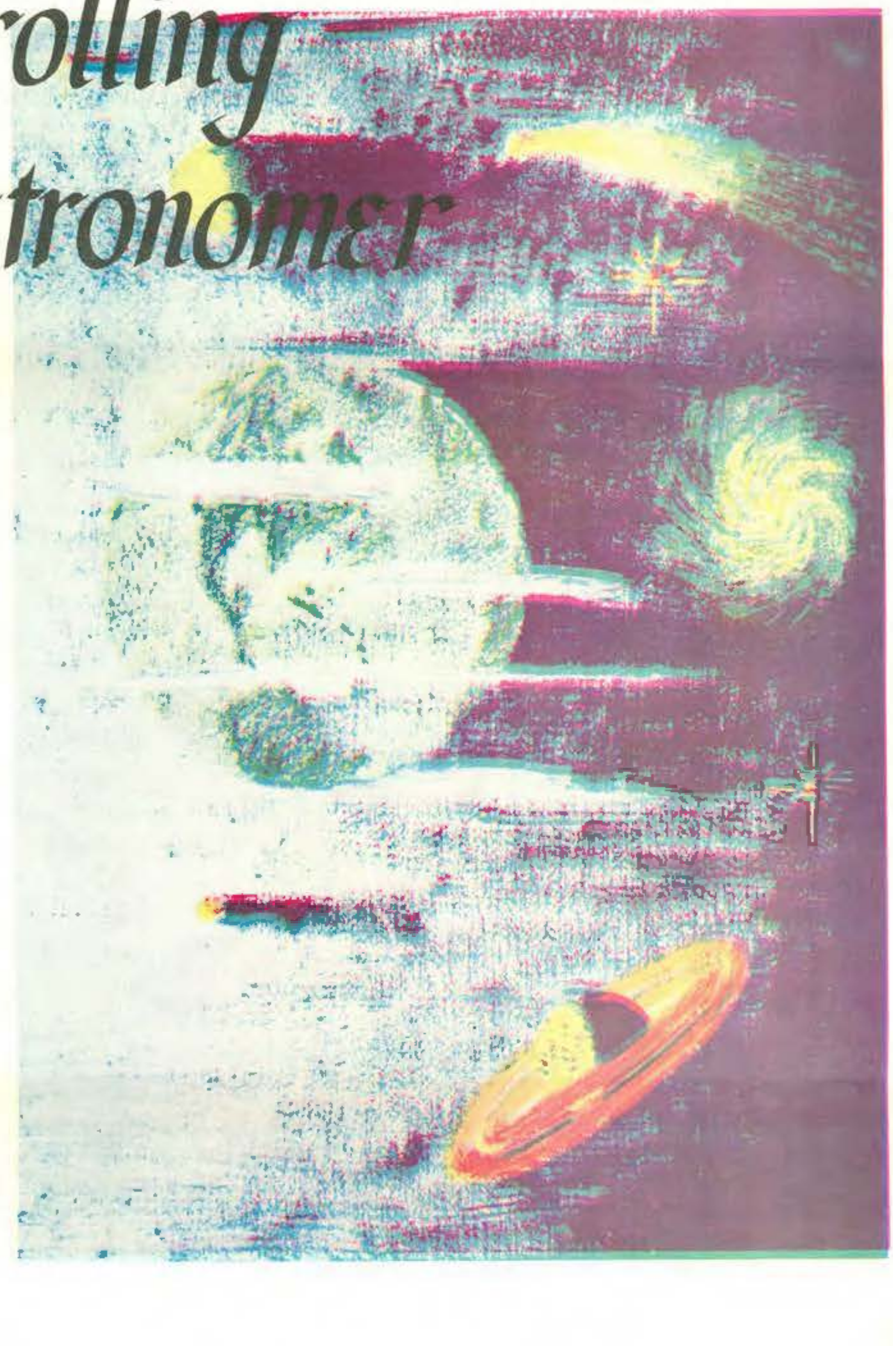
The Strolling Astronomer

Volume 5, Number 6 June 1, 1951

ASSOCIATION OF LUNAR AND PLANETARY OBSERVERS



The Strolling Astronomer
133 S. Alameda Street
Las Cruces, New Mexico

S U B S C R I P T I O N   R A T E S

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S T A F F

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NOTICE: In order to facilitate the reproduction of drawings in future issues, readers are requested to exaggerate contrasts on drawings submitted. Extremely faint marks cannot be reproduced. Outlines of planetary discs should be made dark and distinct. It is not feasible to reproduce drawings made in colors. Following these precepts will permit better reproductions.

