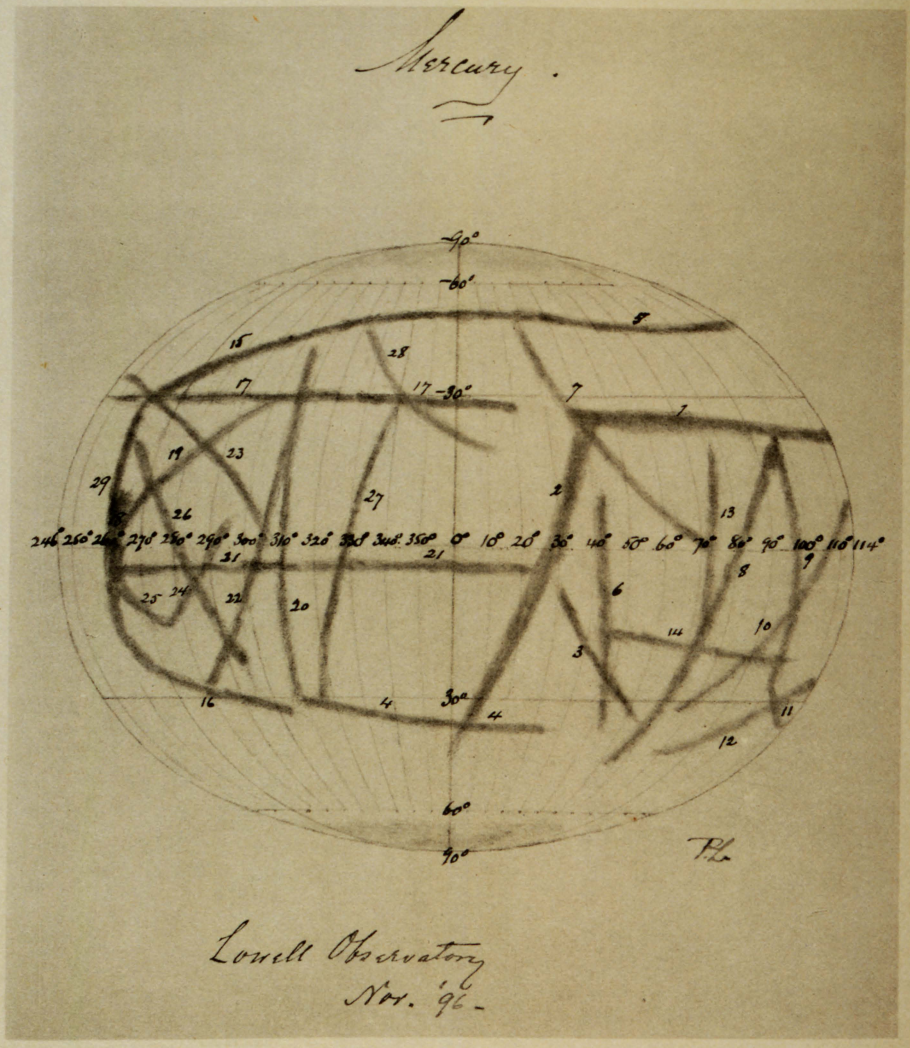
Compliments of the Author.

Mercury.

PERCIVAL LOWELL.

Reprint from POPULAR ASTRONOMY.

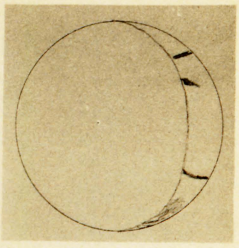
PLATE XXXII.



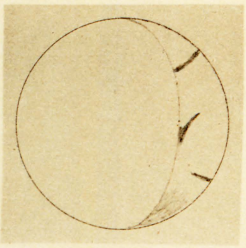
Index to Map of Mercury.

1 Maiæ regio
2 Parameses regio
3 Cyllenes regio
4 Mercatorum regio
5 Petasi regio
6 Trites regio
7 Pteri regio
8 Netes regio
9 Caducei regio
10 Fili regio
11 Serpentis regio
12 Anguis regio
13 Paranetes regio
14 Chelydoreæ regio
15 Testudinis regio
16 Lyræ regio
17 Psychopompi regio
18 Laræ regio
19 Oneiraton regio
20 Parhypates regio
21 Oneiropompi regio
22 Hyphates
23 Plectri regio
24 Alæ regio
25 Talarium regio
26 Sarameias regio
27 Lichani regio
28 Somnii regio
29 Argi regio

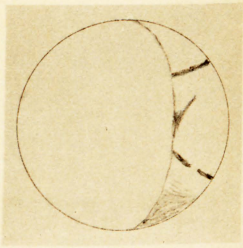
PLATE *Mercury.* XXXIII.



