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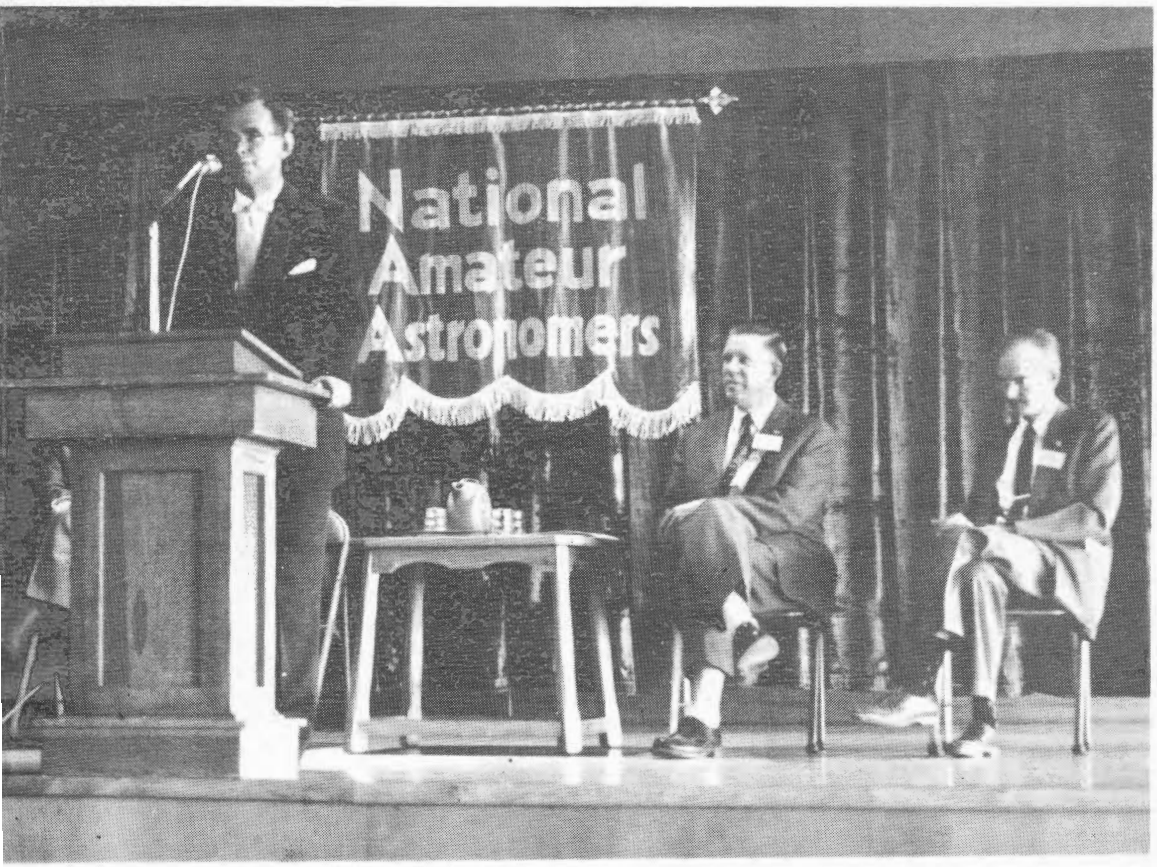

Walter H. Haas welcoming Nationwide Amateur Astronomers Convention on behalf of Association of Lunar and Planetary Observers. Also shown on stage are Arthur S. Leonard (center) for Western Amateur Astronomers and Kenneth W. Steinmetz (right), General Chairman. Convention at Denver, Colorado, August 28-31, 1959. Photograph by William E. Shawcross.

THE STROLLING ASTRONOMER

Pan American College
Observatory
Edinburg, Texas

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ANNOUNCEMENTS

Error in January-April, 1959, Issue. On page 21 of this issue, Figure 4D was falsely ascribed to F. C. Wykes. Actually, this drawing of Mercury was made by John D. Bestwick. We apologize for this error, which was present in the data submitted to the Editor.

Tape Records of A. L. P. O. Conventions. Mr. Leonard B. Abbey, Jr., 822 South McDonough Street, Decatur, Georgia, wrote on July 18, 1959, that he had been fortunate enough to acquire, with some generous help from Mr. Steadman Thompson, two tapes covering the whole of the Second A. L. P. O. Convention at Kansas City in 1957. Mr. Abbey now has these tapes and can easily duplicate them. He will furnish copies at cost to interested persons. He writes in part: "A complete set of the tapes (4 hours) can be had for the cost of the tape--$3.00. The original tapes are recorded on two reels (1200') of $2.30 tape at 3 3/4 inches per second. I propose to use a cheaper tape for reproduction, which I have found to meet all high-fidelity requirements. This tape costs only $1.50 per reel. Reproductions can be provided at a speed of 7.5 inches per second at $6.00 per set. Small sections of the sessions and individual talks can be provided at correspondingly lower prices. Interested persons can contact me for detailed prices."

Mr. Abbey expresses the hope in his letter that similar tapes can be regularly made in the future of A. L. P. O. Conventions. Actually, we understand that most of the Fifth A. L. P. O. Convention at Denver, held as part of the Nationwide Amateur Astronomers Convention, was thus recorded. Mr. Abbey further suggests that eventually each tape should be stored permanently at the A. L. P. O. headquarters.

Suggestion for Simultaneous Observations. On June 29, 1959, Mr. A. C. Larrieu of Marseille, France, wrote in part as follows: "I propose to A. L. P. O. members to make observations, with drawings, of the planets and designated craters on the moon on the same day at the same hour; for it would be interesting to compare one's own drawings with others made at the same time. For example, a group might draw Jupiter on August 15 at 10 hours, U.T., or the walled plain Ptolemy at 12 hours on some other date. I think that this plan would lead to creative competition and emulation among different observers." Simultaneous lunar and planetary drawings are occasionally made by chance, but only occasionally. Our Section Recorders might like to try to put Mr. Larrieu's plan into effect (at least to some extent) among contributing observers.

In Memoriam. We have learned with regret of the death of one of our members, Mr. Jacob Herrmann of Kalamazoo, Michigan. He had belonged to the A. L. P. O. since 1954. We know very little about Mr. Herrmann, but we extend our sympathy to his survivors and friends.

A New Function of the A. L. P. O. Comets Section. On May 15, 1959, Drs. Donald H. Menzel and Fred L. Whipple of the Harvard College Observatory wrote to Mr. David Meisel, the A. L. P. O. Comets Recorder, as follows: "Thank you for your letter of March 30. We believe that you can do a real service to astronomers and to amateurs by your proposal.

"We enclose a copy of the cipher code which is used for astronomical telegrams so that you may decode future telegrams for your members. Satellites have taken many astronomers away from comet-discovery and hence reduced the number of astronomical telegrams. Sometimes there are long intervals between telegrams. However, we shall be glad to place you on our list for telegrams. Telegrams are always sent Collect. Is this satisfactory?

"We give official permission for you to send the information to your members by way of airmail mimeographed cards and also to use the information for transmission over your amateur radio set. Communicate with Dr. F. W. Wright here about any questions which you may have.

"In addition, we give our permission for you to request that amateurs send airmail copies of all initial discovery reports to you for possible confirmation. This confirmation would be a great help to us, but the time element must be stressed here, since our Harvard Observatory acts as a clearing house and reporter for astronomical discoveries for the whole country, and the discoverer who reports to us first will have his name attached to the comet. Professionals are much more experienced and it seems best to leave our arrangements with them as they were, and have you help in cases of amateurs only. This can be a real and important service to us. We should be happy to designate you as an official amateur clearing house for amateur cometary reports."

The professional astronomers have here given the A. L. P. O. both a responsibility and an important opportunity. We congratulate Mr. Meisel on his efforts which have brought us this recognition, and we ask the help of all members in justifying the confidence which Harvard has here placed in us.

New Mars Recorder. Mr. Frank R. Vaughn has informed us that he regrets greatly his inability to continue as A. L. P. O. Mars Recorder for another apparition. It is his intention, however, to work up observational data on the 1956 and 1958-59 apparitions of the Red Planet; and any observations not yet submitted for these two apparitions should be mailed quickly to Frank R. Vaughn, 5801 Hammersley Road, Madison 5, Wisconsin. The new Mars Recorder and his address are:

Ernst E. Both
Curator of Astronomy
Buffalo Museum of Science
Buffalo 11, New York

It will, of course, be many months before Mars can be observed to any purpose; but intending observers of the 1960-61 apparition might like to correspond sooner with our new Mars Recorder about profitable observational procedures and projects.

We thank Mr. Vaughn very much for his considerable help with our studies of Mars. The map he drew for the 1958-59 apparition was available in the A. L. P. O. cubicle at the Denver meeting.

Mr. Leonard B. Abbey, Jr., is continuing as Assistant Mars Recorder.

FIRST REPORT OF THE MODERN LANGUAGE COORDINATOR

By: Ernst E. Both

By and large the amateur of any country works in isolation from amateurs in countries speaking a foreign tongue. Despite various efforts, international cooperation among planetary observers has not been too successful thus far, although steps in the right direction have been taken by the International Lunar Society and the Mars Committee (the latter primarily on a professional basis); lack of complete success may be ascribed to language barriers and the great distances separating the various national groups. Because of this state of affairs and also in order to contribute somewhat to international cooperation it was thought helpful to establish the position of a Foreign Language Coordinator. More specifically, the purposes of this position are as follows:

1. To regularly publish abstracts of important lunar and planetary papers appearing in foreign journals.

2. To translate articles of particular interest and importance, and to keep these on file for future references. These may be borrowed by researchers together with the originals for an unspecified length of time.

3. To review and abstract books in foreign languages dealing with lunar and planetary matters.

4. To translate, abstract, and/or discuss lunar and planetary articles of particular interest from the older literature.

5. To offer a special translating service to individual researchers in need of translations of specific items necessary to their work.

Naturally such a program is dependent on the cooperation of a number of people. First of all, it is obvious that the Coordinator will not be able to do all of the translating himself (this especially so since he does not read Russian, Spanish, Italian, etc.), so that the success of this service will be determined by the number of willing and able volunteers, particularly those familiar with the languages mentioned. Secondly it is necessary that all foreign language articles of interest to lunar and planetary observers be brought to the attention of the Coordinator. The following A. L. P. O. members have so far offered their assistance: Leonard B. Abbey, Jr. (German), Minick Rushton (French), and Dr. J. M. Sharp (Russian, Romance Languages).

German Nomenclature of Jovian Surface Detail

E. Mädlow, "Zur Nomenklatur der Oberflächendetails auf Jupiter," Die Himmelswelt, vol. 55, 1948, pp. 197-200 (translated by Leonard B. Abbey, Jr.: "On the Nomenclature of the Surface Details of the Planet Jupiter"--original and translation may be borrowed from the Coordinator).

