

ARISTARCHUS FROM SUNRISE TO SUNSET

by Elmer J. Reese

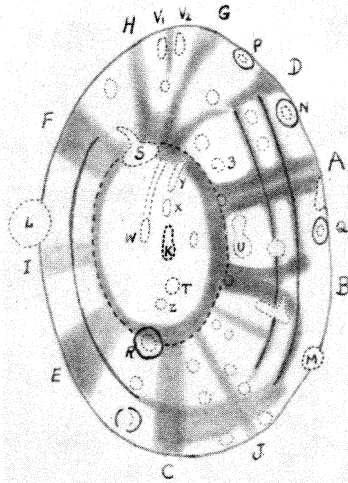


CHART OF ARISTARCHUS BASED
ON 75 DRAWINGS BY E. J. REESE
WITH 6-IN. REFLECTOR, 1946-1956.

Figure 24.

it is by no means a rarity to find that a high-sun dark area conforms in shape and position to a long-lasting sunrise or sunset shadow.) The very brilliant central peak with its sharp, black shadow is the most conspicuous object on the floor. Low rounded hill T with its smaller, softer shadow is also a fairly easy object to observe. The other hills and ridges on the floor are very low; however all these hills, except W and the small one east of the central peak, are usually visible as bright spots during most of the lunar day. The relative brightness of some of these high-sun bright spots seems to vary from lunation to lunation (see Table I at end of this article.)

Hill S has a curious ridge or appendage curving southward from it. This ridge is well seen near 66° . At this time the top of a terrace about halfway up the inner west wall of Aristarchus is gleaming in sunlight while the rest of the wall is still in shadow.

As the afternoon progresses in Aristarchus, the east wall loses the brilliancy that characterized it from early morning through early afternoon. By 170° it is noticeably duller. The illumination begins to diminish rapidly near 185° , and by 214° the sunset shadow has spread over all of the east wall except for the top of a terrace a little below the northeast rim. The shadow then spreads westward across the floor leaving only the west inner wall in sunlight by 220° . A fairly large but shallow craterlet R has been repeatedly seen at the north edge of the floor from 190° to 214° . In some lunations craterlet R is clearly seen but not hill T, while in other lunations T is clearly seen but not R. The two have never been clearly seen simultaneously.

The central peak is regarded as the most reflective object on the visible surface of the moon. It is invariably a conspicuous object from sunrise until 150° . After 165° , however, it is occasionally quite difficult. This may be due in part to decreasing contrast with the brightening floor, and in part to the fact that the east slope of the peak is not well presented to the earth. The observed shape of the central peak is usually that of an ellipse elongated north and south by foreshortening. On rare occasions, however, the peak presents an unusual appearance. Thus on October 24, 1948 at 169° the peak appeared dim and diffuse with a circular outline.

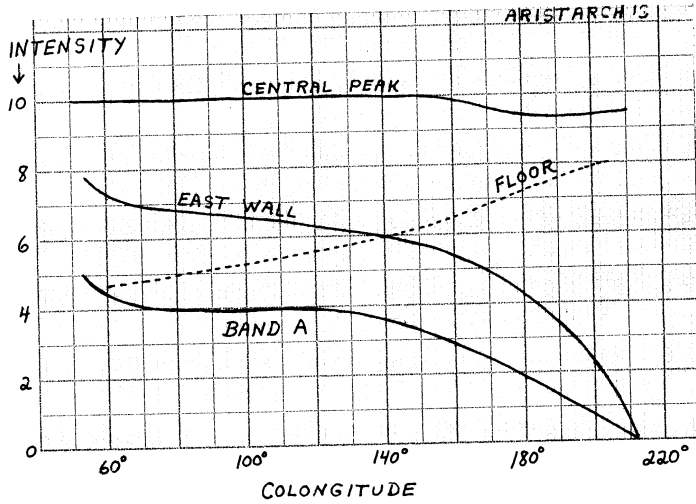


Figure 25.
Intensity-Curves of
Features in Lunar
Crater Aristarchus
as Determined by
Elmer J. Reese.
See Text.

On March 14, 1949 at 84° the peak presented a very irregular outline. Again on June 19, 1949 at 189° the peak was very dim being scarcely visible.

