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CATALOG OF LUNAR CRATERS V

by

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Introduction

15538

This catalog gives the selenographic coordinates of all craters observable on a selected portion of the moon's surface. The diameter of the crater together with comments on shape are also given. Approximately 25 per cent of the craters have been measured previously by other observers. The catalog gives the position found in the present series of measurements and the name adopted by the International Astronomical Union.

AUTHOR

Boundaries of Section

This section cataloged here is a strip on sheet D5-a of the "Photographic Lunar Atlas" (Kuiper, 1960). The boundaries of the strip are

North boundary: bottom edge of photograph

South boundary: $\eta = -.2500$

East boundary: $\xi = 0$

West boundary: right hand edge of photograph.

The photograph is oriented with south at top, and east-west directions follow the revised I.A.U. usage, according to which Mare Crisium is near the eastern limb of the moon.

Selection criteria

(1.) A crater must have at least half of its wall clearly visible.

(2.) When foreshortening has been allowed for, a crater must be approximately circular. If elliptical, its eccentricity must not be greater than 0.90, i.e. the ratio of major to minor axes must not exceed 3.0. A crater may be polygonal, but its longest diameter must not exceed 1.5 times its shortest diameter.

(3.) A distinct shadow must be visible on some photograph of the crater, and the shadow must be properly oriented with respect to the sun.

The only types of craters which are likely to be missing in significant numbers are (a) those which are very small (less than 3 km in diameter) and (b) those which are very shallow and far from the terminator.

The photograph of the area to be surveyed was oriented with south at the top. For convenience, an x and y axes were chosen parallel to the edges of the photograph, the origin was set at the lower left corner, and the x-y coordinate grid established in inches. The method used to calculate the plate constants is that described by Belsky (1962). Crater coordinates were used as inputs to the Belsky program, with values of ξ , η obtained from D. W. G. Arthur (1962). This procedure avoids the errors contained in the coordinate grid of the Arthur and Whitaker (1960) atlas. (See Friesen

(1963)).

In the catalog the first two lines (01, 02) on the first page, under "Calculation of Plate Constants", give the constants A_1 to F_1 in the equation

$$\xi = A_1 x^2 + B_1 xy + C_1 y^2 + D_1 x + E_1 y + F_1 \qquad (3)$$

The second two lines (03, 04) give the constants in the equation

$$\eta = A_2 x^2 + B_2 xy + C_2 y^2 + D_2 x + E_2 y + F_2 \qquad (4)$$

The constants are given in Fortran floating point format. For example, A = -.11039169E - 04 should be interpreted as

$A = -0.11039169 \times 10^{-4}$.

Line 05 on the first page gives the scale factor F , which was calculated in the following manner. Several pairs of craters, whose coordinates (ξ , η , x , y) are known, were chosen such that for each pair the line joining the craters is very nearly parallel to the limb of the moon. The distance between the craters on the photograph, in inches, was measured either directly or by using the equation:

$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \qquad (5)$$

The same distance was measured in units of the Moon's

radius as follows:

$$D = \sqrt{(\xi_1 - \xi_2)^2 + (\eta_1 - \eta_2)^2 + \zeta_1 - \zeta_2)^2} \qquad (6)$$

where $\zeta = \sqrt{1 - \xi^2 - \eta^2}$. For two craters on a line nearly parallel to the limb $(\zeta_1 - \zeta_2)^2$ is negligible. Then the scale factor F is given, in kilometers per inch on the photograph, by:

$$F = \frac{R\,D}{d} \qquad (7)$$

where R is the lunar radius in km. Values for F are computed for as many pairs of craters as can conveniently be chosen; the average value thus obtained, with its estimated error, is quoted in line 05.

Residuals and errors

The residuals from the determination of plate constants gave an rms. value less than $\pm$ 0.0003 for ξ and η, corresponding to an uncertainty in position on the surface of $\pm$ 0.5 km. Although undetected systematic errors almost certainly exist, the positions given are probably reliable to $\pm$ 1.0 km. The error in determining the diameter of the craters depends to a great extent on the individual crater. The error is estimated as $\pm$ 30 per cent for small craters, decreasing to + 10 per cent for the largest crater.

The catalog gives the position of the geometrical center of the rim. If the rim is raised above the mean level of the moon then the measured center is displaced towards the limb of the moon. This displacement is in general less than 1 km and is negligible compared to the uncertainty of defining the rim for a large crater.

The remainder of the pages under the heading "Calculation of Plate Constants" give the coordinates of the craters used for the calculation (Belsky 1962).

Explanation of Columns in the Catalog

The first column (CRATER) gives the designation of craters. Named craters follow the IAU system (Blagg and Müller 1932).

Columns 2 and 3 (XSI and ETA) give the computed orthographic coordinates of each crater. These values are reliable to three places of decimal.

Columns 4 and 5 (X and Y) give the coordinates of each crater, in inches, as measured on the photograph.

Column 6 (DIAM) gives the diameter of each crater in kilometers. The diameter of each crater was measured in inches on the photograph, and the scale factor described above was used to convert to kilometers. Diameters are peak-to-peak and parallel to the limb, except for elliptical craters for which the foreshortening was removed and the longest diameter taken. The smallest craters included in the

catalog are approximately one kilometer in diameter, corresponding to 0.03 inches on the photographs.

Column 7 (Q) provides an index to how well each crater fulfills our criteria for crater selection. A crater of quality "C" barely meets the minimum requirements for inclusion in the catalog. It may have just half of its wall visible, or be very elliptical, or show a shadow on only one photograph, or be so small as to be barely visible. Craters of quality "B" may have a small part of the wall missing or be somewhat elliptical or polygonal. Craters of quality "A" show distinct, properly oriented shadows on at least two photographs taken under opposing illuminations, have complete or nearly complete walls, and are not strongly elliptocal or polygonal.