Although the nomenclature of the belts, zones, and regions visible on the "surface" of Jupiter is reasonably standardized and almost universally used, there is considerable confusion with respect to the smaller features such as spots, festoons, etc. Edgar Madlow, a well-known student of the planet Jupiter, has tried to establish a more definite system of classification for these smaller structures to avoid some ambiguities inherent in any description of Jovian detail. He discusses the following objects:

a) Veils (Schleier): prototypes were observed in the last half of the last century. They have a constant but not too dark tone and occupy the entire width of the zone in which they are found. No border common to all sides, not oval in outline (Red Spot Hollow is a good example).

b) Gray spots (Graue Flecken): either clearly defined borders or ill-defined, much smaller than veils and considerably shorter lived ("Disturbance" in our terminology).

c) White spots (Weisse Flecken): round or oval with well defined borders. Ill-defined when occurring in zones. ("Disturbance" in our terminology).

d) Rifts (Rifts): white lines 1° to 3° wide, generally sharply bounded, crossing a belt from one zone to another, usually making an angle of 40° to 60° with the belt.

e) Projections and bays (Aus- und Einbuchtungen): dark markings protruding from belts are projections, bright indentations in the belts are bays.

f) Nicks (Kerbe): in contrast to the bays and projections these are small, semi-circular indentations in the belts separated from each other.

g) Festoons (Brucken): Madlow's discussion is superseded by Bartlett's "Some Further Notes on the Jovian Festoon System," The Strolling Astronomer, vol. 11, Nos. 1-6, Jan.-June, 1957, pp. 20-22.

h) Garlands (Girlanden): large festoons, often circling a portion of the zone like an island, sometimes appearing as a "new" belt.

i) Rods (Stäbchen): long, thin, dark objects usually seen within the belts. They look like strong, straight lines drawn with a pencil.

j) Garnet spots (Granatflecken): small, round spots somewhat like the shadows of satellites but much smaller.

In addition to the objects listed, Mädlow mentions various other features much less characteristic.

SOME OBSERVATIONS OF ALPHONSUS AND PLATO WITH A LARGE TELESCOPE

By: Alika K. Herring

June 15, 1959. 4^h U.T. 325 X.
S=4-6/10. T=4½ (occasional high cirrus)
Colongitude=18.°3.

On this occasion I was very privileged to be permitted to spend some time in observing the moon with a large telescope. The principal purpose of the observation was to examine closely the Alphonsus area, since it was believed that if the so-called "eruption" reported on November 3, 1958, had made any alterations in the topography of the crater, these changes might possibly be detected visually with a large aperture. Accordingly, the entire floor of the crater was given a very critical examination; and the central peak and the area just south of it received special attention. The central peak was seen to possess a small craterlet at its apex, with another and smaller craterlet suspected immediately to the south on the slope of the mountain. This second craterlet could not be positively confirmed. While I had not seen these craterlets previously, they are not new objects, having previously been reported by Goodacre and by Wilkins and Moore. There is therefore no reason to attach any special significance to them in connection with the events of November 3, 1958.

The area just south of the central peak was also carefully examined for the reddish marking reported by Wilkins, Wall, Brewin, and Hole on November 19, 1958. This feature also could not be seen; nor could any other anomalous colors be detected.

With the exception of the craterlets on the central peak, Alphonsus presented no features that were new or unfamiliar to me, as remembered from my numerous prior personal observations and the study of detailed photographs. In my opinion the only valid conclusion that can be drawn from this observation is that whatever may have taken place in Alphonsus on November 3, 1958, it apparently left no permanently visible traces.

The floor of Plato was also given a critical examination because of the possibility of confirming details previously seen by me and described in an article and chart published in The Strolling Astronomer for July-October 1957. Eight shadow-holding craterlets and one spot were positively seen. Referring to the nomenclature of the chart

mentioned above, these craterlets were 1, 2, 3, 4, 9, 11, 19, and 20. Of these, the first four were noted to be rather deep bowl-like depressions with well-defined raised rims. Of the "twins," 3 was obviously larger than 4. Craterlets 11, 19, and 20 were seen as minute pits with no apparent rims, and 19 appeared to lie within a diffuse white spot at the tip of the "sector," which was very faintly visible. Craterlet 20 also appeared to lie within a diffuse white spot; while 21 appeared only as a faint diffuse spot, and no central pit could be detected therein. No other details could be seen on the floor at this time, although other known features were looked for very carefully.

In view of the fact that in the past there have been some great differences of opinion among various observers concerning the number of observed craterlets holding shadows on the floor of Plato, it is felt that the above observation, made with a large telescope of excellent optical quality and under good seeing conditions, may have some significant value.

Postscript by Editor. We regret very much that we are not at liberty to identify the particular large telescope with which these observations were made. While we do not wish to criticize particularly this Observatory or to discuss a situation of which our knowledge is all indirect, yet we also feel that professional astronomers should encourage special lunar and planetary studies by advanced amateurs like Mr. Herring and others of similar demonstrated ability. A more cooperative attitude apparently exists in Europe where Wilkins, Moore, and a few others have occasionally been granted considerable use of the large telescopes at the Meudon and Cambridge Observatories.

JUPITER IN 1958-59: FIRST INTERIM REPORT. JUPITER BEFORE OPPOSITION

By: Phillip W. Budine

This article is the first report on Jupiter for the 1958-59 apparition. This report includes all contributed work done on Jupiter up to May 18, 1959, the date of opposition. Any observations received after this date will be included in the next report. The following list covers all the people who contributed drawings, notes, color estimates, and photographs during the early part of the apparition. There were only eight observers during this period, who contributed a total of 216 observations. Of these, 31 observations were observations of the planet's disc; the rest were Jovian satellite observations by Carlos E. Rost. The list of contributors is as follows:

Observer	Telescope	Number of Observations	Location
James C. Bartlett, Jr.	5" refl.	8	Baltimore, Maryland
Phillip W. Budine	2.4" & 4" refrs.	4	Binghamton, New York
Craig L. Johnson	4" refl.	2	Boulder, Colorado
Elmer J. Reese	6" refl.	11	Uniontown, Pennsylvania
Carlos E. Rost	6" refl.	185	Santurce, Puerto Rico
James E. Starbird	6" refl.	3	Topeka, Kansas
Tom Quinn	8" refl.	2	Los Angeles, California
Richard E. Wend	13" refl.	1	Milwaukee, Wisconsin

Belts: In general the NEB, SEB_n, and STB were recorded by almost all observers. The North Equatorial Belt was the most conspicuous belt on Jupiter during this period. In order of their decreasing conspicuousness the belts usually recorded were: NEB, SEB_n, STB, NNTB, SEB_s, SSTB, SSSTB, and EB.

SSSTB: This faint belt in the SPR was recorded by Johnson and Budine. It was normally the faintest belt on Jupiter except for the EB.

SSTB: Observed bordering the SPR on several occasions by Reese and Johnson. Mr. Elmer J. Reese observed a dark spot in this belt on March 8, 1959 (Figure 1).

STB: This belt was usually recorded as the third most conspicuous belt on the planet. The STB varied in intensity many times and was broken up into sections several times. Dark spots were observed in this belt on a few occasions (Figure 5). The STB was seen double by Johnson and Starbird. A dark disturbance was recorded by Bartlett in the STB (Figure 6).

SEB_s: One of the least conspicuous belts. The SEB_s varied in intensity throughout its length, and as evidence of its faintness see Figure 4.

SEB_n: The SEB_n surpassed the SEB_s by a very large margin this year. The SEB_n was easily the second most conspicuous belt during the period covered by this report. The SEB_n was very active with numerous dark condensations which were well suited for transit work (Figures 1, 3, and 4). Bright gaps were also seen in the SEB_n by Reese (Figure 2). Many dark spots were seen in this belt by Bartlett, Quinn, Budine, and Reese.

EB: Observed by Reese and Bartlett. Mr. Reese on April 15, 1959, observed the EB broken into sections. James C. Bartlett, Jr., observed it after this date on every occasion except one. Bartlett recorded a well-developed EB on most of his drawings.

NEB: The south edge of the NEB was very active with projections, dark spots, and festoon activity all prominent. Projections were observed by Reese, Johnson, Starbird, and Wend. Dark spots were recorded often by Bartlett, Budine, Johnson, and Quinn. As evidence of these dark spots, it might be noted that Bartlett recorded five dark spots on the NEB_s on May 6, 1959. The NEB was recorded double at times. Dark spots were also recorded in the NEB_n (Figures 3 & 4). Festoon activity was recorded by Reese, Bartlett, Johnson, and Quinn. Bartlett noted festoons from the NEB_s on every occasion but two. Most of the festoons led from dark spots in the NEB_s. Several, however, terminated in dark spots in the SEB_n. Bartlett and Reese had some good observations of festoon activity (Figures 2, 5, & 6).

Mr. Tom Quinn reports a very interesting observation on March 29, 1959. At 8:20 U.T. he observed a festoon leading from the center of a dark spot in the NEB_s, running NE to SW and connecting to the preceding end of a dark spot in the SEB_n. A little later, at 8:40 U.T., Mr. Quinn observed again; and he was amazed to see that the festoon was now running from the center of the same spot in the NEB_s in a NW to SE direction connecting to the following end of the same spot in the SEB_n. Had this rapid change in festoon position actually occurred in 20 minutes? Mr. Quinn's observation was confirmed by another observer who was with him at the time of the event.

The NTB was missing in a wide combined NTrZ-NTeZ.

NNTB: The NNTB was recorded by the following observers: Reese, Budine, Bartlett, and Johnson. The belt was seen to border the NPR. Dark spots were seen in this belt by Budine (Figure 4).

NNNTB: Observed by Johnson and Bartlett. It was located in the middle of the NPR.

Polar Regions: The NPR was darker than the SPR throughout the period, according to reports by Bartlett. The NPR was usually reported as having a greater width than the SPR.

Zones: By far the most conspicuous zone on the planet was the NTrZ-NTeZ, and the second most conspicuous zone was the STeZ. In order of their decreasing conspicuousness the zones were as follows: NTrZ-NTeZ, STeZ, EZ, STrZ, and NNTeZ.

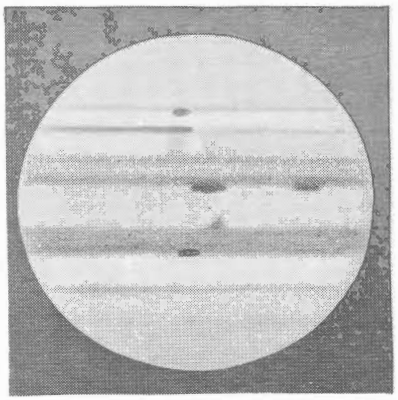

Figure 1, Jupiter.
Elmer J. Reese. 6-in. refl. 240X
March 8, 1959. $10^h\ 30^m$ U.T.
C.M. (1)-192°. C.M. (2)-164°.

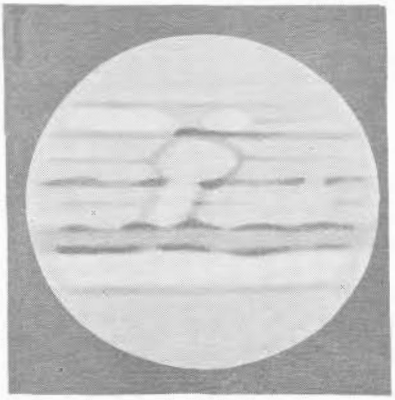

Figure 2, Jupiter.
Elmer J. Reese. 6-in. refl.
240X. April 15, 1959. $6^h\ 15^m$
U.T. C.M. (1)-280° C.M. (2)-
324°.

