No.	Name	Long.	Max.	Lat.	No. Measures	Remarks
45	Thoth p	249.°3	6.°4		9	"Laocoöntis" complex
	" p	249.39			1	trans.
46	" c	257.0	7.1	+25.°0	8	
	" c	254.9	0.2		2	trans.
47	" f	264.3	6.4		8	
48	Tithonius Lacus p	79.0	4.5		2	
49	" " c	86.3	4.3		2	
50	" " f	93.0	4.5		2	
51	Trivium Charontis c	195.8	4.2	+20.0	18	
	" " c	195.22	0.8		5	trans.

The 1960-61 A.L.P.O. Map of Mars published here on pages 22 and 23 was prepared with the positions derived by Both and Chapman as a basis, although the positions shown on the map are not accurate enough to permit scaling-off of positions other than those published. The nomenclature is primarily that of the I.A.U. map, although a few additional names have been inserted from Antoniadi. A detailed description of the more interesting features and their seasonal variations will be published in the next Report.

CONTRIBUTIONS TO SELENOGRAPHY. PART I. ARISTARCHUS, 1957-1960.

By: L. J. Robinson, Biela Observatory

Throughout the years 1957 to 1960, inclusive, it has been my practice to observe long known as well as newly discovered BANDED CRATERS[1,2]. From the results of these observations it is my intention to publish an extended and unified work on the topic, this present paper being the first part of the total effort. In essence, the entire body of this paper circumscribes itself about the included map of the floor of Aristarchus, Figure 42, on which only the band detail is shown; for to include all detail would be to introduce confusion. The drawing by the writer on the front cover of this issue gives a complete view of Aristarchus under low morning lighting. The band detail shown on this map was procured, during the initial stages, through visual observation with a ten-inch, f/6 reflecting telescope. Later, the sixteen-inch, f/20 reflector of the Biela Observatory at Anaheim, California, was employed. Measurements of position were obtained, from photographs taken with the sixteen-inch telescope, for all major radial bands, all other features being referred to these fundamental areas.

Always the most prominent band on the floor of this crater is A (nomenclature on Figure 42). A shares the singular condition with J2 in that they are the only bands which pass over the rim of the crater into the surrounding area between Aristarchus and Herodotus. This writer must comment on the fact that but for a single drawing by Abineri and Lenham[3], this prominent aspect has apparently gone unrecorded. It is indicated by Wilkins[4] that he also observed this effect. Band A is also the only feature to show a light "rift" through its center. Of two other maps of Aristarchus known to me, one by Reese[5] and the other by Bestwick[6], this "rift" is mentioned by the former but not by the latter. One might infer, however, from Bestwick's drawing that he too is aware of the fact. The map of Abineri and Lenham gives no indication of the existence of this feature.

Following A in order of decreasing intensity is the stem of band B. In general the whole of band B may be considered the most enigmatic feature in Aristarchus. Of the three aforementioned maps, all show this marking in a different manner! Abineri and Lenham depict it as a single divergent band with a forked top, the top of the fork reaching the crest of the wall (see Figure 43c). It is interesting to note that they show the band extending beyond the crater wall, the extension also having a fork at its terminus--this extension is not supported by the other observers.

Reese shows the internal fork of B but does not allow it to reach the crest of the wall. He has shown the southern arm of the fork to knot into a ball while the northern arm extends along the upper cleft (see Figure 43a). Bestwick shows the same internal appearance as do Abineri and Lenham (see Figure 43b). My personal observations (see Figure 43d) indicate a qualified confirmation of the other observers.

Band $F^{1,2,3}$ should be mentioned inasmuch as both Reese and Bestwick show it as a single band; such was also my impression until the final observations of this series. Using the sixteen-inch telescope in near-perfect seeing, this band became unquestionably resolved into three component markings. The final major band deserving attention is that marked $J^{1,2}$ on Figure 42. Reese shows the band as having a noticeable kink approximately 2/5 of the way up the wall. Again, as in the case of F, this was my impression when using the ten-inch telescope. Only after employing the sixteen-inch did the true nature become apparent. In actuality, this band separates into two components, the stronger of the two paralleling A while the lesser projects in a more southward direction.