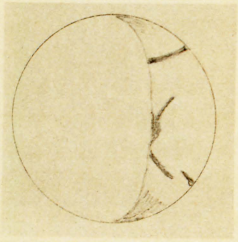
Oct 16. $2^h\ 13^m$ to 14^m
$\lambda = 237°$



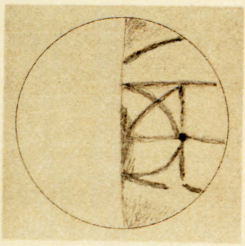
Oct 17 $23^h\ 38^m$ to 48^m
$\lambda = 247°$



Oct 19 $3^h\ 6^m$ to 12^m
$\lambda = 257°$

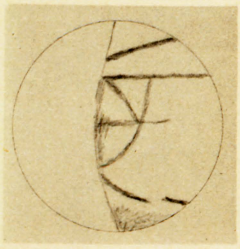


Oct 19 $23^h\ 45^m$
$\lambda = 254°$

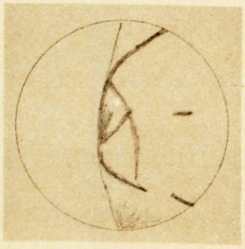


Oct. 24. $23^h\ 38^m$
to Oct 25. $0^h\ 4^m$
$\lambda = 269°$

Oct. 27. $22^h\ 47^m$ to 59^m
$\lambda = 277°$



Oct. 27. $23^h\ 35^m$ to 46^m
$\lambda = 277°$



Oct. 28. $2^h\ 53^m$
$\lambda = 277°$

Oct 28. $22^h\ 28^m$ to 57^m
$\lambda = 280°$

Lowell Observatory 1896.

P.L.

MERCURY.

PERCIVAL LOWELL.

FOR POPULAR ASTRONOMY.

Conditions of Observation.—The following observations were all daylight ones. They were made before, at and after noon, and on both sides of the Sun with the planet as a rule from an hour and a half to five hours past the meridian and with a declination of from 0° to 14° south. The atmosphere proved much better than I had anticipated, giving at times very good images. The eye-piece found to be the best was one which on the 24-inch glass magnified about 140 diameters. The next higher one at hand, one of three hundred diameters was also good. Higher powers than this are impracticable. I mention this because a great deal of misconception exists with regard to the powers possible in planetary work. From my own experience and that of my assistant Mr. Drew, I judge that on a glass of this size in this atmosphere the ideal eyepiece would be one of a little over 1½ inches focal length, magnifying about 225 times—they are long and rather narrow, almost invariably.

Markings.—The markings on the planet's disk proved at once to be conspicuous. They are nearly as dark as the markings on Mars and much darker than those on Venus. In good air they were very easy and perfectly defined. So visible were they at all times,—for the air had to be distinctly bad to obliterate them—that observations had not been made more than a day or two, before the rotation period of the planet was patent.

Albedo.—At the time the observations began the planet was between superior conjunction and eastern elongation and lay at the time very conveniently placed for comparison with Venus, the two planets being near one another, Mercury lying at first at a somewhat greater angular distance from the Sun and then at a slightly less, Venus passing out and Mercury in on Sept. 24th. The difference in the albedo or intrinsic brightness of the surface

ern side of the disk,—what would be the eastern, that is, to me standing on the planet,—two line-like markings that belt the north and south poles respectively not far distant from them and slanting somewhat equatorwards to the east. So noticeable are these lines that when the planet is crescent they have the effect of cutting off both horns. For they run from the limb plumb to the terminator. They are at this time the most evident markings on the disk. Their extremities on the terminator are far distant from one another and no one would so much as suspect that the two had any possible connection.

As the libration begins to swing the illumination across the disk eastward the two lines appear to bend a trifle more toward each other at their terminator ends. As the libration advances the lines incline still more until all at once when the surface exposed by the swing amounts to about 30° the two are seen to be joined all the way down the disk close along the eastern edge, forming one continuous band. With the increasing libration the fringe of light between this and the terminator widens until at the maximum the band lies well on the disk, and has the look of a horizontal horse shoe whose extremities almost cut off the poles. As the marking is throughout the most salient one on the planet the effect is striking.

