

NOTES ON BASE
This is one sheet in a series of topographic map sheets covering that part of the surface of Mercury that was illuminated during the Mariner 10 encounters (Davies and Batson, 1973). The source of map data was the Mariner 10 television experiment (Murray, 1975).

ADOPTED FIGURE
The map projections are based on a sphere with a radius of 2439 km.

PROJECTION
The Lambert conformal conic projection is used for this sheet, with standard parallels at 30° S and 60° S. A scale of 1:4,623,000 at lat 22.5° S was chosen to match the scale at lat 22.5° S of adjacent Mercator projections. Latitudes are based on the assumption that the spin axis of Mercury is perpendicular to the plane of the orbit. Longitudes are positive westwards in accordance with the usage of the International Astronomical Union (IAU, 1971). Meridians are numbered so that a reference crater named Hun Kal (lat 0.6° S) is centered on long 20° (Murray and others, 1974; Davies and Batson, 1975).

CONTROL
Planimetric control is provided by photogrammetric triangulation using Mariner 10 pictures (Davies and Batson, 1975). Discrepancies between images in the base mosaic and computed control point positions appear to be less than 5 km. No attempt was made to resolve discrepancies in feature positions on this sheet and those on the Kuiper quadrangle to the north and the Bach quadrangle to the south. The latter sheets were controlled by an earlier, more preliminary net.

MAPPING TECHNIQUES
Mapping techniques are similar to those described by Batson (1973a, 1973b). A mosaic was made with pictures that had been digitally transformed to the Lambert conformal conic projection. Shaded relief was copied from the mosaics and portrayed with uniform illumination with the sun to the west. Many Mariner 10 pictures besides those in the base mosaic were examined to improve the portrayal. The shading is not generalized, and may be interpreted with near photographic reliability (Inge, 1972; Inge and Bridges, 1976). Shaded relief analysis and representation were made by Susan L. Davis.

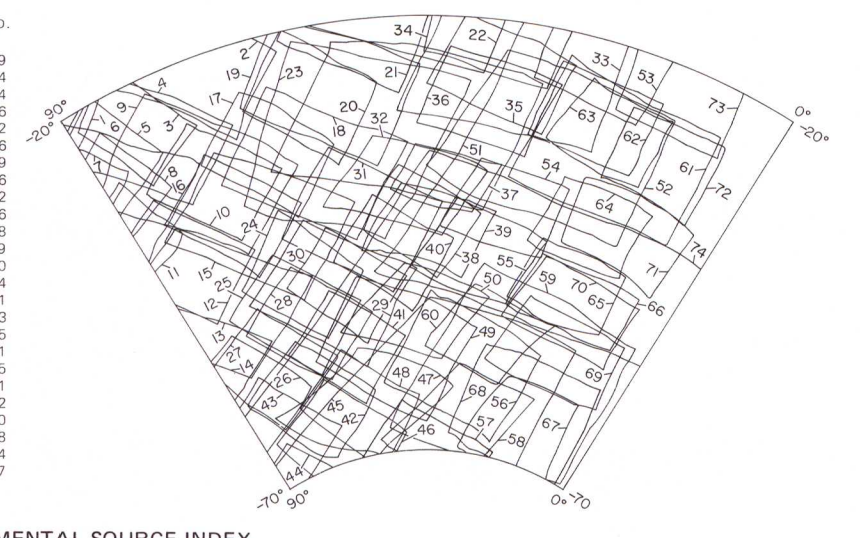
NOMENCLATURE
All names on this sheet are approved by the International Astronomical Union (IAU, 1977).
H-11: Abbreviation for Mercury (Hermes) sheet number 11.
H 5M -45/45 R: Abbreviation for Mercury (Hermes) 1:5,000,000 series; center of sheet, 45° S latitude, 45° longitude; shaded relief map, R.

REFERENCES
Batson, R. M., 1973a, Cartographic products from the Mariner 10 mission. *Jour. Geophys. Research*, v. 78, no. 20, p. 4424-4435.
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Davies, M. E., and Batson, R. M., 1975, Surface coordinates and cartography of Mercury. *Jour. Geophys. Research*, v. 80, no. 17, p. 2417-2430.
Inge, J. L., 1972, Principles of lunar illustration. *Aeronaut. Chart and Inf. Center Ref. Pub.*, RP-72-1, 60 p.
Inge, J. L., and Bridges, Patricia M., 1976, Applied photo interpretation for airbrush cartography. *Photogram. Eng.*, v. 42, no. 6, p. 749-760.
International Astronomical Union, Commission 16, 1971, Physical study of planets and satellites, in Proc. 14th General Assembly 1970. Internat. Astron. Union Trans., v. XIV/3, p. 105-108.
—, 1977, Physical study of planets and satellites, in Proc. 16th General Assembly, 1976. Internat. Astron. Union Trans. (in press).
Murray, B. C., Belton, M. J. S., Danielson, G. E., Davies, M. E., Gault, D. E., Haghe, Bruce, O'Leary, Brian, Strom, R. G., Soumi, Vermer, and Tsak, Newell, 1974, Mercury's surface: Preliminary description and interpretation from Mariner 10 pictures. *Science*, v. 185, no. 4146, p. 169-175.
Murray, B. C., 1975, The Mariner 10 pictures of Mercury: An overview. *Jour. Geophys. Research*, v. 80, no. 17, p. 2342-2344.



