988

(b) p.c. (telephone) from Culver to W.S.C., 2/9/1989

168 p.c. from Darling, D. to W.S.C., 6/3/1988

169 (a) B.A.A. Circ. 24 (11), 96, 1988 (Nov)

(b) Sky and Telescope 76 (2), 217, 1988 (Aug)

(c) p.c. from Darling, D. to W.S.C., 7/1988

170 p.c. from Darling, D. to W.S.C., 8/25/1988

171 (a) p.c. from Darling, D. to W.S.C., 12/1988

(b) p.c. from Foley, P. to W.S.C., 12/1988

(c) p.c. from Weier, D. to W.S.C., 11/23/1988

(d) B.A.A. Circ. 24 (10), 85, 1988 (Oct)

172 p.c. from Darling, D. to W.S.C., 9/25/1988

173 B.A.A. Circ. 24 (12), 105, 1988 (Dec)

174 notation in Observing Record Book of W.S.C., 12/18/1988

175 B.A.A. Circ. 25 (2), 11, 1989 (Feb)

176 B.A.A. Circ. 25 (3), 23, 1989 (Mar)

177 (a) p.c. from Darling, D. to W.S.C., 1988, Summary of TLP Observations I

(b) p.c. from Darling, D. to W.S.C., 4/22/1989

178 B.A.A. Circ. 25 (4), 34, 1989 (Apr)

179 p.c. from Dixon, M. to W.S.C., 5/13/1989

180 B.A.A. Circ. 25 (10), 97, 1989 (Oct)

181 p.c. from Bannesch, T. to W.S.C., 4/14/1989

182 Sky and Telescope 78 (1), 112, 1989 (July)

183 p.c. from Darling, D. to W.S.C., 7/17/1989

184 p.c. from Darling, D. to W.S.C., 6/1989

185 p.c. from Fabian to W.S.C., 5/31/1989

186 B.A.A. Circ. 25 (7), 66, 1989 (July)

187 B.A.A. Circ. 25 (8), 76, 1989 (Aug)

188 B.A.A. Circ. 25 (9), 90, 1989 (Sept)

189 (a) Selenology 9 (4), 30-33, 1990 (Dec)

(b) TLP Network American Lunar Society

190 B.A.A. Circ. 26 (7), 60, 1990 (July)

Extension Catalog References

Ref. No. Reference

191 p.c. from Nordly, J. to W.S.C., 4/19/1991

192 B.A.A. Circ. 25 (11), 109-113, 1989 (Nov)

193 p.c. from Darling, D. to W.S.C., 10/1989

194 B.A.A. Circ. 26 (1), 2, 1990 (Jan)

195 Darling, D. Report 1989 II, TLP Network American Lunar Society

196 (a) p.c. from Weier, D. to Darling, D. forwarded to W.S.C., 11/1990

(b) p.c. from Weier, D. to Darling, D. forwarded to W.S.C., 2/1990

197 B.A.A. Circ. 26 (2), 12, 1990 (Feb)

198 (a) p.c. from Darling, D. to W.S.C., 3/1990

(b) Selenology 9 (3), 25, 1990 (Nov)

199 B.A.A. Circ. 26 (5), 40-41, 1990 (May)

200 B.A.A. Circ. 26 (4), 31, 1990 (Apr)

201 p.c. from Darling, D. to W.S.C., 5/1990

202 B.A.A. Circ. 26 (6), 50, 1990 (June)

203 p.c. from Louderback, D. to W.S.C., 9/6/1990 (LTP Program for ALPO)

204 p.c. from Darling, D. to W.S.C., 7/1990

205 p.c. from Darling, D. to W.S.C., 10/1990

206 (a) B.A.A. Circ. 26 (10), 86, 1990 (Oct)

(b) B.A.A. Circ. 26 (11), 94, 1990 (Nov)

(c) p.c. from Darling, D. to W.S.C., 9/1990

207 p.c. from Darling, D. to W.S.C., 10/1990

208 p.c. from Darling, D. to W.S.C., 1/14/1991

209 (a) p.c. from Darling, D. to W.S.C., 12/13/1990

(b) Selenology 9 (4), 24, 1990 (Dec)

210 (a) B.A.A. Circ. 27 (3), 22, 1991 (Mar)