A few statements are now in order concerning the smaller and fainter bands amid the major (lettered) ones. In general, it may be said that the number of such bands visible is a direct function of aperture. By considering the fact that Reese observed with a six-inch telescope, Abineri and Lenham as well as Bestwick with twelve-inch instruments, and myself with ten- and sixteen-inch telescopes, the following can be deduced:

Observer	Telescope Used	Minor Bands Seen (Approximate Number)
Reese	6"	5
Abineri and Lenham	12"	5
Bestwick	12"	10
Robinson	10"	10
"	16"	15

Summarizing the above, one may conclude that telescopes larger than sixteen inches will be necessary for the recording of appreciably more minor bands.

Special mention should be made of the two parallel minor bands lying along the clefts between A and B1. Since these two secondary bands are the most prominent of the lesser series, they are shown on both the maps of Bestwick and Reese. This writer finds it interesting to note that on several occasions the entire area between these two clefts appeared to be of uniform darkness, i.e., a single band. This aspect is only observed when the sun is quite low; and as soon as the crater becomes free of shadow, this single band resolves itself into the two usual components. As the double nature of this band can be considered "normal", it is so represented on the map.

Comment should also be made on the irregular patch near the northern wall of the crater. For some reason this area was recorded by Reese but not by Bestwick; it appeared quite easy in the ten-inch telescope. Such a spot is very incongruous for Aristarchus where everything else is rectilinear. This marking is best seen under a low sun--a typical observation may be seen in Figure 55 of the Nov.-Dec., 1960, issue of this publication.[7]

Attention should be given to the fine and difficult markings lying within the dark ring on the crater floor. These very difficult bands were not recorded by any previous observer. Only once was the north-south band seen in the ten-inch telescope, though it was recorded many times with the sixteen-inch instrument as were the other minor markings. The ring surrounding the interior of Aristarchus is quite remarkable itself. Fundamentally it is of uniform intensity with the exceptions of the small spot at the base of A and the general lightening along the western wall. This ring also exhibits a pronounced degree of edge regularity. The only exceptions found by this observer are on the south edge, where there are one or two bumps.