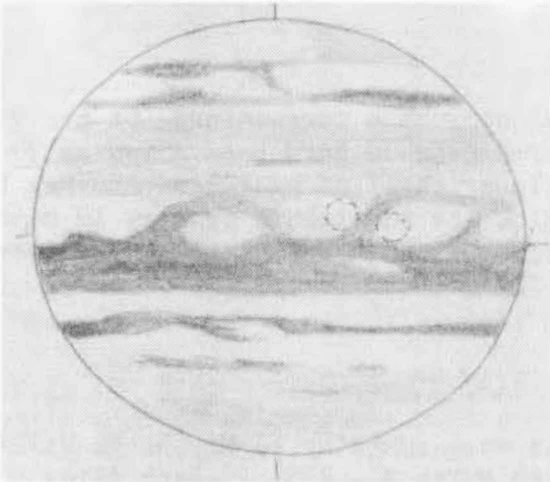


Fig. 1. Jupiter.
E.E. Both. 8-inch refr.
August 12, 1950.
$4^h\ 3^m$, U.T. 240X.
$C.M._1 = 281^\circ$ $C.M._2 = 18^\circ$.

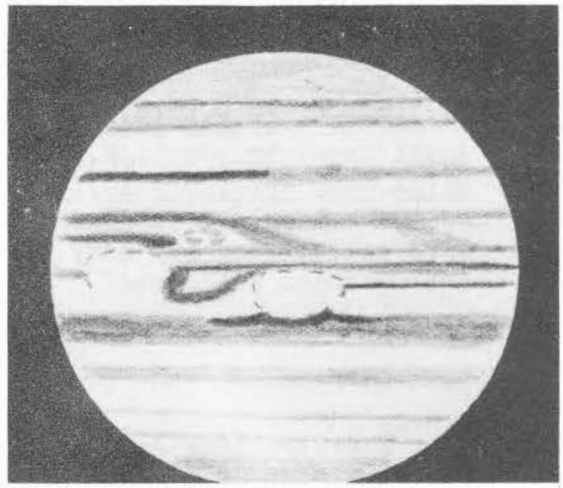


Fig. 2. Jupiter.
G.D. Roth. 4.4-inch refl.
September 13, 1950.
$20^h\ 40^m$, U.T. 165X.
$C.M._1 = 185^\circ$. $C.M._2 = 32^\circ$

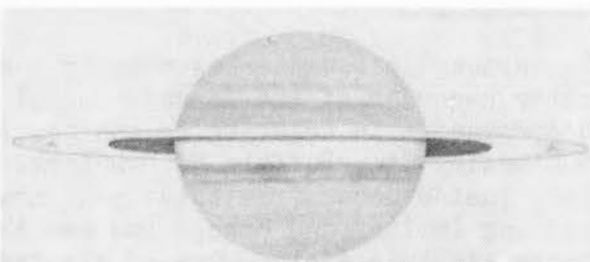


Fig. 3. Saturn.
E. J. Reese. 6-inch refl.
March 12, 1951.
$5^h\ 6^m$, U.T.
240X.

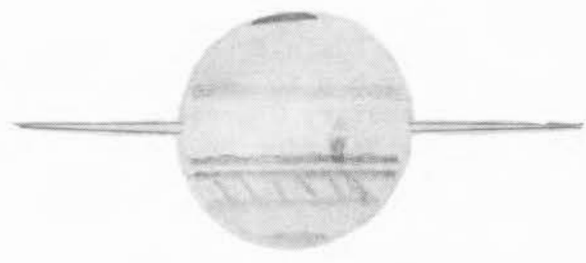


Fig. 4. Saturn
J. C. Bartlett, Jr.
3.5-inch refl. 100X.
March 23, 1951.
$2^h\ 21^m$, U.T.