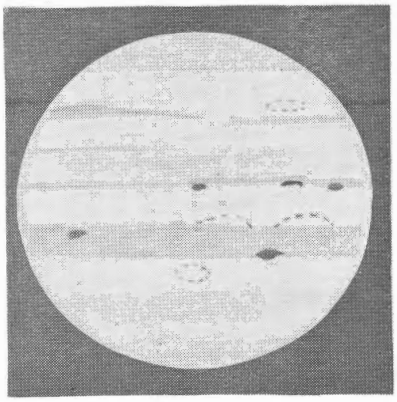

Figure 3, Jupiter.
Phillip W. Budine. 4-in. refr.
167X. May 9, 1959. $5^h\ 15^m$ U.T.
C.M. (1)-76°. C.M. (2)-297°.

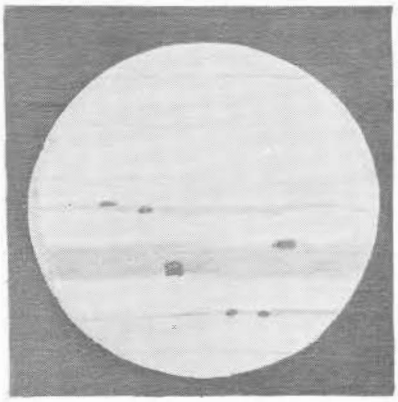

Figure 4, Jupiter.
Phillip W. Budine. 2.4-in. refr.
100X. May 10, 1959. $2^h\ 50^m$ U.T.
C.M. (1)-146°. C.M. (2)-360°.

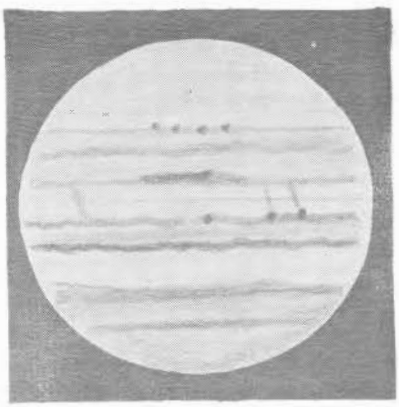

Figure 5, Jupiter.
James C. Bartlett, Jr. 5-in. refl.
180X. May 17, 1959. $6^h\ 05^m$ U.T.
C.M. (1)-291°. C.M. (2)-91°.

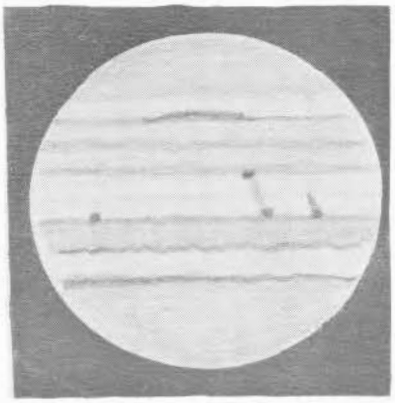

Figure 6, Jupiter.
James C. Bartlett, Jr. 5-in.
refl. 180X. May 18, 1959.
$6^h\ 09^m$ U.T. C.M. (1)-91°.
C.M. (2)-243°.

Notes on the zones by Elmer J. Reese in a letter of April 10, 1959: "The Equatorial Zone has appeared quite dusky and orange to me, while the NTrZ is very bright and white. The STrZ contains some interesting dusky material."

From a letter of May 10, 1959: "The STrZ is very dusky and ochre from 80° to about 350° (II)". Reese states that to him, "one of the highlights of the apparition so far has been the deep orange color of the EZ which is in striking contrast to the brilliant white color of the NTrZ."

The three long-enduring bright areas in the STeZ are still visible. Budine observed "BC" on April 5, 1959. Reese comments that on May 2 the center of "FA" was near 282° (II) while the center of "BC" was near 320° (II); and on May 8, the center of "DE" was near 160° (II). Many of the zones exhibited prominent bright areas or spots, especially the EZ (Figure 3).

Red Spot Area: Craig L. Johnson first observed this area on January 10, 1959, at 12:20 U.T. He comments that he could see the Red Spot Hollow at 307° (II) with the dim outline of the faded Red Spot inside the Hollow. After Johnson's observation the RSH was not observed again until April 15, 1959, when E. J. Reese made an excellent observation of it at 324° (II) (Figure 2). Reese comments that the RSH was dull yellow-white in color and had an intensity of 5.5. It seems that the RS visible early in January had faded completely; and now the RSH was faintly visible, almost a yellow in April, in May more of a white color. Budine observed the RSH on May 17, 1959, near 339° (II). At this time the RSH was white but very dull and fairly faint. Evidence of the faintness of the RSH at this time is the absence of the Hollow on many drawings when it should have been visible had it been bright and prominent.

Intensity and Color Estimates

The following table gives the intensity and color estimates of two observers and the color estimates only of Mr. Bartlett. The intensities are based on a scale of 0 (very darkest markings) to 10 (very brightest markings). Color estimates are designated by letters as follows: R-Red, W-White, Y-Yellow, Y-W --Yellowish White, G-Gray, BR-Brown, Bl-G --Bluish Gray, O-Orange, R-Br --Reddish Brown, O-Br -- Orangeish Brown, and Oc-Ochre.

Colors & Intensities On Jupiter In 1959

Feature	Bartlett	Budine	Reese
RSH	----	W - 5.8	Y-W - 5.5
SSTB	----	-------	G - 3.8
STB	----	G - 3.2	G - 3.0
SEB_s	R	R - 3.5	BR - 3.6
SEB_n	R	R-Br - 2.5	R-Br - 2.5
EB	----	----------	O-Br - 3.9
NEB	BR	R-Br - 2.3	R-Br - 2.3
NNTB	----	Bl-G - 3.0	G - 3.0
NNNTB	----	----------	G - 3.8
SSTeZ	----	Y - 5.1	-------
STeZ	W	W - 6.0	W - 6.5
STrZ	R	W - 5.5	Oc - 5.5
SEBZ	R	Oc - 4.2	Oc - 4.0
EZ	Y-O	O - 6.0	O - 5.5
NTrZ-NTeZ	W	W - 7.5	W - 8.0
NNTeZ	----	Y - 5.0	-------
NNNTeZ	----	Y - 5.0	-------
SPR	G	G - 3.8	-------
NPR	Bl-G	G - 4.3	-------

Jupiter's Satellites in 1959

This special section devoted to Jupiter's satellites has developed primarily from the quantity and quality of enthusiastic observations made by Mr. Carlos E. Rost of Santurce, Puerto Rico. Mr. Rost made 185 observations of Jupiter's satellites from March 17, 1959, to May 18, 1959. Mr. Rost's observations include photos, both prints and negatives, of Jupiter and Jupiter's satellites, also neat and accurate diagrams illustrating the configurations and phenomena of Jupiter's satellites. Also contributing to this portion of the report are Craig L. Johnson and Phillip W. Budine.

The following table of Jovian satellite phenomena as observed by Carlos E. Rost illustrates this type of observation and shows the comparison with predicted times of phenomena as recorded in the 1959 American Ephemeris and Nautical Almanac.

Jovian Satellite Phenomena in 1959

By: Carlos E. Rost

Date	Satellite	Phenomenon	Observed Time in U. T.	A.E.N.A. Time in U. T.
Mar. 8	I	EcD	5:52	5:52.0
Mar. 8	II	TrE	5:40	5:45
Mar. 8	I	OcR	9:12	9:13
Mar. 17	I	OcR	5:32	5:31
Mar. 22	III	OcR	5:35	5:38
Mar. 22	II	TrI	8:24½	8:25
Mar. 22	II	ShE	8:29½	8:30
Mar. 23	I	ShI	6:50	6:49
Mar. 23	I	TrI	7:55	7:55
Apr. 7	II	EcD	5:47½	5:47.5
Apr. 23	I	EcD	6:08	6:06.9
Apr. 23	III	ShI	5:00	5:00
May 11	I	OcR	1:06	1:11
May 11	II	ShE	2:18½	2:23
May 11	II	TrE	2:36	2:43
May 11	III	EcD	2:52	2:49.2
May 18	I	EcD	0:44	0:44.3

Mr. Rost made diagrams at every opportunity of the changing positions of Jupiter's satellites. He also made photographs of the Jovian satellites on many occasions.

Other Jovian satellite observations were made by Johnson and Budine:

Jovian Satellite Phenomena in 1959

Date	Observer	Satellite	Phenomenon	Observed Time in U. T.	A.E.N.A. Time in U.T.
Apr. 5	Budine	III	EcD	7:05	7:00.6
Apr. 5	Budine	III	EcR	9:09	9:13.0
May 1	Johnson	I	ShI	5:10	5:15
May 1	Johnson	I	TrI	5:50	5:40
May 9	Budine	II	EcD	5:28	5:31.0
May 17	Budine	I	TrI	3:36	3:35

Note: The recorder regrets that so few observers contributed to the Jupiter Section during the early part of the apparition. But, from all reports, weather conditions were then very poor in most parts of the country. I certainly wish to express at this time my sincere thanks to each observer who contributed observations to the Jupiter Section. Without these observations practically nothing would be known about the activity on Jupiter before opposition, and therefore this report would not have been possible.

THE NOMENCLATURE OF THE PLANET MARS AND THE IAU

By: Leonard B. Abbey, Jr., F.I.L.S.

(Paper read at the Fifth A. L. P. O. Convention at Denver, Colorado, August 28-31, 1959).

Observers of Mars are, in some ways, like the ancient Egyptians. They have both spent many hours in the contemplation of far-distant worlds that hold their interest. The Egyptian hoped to visit the "after world", but the areographer of the present day knows that he will not live to see travel to Mars an everyday affair. Unlike the astronomer, the Egyptian had an "accurate" guide to the world of his dreams. The "Book of the Dead" explained in great detail the landscape of the "after world." The areographer does not have a similar guide to the world that he studies, even though he has worked toward it for over 250 years. Indeed, the goal of a "standard" map of Mars may prove to be unattainable; but the areographer will continue to struggle toward it, thereby increasing our knowledge of Mars.

Areography is not a new science. Perhaps the first useful drawing of Mars is one made by Christian Huyghens[1] in November, 1659, nearly 300 years ago! Since then, many maps of Mars have been constructed. Such men as Beer, Cassini, Dawes, Green, Herschel, Lockyer, Williams, Maraldi, and Maedler have made thousands of drawings, which served as a reliable basis for the early maps. The first accurate maps were made by Beer and Maedler from their drawings in 1840. Later maps were constructed by Dawes, Green, Kaiser, Proctor, and Schiaparelli. The maps of Lowell and Antoniadi[2], which appeared in the early twentieth century, are probably the most accurate and detailed maps of Mars ever constructed.

Unfortunately, the most accurate map of yesterday is not necessarily accurate today. The features of Mars are not static. Even though the major features appear to be singularly permanent, many of the finer details that make them up are continually changing. Only slight changes are noticed from opposition to opposition, but over a period of 30 or 40 years the changes may be so extensive that the appearance of a region is considerably altered. The region of the Solis Lacus and Thaumasia is a well known example of such a change. In 1877 Schiaparelli[3] depicted the Thaumasia as a darkly bordered circle, and the Solis Lacus as a dark round spot located southeast of the geometrical center of the Thaumasia. By 1903, the shape of the Thaumasia had begun to change. It appeared on the map of Antoniadi[4] (1903) as an ellipse, and the Solis Lacus was a smaller ellipse concentrically placed within the Thaumasia. In 1924, the ellipse of the Thaumasia had broken up into a five-sided polygon which was still similar to the ellipse that had preceded it. The Solis Lacus was now a series of smaller black dots, connected by dark shadings. Today[5], the Thaumasia is no longer completely surrounded by the dark border and the Solis Lacus is a cluster of small oases. The Solis Lacus region of 1959 still bears a resemblance to the Solis Lacus region of 1877, but almost all of the fine features have changed. It is easy to see from this example, and many more like it, that no one map can be accurate for more than ten years.