Column 8 (P) denotes how perfect a polygon each crater is. Craters for which there is no entry in this column are circular or nearly so. "A" craters are well-defined, quite regular, complete polygons. A "B" crater is less regular than the "A" polygons, may have sides of drastically unequal length, or may have one or more sides missing. A "C" crater is not a well-defined polygon; it may be a circular crater with irregular walls, or if it is a true polygon the number of its sides cannot be ascertained. In this column, the letter (A, B, or C) is followed by a digit giving the number of sides in the polygon. For example, "A6" denotes a well-defined, hexagonal crater. A "B4" crater may be a square

with one side missing, or a trapezoidal formation, etc.

Column 9 (RMKS) contains a series of numbered asterisks referring the reader to additional remarks or information given on a separate page at the end of the catalog.

Column 10 (REG) gives the number of the photograph on which each crater was measured.

References

Belsky, L., 1962. The Transformation between Cartesian and Conic Coordinates. Lunar Project, Report 1, August 1962, Boston University, NASA G246-62.

Blagg, Mary A., and Müller, K., 1932. Named Lunar Craters, Commission 17, International Astronomical Union, Percy Lund and Humphries, London.

Kuiper, G. P., 1960. Photographic Lunar Atlas, Univ. Chicago Press.

Arthur, D. W. G., and E. A. Whitaker, 1960. Orthographic Atlas of the Moon (ed. by G. P. Kuiper), University of Arizona Press.

Friesen, D. D., 1963. The Choice of Fiducial Points in Determining Plate Constants for Lunar Photographs. Lunar Project, Report 9, November 1963, Boston University, NASA G246-62.

Arthur, D. W. G. (1962). Consolidated Catalog of Selenographic Positions. Comm. of the Lunar and Planetary Laboratory V.1, No. 11, University of Arizona.

BOSTON UNIVERSITY SURVEY OF LUNAR CRATERS

AREA - D5A

A=-.50831513E-05	B= .93448132E-06	C=-.15245915E-04	01
D=-.19695978E-01	E=-.13475234E-02	F= .62984345E+01	02
A=-.99876599E-05	B= .41994440E-05	C=-.16785256E-05	03
D= .14256333E-02	E=-.19495343E-01	F=-.24401479E-03	04
F = 34.10 +- .05			5

X	Y	XSI	XSI(C)	DELTA	ETA	ETA(C)	DELTA
07.5000	03.3800	-00.0900	-00.0897	-00.0002	-00.0559	-00.0559	00.0000
05.6300	04.8500	-00.0550	-00.0549	-00.0000	-00.0871	-00.0870	-00.0000
06.9000	04.0700	-00.0789	-00.0788	-00.0000	-00.0703	-00.0701	-00.0001
07.1600	03.1800	-00.0828	-00.0827	-00.0000	-00.0527	-00.0524	-00.0002
07.8100	05.5100	-00.0991	-00.0989	-00.0001	-00.0970	-00.0970	00.0000
02.9100	09.5900	-00.0085	-00.0086	00.0001	-00.1829	-00.1831	00.0002
03.2900	07.3100	-00.0121	-00.0125	00.0004	-00.1384	-00.1381	-00.0002
03.3100	07.8200	-00.0138	-00.0137	-00.0000	-00.1479	-00.1480	00.0001
04.8600	06.1400	-00.0412	-00.0416	00.0004	-00.1132	-00.1131	-00.0000
05.7700	06.0200	-00.0591	-00.0594	00.0003	-00.1096	-00.1096	00.0000
05.4900	08.7400	-00.0582	-00.0581	-00.0000	-00.1630	-00.1630	00.0000
05.3200	09.3700	-00.0557	-00.0558	00.0001	-00.1753	-00.1755	00.0002
05.8200	06.8600	-00.0619	-00.0617	-00.0001	-00.1261	-00.1259	-00.0001
06.0500	08.3000	-00.0687	-00.0685	-00.0001	-00.1535	-00.1537	00.0002
06.6200	05.6100	-00.0756	-00.0756	00.0000	-00.1008	-00.1005	-00.0002
06.4800	06.1700	-00.0736	-00.0737	00.0001	-00.1114	-00.1116	00.0002
06.6800	07.8000	-00.0805	-00.0802	-00.0002	-00.1432	-00.1431	-00.0000
06.8400	09.7100	-00.0867	-00.0864	-00.0002	-00.1798	-00.1801	00.0003
07.4300	06.8600	-00.0937	-00.0935	-00.0001	-00.1238	-00.1238	00.0000
07.1800	09.0800	-00.0922	-00.0921	-00.0000	-00.1674	-00.1674	00.0000
05.2300	11.3200	-00.0572	-00.0573	00.0001	-00.2135	-00.2137	00.0002
08.2300	02.4800	-00.1030	-00.1028	-00.0001	-00.0374	-00.0374	00.0000
08.8200	05.5800	-00.1194	-00.1190	-00.0003	-00.0973	-00.0970	-00.0002
09.4500	03.0600	-00.1279	-00.1278	-00.0000	-00.0472	-00.0472	00.0000
10.1400	02.2900	-00.1405	-00.1403	-00.0001	-00.0314	-00.0313	-00.0000
10.8400	03.5200	-00.1561	-00.1560	-00.0000	-00.0544	-00.0544	00.0000
11.7900	03.1400	-00.1745	-00.1742	-00.0002	-00.0459	-00.0459	00.0000
12.3700	01.6900	-00.1836	-00.1837	00.0001	-00.0168	-00.0170	00.0002
12.8400	04.4700	-00.1969	-00.1970	00.0001	-00.0705	-00.0705	00.0000
08.0200	08.6500	-00.1082	-00.1080	-00.0001	-00.1581	-00.1579	-00.0001
08.5600	08.3200	-00.1183	-00.1181	-00.0001	-00.1509	-00.1507	-00.0001
08.2800	07.4600	-00.1114	-00.1112	-00.0001	-00.1345	-00.1343	-00.0001
08.3800	08.6300	-00.1154	-00.1151	-00.0002	-00.1573	-00.1570	-00.0002
08.4200	10.5300	-00.1189	-00.1190	00.0001	-00.1942	-00.1940	-00.0001
08.8600	09.2200	-00.1258	-00.1255	-00.0002	-00.1678	-00.1679	00.0001
09.6800	06.1700	-00.1370	-00.1369	-00.0000	-00.1076	-00.1074	-00.0001
10.1000	10.3500	-00.1520	-00.1519	-00.0000	-00.1888	-00.1883	-00.0004
11.2400	06.6700	-00.1686	-00.1686	00.0000	-00.1153	-00.1152	-00.0000
07.4700	12.6700	-00.1039	-00.1038	-00.0000	-00.2370	-00.2370	00.0000