There could hardly be imagined a more conspicuous proof of the synchronous character of the rotation and orbital periods than this, its theoretical corrollary made visible. Just where theory predicts a deviation from an invariable illuminated half is the variation to be seen. It is very singular—unless there be a cause for it in its very position—that there should happen to be a line placed there to show.

LOWELL OBSERVATORY, Dec. 3, 1896.

PLATE XXXIV.

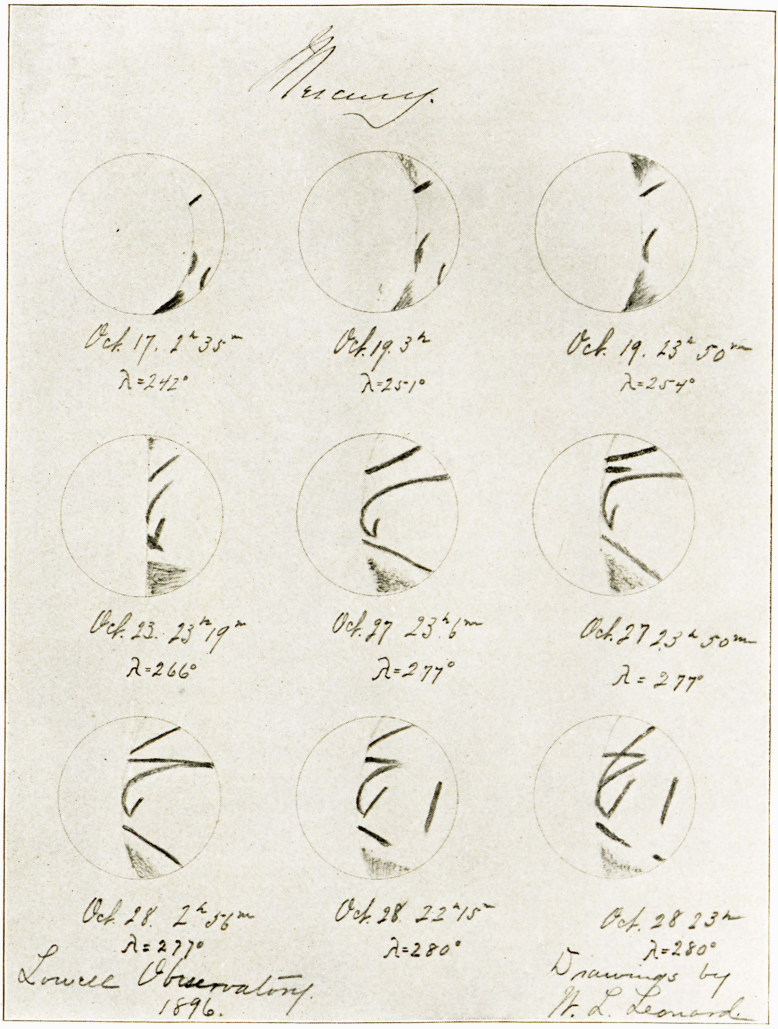

Mercury.
Oct. 17. 2h 35m
λ=242°
Oct. 19. 3h
λ=251°
Oct. 19. 23h 50m
λ=254°
Oct. 23. 23h 19m
λ=266°
Oct. 27 23h 6m
λ=277°
Oct. 27 23h 50m
λ=277°
Oct. 28. 2h 56m
λ=277°
Oct. 28 22h 15m
λ=280°
Oct. 28 23h
λ=280°
Lowell Observatory.
1896.
Drawings by
W. L. Leonard.

PLATE XXXV.