There is another difficulty in the way of the areographer: nomenclature. From the beginning of the science, prominent areographers have had a marked tendency to introduce their own nomenclature. The names of the most prominent markings were agreed upon, but the smaller markings were named in varying manners. The first really successful attempt at standardizing the Martian nomenclature was made by Giovanni Schiaparelli[6] when he published his famous map in 1877. He began by replacing the old names, which had been adapted from the names of famous astronomers (and others), with a selection which was drawn largely from classical antiquity. This list was expanded by Percival Lowell[7] to a list containing hundreds of names of fine markings. Antoniadi[8]

published a reduced list of 550 names in 1930, in which the duplications and oversights of Lowell, Schiaparelli, and others had been corrected. Since then, this nomenclature has been almost universally accepted by areographers. The recent maps of the Association of Lunar and Planetary Observers[9] have followed the Antoniadi system in general, exceptions being made only when new or radically changed markings require naming. Such markings are then named in the Schiaparelli-Antoniadi style.

In 1958, the International Astronomical Union published a map with a revised nomenclature of Mars[10]. The IAU is attempting to standardize the Martian nomenclature around this list, much as it did with the Moon in 1938. After lengthy deliberation, a reduced list of 128 named features was decided upon by the eight members of subcommission 16a. A map was constructed by de Mottoni[11] from photographs taken at the Pic du Midi in the interval 1941-1952. The list of 128 named features had been distilled from a list of 404 features which was submitted to the subcommission by G. Fournier. Fournier had taken his list from Antoniadi's classical list of 550 markings.

Unfortunately, like all other efforts of its kind, the IAU standardizations are not perfect, nor could they be. For reasons pointed out above, the de Mottoni map and its nomenclature system have already begun to show signs of age. In particular, recent changes in the region of the Nodus Laocoöntis object are not taken into account. A more serious criticism of the list is the almost total absence of canaliform detail. This suggests that when the map and list were drawn up, their authors had in mind the opinion, which is held by many professional astronomers, that rectilinear details do not exist on the planet Mars. This viewpoint is somewhat unrealistic. Even though the astronomers are not agreed about the nature of the canals, there is little doubt among active observers of the planet as to the existence of many rather prominent elongated features which deserve identification. A few observations with even the most perfect telescope on Earth could not conclusively prove the existence or non-existence of these difficult details. Since the vast majority of observers of Mars have reported at least some of these details, the more prominent "canals" must be included in any nomenclature.

In addition to this, it is doubtful that only 128 names can suffice for the almost infinitely complex surface of the planet. These 128 names are applied by the IAU to the various regions of the planet, and not to the specific markings which had formerly borne them. In this system, the more delicate markings are designated by their longitudes and latitudes. While this may be convenient to those who are not familar with the cartography of Mars, it also leads to a certain degree of confusion. The identification of a marking by its areographical coordinates is a clumsy affair requiring constant reference to maps. There are many small but distinct markings on Mars that appear to be permanent in nature. These markings deserve names of their own. The IAU system is convenient for the beginner, but a possible source of frustration to the more advanced observer.

There are several ways in which the IAU nomenclature could be improved. The list could be doubled in length without crowding it. A number of the more prominent canals could be added. The markings could be broken up into various regions, and the finer markings listed under each of these regions; thus the region names could be used by spectroscopic, photoelectric, and polarimetric observers, while the individual names of fine details would be available for the more advanced cartograhic observers. Subcommission 16a should be made permanent, if it is not already so, and should meet at regular intervals to consider changes in the nomenclature that may be needed when new markings appear, or old ones disappear.

It must be realized that criticisms like the ones above could be made about almost any system of classifying knowledge. One must be careful not to let these negative arguments detract from the real

importance of the step that has been taken. Even with its faults, the IAU nomenclature is one of the most important advances in areography of this decade. Students of Mars from many nations have agreed on the problem, they have organized in an effort to solve it, they have spent many years in studying its various aspects, and they have proposed a workable solution. This is real progress.

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3. Waterfield, p. 301.

4. Waterfield, p. 318.

5. D. P. Avigliano, Map of Mars in The Strolling Astronomer, January-June, 1957, p. 36.

6. Waterfield, p. 309.

7. Waterfield, p. 309.

8. J. Ashbrook, "The New IAU Nomenclature for Mars," Sky And Telescope, November, 1958, p. 23.

9. Avigliano, p. 36.

10. Ashbrook, p. 23.

11. Ashbrook, p. 23.

OBSERVATIONS OF VENUS AND MERCURY WITH LARGE APERTURES

By: Dale P. Cruikshank, Yerkes Observatory

(Paper read at the Fifth A. L. P. O. Convention at Denver, Colorado. August 28-31, 1959).

Venus and Mercury are two objects which the amateur observer all too often approaches with inadequate instrumentation. Since Mercury's angular diameter never exceeds about 11 seconds of arc, instruments capable of bearing at least 300X seem to set the lower limit for observational equipment. Venus presents less of a size problem with an average diameter of 25 seconds of arc at dichotomy, but with this object the great problem is with image contrast. Because of this, most regular observers of Venus choose to work when the sun is above the horizon. This alternative brightens the background sky and partially compensates for Venus' high albedo. Also, in such a case the planet may be observed while high in the sky with generally more and longer moments of good seeing than a lower position in a twilight sky would allow.

While at Yerkes Observatory during the summers of 1958 and 1959, the writer had several opportunities to use the 40-inch refractor during the days and early evenings. The daytime observations were quite naturally confined to Venus and Mercury, and during the periods spent at Yerkes over one hundred drawings and visual observations of these two objects were made. The evening observations included other objects; but because it is felt that Venus and Mercury are too often mistreated by observers, the following remarks will pertain to these two objects only. Magnification used on the 40-inch ranged from 350X to 1200X, but an intermediate power of 550X was found to be generally superior. Seeing conditions, particularly in 1958, sometimes necessitated reducing the instrument's aperture.

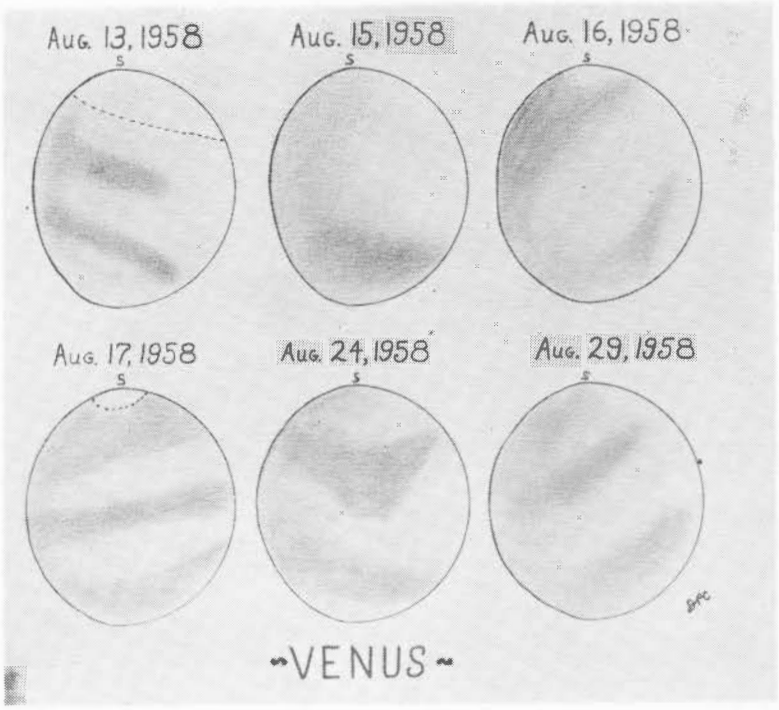

Figure 7. Drawings of Venus by Dale P. Cruikshank.

August 13, 1958, $15^h\ 55^m$ U.T., 40-inch refractor (stopped to 18 inches), 400X, seeing fair, transparency 4.5 (scale 0-5).
August 15, 1958, $15^h\ 40^m$ U.T., 40-inch refr. (12 to 36 inches), 550X, seeing fair+, transparency 4.5.
August 16, 1958, $15^h\ 40^m$ U.T., 40-inch refr. (24 inches), 550X, seeing fair, transparency 3-4.5.
August 17, 1958, $16^h\ 00^m$ U.T., 40-inch refr. (30 inches), 550X, seeing good, transparency 4.5.
August 24, 1958, $16^h\ 30^m$ U.T., 40-inch refr. (30 inches), 400X, seeing good to good+, transparency 4.
August 29, 1958, $16^h\ 20^m$ U.T., 40-inch refr. (30 inches), 550X, seeing good, transparency 3.5.

Figure 7, 1958 Venus Drawings With 40-Inch Refractor

These six sketches of Venus made during the summer of 1958 were all executed in reasonably satisfactory seeing and show, in general, what was seen at about one-half of the observation periods. At the other sessions nothing at all could be seen on the disc, even in good seeing.

The August 13 drawing shows two dark bands extending north-east from the terminator. The south cusp seemed a little brighter in the region bounded by the dotted line. The southern-most dark band was broad but fainter than the northern one. This drawing was made in fair seeing.

On August 15 the shading shown on the northern portion of the planet was "suspected" in variable seeing (fair plus) with the telescope at various apertures between 12 and 36 inches and at 550X. Transparency

was good but Venus had an unusually yellow appearance. Emphasis must not be placed on any color observations with the refractor, however, for obvious reasons.

On August 16 in fair seeing, a drawing showing two streaked dark areas was made. The position of the streaks with relation to the terminator does not agree well with the previous sketch made only 24 hours earlier.

Although seeing was good on the next day, August 17, the three shadings were only "suspected." The south cusp had a brilliant white appearance; and if this was more than an optical effect, the shading surrounding it may have been a contrast phenomenon. Here again, the position of the streaks relative to the terminator is different from that on all the rest of the drawings.

The August 24 drawing shows an interesting dark patch near the center; and although the observation was made in good seeing, the patch had the definite appearance of being an illusion because it was even more diffuse and difficult than usual. Other factors give the observation only medium weight.

The August 29 drawing was made in good seeing and shows the usual terminator shading plus two bands in the positions shown. These features again were "not certain."

Of these six representative drawings there are three with the dark bands running southeast, and three with the bands running northeast from the terminator. There are three which show possible brighter south cusps and three which show none. The north cusp was not observed as abnormally white in the entire 1958 series.

As the drawings show, the diffuse shadings were usually broad streaks extending over a majority of the planet's disc. Seldom were they perpendicular to the terminator, and they usually extended from terminator to limb. The angle formed with the terminator changed markedly, even from day to day, perhaps indicating some unreliability in the observations. It should be emphasized that the contrast of the shadings shown on the drawings is greatly exaggerated for better reproduction here. It is impossible to draw such features with their true contrast because of their extremely faint and diffuse nature. In essentially all cases, those features observed were on the very limit of visibility even with the 40-inch refractor, as the quantity of "uncertain" notations in my observing book indicates.

It is not the purpose of this paper to engage in a theoretical discussion of the atmosphere of Venus, but a few remarks regarding recent work on the bands and the pole of rotation may be in order to support visual observations of the band or streak-type feature.

