

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, 1975). 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 Mercator projection is used for this sheet, with a scale of 1:5,000,000 at the equator. 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 10 km. No attempt was made to resolve discrepancies in feature positions on this sheet and those on the Kuiper quadrangle to the east, because the Kuiper quadrangle was controlled by an earlier, more preliminary net. Discrepancies as large as 30 km were noted along the southern part of the boundary between these sheets.

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 Mercator 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).

COLOR
The color of the shaded relief was selected for optimum discrimination of detail and is not intended to represent the color of Mercury even approximately.

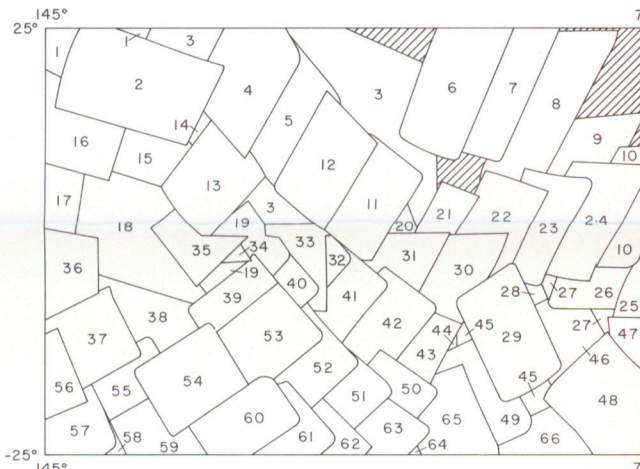
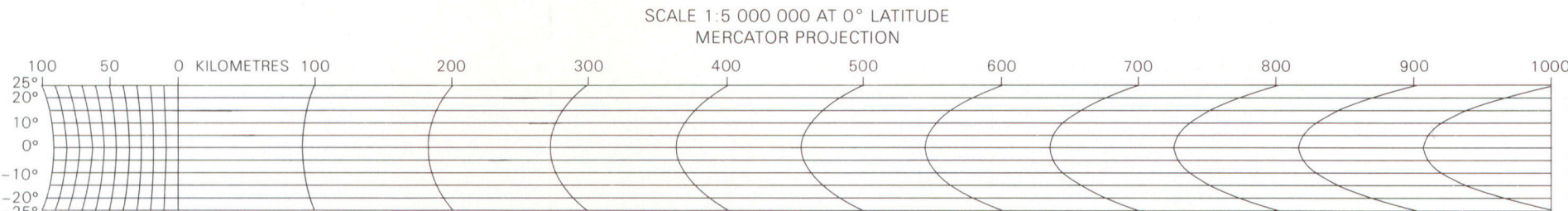
NOMENCLATURE
All names on this sheet are approved by the International Astronomical Union (IAU, 1977).
H-7: Abbreviation for Mercury (Hermes) sheet number 7.
H 5M 0/108 R: Abbreviation for Mercury (Hermes) 1:5,000,000 series; center of sheet, 0° latitude, 108° longitude; shaded relief map, R.

REFERENCES
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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, Jay L., and Bridges, Patricia M., 1976, Applied photo interpretation for airbrush cartography: Photogram. Eng., v. 42, no. 6, p. 749-760.
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Murray, B. C., 1975, The Mariner 10 pictures of Mercury: An overview: Jour. Geophys. Research, v. 80, no. 17, p. 2342-2344.



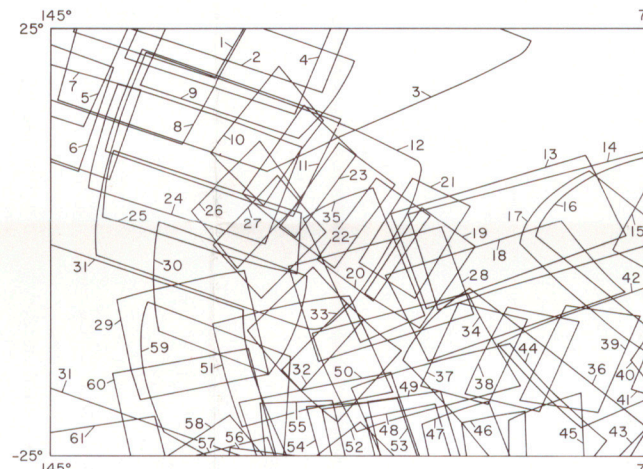
Interior—Geological Survey, Reston, Va.,—1977—G76388

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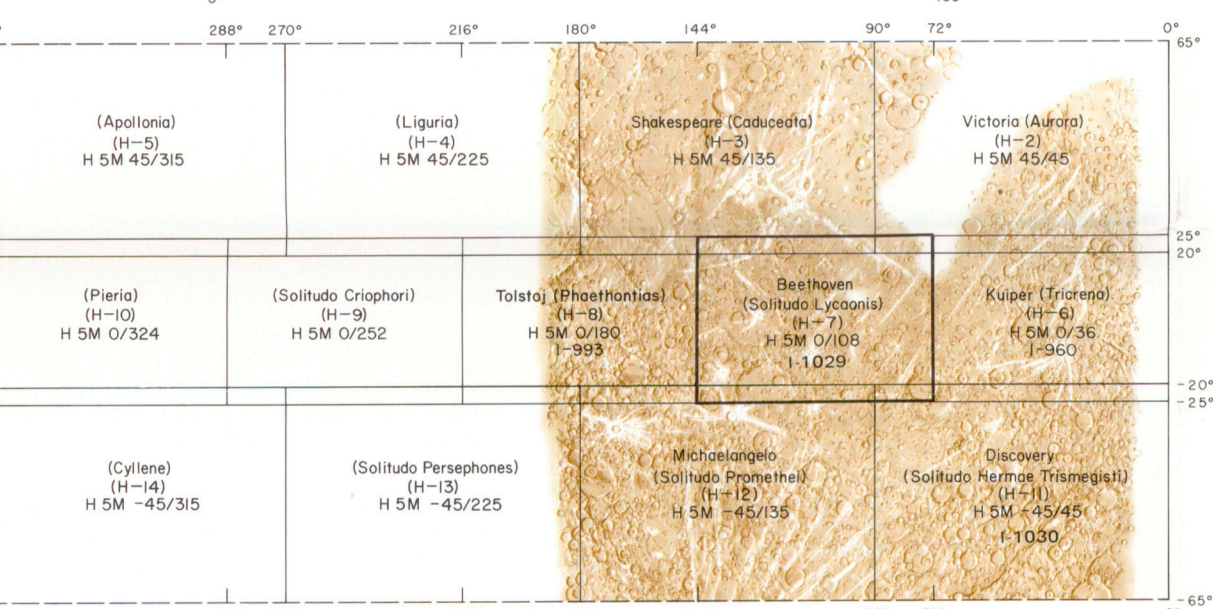
INDEX TO MARINER 10 PICTURES

The mosaic used to control the positioning of features on this map was made with the Mariner 10 pictures outlined above. Cross-hatched areas indicate no photo coverage on the mosaic.



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.



ARRANGEMENT OF MAP SHEETS ON MERCURY

The provisional name "Goethe" was changed to "Borealis," and the provisional name "Tiri" was changed to "Tolstoi" by the International Astronomical Union in 1976 (IAU, 1977). The provisional names appeared on earlier editions of this index map as well as on the Tolstoi (H-8) quadrangle of Mercury. The number preceded by I refers to published shaded relief map.

SHADED RELIEF MAP OF THE BEETHOVEN QUADRANGLE OF MERCURY (SOLITUDO LYCAONIS ALBEDO PROVINCE)

H-7
H 5M 0/108 R
1977