X	Y	XSI	XSI(C)	DELTA	ETA	ETA(C)	DELTA
08.9500	11.4500	-00.1311	-00.1310	-00.0000	-00.2115	-00.2112	-00.0002
10.0600	13.6400	-00.1568	-00.1567	-00.0000	-00.2529	-00.2525	-00.0003
12.2600	11.1000	-00.1959	-00.1959	00.0000	-00.2002	-00.2003	00.0001
13.4800	03.4700	-00.2082	-00.2082	00.0000	-00.0502	-00.0503	00.0001
13.4700	03.8200	-00.2085	-00.2085	00.0000	-00.0570	-00.0571	00.0001
13.1700	04.6600	-00.2037	-00.2038	00.0001	-00.0736	-00.0738	00.0002
13.9500	01.8100	-00.2151	-00.2152	00.0001	-00.0173	-00.0174	00.0001
13.9100	03.9900	-00.2173	-00.2175	00.0002	-00.0598	-00.0599	00.0001
14.5900	02.2000	-00.2284	-00.2284	00.0000	-00.0241	-00.0243	00.0002
14.2700	03.4600	-00.2237	-00.2239	00.0002	-00.0491	-00.0492	00.0001
14.5700	04.4000	-00.2310	-00.2312	00.0002	-00.0673	-00.0671	-00.0001
15.3100	02.4500	-00.2434	-00.2431	-00.0002	-00.0281	-00.0283	00.0002
15.4000	05.0100	-00.2484	-00.2486	00.0002	-00.0781	-00.0780	-00.0000
16.0900	01.5300	-00.2573	-00.2573	00.0000	-00.0096	-00.0096	00.0000
15.7200	05.6400	-00.2557	-00.2558	00.0001	-00.0901	-00.0899	-00.0001
16.6900	01.6300	-00.2691	-00.2693	00.0002	-00.0109	-00.0108	-00.0000
16.3500	04.7700	-00.2671	-00.2671	00.0000	-00.0724	-00.0723	-00.0000
16.9800	01.1000	-00.2741	-00.2744	00.0003	-00.0003	-00.0002	-00.0000
17.1300	03.0700	-00.2805	-00.2801	-00.0003	-00.0387	-00.0383	-00.0003
17.4900	04.2500	-00.2891	-00.2889	-00.0001	-00.0611	-00.0609	-00.0001
12.8400	09.7800	-00.2051	-00.2052	00.0001	-00.1737	-00.1738	00.0001
13.7300	07.0400	-00.2181	-00.2185	00.0004	-00.1192	-00.1194	00.0002
13.9200	10.3900	-00.2275	-00.2276	00.0001	-00.1844	-00.1844	00.0000
15.3400	07.8500	-00.2518	-00.2517	-00.0000	-00.1332	-00.1333	00.0001
16.6000	08.5500	-00.2777	-00.2778	00.0001	-00.1458	-00.1455	-00.0002
17.2300	06.4700	-00.2872	-00.2871	-00.0000	-00.1042	-00.1043	00.0001
17.3300	10.2200	-00.2952	-00.2950	-00.0001	-00.1771	-00.1772	00.0001
17.0400	11.0200	-00.2908	-00.2906	-00.0001	-00.1929	-00.1931	00.0002
14.7700	11.6300	-00.2463	-00.2466	00.0003	-00.2074	-00.2076	00.0002
14.4200	11.9900	-00.2404	-00.2402	-00.0001	-00.2152	-00.2150	-00.0001
18.0000	05.4500	-00.3009	-00.3008	-00.0000	-00.0838	-00.0837	-00.0000
19.0200	03.5400	-00.3186	-00.3183	-00.0002	-00.0457	-00.0454	-00.0002
19.3000	01.6700	-00.3216	-00.3213	-00.0002	-00.0091	-00.0088	-00.0002
17.9900	10.2000	-00.3080	-00.3081	00.0001	-00.1761	-00.1760	-00.0000
19.1800	07.7700	-00.3282	-00.3279	-00.0002	-00.1274	-00.1275	00.0001