Figure 8, Ross Ultraviolet Photographs In 1927

When F. E. Ross applied the techniques of ultra-violet photography to the nearly blank disc of Venus, dusky bands running roughly perpendicular to the terminator were found. Examples of his photographs taken in June, 1927, with the Mt. Wilson 60-inch reflector are shown here. Since the initial discovery of the elongated bands they have been observed and photographed several times.

Figure 9, Kuiper 82-Inch Ultraviolet Photographs In 1950

In April, 1950, G. P. Kuiper made a series of photographs with the 82-inch McDonald reflector for the purpose of determining the pole of rotation of Venus. He writes,[1]

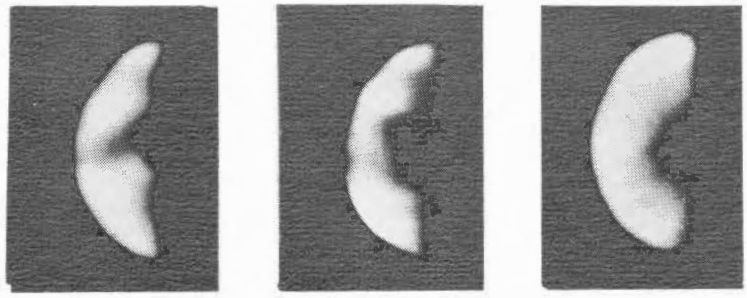

Figure 8. Photographs of Venus by F. E. Ross with Mt. Wilson 60-inch reflector stopped to 52 inches, Cramer Contrast plates, Wratten (Kodak) 18A filter, exposures 2-3 seconds.[3]

LEFT: June 27, 1927, $3^h\ 29^m$ U.T., seeing 4 (scale 1-10).
CENTER: June 25, 1927, $3^h\ 32^m$ U.T., seeing 3.
RIGHT: June 7, 1927, $3^h\ 32^m$ U.T., seeing 1.

Additional general notes:[4]

"The U-V pictures showed markings, both dark and bright, which varied from night to night. On June 27, 1927, a sharp, wedge-shaped marking was photographed, which appeared to remain stationary over an interval of one hour, accordingly suggesting a slow rotation-period for the planet.

"On June 7, an extended bright cloud covered the region around the south point. Both the south and north points appeared to be the region of bright clouds, the dark bands confining themselves to the central portion of the disc, extending from the terminator to the edges at times."

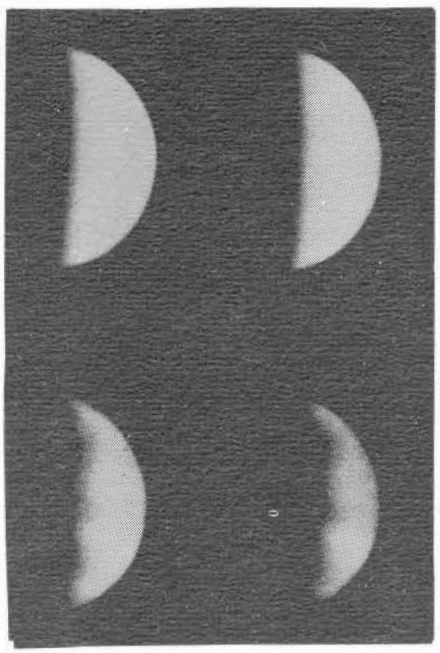

Figure 9.

Photographs of Venus by G. P. Kuiper with McDonald 82-inch reflector, April 8, 1950, upper pair in red light, lower pair in violet light.

"... the markings consisted of eight parallel bands, four bright and four dark, covering the entire visible planet. The bands had comparable width and were slightly curved, suggesting poles of rotation which were close to but not identical with the cusps."

He said of later 1954 photos with the same instrument,

"They confirm the banded structure as the normal appearance of the planet with usually three bright and three dark bands; but they show that changes take place from day to day--as Ross had reported--and that at times the band system is quite irregular."

Figure 10, 1959 Venus Drawings

Observations of Venus at the 1959 eastern elongation were begun in April with an 8-inch refractor, but the 40-inch refractor was used after June 3. The banded appearance was suspected a few times (four times out of twenty observations) before dichotomy, and once (very doubtful) out of twenty-three observations after dichotomy. In general, seeing was better during the summer of 1959 than in 1958 and seldom required reduction of the telescopic aperture.

From my observations in these two summers it would seem that either the bands are more easily seen at the gibbous phases ($k > 0.500$) than at the crescent stage ($k < 0.500$) or that the bands were not so contrasty and easy to see in 1959 as in 1958, or both.

These drawings in Figure 10 show a series of observations that Alan Binder and the writer conducted to determine the date of observed dichotomy in June, 1959. The variable aspect of the terminator, cusps, and cusp-bands can be seen. The June 17 observations show how the observed position of the terminator depends on the intensity of background skylight, for at $0^h\ 30^m$ U.T. the sun was still above the horizon and the terminator was obviously concave, but shortly after sunset the terminator was sensibly straight to three observers. The observations indicate that observed dichotomy occurred on June 17 at $2^h \pm 24^h$, U.T.

It may be noted that although some of these sketches show cusp-bands, the cusps were not seen as brighter than the rest of the disc at any time, thus suggesting that the bands at the cusps are not simply contrast effects.

Figure 11, Mercury Drawings In 1958

We shall now turn our attention to Mercury, with a few further remarks about Venus to be saved for later. Figure 11 shows five drawings of Mercury made with the 40-inch refractor. As with Venus, these observations were all with the planet (and sun!) high in the sky. The first three sketches were made in the summer of 1958 and seem to show the same general features rather consistently, although there was a variation of $12^\circ.2$ in longitudinal libration from July 21 to July 31. The "equatorial band" roughly perpendicular to the terminator on July 29 was not certain. The December 28 drawing was made with a magnification of 774X in excellent seeing. The cusps were smooth as shown; and the disc was slightly gibbous, dichotomy having passed only 3.4 days before.

Figure 12, Mercury Drawings In 1959

The July, 1959, drawings of Mercury show pleasing homogeneity in many respects. The general form of the observed dark and light areas varied only a little with a range of $8^\circ.9$ in longitudinal libration. From the sketches it would seem that there was a variation in north libration, but this effect is attributed to inaccuracy in the observations since not more than a few degrees change could have occurred in the nine-day period

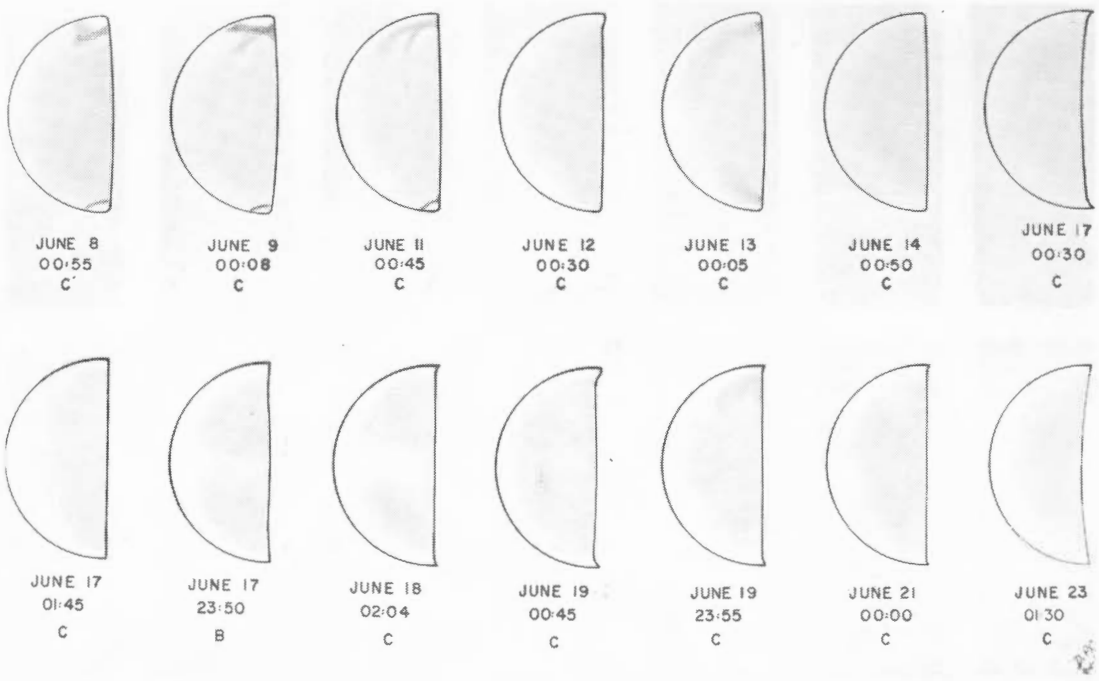

Figure 10. Drawings of Venus in 1959 by Dale P. Cruikshank with the Yerkes Observatory 40-inch refractor.

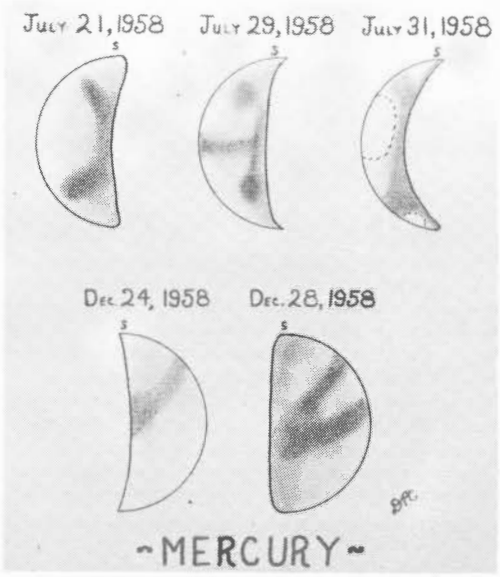

Figure 11. Drawings of Mercury by Dale P. Cruikshank.

July 21, 1958, $23^h\ 05^m$ U.T., 40-inch refr. (between 18 and 30 inches), 350X, yellow filter (minus blue), seeing fair+, transparency 3.5.

July 29, 1958, $0^h\ 15^m$ U.T., 40-inch refr. (24 inches), 400X, seeing fair, transparency 4.

July 31, 1958, $22^h\ 00^m$ U.T., 40-inch refr. (24 inches), 400X, seeing fair, transparency 4.

December 24, 1958, $15^h\ 00^m$ U.T., 40-inch refr. (24 inches), 430X, seeing fair-, transparency 4.

December 28, 1958, $16^h\ 15^m$ U.T., 40-inch refr. (full aperture), 430X and 774X, seeing good, transparency 4.