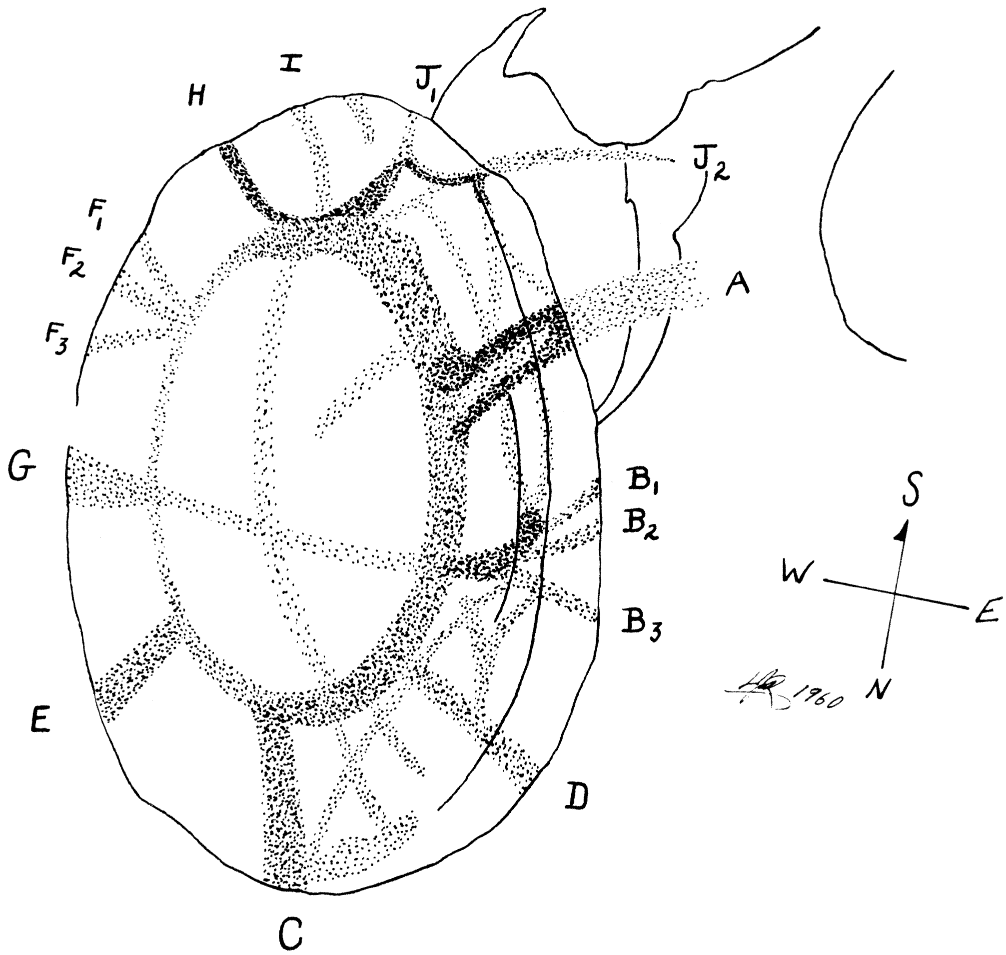

FIGURE 42. A general map of the dark bands of Aristarchus by L. J. Robinson. Interior detail other than the dark bands is omitted, except for the two parallel clefts on the eastern wall. Map based on approximately 25 drawings and photographs secured by Robinson in 1957-60 with 10-inch and 16-inch reflectors. See also text of article by Mr. Robinson in this issue.

The reader will also note that the width of the ring is much less in the west of Aristarchus than in the east. This decrease in width is shown on the Reese map but not on that of Bestwick. [An effect of foreshortening at the position of Aristarchus on the moon?--Editor.]

Heretofore, the observational aspects of the Aristarchus band system have been discussed. But what are the bands? How were they formed? Are they a necessary aspect in bright craters such as Aristarchus? Herewith only the first two questions will be considered, the third query being deferred to Part II of this paper.

From observations under nearly perfect conditions this writer has found that the bands of Aristarchus are not internally homogeneous, but are composed of untold numbers of filaments as well as light and dark nodules, see Figure 44. The only other reference known to the writer of this "breaking-up" of the bands is found in Wilkins'; it is there stated "...Wilkins, at Meudon, detected 'fine structure' in them [the bands], which appearance was confirmed by Moore."[8] This author assumes that the "fine structure" is of the same nature as he observed. It has been stated by other researchers

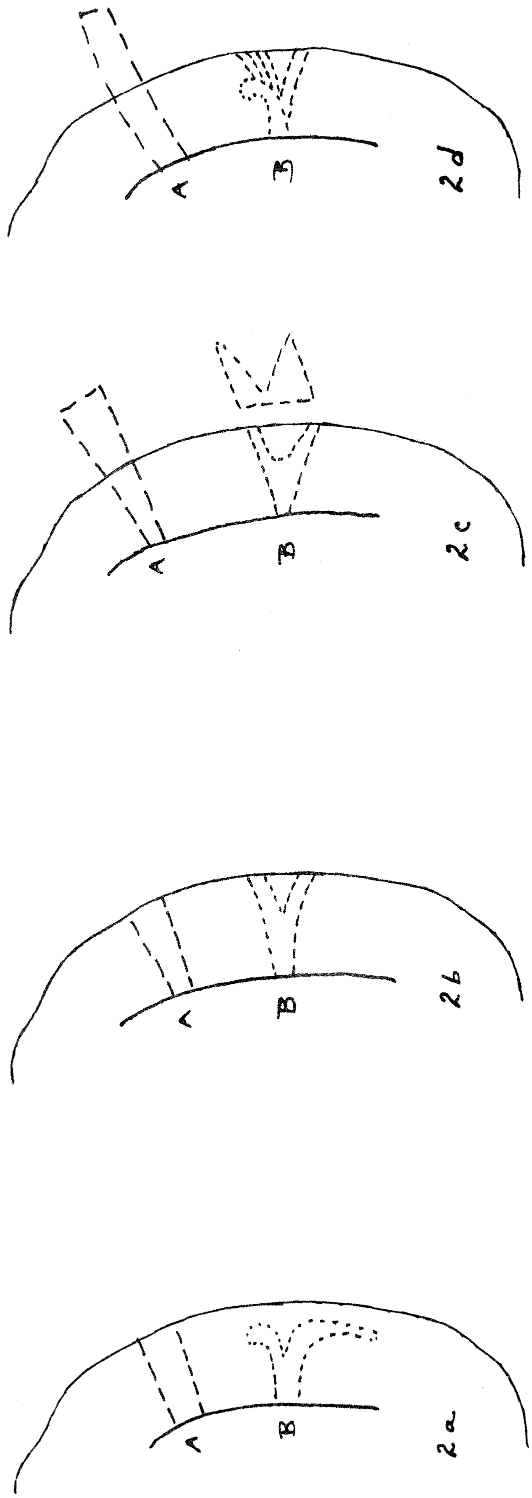

FIGURE 43. Four sketches of Aristarchus dark bands A and B (see Figure 42) by different observers. a, E. J. Reese; b, J. D. Bestwick; c, K. Abineri and A. Lenham; d, L. J. Robinson. See also text.