XSI RMS.= .19355806E-03 ETA RMS.= .17367526E-03

CRATER	XSI	ETA	XINS	YINS	DIAM	Q	P	RMKS	REG
	-.2954	.0184	18.10	00.20	004.4	B			D5A
	-.3205	.0168	19.35	00.35	012.3	A			D5A
	-.2503	.0073	15.80	00.64	002.7	B			D5A
	-.2713	.0038	16.84	00.88	002.7	C			D5A
SOEMMERING	-.1306	.0030	09.77	00.50	026.9	B	B4		D5A
	-.2766	.0023	17.10	00.97	002.4	C			D5A
	-.2908	.0017	17.81	01.04	005.5	A			D5A
	-.2744	-.0002	16.98	01.10	003.1	C			D5A
	-.2285	-.0009	14.68	01.00	002.7	B			D5A
	-.2638	-.0035	16.44	01.24	002.7	C			D5A
	-.2716	-.0058	16.82	01.38	002.7	B			D5A
MOESTING D	-.0891	-.0064	07.65	00.85	007.5	A			D5A
	-.0055	-.0081	03.43	00.65	003.8	A			D5A
	-.3213	-.0088	19.30	01.67	002.7	C			D5A
GAMBART N	-.2573	-.0096	16.09	01.53	005.5	A			D5A
	-.2213	-.0104	14.28	01.47	002.0	B			D5A
	-.2693	-.0108	16.69	01.63	002.4	B			D5A
	-.0593	-.0117	06.13	01.02	004.1	A			D5A
MOESTING	-.1020	-.0120	08.28	01.18	026.6	A		*3	D5A
	-.3113	-.0121	18.79	01.81	007.5	B			D5A
	-.1277	-.0131	09.57	01.32	003.4	B			D5A
	-.2843	-.0141	17.43	01.84	003.4	C			D5A
	-.2826	-.0148	17.34	01.87	002.7	C			D5A
	-.3118	-.0162	18.80	02.02	004.4	C			D5A
	-.1837	-.0170	12.37	01.69	005.1	A			D5A
	-.2152	-.0174	13.95	01.81	003.1	A			D5A
	-.1973	-.0210	13.04	01.94	002.7	B			D5A
	-.2887	-.0229	17.62	02.30	004.4	B			D5A
	-.2343	-.0232	14.89	02.16	011.3	C			D5A
TURNER	-.2284	-.0243	14.59	02.20	013.0	A		*1,6	D5A
	-.0048	-.0246	03.34	01.49	001.7	B			D5A
TURNER F	-.2431	-.0283	15.31	02.45	007.8	A			D5A
	-.2493	-.0288	15.62	02.49	003.8	C		*8	D5A
	-.3207	-.0289	19.20	02.70	002.4	C			D5A
	-.0060	-.0298	03.38	01.76	003.1	A			D5A
	-.0396	-.0308	05.07	01.93	003.8	B			D5A
MOESTING C	-.1403	-.0313	10.14	02.29	004.4	A			D5A
	-.2791	-.0327	17.10	02.78	002.7	C			D5A
	-.0928	-.0328	07.74	02.21	001.7	C			D5A
FLAMMARION A	-.0430	-.0335	05.23	02.08	004.1	B			D5A
FLAMMARION C	-.0651	-.0350	06.34	02.23	004.8	A			D5A
	-.2876	-.0352	17.52	02.93	003.8	B			D5A
	-.3310	-.0358	19.69	03.08	003.1	B			D5A
	-.2935	-.0359	17.81	02.98	002.7	C			D5A
	-.2919	-.0367	17.73	03.02	003.8	B			D5A
	-.0414	-.0370	05.14	02.25	006.8	B			D5A
	-.1028	-.0374	08.23	02.48	003.1	C		*3	D5A
FRA MAURO G	-.2801	-.0383	17.13	03.07	006.1	A			D5A
	-.0253	-.0390	04.32	02.30	004.4	B			D5A
	-.2678	-.0392	16.51	03.08	004.1	B			D5A

CRATER	XSI	ETA	XINS	YINS	DIAM	Q	P	RMKS	REG
	-.3115	-.0394	18.70	03.21	002.7	C			D5A
	-.0969	-.0405	07.92	02.62	002.7	C		*3	D5A
	-.0040	-.0407	03.24	02.31	002.7	C			D5A
	-.2977	-.0415	18.00	03.28	003.1	B			D5A
	-.3105	-.0422	18.64	03.35	002.0	C			D5A
	-.0358	-.0438	04.83	02.58	002.7	B			D5A
	-.2879	-.0438	17.50	03.37	006.8	C		*9	D5A
	-.0568	-.0441	05.89	02.67	002.7	B			D5A
	-.2779	-.0445	17.00	03.38	004.4	A			D5A
	-.0123	-.0452	03.64	02.57	003.1	C			D5A
OPPOLZER	-.0077	-.0259	03.48	12.57	040.9	B		*1	D5A
	-.3183	-.0454	19.02	03.54	003.4	B			D5A
	-.0210	-.0458	04.08	02.63	002.7	B			D5A
	-.1742	-.0459	11.79	03.14	003.8	A			D5A
	-.0627	-.0461	06.18	02.79	002.7	C			D5A
	-.0618	-.0469	06.13	02.83	003.4	C			D5A
MOESTING B	-.1278	-.0472	09.45	03.06	007.5	A			D5A
	-.0359	-.0481	04.82	02.80	033.4	C		*2	D5A
	-.2549	-.0482	15.83	03.50	002.7	C			D5A
TURNER H	-.2239	-.0492	14.27	03.46	004.4	A			D5A
	-.0525	-.0497	05.65	02.94	002.7	B			D5A
	-.1557	-.0503	10.84	03.31	002.4	C			D5A
	-.2082	-.0503	13.48	03.47	004.1	B			D5A
	-.0107	-.0506	03.54	02.84	005.5	A			D5A
	-.0339	-.0508	04.71	02.93	002.7	B			D5A
	-.1275	-.0517	09.42	03.29	005.5	A			D5A
	-.2255	-.0520	14.34	03.61	002.4	C			D5A
FLAMMARION D	-.0827	-.0524	07.16	03.18	005.8	B		*3	D5A
	-.0491	-.0527	05.47	03.08	002.7	B			D5A
	-.0770	-.0530	06.87	03.19	002.7	C			D5A
	-.0154	-.0532	03.77	02.99	003.1	B			D5A
LALANDE B	-.1560	-.0544	10.84	03.52	008.2	A			D5A
	-.2266	-.0545	14.39	03.74	002.0	C			D5A
	-.1651	-.0548	11.30	03.57	002.4	C			D5A
	-.1413	-.0549	10.10	03.50	004.8	C			D5A
	-.0759	-.0550	06.81	03.29	002.4	C			D5A
MOESTING A	-.0897	-.0559	07.50	03.38	013.0	A			D5A
	-.2085	-.0571	13.47	03.82	003.1	C			D5A
	-.1691	-.0575	11.49	03.72	002.4	B			D5A
SPOERER A	-.0357	-.0595	04.77	03.38	005.8	A			D5A
	-.0753	-.0598	06.76	03.53	002.4	C			D5A
TURNER L	-.2175	-.0599	13.91	03.99	005.8	A			D5A
FLAMMARION	-.0650	-.0602	06.24	03.52	070.9	B	C	*4	D5A
	-.2889	-.0609	17.49	04.25	002.7	B			D5A
	-.1861	-.0610	12.33	03.95	003.8	B			D5A
	-.1571	-.0614	10.87	03.88	002.7	B			D5A
	-.0750	-.0615	06.74	03.62	002.4	C			D5A
	-.2214	-.0618	14.10	04.10	001.7	C			D5A
	-.3100	-.0623	18.54	04.38	002.7	C			D5A
	-.1314	-.0638	09.57	03.92	002.7	B			D5A