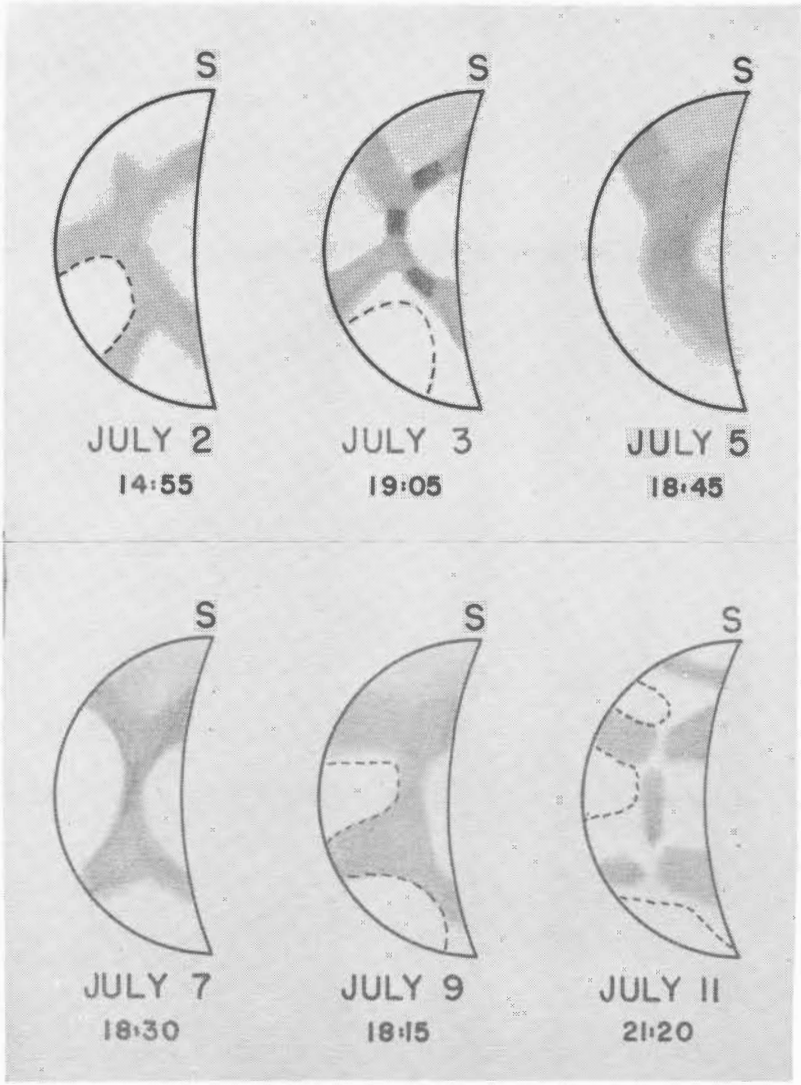

Figure 12. Drawings of Mercury by Dale P. Cruikshank with the Yerkes 40-inch refractor at full aperture and a minus-blue filter (Schott GG 14). 550X.

July 2, 1959. $14^h\ 55^m$ U.T. Seeing good to good+, transparency 4 (0-5).

July 3, 1959. $19^h\ 05^m$ U.T. Seeing good-, transparency 4.

July 5, 1959. $18^h\ 45^m$ U.T. Seeing fair to fair-, transparency 4.5.

July 7, 1959. $18^h\ 30^m$ U.T. Seeing fair- to good+, transparency 4.

July 9, 1959. $18^h\ 15^m$ U.T. Seeing fair+ to good, transparency 4.5.

July 11, 1959. $21^h\ 20^m$ U.T. Seeing good-, transparency 4-4.5 (between clouds).

covered. The markings on Mercury are certainly more contrasty and sharp than those of Venus, aside from being of an entirely different character.

There has been some attempt by others to associate features shown on these drawings with named markings shown on "confirmed maps of Mercury," notably the O'Toole and the Antoniadi efforts; but the writer would prefer to leave the responsibility of interpretation of visual observations of Mercury (and Venus) to someone more qualified than he. Unfortunately, in the case of amateur observations this responsibility has too often been left up to other observers who know little or nothing of the physical observations that have been or are being made.

At most of the Venus observing sessions with the 40-inch refractor, particularly in 1958, the writer made a subsequent check of the planet with a 6-inch refractor, a finder on the large instrument. At about 120X the small telescope often showed a definite dark area, which may be what observers have called "Baum's spider", at the center with suggestions of diffuse radial arms extending to the limb and terminator. This dark area was present at times when nothing could be seen with the larger instrument! One must therefore conclude that such features as observed in small instruments are spurious when they cannot be seen in large telescopes in equally favorable seeing.[2]

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2. Cruikshank, Dale P., "A Note on the Reliability of Venus Observations," Festoon (publication of the Great Plains Astronomical Society), Vol. 1, No. 1, October, 1958.

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4. Ross, Frank E., "Photographs of Venus," Publications of the American Astronomical Society, 38th meeting, 1927, Madison, Wisconsin.

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5. Kuiper, G. P., "Planetary Atmospheres and their Origin," The Atmospheres of the Earth and Planets, G.P.K. ed., 2nd edition, Chicago: University of Chicago Press, 1952.

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A.L.P.O. COMETS SECTION REPORT NO. 2

By: David Meisel

Official Status of the Comets Section

In a communication with the Section Recorder, David Meisel, Harvard College Observatory officials Fred L. Whipple and Donald H. Menzel have designated the Comets Section as an official clearing house for amateur cometary reports. In the Western Hemisphere Harvard Observatory is the official distributor of discovery announcements of new comets. It has now been arranged that amateur reports of the findings of new comets shall be sent directly to the Comets Recorder for collation and confirmation. The Comets Recorder will then alert other selected A. L. P. O. members by means of amateur radio messages. Observers will be selected on the basis of experience, instrumental capabilities, locality, and weather conditions prevailing at the time of transmission. Only 2-4 observers can be notified at any one time. Those receiving such a radio message are requested to send a copy of the same message by airmail to the Recorder to check on the accuracy of the amateur

transmission. If confirmation is obtained, the object's position, apparent motion, brightness, and appearance should be communicated back by radio as soon as possible. If no confirmation is obtained, the following standard replies should be transmitted within 72 hours of the receipt of the discovery announcement:

a. Confirmation

1. OBJECT SEEN AT_____(give position). DETAILS BY MAIL.

2. OBJECT SEEN. DETAILS FOLLOW IN I. A. U. CODE: (give position, magnitude, etc. using the I. A. U. code as given in the book Observational Astronomy for Amateurs, by J. B. Sidgwick, Section 16.7, pages 253-256.

b. Non-confirmation

1. WEATHER UNSUITABLE FOR A SEARCH.

2. MISTAKEN OBJECT. OBJECT IS NGC_____(give NGC number).

3. MISTAKEN OBJECT. OBJECT IS A_____(identify).

4. SEARCH WAS NOT MADE DUE TO_____(give short explanation).

5. NO OBJECT OF COMETARY NATURE FOUND WITHIN_____DEGREES OF GIVEN POSITION (give number of degrees).

6. PHOTOS SHOW NO OBJECT IN REGION_____DEGREES FROM GIVEN POSITION (give number of degrees).

All radio transmissions are sent through amateur radio station W8GAD and the West Virginia Phone Net. If the discovery is confirmed, Harvard will then be notified.

Any discovery report to the Section should contain as much information as possible regarding position, apparent motion, brightness, appearance, and time and date of discovery of the suspected object. If the observation is telegraphed, it should be followed by an airmail letter giving all details. Amateur observers who notify an observatory of a discovery are asked to send a duplicate report to the Recorder.

The designation also gives the Section permission to relay Harvard announcements by means of both airmail cards and radio transmission. The Observatory Directors believe that the Section can do a real service for professionals as well as amateurs by obtaining additional and early confirmation of newly discovered objects. However, only with the cooperation of each and every A. L. P. O. member can the success of our confirmation service be a reality. It is up to the A. L. P. O. to channel such information to and from the Section for those "who have a need to know."

Lick Observatory Sky Atlas

Lick Observatory has announced that it hopes to make available for purchase a photographic sky atlas for the Northern Hemisphere. The price will be 100 dollars plus postage. The atlas is expected to be ready for distribution in December, 1959. The atlas will consist of some 140 negative prints showing stars to the 16th magnitude. Each exposure was made for ninety minutes to insure uniform magnitude values for the whole atlas. Interested organizations, institutions, or individuals may reserve copies by writing to the Observatory at Mt. Hamilton, California.

The Comets Recorder has ordered a copy for the use of the Section. It will be paid for out of private funds. This atlas will enable the Recorder more fully to evaluate all comet reports, both visual and photo-

graphic. Other members who have ordered copies of this atlas are asked to notify the Recorder so that future arrangements for data reduction centers may perhaps be made.

A.L.P.O. Comets Section Announcement Cards (CSAC)

Since the inception of the Section in 1957, a rapid means of communication has been necessary to make the aims of the Section a reality. Now that the Section has been officially recognized, radio communication will become the most rapid method which can be used by the Section. However, the airmail cards and regular postal circulars will remain the best low-cost means that can be used for mass communication. All information relayed in the airmail cards and in some of the radio communications will be based largely on information from three sources. The primary source of initial discovery material will be the Harvard Announcement Telegrams. The delay here should not exceed 96 hours for most areas of the United States. Alternate sources will be the British Astronomical Association Circulars, B.A.A. Handbook, Harvard Announcement Cards, I.A.U. Circulars, and ephemerides computed by A. L. P. O. members and others when needed. CARDS ARE SENT OUT ONLY WHEN OBJECTS OF INTEREST ARE VISIBLE. The charge for non-A. L. P. O. members is $0.50 per ten airmail cards within the U. S. A. Foreign subscriptions are $0.80 per ten cards. Special circulars are sent to card subscribers free of charge. Only about 50 free subscriptions are remaining for A. L. P. O. members who desire to become Comets Section members. Those interested in becoming Section Members are asked to communicate with the Recorder.

Search for Comet Honda-Mrkos-Pajdusakova

On the dates of May 8, 11, and 28, 1959, Alan McClure, using various 4- and 5-inch cameras with filters, made an attempt from Mt. Pinos to recover Comet Honda-Mrkos-Pajdusakova. Although the elevation was 8828 feet, there was some trouble with atmospheric "dirt" as Mr. McClure called it. Mr. McClure's search positions were computed by Sarah Van Dyck from B. G. Marsden's elements. All of the reports were negative even though some of the plates probably surpassed 12th magnitude for stellar images. The note on one of the observations may be helpful to photographic observers who may be examining plates for possible cometary images. Mr. McClure writes, "... nothing of a cometary nature showed. (There was a false alarm which turned out to be a group of stars that had not yet registered as individual images.)"

It is apparent from this statement that one must be careful in the interpretation of photographic images. Duplicate plates are suggested. It is wise to have someone examine search plates for you if comet-like images are found on both plates or if the observer's experience is limited in this type of work. The Comets Section will be equipped to do plate measurements and evaluations after January 1, 1960. Photographs submitted for examination will be welcomed and evaluated as quickly as is possible. If a comet is found, Harvard will be notified. Discovery rights are preserved in every case.

Observation of Comet Burnham-Slaughter 1958e

A photographic observation of Comet 1958e was obtained by Alan McClure with a 5.5-inch Zeiss triplet (f-5) and an exposure of thirty minutes on a 103a-0 plate. After allowing for trailing, Mr. McClure estimated the diameter of the comet to be about 30" of arc, diffuse and near circular in shape. The total magnitude was estimated to have been below thirteen. A possible stellar nucleus was noted, off-set toward the southwest part of the comet's image. Mr. McClure said it would be interesting to see this object as photographed with more powerful instruments. Members are asked to send any observations of this comet and other cometary objects to the Section for purposes of evaluation.

