

DEPARTMENT OF THE INTERIOR  
UNITED STATES GEOLOGICAL SURVEY

Prepared for the  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

**NOTES ON BASE**  
This is one sheet in a topographic map series covering that part of the surface of Mercury which 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 polar stereographic projection is used for this sheet, with a scale of 1:5,290,000 at lat 65°. 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 2 km.

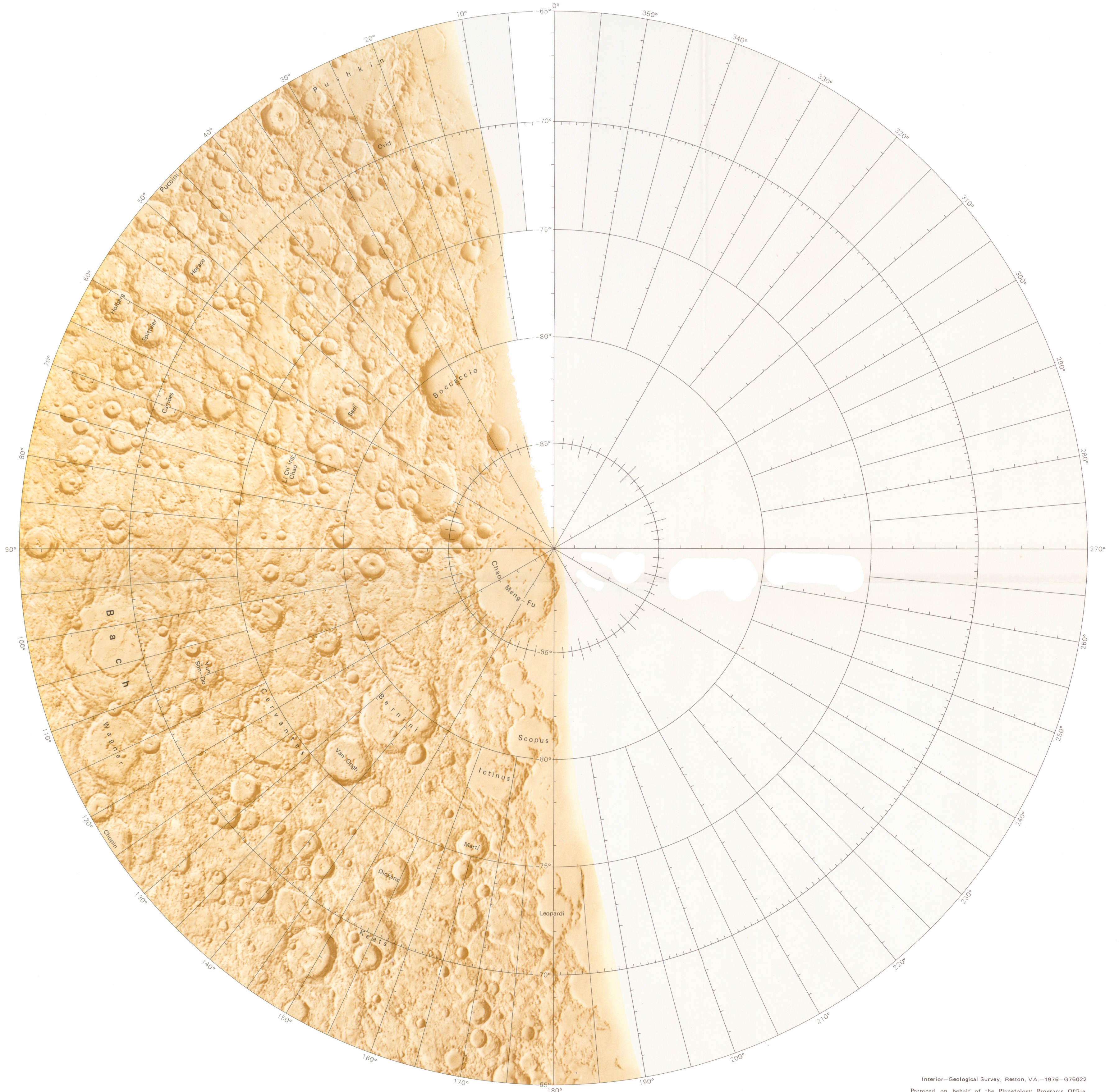
**MAPPING TECHNIQUES**  
Mapping techniques are similar to those described by Batson (1973a, 1973b). A mosaic was made with pictures that had been digitally transformed to the polar stereographic projection. Shaded relief was copied from the mosaic and portrayed with uniform illumination with the sun 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 photographic reliability (Inge, 1972). Shaded relief analysis and representation were made by Jay L. Inge.