CRATER	XSI	ETA	XINS	YINS	DIAM	Q	P	RMKS	REG
	-.2196	-.0639	14.00	04.20	001.7	C			D5A
	-.0550	-.0648	05.72	03.72	003.1	B			D5A
	-.0578	-.0654	05.86	03.76	002.4	C			D5A
	-.2038	-.0658	13.20	04.25	003.1	B			D5A
	-.1000	-.0665	07.98	03.96	004.4	B			D5A
	-.1963	-.0668	12.82	04.28	002.4	C			D5A
TURNER K	-.2312	-.0671	14.57	04.40	004.4	A			D5A
	-.2508	-.0679	15.55	04.50	002.4	C			D5A
	-.0549	-.0684	05.70	03.90	002.4	C			D5A
	-.0569	-.0688	05.80	03.93	003.4	C		*3	D5A
	-.0643	-.0697	06.17	04.00	002.7	C			D5A
FLAMMARION B	-.0788	-.0701	06.90	04.07	006.8	A			D5A
	-.1970	-.0705	12.84	04.47	002.7	B			D5A
	-.2655	-.0706	16.28	04.68	006.1	A			D5A
	-.2863	-.0714	17.32	04.78	003.8	A			D5A
FRA MAURO H	-.2671	-.0723	16.35	04.77	006.1	A			D5A
	-.0667	-.0730	06.28	04.18	003.1	B			D5A
	-.0291	-.0734	04.38	04.07	002.7	B			D5A
	-.2548	-.0735	15.73	04.80	003.1	C			D5A
TURNER M	-.2038	-.0738	13.17	04.66	004.1	A			D5A
	-.2482	-.0739	15.40	04.80	002.7	C			D5A
	-.0674	-.0740	06.31	04.23	002.0	C			D5A
	-.2883	-.0742	17.41	04.93	003.1	C			D5A
SPOERER	-.0309	-.0745	04.47	04.13	026.6	B	B6		D5A
	-.2503	-.0752	15.50	04.87	002.7	B			D5A
	-.1886	-.0776	12.39	04.81	002.4	C			D5A
LALANDE	-.1488	-.0777	10.39	04.69	023.5	A	C		D5A
	-.2486	-.0780	15.40	05.01	003.1	B			D5A
	-.0622	-.0810	06.02	04.57	003.4	C			D5A
	-.1248	-.0816	09.17	04.81	001.7	C			D5A
	-.3237	-.0820	19.15	05.43	002.4	C			D5A
	-.1211	-.0822	08.98	04.83	021.5	B	B4		D5A
	-.2057	-.0827	13.23	05.12	002.4	B			D5A
FRA MAURO D	-.3008	-.0837	18.00	05.45	005.5	A			D5A
	-.1084	-.0852	08.33	04.94	002.7	C			D5A
HERSCHEL C	-.0549	-.0870	05.63	04.85	010.2	A			D5A
	-.0684	-.0872	06.31	04.91	004.1	B			D5A
	-.1304	-.0898	09.42	05.25	003.8	B			D5A
	-.2558	-.0899	15.72	05.64	002.7	B			D5A
	-.0921	-.0911	07.49	05.19	004.4	B			D5A
	-.1548	-.0916	10.64	05.42	002.0	C			D5A
HERSCHEL D	-.0686	-.0917	06.30	05.14	018.1	C	C		D5A
	-.1022	-.0922	07.99	05.28	002.7	C			D5A
	-.0986	-.0929	07.81	05.30	006.1	A			D5A
	-.2978	-.0930	17.81	05.92	003.8	A			D5A
	-.0468	-.0932	05.20	05.14	003.1	B			D5A
	-.1669	-.0932	11.24	05.54	003.1	C			D5A
	-.2827	-.0946	17.05	05.96	003.8	A			D5A
	-.1707	-.0965	11.42	05.72	002.4	C			D5A
LALANDE N	-.0989	-.0968	07.81	05.50	006.5	A			D5A