(b) B.A.A. Circ. 27 (4), 32, 1991 Apr)

211 (a) B.A.A. Circ. 27 (1), 2, 1991 (Jan)

(b) p.c. from Darling, D. to W.S.C., 1/14/1991

(c) Observing Report Transient Lunar Phenomena Photographed in Tycho p27, 1991

212 p.c. from Darling, D. to W.S.C., 2/1991

213 p.c. from Darling, D. to W.S.C., 3/1991

214 p.c. from Darling, D. to W.S.C., 5/1991

215 p.c. from Stroud, R. to W.S.C., 9/7/1991

216 B.A.A. Circ. 27 (7), 60, 1991 (July)

217 (a) p.c. from Green, J. to W.S.C., 5/28/1991

(b) p.c. from Green, J. to W.S.C., 2/20/1992

(c) p.c. from Green, J. to W.S.C., 7/1991

Extension Catalog References

Ref. No. Reference

(d) p.c. (telephone) from Westfall, J. to W.S.C., 6/20/1991

218 (a) p.c. from Baruzzo, B. to W.S.C., 1992

(b) p.c. from Foley, P. to Darling, D. to W.S.C., 7/1991

219 (a) p.c. from Castro to W.S.C., 6/20/1991 (phone @ 10:15pm MST+ letter)

(b) p.c. from Nicolini to W.S.C., 6/27/1991

(c) p.c. from Westfall, J. to W.S.C., 6/20/1991

220 p.c. from Darling, D. to W.S.C., Bulletin 92 1, 1991

221 p.c. from Louderback, D. to W.S.C., 12/2/1991 (LTP Program for ALPO)

222 p.c. from Darling, D. to W.S.C., 11/18/1991

223 B.A.A. Circ. 27 (10), 88, 1991 (Oct)

224 p.c. from Numi, M. to W.S.C., 1/12/1992

225 (a) p.c. from Darling, D. to W.S.C., 5/14/1992

(b) p.c. from Darling, D. to W.S.C., 4/1992

226 (a) B.A.A. Circ. 28 (2), 14, 1992 (Mar)

(b) B.A.A. Circ. 28 (3), 30, 1992 (Apr)

227 B.A.A. Circ. 28 (5), 56, 1992 (June)

228 B.A.A. Circ. 28 (6), 70, 1992 (July)

229 p.c. from Darling, D. to W.S.C., 8/3/1992

230 p.c. from Darling, D. to W.S.C., 12/17/1992

231 B.A.A. Circ. 28 (10), 126-127, 1992 (Nov)

232 B.A.A. Circ. 29 (5), 70, 1993 (May)

233 p.c. from Baruzzo, P.; Aguirre, J. to W.S.C., 1992

234 p.c. from Louderback, D. to W.S.C., 11/28/1992 (LTP Program for ALPO)

235 (a) B.A.A. Circ. 28 (9), 112, 1992 (Oct)

(b) B.A.A. Circ. 28 (10), 126-127, 1992 (Nov)

236 B.A.A. Circ. 29 (7), 105, 1993 (July)

238 p.c. from Colesatri, C to Westfall, J forwarded to W.S.C., 8/27/1993

239 B.A.A. Circ. 29 (8), 119, 1993 (Aug)

240 B.A.A. Circ. 29 (10), 151, 1993 (Oct)

241 p.c. from Olivariz, J. to W.S.C., 10/1/1993

242 B.A.A. Circ. 30 (2), 18-19, 1994 (Feb)

243 (a) p.c. from Nibbering, J. to W.S.C., 2/3/1994

(b) p.c. from Nibbering, J. to W.S.C., 3/1/1994

(c) p.c. from Nibbering, J. to W.S.C., 2/20, 24/1994

244 B.A.A. Circ. 30 (3), 36, 1994 (Mar)

245 (a) B.A.A. Circ. 31 (10), 125, 1995 (Oct)

(b) p.c. from Darling, D. to B.A.A, 6/6/1995

Appendix I
Abbreviations used (within Context)