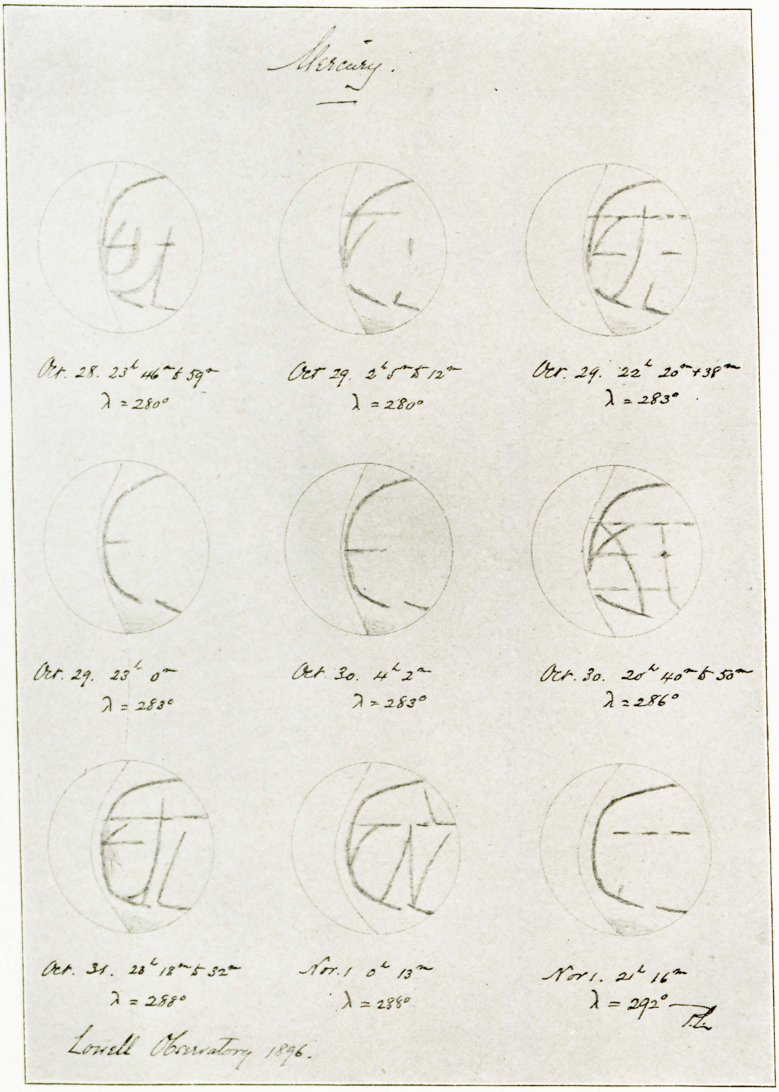

Mercury.
Oct. 28. 23h 46m to 59m
λ = 280°
Oct 29. 2h 5m to 12m
λ = 280°
Oct. 29. 22h 20m to 38m
λ = 283°
Oct. 29. 23h 0m
λ = 283°
Oct. 30. 4h 2m
λ = 283°
Oct. 30. 20h 40m to 50m
λ = 286°
Oct. 31. 23h 18m to 32m
λ = 288°
Nov. 1 0h 13m
λ = 288°
Nov 1. 21h 16m
λ = 292°
Lowell Observatory 1896.

PLATE XXXVI.