P/Comet Giacobini-Zinner

This object was recovered by Dr. Elizabeth Roemer at Flagstaff Naval Observatory Station. Dr. Roemer commented in a letter to the Recorder that the comet was seen visually in the 40-inch. (This letter was received in July, 1959.) An ephemeris was calculated using a correction to Dinwoodie's positions as given in the 1959 B.A.A. Handbook. The position correction was obtained too late for publication and inclusion in the last Str. A. The comet will have already passed maximum brightness by the time this article appears. The Recorder is sorry that the corrected ephemeris could not have been distributed. However, it is presumed that it will be published elsewhere and that observations have been and will be made. In any event, the Recorder requests that copies of all observations of this comet be sent at the earliest possible date for evaluation. Photometric observations are especially needed.

Postscript by Editor. Mr. Meisel requests that all A. L. P. O. members receiving the card service described in his article notify him promptly of any changes in their addresses. He also asks that any persons no longer interested in being on the card mailing list should so inform him.

AN OBSERVATION OF UPPER ATMOSPHERE DEBRIS

By: Eugene Spiess

About two years ago while pointing the 'scope toward the clear blue sky in order to measure the exit pupil with a micrometer, I was amazed to see what appeared to be white round luminous objects travel across the field of view at great speed. Thinking they were reflections or eye defects, I moved the 'scope; but this showed that they were real objects picked up by the objective lens. They would only be in the field of view from a fraction of a second to one second, and I was unable to focus on them. These objects intrigued me, and I started keeping a record of number and time. The record showed no pattern of any kind.

In order to try and resolve them, I mounted three refractors with the optical axes parallel to each other. One telescope I focused on the Sun (with suitable filters), the second I focused on a point closer, and the third was given a still closer focal setting. By moving from one eyepiece to the other quickly, I could determine which 'scope was the closer to being in focus. By experimentally focusing, I was able to resolve the objects. They turned out to be out-of-focus objects carried by the air streams at different altitudes. This evidently was the reason for the difficulty in trying to focus one 'scope on the objects seen for such a short time.

Anyone wishing to observe these objects should point the 'scope to the ecliptic from ten to twenty degrees east of the Sun against a clear sky. They can be seen either east or west of the Sun; but with the 'scope east of the Sun, there is no chance of the Sun's creeping into the field of view, with possible eye damage. You may not see any objects the first time you observe. They seem to appear sporadically in singles or in groups. Between two and three o'clock in the afternoon in a cloudless sky I have observed up to thirty-five in one hour. They are all shapes and sizes. One which I got in focus appeared to be an unrolled roll of toilet paper. I could observe it to be changing shape as it travelled across the field.

Perhaps if someone would calibrate his 'scope for known distances at different focal settings and measure the field of view, he could calculate the speed of the jet streams in the upper atmosphere. These objects are interesting to observe so take a look sometime.

Note. Mr. Spiess' address is 6 Eastland Drive, Manchester, Connecticut.

THE FIRST NATIONWIDE AMATEUR ASTRONOMERS CONVENTION AND THE FIFTH CONVENTION OF THE A.L.P.O.

By: Walter H. Haas

The very first truly national meeting of all American amateur astronomers was held at Denver, Colorado, on the campus of the University of Denver on August 28-31, 1959. This unique gathering was a joint meeting of the Astronomical League, the Western Amateur Astronomers, the American Association of Variable Star Observers, and the Association of Lunar and Planetary Observers. In addition, many amateurs affiliated with none of these organizations attended. The host society was the Denver Astronomical Society with assistance from the Pueblo Astronomical Society and the Colorado Springs Astronomical Society. Great praise for the occurrence of this meeting must go to the General Chairman, Mr. Kenneth W. Steinmetz, and to his many hard-working committees. Indeed, one may wonder whether any other society in the country would have had the courage and imagination even to think seriously about such a large meeting, let alone to do the tedious and necessary planning of the many, many details.

The attendance at the N.A.A.C. was large, more than 500 persons coming from all parts of the United States and from a few foreign countries. Contrary to the usual custom in the past of mostly trickling in slowly during the first day of a Convention, many of the delegates took long vacations with their families for this special gathering; and hundreds of them were on the University of Denver campus by the evening of August 27, the day prior to the opening. We can surely now in retrospect forget the minor inconveniences thus caused and can sympathize with the registration personnel in the problem suddenly thrust upon them. It was also noteworthy that most of the attendees remained until the official close of the Convention--surely sufficient evidence of the success of this meeting. All sections of the nation were represented by famous amateur astronomers, and everyone greatly enjoyed extending his circle of star-loving friends.

Special praise must go to Mr. H. D. Fiske, the Exhibits Chairman. Cubicles around the sides of the large meeting-room, where all papers were given, were assigned to the various exhibitors, commercial and otherwise. Thus during recesses between each session of papers and also before and after each day's formal activities, the attending amateurs could happily browse around among those exhibits which chiefly interested them. Many of the exhibitors, such as Sky and Telescope and Farquhar Transparent Globes, had a representative in their cubicles most of the time. The general plan of such cubicles in the meeting-room was so successful that it certainly should be repeated at future Conventions whenever practical. The A.L.P.O. Exhibit was carefully prepared by Mr. David Meisel and was excellently arranged by him. We are much indebted to all those who so helpfully contributed drawings, charts, or photographs for the A.L.P.O. Exhibit at Denver--among others Tom Cave, Alika Herring, Carlos Rost, Frank Vaughn, and Mr. Meisel himself.

The following papers were on the A.L.P.O. part of the program:

1. "Lunar and Planetary Photography," by Jack Eastman, Jr.
2. "The A.L.P.O. Photo-Duplication Service," by William E. Shawcross.
3. "The Figure of the Moon," by K. H. Engel.
4. "Hawaiian Volcanoes and the Moon," by Dr. Earle G. Linsley.
5. "The Moon and Mars--Contributions of the Amateur," by Ernst E. Both.

6. "The Nomenclature of the Planet Mars and the IAU," by Leonard E. Abbey, Jr.

7. "The Amateur Mars Observer and Some Notes on the 1958 Apparition," by Thomas R. Cave, Jr.

8. "Observing the Blue Clearing of Mars with a Photoelectric Photometer," by Joseph S. Miller.

9. "Observations of Venus and Mercury with Large Apertures," by Dale P. Cruikshank.

10. "A Method of Visual Cometary Photometry," by David Meisel.

11. "Valuable Amateur Studies of Jupiter," by Phillip W. Budine. Read by Walter H. Haas in the absence of the author.

12. "A Discussion of a Note by Takeshi Sato on the South Equatorial Belt Disturbances of Jupiter," by Walter H. Haas.

The members of the W.A.A., the League, and the A.A.V.S.O. contributed many excellent and interesting papers on a wide variety of subjects to the four-day program. These covered, among many others, such topics as photoelectric studies of variable stars, astro-photography with a 12-inch reflector, the construction of amateur telescopes and observatories, Moonwatch operations, the history and growth of amateur astronomical societies, and suggested studies of the October 2, 1959, total solar eclipse (doomed to be thwarted by clouds). The Program Committee, with Mr. W. H. Dexter as Chairman, had the Proceedings of the Convention, with all the papers printed therein, available as the Convention was beginning, a very fine achievement. A few copies can still be obtained for $3.50 apiece from Ken Steinmetz, 1680 West Hoye Place, Denver 23, Colorado.

The Nationwide Amateur Astronomers Convention was unique to date in including three field trips and two banquets. The trips were to the National Bureau of Standards and its radio telescopes near Boulder, Colorado, to the U. S. Air Force Academy and its well-equipped Spitz Planetarium, and then to the Garden of the Gods near Colorado Springs, and to the High Altitude Observatory at Climax. The second banquet was Award Night; the Astronomical League presented its annual Award to Mrs. Grace Scholz Spitz for her many services to amateur astronomy, and the W.A.A. honored Dr. Earle Linsley with its G. Bruce Blair Award.

Two A.L.P.O. Award Pins were given, to Elmer J. Reese and to Alika K. Herring with presentation speeches by Frank Vaughn and Tom Cave respectively. Mr. Reese is doubtless best known for his singularly excellent observational and interpretational studies of the planet Jupiter; but he has also made observations of great merit upon other planets and upon the moon, all with a 6-inch reflector of his own construction. Mr. Herring has developed into one of the foremost lunar observers on this continent; but in addition he observes the bright planets with much skill, and he has helped considerably with answering correspondence from A.L.P.O. members.

Both the Astronomical League and the Western Amateurs very graciously invited the A.L.P.O. to meet with them next year. At the short and simple A.L.P.O. "business meeting" it was decided to accept with thanks both invitations. Hence, the Sixth Convention of the A.L.P.O. will be with the W.A.A. at San Jose, California, in August, 1960; and the Seventh Convention will be with the League over the Labor Day week-end at Haverford, Pennsylvania.

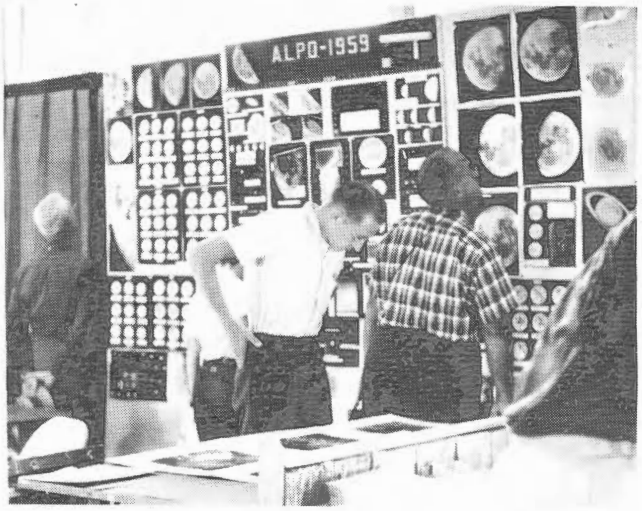

Figure 13. A.L.P.O. Cubicle during Nationwide Amateur Astronomers Convention at Denver, Colorado, August 28-31, 1959. Photograph by Dale P. Cruikshank.

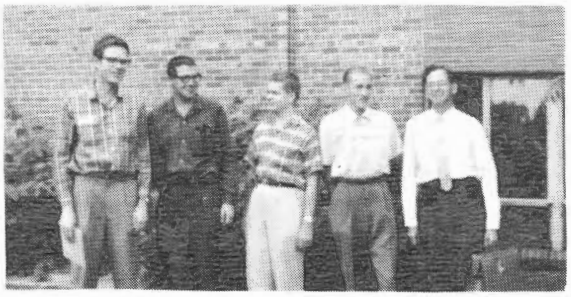

Figure 14. Group of A.L.P.O. members at Nationwide Amateur Astronomers Convention at Denver. Left to Right: Alan McClure, David Meisel, Leonard B. Abbey, Jr., Ernst Both, and Walter H. Haas. Photograph by Craig L. Johnson.

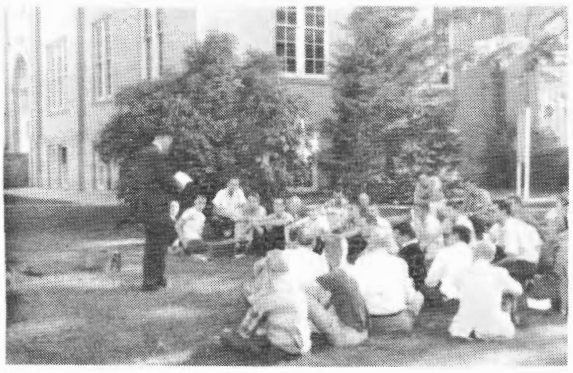

Figure 15. Informal A.L.P.O. Business Meeting during N.A.A.C. on Campus of University of Denver. Photograph by Craig L. Johnson.