:	uncertain
&	and (ampersand)
( )	in text encloses authors (WSC) comments
~	about or approximately
<	less or darker or dimmer or thinner than
>	greater or larger or brighter or denser or later than
A	apogee
Ag	August
alb	albedo
ALPO	Association of Lunar and Planetary Observers
alt	altitude
anom	anomaly or anomalous
Ap	April
appear	appearance
Aris	Aristarchus
atm	atmosphere
B.A.A.	British Astronomical Association.; J before it = Journal of B.A.A.; C = Circular of B.A.A.
C.E.D.	Crater Extinction Device (it is a measure of albedo or brightness)
c.h.	Central Highlands
c.p.	central peak
Cens	Censorinus
col	colongitude or column or color
comens	comensuration
conf	confirmed
Cop	Copernicus
D	December
def	defined
deg or °	degree
diag	diagram
diff	difference
Dion	Dionysius
dk	dark
dur	duration
EWBS	East Wall Bright Spot
E, W, N, S	east, west, north, south
ecl	eclipse
Eng.	England
exc	excellent
exp	exposure
Fe	February
filt	filter
fl	floor
FM	Full Moon
FM&P	Full Moon & Perigee
Gass	Gassendi
h or hr	hour
hyp	hypothesis
I.A.U	International Astronomical Union
inc	inclusive or included
Ja	January
Je	June
Jy	July
km	kilometer
Kp	magneic index
L	reflector telescope
LO-I	Lunar Orbiter mission 1
LO-II	Lunar Orbiter mission 2
LO-III	Lunar Orbiter mission 3
LO-IV	Lunar Orbiter mission 4
LO-V	Lunar Orbiter mission 5

Appendix I
Abbreviations used (within Context)

LTP	lunar transient phenomena
lum	lumination or luminous
m	minute or minimum
m	features = mare
m or min	minute or minimum
m Tranq	mare Tranquilitatis
mag	magnitude (star)
max	maximum
mi	mile
MNRAS	Monthly Notices of the Royal Astronomical Association
Mr	March
mr	moonrise
ms	magnetic storm
mt	mountain or mount
My	May
N	November
neb	nebula, nebular or nebulous
neg	negative
nr	near
O	October
o	features = oceanus
obs	observed or observation
P	perigee
Π or π	Greek letter pi
photo	photograph
Piccol/Picol	Piccolomini
pos	positive or position
Posid	Posidonius
prom	promontory
PTRAS	Philosophical Transactions of the Royal Astronomical Society
pts	points
R	refractor telescope
reg.	region
rdg	reading
ref	reference
rept	report
resp	respectively
Σ	sum of (math symbol)
S	September
s	features = sinus
s or sec	second(s)
s.c.	summit crater or sudden commencement of a Solar magnetic storm at Earth-Moon
see	seeing (atmosphere effect); I-IV (I best); 1-10 (10 best)
spect	spectrum
ss	sunset
tel	telescope
temp	temperature
term	terminator
terr	terrestrial
Theoph	Theophilus
tho't	thought
U.T.	Universal Time (Greenwich Mean Time)
v or viol	violet color
var	variation
vis	visible or visual
W	Wratten filter
w/	with
wt	weight
x or X	times (mathematiical) or power of telescope

Appendix II

1 No.	16 Observer	20 Ref.
459	Adams, C.	236
444	Amendsensvej, R.	225c
15	Amery	15a, b
27	Amery	17, 23, 24
46	Amery	32a, b
55	Amery	35
72	Amery	42, 44
86	Amery	51, 52, 60
87	Amery	52
88	Amery	51, 52
102	Amery	58
115	Amery	68
122	Amery	72
142	Amery	78
148	Amery	78
174	Amery	93
197	Amery	102, 3
198	Amery	103
202	Amery	103
203	Amery	103
204	Amery	103
232	Amery	115
233	Amery	115, 116
241	Amery	118
248	Amery	122
259	Amery	128
21	Amorati	20
26	Anderson	17
38	Anderson	28
85	Anderson	50
89	Anderson	50
95	Anderson	50, 56, 57
176	Ansari, A.	94
20	Arkhipov, A. V.	19
280	Arkhipov, A. V.	2
180	Arkhipov, A. V.	21
145	Arsyukhin, E. V.	78
161	Arsyukhin, E. V.	21
169	Arsyukhin, E. V.	21
181	Arsyukhin, E. V.	21, 96
189	Arsyukhin, E. V.	96
191	Arsyukhin, E. V.	96
205	Arsyukhin, E. V.	103, 105
349	Ashton	176
106	Bartlett, C.	62
11	Bartlett, J.	11
12	Bartlett, J.	12
381	Beaumont, S.	194
400	Beaumont, S.	202
466	Beaumont, S.	240
468	Beaumont, S.	237