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1	166098	16	166053
2	166052	17	166016
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4	166045	19	166023
5	166050	20	166026
6	166015	21	166017
7	166016	22	166019
8	166014	23	166060
9	166017	24	166019
10	166011	25	166022
11	166017	26	166024
12	166014	27	166029
13	166018	28	166066
14	166048	29	166075
15	166062	30	166080

INDEX TO MARINER 10 PICTURES
The mosaic used to control the positioning of features on this map was made with the Mariner 10 pictures outlined above.

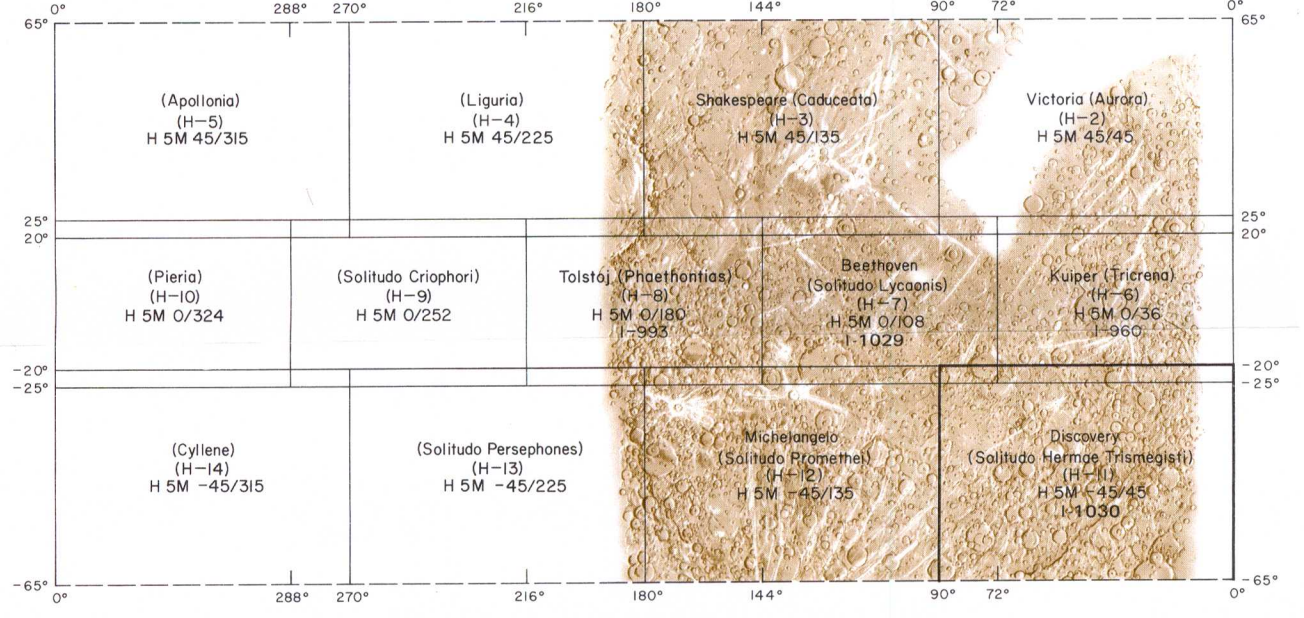
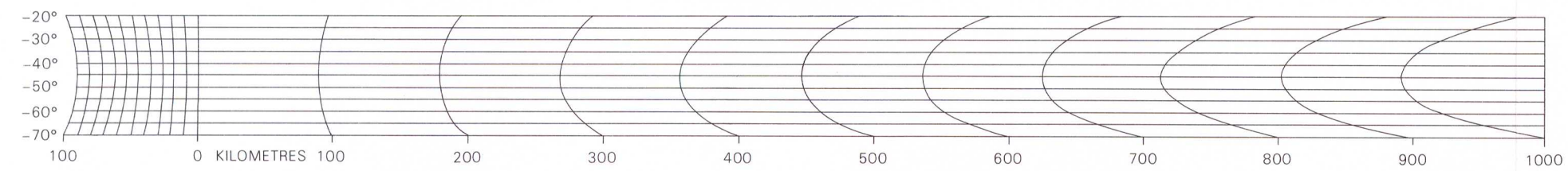


SUPPLEMENTAL SOURCE INDEX
The Mariner 10 pictures outlined above were used to provide additional detail on the map but were not used on the controlled mosaic.

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4	166039	28	166070	53	27368
5	166034	29	166067	54	27382
6	166040	30	166069	55	27388
7	166038	31	166067	56	166019
8	166038	32	27383	57	166068
9	166039	33	27380	58	27402
10	166036	34	27381	59	166486
11	166036	35	27376	60	27388
12	166036	36	27376	61	27396
13	166036	37	27420	62	27370
14	166036	38	166067	63	27374
15	166034	39	27389	64	27381
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18	166032	42	166074	67	27411
19	166031	43	166075	68	166020
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21	166030	45	27292	70	27382
22	166030	46	166080	71	27382
23	27229	47	27403	72	27368
24	166062	48	166076	73	27364
		49	166013	74	26917

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SCALE 1:4 623 000 AT 22.5° LATITUDE
LAMBERT CONFORMAL PROJECTION



**SHADED RELIEF MAP OF THE DISCOVERY QUADRANGLE OF MERCURY
(SOLITUDO HERMAE TRISMEGISTI ALBEDO PROVINCE)**

H-11
H 5M -45/45R
1977