Wall bands A and B on the east inner wall are rather faint when the first rays of the rising sun fall upon them; however, they darken rapidly during the first several hours they are in sunlight. After 70° they change very little until a rapid darkening sets in near 130° and continues until sunset. Since the shape of the intensity curve for band A or B differs little from that for the bright sections of the east wall (see Figure 25), it seems probable that the changing intensity of the bands is merely a function of the angle of solar illumination. Generally, band A is the most conspicuous of the wall bands. A thin light streak is occasionally visible extending up the wall along the middle of this band. Band B is usually fully as dark as A; however, B rarely, if ever, reaches the crest of the wall. When best seen, B extends about two-thirds of the way up the wall and is noticeably forked or split at the top. A small but deep craterpit has been seen at the base of band A. A smaller pit has been glimpsed at the base of band B. Band D is remarkable in that it is usually faint or completely broken about halfway up the wall. Bands D and A are very nearly parallel.

As the sun rises higher above Aristarchus, the shadow on the west inner wall gradually shrinks until only two small patches of shadow remain in the upper portions of bands E and F. The unshaded lower portions of these bands are then light gray in tone. After the last traces of the true shadow lift near 78°, bands E and F may remain light gray until sunset. However, in some lunations a very dark triangular pseudo-shadow with its base on the rim of the crater soon develops in the position of each band and may persist until noon at 137°. This is difficult to understand and certainly requires further investigation.

TABLE I

INTENSITY ESTIMATES FOR SOME FEATURES IN ARISTARCHUS
See Figure 24 for identities of these objects.

Date	Colong.	K	T	Y	M	N	P
1949, Mar. 14	83° .8	10.0	6.0	5.7	8.0	8.0	8.0
1948, Nov. 16	86 .9	10.0	7.0	5.5	8.5	8.0	9.0
1947, Sep. 1	100. 5	10.0	6.0	-	8.0	8.0	8.0
1949, Oct. 8	102. 6	10.0	7.0	6.5	10.0	7.5	7.5
1948, Oct. 19	105. 4	10.0	6.0	6.0	8.0	7.5	7.5
1953, Aug. 26	108. 3	10.0	8.0!	8.0!	9.0	8.0	8.0
1949, Jan. 16	109. 1	10.0	6.0	5.8	10.0	7.0	7.5
1948, Nov. 18	111. 5	10.0	7.0	6.0	9.0	8.0	8.0

Date	Colong.	K	T	Y	M	N	P
1948, Sep. 20	113.4	10.0	7.0	7.0	8.5	8.0	7.5
1948, Aug. 22	119.6	10.0	8.0!	8.0!	9.0	8.0	8.0
1953, Feb. 2	126.7	10.0	8.0	7.0	9.0	8.0	8.0
1947, Dec. 1	129.0	10.0	7.0	6.5	9.0	8.0	8.0
1948, Aug. 24	146.2	10.0	8.0	7.0	9.0	7.0	9.0

SATURN IN 1955

by Thomas A. Cragg

The nomenclature in this report is the same as that in previous ones unless the reverse is specifically stated. One may find it useful to refer to the last description and drawing showing the general nomenclature.¹

The Recorder wishes to thank the following colleagues for their invaluable contributions rendering this report possible:

- Mr. Leonard B. Abbey, Jr.
822 South McDonough Street, Decatur, Georgia. 6-inch refl.
- Mr. Robert M. Adams,
324 South Valley, Neosho, Missouri. 10-inch refl.
- Mr. William F. Barber, Jr.,
2080 Dunwoody Street, Atlanta, Georgia. 6-inch. refl.
- Mr. Phillip W. Budine,
102 Trafford Road, Binghamton, New York. 3½-inch refl.
- Mr. Thomas A. Cragg,
246 West Beach Avenue, Inglewood 3, California. 6-inch refr., 12-inch refr.,
and 12-inch refl.
- Mr. Charles M. Cyrus,
1216 Leeds Terrace, Baltimore 27, Maryland. 10-inch refl.
- Mr. Walter H. Haas,
1203 North Alameda Blvd., Las Cruces, New Mexico. 12½-inch refl., 6-inch refl.
- Mr. Bill Hartmann,
1025 Manor Avenue, New Kensington, Pennsylvania. 2.4-inch refr.
- Miss Cecelia Little,
1340 Eighteenth Street, Manhattan Beach, California. 6-inch refl.
- Mr. David Meisel,
800 Eighth Street, Fairmont, West Virginia. 3-inch refr.
- Mr. Patrick A. Moore,
Glencathara, Worsted Lane, East Grinstead, Sussex, England. 12½-inch refl.
- Mr. Owen C. Ranck,
Box 161, Milton, Pennsylvania. 4-inch refr.
- Mr. C. J. Smith,
9775 Burgos Avenue, Oakland 5, California. 6-inch refr., 20-inch refr.
- Mr. J. Russell Smith,
Skyview Observatory, Eagle Pass, Texas. 16-inch refl.