CRATER	XSI	ETA	XINS	YINS	DIAM	Q	P	RMKS	REG
LALANDE C	-.1190	-.0970	08.82	05.58	010.6	A			D5A
	-.1091	-.0973	08.32	05.56	001.7	C			D5A
HERSCHEL	-.0356	-.0989	04.61	05.39	038.5	A			D5A
	-.0624	-.0998	05.96	05.53	004.1	C		*3	D5A
	-.1157	-.0998	08.64	05.71	002.7	C			D5A
	-.1560	-.1000	10.67	05.85	002.4	B			D5A
	-.0657	-.1005	06.12	05.58	004.1	C			D5A
HERSCHEL F	-.0756	-.1005	06.62	05.61	006.8	B			D5A
	-.0681	-.1008	06.24	05.60	003.4	C			D5A
	-.0096	-.1013	03.29	05.42	003.1	B			D5A
	-.1574	-.1024	10.73	05.98	001.4	C			D5A
	-.2891	-.1025	17.34	06.38	003.8	C	B6		D5A
FRA MAURO	-.2910	-.1028	17.43	06.40	097.2	B	C		D5A
	-.2738	-.1029	16.57	06.36	003.1	B			D5A
	-.0841	-.1030	07.04	05.77	002.7	C			D5A
FRA MAURO E	-.2871	-.1043	17.23	06.47	003.4	A			D5A
	-.1097	-.1047	08.32	05.94	004.1	C		*3	D5A
	-.3265	-.1053	19.20	06.63	002.7	B			D5A
	-.0972	-.1055	07.69	05.94	003.8	B			D5A
	-.1082	-.1056	08.24	05.98	002.4	C			D5A
	-.0755	-.1065	06.59	05.92	003.4	C			D5A
LALANDE G	-.1369	-.1074	09.68	06.17	004.8	A			D5A
	-.0154	-.1075	03.56	05.76	003.8	C			D5A
LALANDE D	-.1286	-.1076	09.26	06.15	007.8	A			D5A
	-.2752	-.1083	16.62	06.64	002.7	C			D5A
	-.2511	-.1085	15.41	06.58	006.8	C			D5A
	-.2800	-.1086	16.86	06.67	002.4	C			D5A
HERSCHEL H	-.0594	-.1096	05.77	06.02	005.8	A			D5A
	-.2499	-.1104	15.34	06.67	006.8	B			D5A
HERSCHEL J	-.0737	-.1116	06.48	06.17	005.8	A			D5A
HERSCHEL G	-.0416	-.1131	04.86	06.14	013.6	B	B5	*3	D5A
	-.0597	-.1131	05.77	06.20	003.4	B			D5A
	-.0820	-.1136	06.89	06.30	002.7	C			D5A
	-.1050	-.1136	08.05	06.38	002.7	C			D5A
LALANDE A	-.1686	-.1152	11.24	06.67	013.0	A			D5A
	-.0923	-.1162	07.40	06.47	003.1	C			D5A
FRA MAURO F	-.2889	-.1169	17.27	07.12	003.1	B			D5A
	-.3115	-.1182	18.40	07.25	002.7	C			D5A
	-.0901	-.1189	07.28	06.60	007.5	A			D5A
PARRY C	-.2185	-.1194	13.73	07.04	003.4	A			D5A
	-.1433	-.1199	09.95	06.83	002.7	C			D5A
	-.0872	-.1201	07.13	06.65	004.4	B			D5A
	-.1221	-.1205	08.88	06.79	002.4	C			D5A
	-.1681	-.1213	11.19	06.98	002.7	C			D5A
	-.1456	-.1216	10.06	06.92	002.4	C			D5A
	-.3202	-.1218	18.82	07.46	002.7	B			D5A
	-.2638	-.1221	15.99	07.31	002.7	C			D5A
	-.0768	-.1233	06.59	06.78	003.8	B			D5A
	-.1585	-.1235	10.70	07.06	002.7	C			D5A
PTOLEMAEUS H	-.0935	-.1238	07.43	06.86	007.5	B		*3	D5A

CRATER	XSI	ETA	XINS	YINS	DIAM	Q	P	RMKS	REG
	-.1878	-.1242	12.17	07.19	002.7	B			D5A
	-.0735	-.1245	06.42	06.83	004.1	B			D5A
	-.0987	-.1246	07.69	06.92	003.4	B			D5A
	-.1010	-.1258	07.80	06.99	003.1	B			D5A
PTOLEMAEUS O	-.0617	-.1259	05.82	06.86	004.4	B			D5A
	-.1026	-.1261	07.88	07.01	002.4	C			D5A
	-.0277	-.1274	04.10	06.82	002.4	B			D5A
	-.0376	-.1275	04.60	06.86	003.8	A			D5A
BONPLAND F	-.3279	-.1275	19.18	07.77	004.4	A			D5A
	-.0162	-.1278	03.52	06.80	003.1	B			D5A
	-.0929	-.1287	07.38	07.11	006.5	A			D5A
	-.0224	-.1309	03.82	06.98	002.7	B			D5A
	-.0299	-.1310	04.20	07.01	002.7	B			D5A
	-.0250	-.1313	03.95	07.01	002.7	B			D5A
	-.0689	-.1315	06.16	07.17	003.1	C			D5A
	-.1232	-.1318	08.89	07.37	004.1	B			D5A
	-.1519	-.1327	10.33	07.51	003.4	C			D5A
	-.0117	-.1333	03.27	07.06	002.7	B			D5A
PARRY F	-.2517	-.1333	15.34	07.85	003.8	A			D5A
	-.0157	-.1336	03.47	07.09	002.4	C			D5A
	-.0488	-.1336	05.14	07.21	003.4	B			D5A
	-.1267	-.1337	09.06	07.48	002.7	C			D5A
PALISA C	-.1112	-.1343	08.28	07.46	007.8	B			D5A
	-.0285	-.1348	04.11	07.20	002.7	C			D5A
	-.0973	-.1368	07.57	07.54	003.4	C			D5A
PARRY	-.2685	-.1368	16.17	08.08	045.4	B	B6		D5A
	-.1047	-.1369	07.94	07.57	019.4	C			D5A
PARRY D	-.2678	-.1377	16.13	08.12	002.7	C			D5A
PTOLEMAEUS B	-.0125	-.1381	03.29	07.31	017.7	B		*1,3,9	D5A
	-.1181	-.1382	08.61	07.68	007.8	C			D5A
	-.0111	-.1384	03.22	07.32	001.4	C			D5A
	-.0222	-.1386	03.78	07.37	002.7	A			D5A
	-.2488	-.1397	15.17	08.17	002.4	C			D5A
	-.1260	-.1400	09.00	07.80	003.4	C			D5A
	-.0732	-.1404	06.34	07.64	007.5	B	B4		D5A
	-.2675	-.1412	16.10	08.30	002.4	B			D5A
	-.2526	-.1415	15.35	08.27	002.7	C			D5A
	-.0900	-.1420	07.18	07.78	002.0	C			D5A
PTOLEMAEUS K	-.0802	-.1431	06.68	07.80	008.9	B	B5		D5A
PALISA T	-.1408	-.1432	09.73	08.01	012.6	B		*3	D5A
PTOLEMAEUS D	-.0443	-.1437	04.87	07.71	004.8	B		*3	D5A
	-.2605	-.1437	15.74	08.41	002.7	B			D5A
	-.0516	-.1438	05.24	07.74	003.1	B			D5A
BONPLAND	-.2943	-.1450	17.43	08.57	058.0	B			D5A
PARRY E	-.2778	-.1455	16.60	08.55	005.8	B			D5A
	-.0506	-.1459	05.18	07.84	002.4	B			D5A
	-.0469	-.1467	04.99	07.87	002.4	B			D5A
	-.0991	-.1469	07.62	08.06	023.2	C			D5A
	-.0217	-.1471	03.72	07.80	002.0	C			D5A
	-.0348	-.1475	04.38	07.87	002.7	C			D5A