**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.

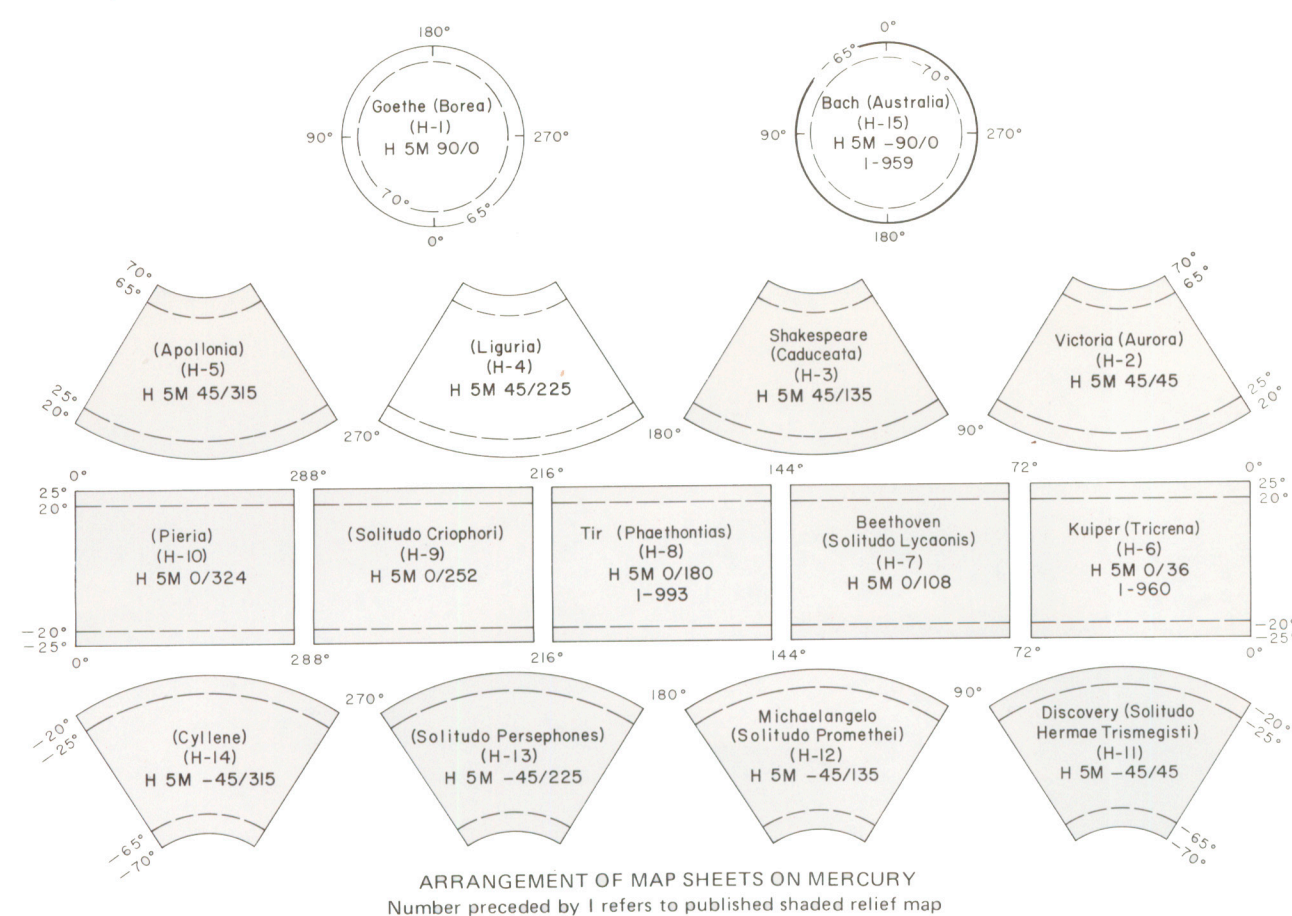
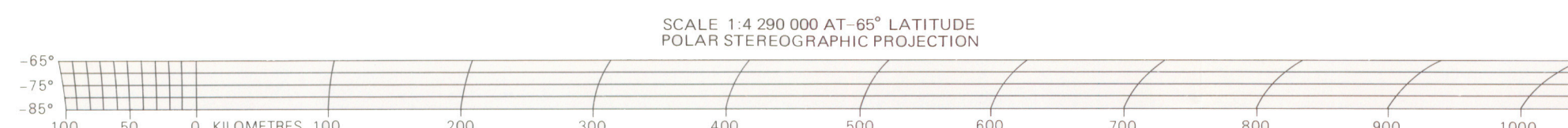
**NOMENCLATURE**  
All names on this sheet are provisional.

H-15: Abbreviation for Mercury (Hermes) sheet number 15.  
H 5M-90/0 R: Abbreviation for Mercury (Hermes) 1:5,000,000 series; center of sheet, 90° S latitude, 0° longitude; shaded relief map, R.

**REFERENCES**  
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— 1973b, Television cartography: U.S. Geol. Survey open-file rept., Astrogeol. 58, 35 p.  
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.  
International Astronomical Union, Commission 16, 1971, Physical study of planets and satellites, in Proc. 14th General Assembly, 1970: Internat. Astron. Union Trans., v. XIVB, p. 105-108.  
Murray, B. C., Bellon, M. J. S., Danielson, G. E., Davies, M. E., Gault, D. E., Hayes, Bruce, O'Leary, Brian, Strom, R. G., Soumi, Verner, and Trask, Newell, 1974, Mercury's surface: Preliminary description and interpretation from Mariner 10 pictures: Science, v. 185, no. 4146, p. 169-179.  
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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| Index No. | FDS No. |
|-----------|---------|
| 1         | 27401   |
| 2         | 27402   |
| 3         | 27403   |
| 4         | 27406   |
| 5         | 27289   |
| 6         | 27403   |
| 7         | 166729  |
| 8         | 166740  |
| 9         | 166745  |
| 10        | 166752  |
| 11        | 258971  |
| 12        | 166753  |
| 13        | 166690  |
| 14        | 166684  |
| 15        | 166747  |
| 16        | 166741  |
| 17        | 166742  |
| 18        | 166748  |
| 19        | 166743  |
| 20        | 166749  |
| 21        | 166755  |
| 22        | 166745  |
| 23        | 166847  |

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

**SHADED RELIEF MAP OF THE BACH AREA OF MERCURY  
(AUSTRALIA ALBEDO PROVINCE)**

**H-15  
H 5M-90/0 R  
1976**

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