It is my hope and expectation that there will be future Nation-wide Amateur Astronomers Conventions. Surely much will be gained through the exchange of ideas thus stimulated and through the personal contacts thus made. These benefits in no way depend upon the organizational format of the participating associations; changes from the status quo may or may not be desirable in the future. Of course, we must recognize that few societies or groups of societies can host a meeting of the magnitude of the recent one at Denver, and a location somewhere near the geographic center of the United States also appears necessary.

OBSERVATIONS AND COMMENTS

Lunik II and Lunik III. The date September 13, 1959, is another milestone in Man's penetration of space; for at $21^h\ 2^m$, U.T. on that date a missile launched by the U.S.S.R. impacted on the surface of the moon. A principal interest of lunar observers in this historical event is to attempt to observe the impact and its after-effects. Observations of this kind have been reported by the following persons with the stated instruments, all but one in the continental United States and the exception in Puerto Rico: Alika K. Herring, 12.5-inch refl.; Leonard B. Abbey, Jr., 30-inch refl.; James C. Bartlett, Jr., 5-inch refl.; Frank J. Rosemeck, 8-inch refl.; Lynwood G. Aubrecht and others from the South Suburban Astronomical Society near Chicago, 3-inch refr., 60-mm. refr., and other smaller instruments; Carlos E. Rost, 6-inch refl.; Paul J. Nemecek, 12.5-inch refl.; Carlos M. Jensen, $3\frac{1}{4}$-inch refr.; Eugene Spiess, 5-inch refr.; Phillip W. Budine, 4-inch refr.; Charles M. Cyrus, 10-inch refl.; Craig L. Johnson, 4-inch refl.; D. D. Werdick, 8-inch refl.; Philip R. Glaser, 8-inch refl.; Edwin B. Edwards, 6-inch refl.; Dorothy Pickering, 3-inch refl.; Jack Eastman, Jr., 12.5-inch refl.; Charles H. Frerichs, III, 6-inch refl.; William K. Hartmann, 8-inch refl.; Frederick W. Jaeger, 6-inch refl.; Dan and Doris Fraher, 3-inch refl.; Gerard Logan, 10-inch refl.; Owen C. Ranck, 4-inch refr.; Charles E. Kratz, 8-inch refl.; and Walter H. Haas, 6-inch refl.

The majority of the observations were made between 0^h and 5^h on September 14 by Universal Time. Mr. Rost at Santurce, Puerto Rico was the first to start observing, at $21^h\ 25^m$, U.T., on September 13, only 23 minutes after the time of impact. He was followed by Mr. Budine at $22^h\ 30^m$, Mrs. Pickering at $22^h\ 45^m$, Mr. Cyrus at $23^h\ 30^m$, Mr. Frerichs at $23^h\ 51^m$, and a number of others before 1^h on September 14. Some observers watched again on September 15, and a few observed on still later dates. Many of the observers carefully examined the whole lunar surface for signs of any kind of unusual appearance, but attention was properly concentrated upon the Mare Serenitatis-Mare Tranquilitatis-Mare Vaporum area, which Russian news dispatches had identified in advance as the area of expected impact. Some observers put in considerable time at the eyepiece: Mr. Aubrecht's team, 6 hours; Mr. Nemecek, 3 hours; Mr. Budine, 4 hours and 15 minutes; Mr. Glaser, 3 hours; and Mr. Johnson, about 4 hours. Mr. Glaser's searches are especially valuable because the combination of good seeing (6 to 7 on the popular 0-10 scale) and an 8-inch Vaughn reflector revealed a great amount of fine lunar detail. Some observers, including Mr. Hartmann, attempted vainly to detect the Russian missile near the moon; visual searches for such a faint star-like object with such relatively slight angular motion seem almost hopeless. The colongitude was 49^o at 2^h, U.T. on September 14 so that the presumed area of impact was four to six days inside the sunrise terminator. A few observers accordingly later examined this area when it was presented under low solar illumination.

The results of all these American efforts were completely negative; nothing unusual of any sort whatsoever was reported by any observer. We need not really be surprised; the rocket and its impact-crater would be much too small for detection and recognition at the distance of the moon, and there is no reason to think that any other artificial lunar feature was created. In Europe, however, the moon was well placed at the moment of impact; and several interesting reports have come to our attention indirectly. At Budapest, Hungary, Mr. Miklas Lovas with a 7-inch refractor is said to have observed a circular black dust-cloud

visible for fully 58 minutes. The black color is surprising since lunar dust particles might be expected to reflect sunlight rather brightly; and the period of 58 minutes is totally inadmissible for particles falling back to the lunar surface after an initial impact-explosion, besides conflicting with Mr. Rost's observation (at least Mr. Rost noticed no such black cloud between 21^h 25^m and 22^h 0^m, when it should have been present). Life magazine for September 28, 1959, carried on page 54 a lunar photograph from a Swedish observatory within seconds after the predicted impact. An arrow points to Manilius as the suggested impact-site; but Manilius and its environs are normally bright under high solar lighting, and their aspect on the published photograph appears to the Editor to be completely ordinary. A Tass dispatch of September 20 placed the impact near Archimedes and Autolycus on the basis of Soviet tracking data. A Tass dispatch of September 19 says that the impact was recorded photographically by the Lvov Observatory in the U.S.S.R.; a bright patch appearing seconds after impact is interpreted as a dust-cloud thus created. We hope to give our readers more details on the Lvov observation in a future issue.

Few A.L.P.O. members attempted to observe Lunik III, the Russian rocket which photographed the averted hemisphere of the moon in early October, 1959. At this writing we await with great interest the appearance of the reported photographs.

A.L.P.O. Map of Mars for 1958-59. There is enclosed in this issue a map of Mars for the 1958-59 apparition, drawn by Mr. Frank Vaughn from observations by members of the A.L.P.O. Attention is invited to Mr. Vaughn's own comments on the map itself. Close students of Mars will wish to compare this map to A.L.P.O. maps for the 1954 and 1956 apparitions and to other maps of Mars.

Burg. The following description of the plain east of the lunar crater Burg is contributed by Mr. Alika K. Herring and should be read in connection with Figure 16:

"The plain east of Burg has long been of interest to me because of the large number of clefts which cross the interior. While most of these are rather easily seen, the dominating feature is the conspicuous line of fault which enters upon the floor from the south wall. As with the Straight Wall, the 'rise' or high side of this fault is on the west. From the width of the shadow cast at sunrise it is evident that the height differential in floor level between the two sides is considerable and may actually be some hundreds of feet. The northern extremity of this fault continues as a cleft which probably extends across the floor to join with the long cleft originating at the north wall. Although I have not as yet been able to personally confirm this connection between the two, there can be but little doubt that it actually exists. Later observations have also indicated that the short cleft extending from the east wall is more truly a combination of cleft and fault, and that the highest side is on the north.

"The floor of this plain, which actually comprises the eastern half of the Lacus Mortis, is noticeably lower than the adjacent surface. It is evidently a subsidence feature, being formed by the sinking of a large fault block in the lunar crust. It should therefore be considered to be a type of walled plain, in spite of its non-circular shape."

The Lunar Missile Survey: Possible Changing Objectives. On one evening during the recent Nationwide Amateur Astronomers Convention there was an informal discussion among about 12 to 15 people present about the Lunar Missile Survey; perhaps half of those attending were registered team members in the Survey. There was some feeling that lunar rocket-impacts and their after-effects might be difficult to observe and that even the impact-flash of the missile could not be distinguished from that of a meteorite. Philip Glaser and others suggested that a program centered on lunar missiles might be replaced by one of straight lunar research.

William Shawcross called attention to some of the recent lunar research projects of professional astronomers, including Dr. Joseph Ashbrook's studies of lunar slopes. Philip Glaser proposed that the Lunar Missile Survey might attempt to correct errors and omissions in existing maps of the moon, but it was concluded that this goal was impractical for a team of amateur observers. There was apparent general agreement that the Lunar Missile Survey can be valuable as a patrol of the lunar surface for unusual events, such as the abnormal activity in Alphonsus on November 3, 1958; the lack of any other observations of the phenomena then remarked visually by Dr. Kozyrev indicates great incompleteness in present coverage of the lunar panorama. Walter Haas described the need for many more observers in the Lunar Missile Survey, particularly outside of the United States.

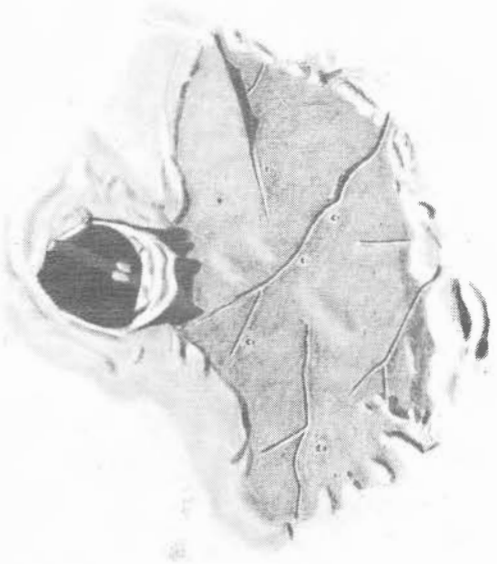

Figure 16. Lunar Crater Burg and Plain to East. Alika K. Herring. 12.5-inch Refl. 236X. June 12, 1959. $4^h\ 10^m$, U.T. S= 4-6. T= 5. Colongitude = 341.°7.

A Method of Detecting Lunar Swan Emission Bands. On August 5, 1959, Mr. Geoffrey Gaherty, Jr., of the Montreal Centre in Canada wrote in part as follows: "I have recently started a program along the lines suggested by Dr. Fielder in B.A.A. Circular No. 407; using a special filter to search for Swan emission bands on the Moon. I have been using the first filter combination recommended, i.e. a Wratten 45 plus a Wratten 47B filter. These gelatin filters are quite inexpensive and are easily sandwiched together in a 2 X 2-inch slide mount for protection from dust and scratches. Because of the low light transmission of the combination, it is only usable at low powers. Therefore it is quite easy to search the whole Moon, any emission showing up as a spot much brighter in relation to its surroundings than when viewed without the filter. The time taken for a careful search is quite short, of the order of five minutes or so. If any positive results are obtained, word must be sent to a well-equipped observatory immediately. I searched the Moon twice on July 17 and once on July 20 with completely negative results." We urge our lunar observers to imitate the simple technique here described, and we shall be grateful to be informed quickly of any lunar Swan emission bands detected. It might be even better to compare two near-simultaneous photographs, one with the combination of Wratten Filters 45 and 47B and one in, say, white light; immediate development and examination of the film would be important.

Mr. Alika Herring has also experimented with the same combination of Wratten Filters 45 and 47B. In a letter dated May 27, 1959, he points out that the low transmission of this filter combination may preclude their use by most amateurs because of insufficient aperture. Examination of the solar spectrum clearly showed to him the lines Hydrogen Beta and Hydrogen Gamma with maximum transmission of light somewhere around 4600 angstroms. Mr. Herring further reports that the central peak of Alphonsus, while quite bright in white light, is so faint as to be almost invisible with these Filters 45 and 47B. No other lunar bright spot has shown such excessive dimming, instead merely that shared by the whole lunar surface. The peak is evidently curiously deficient in the blue light transmitted by the two combined filters. Reports on this object by other observers would be desirable.

The Strolling Astronomer

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