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1 No.	16 Observer	20 Ref.
469	Beaumont, S.	242
470	Beaumont, S.	242
7	Birt, W.	7
83	Blair	49
87	Blair	52
88	Blair	51, 52
96	Blair	56, 57, 58
110	Blair	64
114	Blair	67
119	Blair	67
409	Blanco, J. Vidal	163b
10	Brittman, O.	10
433	Brook, C.	223
441	Brook, C.	226b
453	Brook, C.	235a, b
465	Brook, C.	240
162	Brown	86
455	Brukhanov, I. S.	96
87	Buczynski	52
55	Buczynski	35
88	Buczynski	51, 52
123	Butler	72
125	Butler	73
132	Butler	73, 76
139	Butler	76
140	Butler	76
390	Butler	197
106	Cameron, W.	62
186	Cameron, W.	100
342	Cameron, W.	174
372	Cameron, W.	183, 189a, b
380	Cameron, W.	194
382	Cameron, W.	195, 196a
407	Cameron, W.	174
415	Cameron, W.	209a,b,c
47	Caruso, J.	33
62	Caruso, J.	31a, 37
64	Caruso, J.	39
305	Caruso, J.	154
382	Caruso, J.	195, 196a
410	Castle, D.	198, 206a, b, c
452	Castle, P.	230
429	Castro, T.	217
430	Castro, T.	219, 220
5	Challis,	2
120	Chapman	68, 71
171	Chapman	91
199	Chapman	103
446	Chapman, A.	228
23	Christie	17, 22
37	Coates	28

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1 No.	16 Observer	20 Ref.
51	Coates	31a
463	Colesanti, C.	238
373	Conway	180, 189a, b, 191, 192, 196
30	Cook	17
40	Cook	30a, b, c
81	Cook	47
86	Cook	51, 52, 60
122	Cook	72
239	Cook	117, 118
240	Cook	118, 123
72	Cook, A.	42, 44
87	Cook, A.	52
378	Cook, A.	192, 194
55	Cook, J.	35
72	Cook, J.	42, 44
87	Cook, J.	52
110	Cook, J.	64
124	Cook, J.	73
164	Cook, J.	88
188	Cook, J.	101
197	Cook, J.	102, 3
198	Cook, J.	103
202	Cook, J.	103
203	Cook, J.	103
204	Cook, J.	103
215	Cook, J.	109
224	Cook, J.	111, 112
225	Cook, J.	111
233	Cook, J.	115, 116
246	Cook, J.	122
248	Cook, J.	122
258	Cook, J.	125
268	Cook, J.	129, 135
338	Cook, J.	173
445	Cook, J.	227, 228
466	Cook, J.	240
88	Cook, J., M., & A.	51, 52
349	Cook, J. & M.	176
472	Cook, J. & M.	242
275	Cook, M., J. & T.	133
55	Cook, M.	35
95	Cook, M.	50, 56, 57
110	Cook, M.	64
120	Cook, M.	68, 71
130	Cook, M.	76, 77
138	Cook, M.	76
163	Cook, M.	87
164	Cook, M.	88
188	Cook, M.	101
190	Cook, M.	102, 103
198	Cook, M.	103