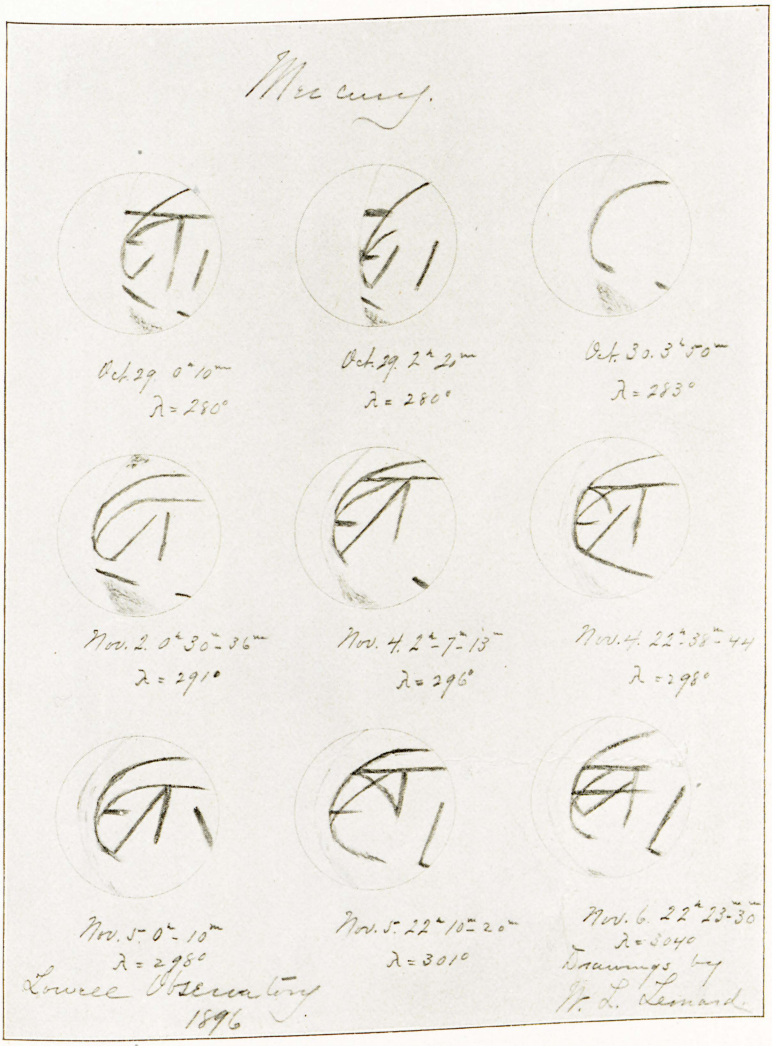

Mercury.
Oct. 29. 0h 10m
λ = 280°
Oct. 29. 2h 25m
λ = 280°
Oct. 30. 3h 50m
λ = 283°
Nov. 2. 0h 30m-36m
λ = 291°
Nov. 4. 2h-7m-13m
λ = 296°
Nov. 4. 22h 38m-44
λ = 298°
Nov. 5. 0h-10m
λ = 298°
Lowell Observatory
1896
Nov. 5. 22h 10m-20m
λ = 301°
Nov. 6. 22h 23m-30m
λ = 304°
Drawings by
W. L. Leonard.

PLATE XXXVII.

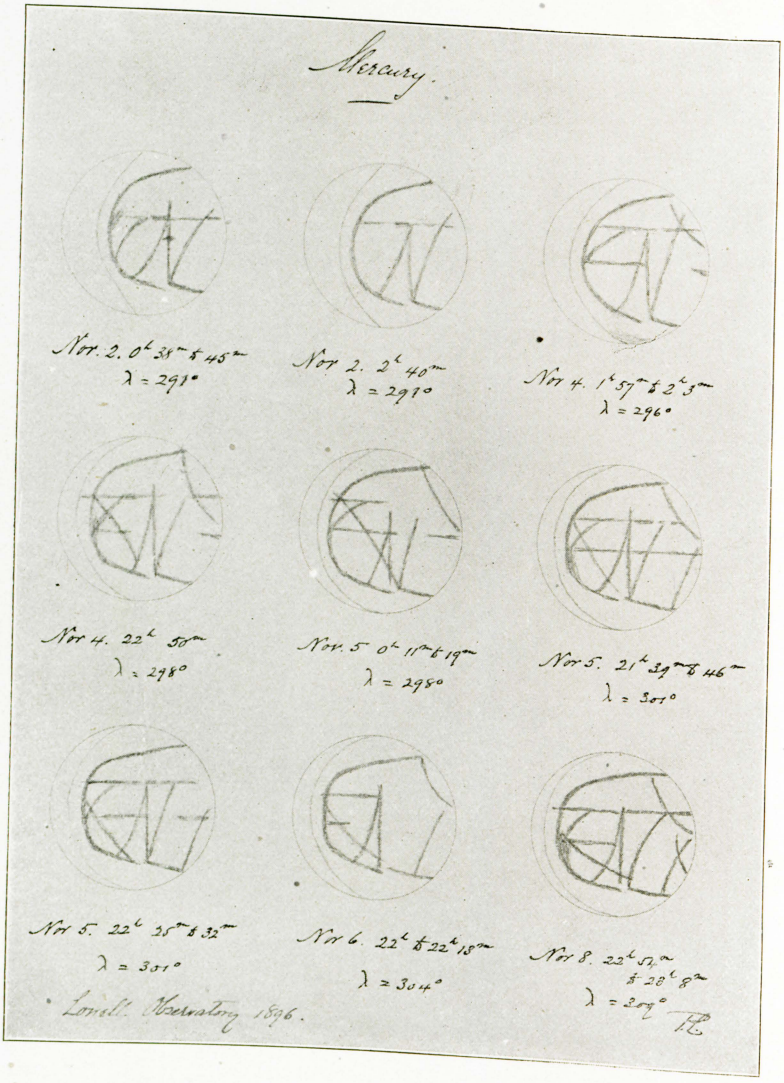


PLATE XXXVIII.