CRATER	XSI	ETA	XINS	YINS	DIAM	Q	P	RMKS	REG
	-.0817	-.1477	06.74	08.04	003.4	B			D5A
	-.0861	-.1478	06.96	08.06	004.1	B			D5A
PTOLEMAEUS A	-.0137	-.1480	03.31	07.82	009.5	A			D5A
	-.0469	-.1496	04.98	08.02	001.4	B			D5A
	-.1541	-.1506	10.37	08.43	002.4	B			D5A
PALISA D	-.1181	-.1507	08.56	08.32	007.5	A			D5A
	-.1092	-.1513	08.11	08.32	003.4	B			D5A
	-.0904	-.1518	07.16	08.28	003.8	C			D5A
	-.0247	-.1520	03.85	08.06	002.4	B			D5A
	-.1304	-.1521	09.17	08.43	019.4	C	B4		D5A
PTOLEMAEUS L	-.0685	-.1537	06.05	08.30	004.1	A			D5A
	-.0912	-.1541	07.19	08.40	003.1	C			D5A
	-.1080	-.1553	08.03	08.52	003.4	B			D5A
PARRY M	-.2473	-.1555	15.03	08.97	029.7	C		*3,12	D5A
PALISA A	-.1151	-.1570	08.38	08.63	004.4	A			D5A
	-.0878	-.1571	07.01	08.54	003.1	B			D5A
	-.1826	-.1576	11.77	08.88	002.4	B			D5A
	-.0440	-.1579	04.80	08.43	002.0	C			D5A
	-.1080	-.1579	08.02	08.65	004.8	B			D5A
	-.3080	-.1586	18.06	09.31	003.1	B			D5A
PTOLEMAEUS	-.0316	-.1593	04.17	08.46	156.2	A	B6		D5A
	-.1137	-.1595	08.30	08.75	004.1	B			D5A
	-.2126	-.1599	13.27	09.09	002.0	C			D5A
PTOLEMAEUS M	-.0581	-.1630	05.49	08.74	004.1	A			D5A
PALISA	-.1229	-.1632	08.75	08.97	032.4	B			D5A
	-.0366	-.1647	04.40	08.75	002.0	B			D5A
	-.0391	-.1651	04.52	08.78	001.7	C			D5A
PARRY A	-.2709	-.1652	16.17	09.54	013.0	A			D5A
	-.0862	-.1662	06.89	09.00	004.1	A			D5A
PTOLEMAEUS J	-.0921	-.1674	07.18	09.08	004.8	A			D5A
	-.0113	-.1676	03.11	08.81	002.7	B			D5A
	-.0367	-.1678	04.39	08.91	001.4	C			D5A
PALISA P	-.1255	-.1679	08.86	09.22	004.8	A			D5A
	-.0829	-.1690	06.71	09.13	003.1	C			D5A
	-.0567	-.1698	05.39	09.08	002.7	A			D5A
	-.1291	-.1704	09.03	09.36	003.4	A			D5A
	-.1251	-.1728	08.82	09.47	003.1	B			D5A
	-.0066	-.1733	02.85	09.08	001.7	B			D5A
GUERICKE E	-.2052	-.1738	12.84	09.78	004.1	A			D5A
	-.0030	-.1749	02.66	09.15	002.4	B			D5A
	-.2795	-.1753	16.56	10.08	002.7	B			D5A
PTOLEMAEUS C	-.0558	-.1755	05.32	09.37	002.7	A			D5A
BONPLAND D	-.3081	-.1760	17.99	10.20	005.8	A			D5A
	-.0098	-.1764	03.00	09.25	002.7	A			D5A
	-.1613	-.1766	10.62	09.78	003.8	A			D5A
BONPLAND C	-.2950	-.1772	17.33	10.22	004.1	A			D5A
	-.0630	-.1780	05.67	09.52	002.4	B			D5A
	-.0751	-.1781	06.28	09.57	002.7	B			D5A
	-.2688	-.1783	16.01	10.20	002.4	C			D5A
	-.2286	-.1789	13.99	10.11	004.1	B			D5A