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1 No.	16 Observer	20 Ref.
203	Cook, M.	103
204	Cook, M.	103
210	Cook, M.	109
212	Cook, M.	109
213	Cook, M.	109
214	Cook, M.	109
215	Cook, M.	109
224	Cook, M.	111, 112
225	Cook, M.	111
233	Cook, M.	115, 116
241	Cook, M.	118
246	Cook, M.	122
247	Cook, M.	122
248	Cook, M.	122
259	Cook, M.	126, 128
260	Cook, M.	126, 127
262	Cook, M.	126
264	Cook, M.	127, 129
268	Cook, M.	129, 135
269	Cook, M.	131
276	Cook, M.	133
278	Cook, M.	134
290	Cook, M.	144a, b
292	Cook, M.	144a, 145
297	Cook, M.	144
313	Cook, M.	155
314	Cook, M.	160, 167
315	Cook, M.	161
320	Cook, M.	166
321	Cook, M.	166
331	Cook, M.	171a, b, c, d
338	Cook, M.	173
340	Cook, M.	173
346	Cook, M.	175
365	Cook, M.	186
370	Cook, M.	187
378	Cook, M.	192, 194
389	Cook, M.	197
394	Cook, M.	200
416	Cook, M.	210a, b
426	Cook, M.	216
428b	Cook, M.	219b
439	Cook, M.	226a
445	Cook, M.	227, 228
457	Cook, M.	232
460	Cook, M.	232
461	Cook, M.	236
464	Cook, M.	239
466	Cook, M.	240
55	Cook, T.	35
104	Cook, T.	68

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120	Cook, T.	68, 71
166	Cook, T.	90
177	Cook, T.	95
233	Cook, T.	115, 116
242	Cook, T.	118
247	Cook, T.	122
256	Cook, T.	125, 127
314	Cook, T.	160, 167
315	Cook, T.	161
418	Cook, T.	210a
438	Cook, T.	226a
461	Cook, T.	236
174	Cook, T., J. & M.	93
49	Crick	31a
60	Crick	31b
80	Crick	47
77	Crotts, A.	46
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303	Curtis	152
372	Curtis	183, 189a, b
39	Darling, D.	30a, b
50	Darling, D.	30a, b, 34a, b
53	Darling, D.	34
54	Darling, D.	30a, b
61	Darling, D.	30a, b
69	Darling, D.	30a, b
70	Darling, D.	30a, b
76	Darling, D.	30a, b
82	Darling, D.	30a, b
84	Darling, D.	30a, b
113	Darling, D.	30b, 66a, b
121	Darling, D.	30b
154	Darling, D.	30a, b
194	Darling, D.	104
257	Darling, D.	30
286	Darling, D.	30a, 139a, b
294	Darling, D.	147
296	Darling, D.	147
302	Darling, D.	151
308	Darling, D.	151
319	Darling, D.	165
328	Darling, D.	170
329	Darling, D.	170
331	Darling, D.	171a, b, c, d
332	Darling, D.	172
333	Darling, D.	172
335	Darling, D.	172
348	Darling, D.	177a, b
351	Darling, D.	177b
352	Darling, D.	177b
354	Darling, D.	177b

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355	Darling, D.	177b
357	Darling, D.	177b
359b	Darling, D.	177a, b, 183a, b
360	Darling, D.	183
361	Darling, D.	183
362	Darling, D.	183
363	Darling, D.	184
369	Darling, D.	183
371	Darling, D.	188
373	Darling, D.	180, 189a, b, 191, 192, 196
375	Darling, D.	193
378	Darling, D.	192, 194
380	Darling, D.	193
382	Darling, D.	195, 196a
383	Darling, D.	196a
384	Darling, D.	196a
387	Darling, D.	198a, b, c
391	Darling, D.	198
392	Darling, D.	198a, b, 200
399	Darling, D.	201
402	Darling, D.	198, 201
403	Darling, D.	190
405	Darling, D.	204
408	Darling, D.	205
410	Darling, D.	198, 206a, b, c
411	Darling, D.	207
412	Darling, D.	207
413	Darling, D.	207
414	Darling, D.	208
415	Darling, D.	209a, b, c
417	Darling, D.	210, b, 211c
419	Darling, D.	212
420	Darling, D.	213
421	Darling, D.	214
422	Darling, D.	214
424	Darling, D.	214
425	Darling, D.	214
432	Darling, D.	222
434	Darling, D.	222
436	Darling, D.	225a, b, c
436	Darling, D.	225a, b, c
442	Darling, D.	225a, 227
443	Darling, D.	225a?, b?
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65	Darling, D. & wife	30a, b, 34, 40
66	Darling, D. & wife	30b
56	Darling, David & Dan	30a, b
452	Darling, Lael D.	230
452	Darling, Michelle D.	230
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297	Davies	144
331	Davis, H.	171a, b, c, d
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338	Davis, H.	173
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304	de Carlo, J.	153
310	de Carlo, J.	158
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