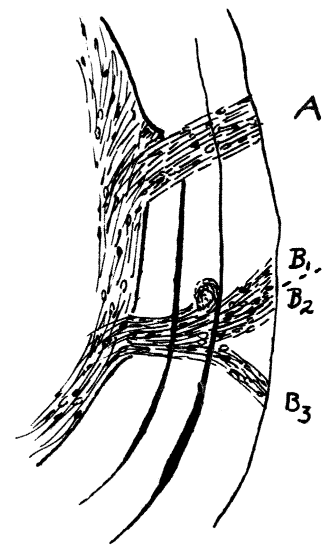

FIGURE 44. Somewhat stylized representation of the fine interior structure of the major bands of Aristarchus. Observation by L. J. Robinson on December 31, 1960, $6^h\ 40^m$, U.T., S=9, T=4, 10-inch f/6 refl. at 800X, colongitude=68°.0. See also text.

---

that the rays often associated with bright craters have filamentary structure associated with them; the bands have presented a more difficult observational problem. Since the filamentary structure was observed under a low sun, this writer feels that the filaments are shadow-filled clefts of extremely small size. This conclusion is further supported by the fact that under equal observing conditions, but with a higher sun, no such filamentary structure was noted. The reader should not infer from these remarks that the bands are a purely geometrical phenomenon; the work of Reese[9] on the intensity of the bands with changing solar illumination makes it clear that such is not the case. Assuming that the filaments are clefts, and recalling that they are arranged symmetrically with the axis of each band, it would seem most plausible to suppose that they are fracture patterns peculiar to bright craters. As yet, no satisfactory explanation to account for their changing intensity has been found; this problem is currently under investigation.

References

1. L. J. Robinson, "Contributions to Selenography--Catalogue of Bright Lunar Craters," to be published.
2. L. J. Robinson, "Contributions to Selenography--Part II," J.B.A.A., in print.
3. K. W. Abineri and A. P. Lenham, "Lunar Banded Craters," J.B.A.A., Vol. 65, No. 4, pp. 160-166.
4. H. P. Wilkins, The Moon, London: Faber and Faber, Ltd., 1955, pp. 257-258.
5. E. J. Reese, "Aristarchus from Sunrise to Sunset," Str.A., March-April, 1956, pp. 35-37.
6. J. D. Bestwick, "Aristarchus," Str. A., July-August, 1956, pp. 95-96.
7. C. M. Cyrus, Figure 55, Str.A., November-December, 1960, p. 193.
8. Wilkins, loc. cit.
9. Reese, loc. cit.

OBSERVATION OF PLANETARY COLOR

By: Joseph P. Vitous

(Paper read at the Eighth A.L.P.O. Convention at Detroit, Michigan, on July 2, 1961.)

Prior to the development of color photography for the amateur, the writer devoted considerable time to photo color work, using oils or water colors as required. This work is quite interesting and, for some, more satisfying than actual color photography. It presents a challenge. The individual develops a color memory and the ability to reproduce observed colors quite accurately. Despite the fact that color reproduction is at present not feasible in The Strolling Astronomer, I have decided to sketch Jupiter in color and black and white as often as conditions permit. To a considerable degree the developed "color memory" becomes a valuable aid in this process.

Much valuable colorimetric work has been submitted to the A.L.P.O. in the past by numerous observers. Most individuals possess an inherent appreciation of color. Witness the fact that most of us have good color taste in dress, interior decoration, floral arrangements, etc. I believe that color drawings could be attempted by many to supplement color estimates.

Personally, I find it much easier actually to portray a given color than to trv to describe it. It would be interesting to have a number of observers view a color sketch of Jupiter and then proceed to describe the colors independently. The results would be interesting if not amazing. The observer disinclined to making color sketches could instead supplement his estimates with a small "wash" of the color placed right next to his description. Ordinary water colors are convenient for this purpose.

Many booklets on color and its application are available at nominal prices at Art Supply stores. These can be most helpful to the colorist. The knowledge and application of basic colors lends an additional dimension to observing.

While it is difficult to determine one's personal color equation, resort may be had to a good ophthalmologist for testing the eyes and their response to color. This can be done when having the eyes examined for a new pair of glasses.