CRATER	XSI	ETA	XINS	YINS	DIAM	Q	P	RMKS	REG
	-.3066	-.1792	17.90	10.36	002.4	B			D5A
	-.0639	-.1793	05.71	09.59	002.7	B			D5A
	-.0756	-.1794	06.30	09.64	002.7	B			D5A
	-.1124	-.1795	08.15	09.77	002.7	B			D5A
DAVY G	-.0864	-.1801	06.84	09.71	014.3	B		*3	D5A
	-.0447	-.1806	04.74	09.59	002.0	B			D5A
	-.0479	-.1806	04.90	09.60	002.4	A			D5A
	-.0526	-.1820	05.13	09.69	002.4	B			D5A
PTOLEMAEUS S	-.0086	-.1831	02.91	09.59	004.1	A			D5A
	-.1984	-.1833	12.46	10.24	003.1	B			D5A
	-.0480	-.1843	04.89	09.79	002.7	A			D5A
GUERICKE J	-.2276	-.1844	13.92	10.39	007.2	C		*3	D5A
	-.3129	-.1853	18.19	10.69	003.1	B			D5A
	-.0988	-.1855	07.44	10.03	004.1	B			D5A
	-.2935	-.1855	17.22	10.64	002.4	B			D5A
	-.0100	-.1858	02.97	09.73	002.4	C			D5A
	-.0877	-.1859	06.88	10.01	006.8	B			D5A
	-.0464	-.1860	04.80	09.87	002.4	A			D5A
	-.0467	-.1879	04.81	09.97	003.1	A			D5A
DAVY B	-.1519	-.1883	10.10	10.35	006.1	B		*3	D5A
DAVY Y	-.1217	-.1887	08.58	10.27	068.2	B	A4		D5A
	-.2440	-.1889	14.72	10.67	002.4	B			D5A
	-.0536	-.1896	05.15	10.08	003.1	A			D5A
	-.2305	-.1897	14.04	10.67	002.4	C			D5A
	-.2157	-.1898	13.30	10.63	002.7	B			D5A
	-.1084	-.1912	07.90	10.35	003.8	B		*7	D5A
	-.0419	-.1922	04.55	10.17	003.4	A			D5A
	-.0746	-.1930	06.19	10.33	002.7	C			D5A
GUERICKE A	-.2906	-.1931	17.04	11.02	004.8	A			D5A
	-.1159	-.1936	08.27	10.50	003.1	B		*7	D5A
DAVY C	-.1190	-.1940	08.42	10.53	003.4	B		*7	D5A
	-.0889	-.1952	06.90	10.49	004.4	B			D5A
	-.3336	-.1965	19.18	11.32	004.1	A			D5A
	-.3404	-.1967	19.52	11.35	002.7	B			D5A
	-.1170	-.1988	08.30	10.77	002.7	B			D5A
GUERICKE	-.2380	-.2002	14.37	11.23	058.0	B			D5A
GUERICKE C	-.1959	-.2003	12.26	11.10	010.9	A			D5A
BONPLAND G	-.3148	-.2007	18.22	11.48	004.1	A			D5A
	-.2606	-.2020	15.50	11.39	002.7	C			D5A
	-.0714	-.2023	05.99	10.79	003.1	C			D5A
	-.1899	-.2042	11.94	11.28	002.4	C			D5A
DAVY	-.1380	-.2047	09.33	11.14	033.4	B	C	*3	D5A
	-.1032	-.2048	07.58	11.03	002.0	B			D5A
	-.2149	-.2059	13.19	11.45	003.1	A			D5A
GUERICKE D	-.2466	-.2076	14.77	11.63	007.2	A			D5A
	-.0622	-.2106	05.49	11.18	003.4	B			D5A
DAVY A	-.1310	-.2112	08.95	11.45	013.3	A			D5A
	-.2218	-.2114	13.51	11.75	002.4	C			D5A
GUERICKE F	-.2571	-.2120	15.28	11.89	022.2	C	B5		D5A
ALPHONSUS G	-.0573	-.2137	05.23	11.32	003.8	A			D5A

CRATER	XSI	ETA	XINS	YINS	DIAM	Q	P	RMKS	REG
GUERICKE H	-.2402	-.2150	14.42	11.99	005.5	A			D5A
	-.0424	-.2157	04.47	11.37	002.7	B			D5A
	-.2537	-.2159	15.09	12.08	002.7	C			D5A
	-.0331	-.2163	04.00	11.37	002.4	B		*10	D5A
	-.1677	-.2167	10.77	11.85	003.4	A			D5A
	-.2497	-.2189	14.88	12.22	002.7	B			D5A
	-.2155	-.2194	13.16	12.14	003.1	A			D5A
	-.0472	-.2212	04.69	11.67	003.1	A			D5A
	-.0135	-.2215	02.99	11.56	003.8	A			D5A
	-.0272	-.2221	03.68	11.64	002.7	B		*10	D5A
	-.0162	-.2228	03.12	11.64	002.7	C			D5A
	-.2099	-.2233	12.86	12.32	002.7	A			D5A
	-.0434	-.2235	04.49	11.77	003.4	A			D5A
	-.1209	-.2237	08.39	12.05	003.1	A			D5A
	-.2513	-.2257	14.93	12.57	002.4	B			D5A
	-.0367	-.2263	04.14	11.89	002.7	A			D5A
	-.0342	-.2265	04.01	11.89	001.7	B			D5A
	-.0028	-.2291	02.42	11.91	022.2	C	B4	*5	D5A
	-.0686	-.2298	05.73	12.18	002.7	C			D5A
	-.1011	-.2309	07.36	12.35	002.7	A			D5A
	-.2371	-.2314	14.19	12.82	002.4	C			D5A
ALPHONSUS	-.0468	-.2323	04.62	12.23	117.3	A	B5	*5	D5A
	-.0688	-.2339	05.72	12.39	002.7	B		*10	D5A
OPELT K	-.2848	-.2347	16.57	13.13	005.5	A			D5A
	-.0706	-.2363	05.80	12.52	002.7	B		*10	D5A
ALPETRAGIUS C	-.1038	-.2370	07.47	12.67	002.7	A			D5A
	-.2893	-.2373	16.78	13.28	002.0	B			D5A
	-.0332	-.2379	03.91	12.47	002.7	A			D5A
GUERICKE G	-.2507	-.2414	14.83	13.37	005.1	A			D5A
	-.2669	-.2416	15.64	13.43	002.0	B			D5A
	-.1476	-.2443	09.64	13.19	003.4	A			D5A
DARNEY J	-.3528	-.2467	19.92	13.94	007.2	A			D5A
	-.1841	-.2468	11.46	13.44	002.7	B			D5A
ALPHONSUS C	-.0820	-.2483	06.32	13.17	003.8	B			D5A
	-.3183	-.2492	18.18	13.97	002.7	C			D5A

Special Remarks marked thus * in Main Catalog

1. Low walls.
2. Largely obliterated.
3. Elliptical.
4. 20% of wall missing.
5. Central peak.
6. 25% of wall missing.
7. Member of string of small craters.
8. Gouge - shallow, elliptical, probably caused by secondary impact.
9. Shallow crater.
10. Surrounded by dark nimbus.