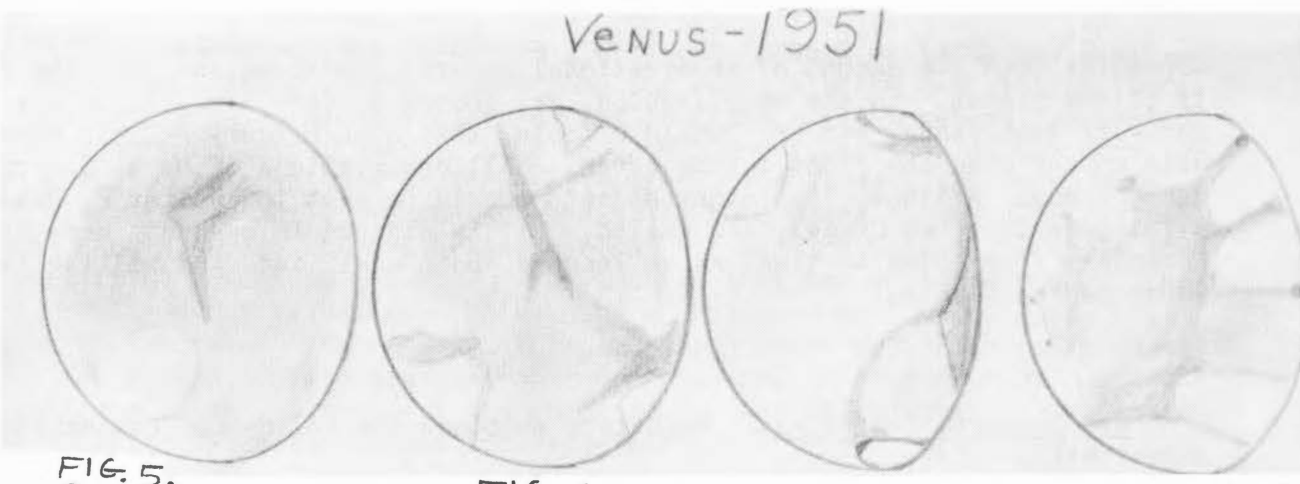


FIG. 5.
P.A. MOORE
MARCH 4
18.5h U.T.
8½" REFL.
250X

FIG. 6.
H. LeVAUX
MARCH 4
23.7h U.T.
6" REFL.
67X

FIG. 7.
J.C. BARTLETT
APRIL 8
0.2h UT.
3.5" REFL.
100X

FIG. 8.
T. OSAWA
MARCH 30
9.3h. U.T.
6" REFL.
230X

Errata in May issue. We must first correct a correction! On pg. 9 of the April issue Mr. David W. Rosebrugh's address should have been given as 79 Waterville St., Waterbury 10, Conn. In the lower half of pg. 4 of the May issue a sentence should be changed to read: "During the nineteenth century 19 meteorites were collected, and many fireballs were seen; five additional meteorites fell but were not recovered".

IN MEMORIAM

The Strolling Astronomer extends its deep sympathy to Mr. H. P. Wilkins and his family in the death of his Mother on March 30, 1951. Born Alice Richens, Mrs. Wilkins took a very active interest in the astronomical work of her famous son. She sometimes observed with his 15-inch reflector and attended a meeting of the British Astronomical Association only last year. She made her home with her son during the last 18 months of her life and lived to see the completion of his revision of his excellent map of the moon. Mrs. Wilkins was 83 years, 5 months of age.

NEW JUPITER RECORDER

Mr. Edwin E. Hare regrets that his personal circumstances make it inadvisable for him to continue as Acting Jupiter Recorder of the Association of Lunar and Planetary Observers. We have been successful in securing as the new Acting Jupiter Recorder Mr. Ernst E. Both, 208 Kingsley St., Buffalo 8, New York. (His name and address will appear on the front inside cover from this issue onward.) Mr. Both has observed the planets, including Jupiter and Mars, and has the advantage of familiarity with European studies in this field. One of his drawings of Jupiter in 1950 appears as Figure 1 on pg. 1.

All members of the A.L.P.O. should send all their observations of Jupiter during its 1951-52 apparition to Mr. Both at the address given above. The planet is already well placed in the morning sky and will reach opposition on October 3. Any observations of Jupiter in 1950 that are still unreported should be sent immediately to Mr. Edwin E. Hare, 1621 Payne Ave., Owensboro, Kentucky. We should perhaps explain a little about our system of Recorders for the information of our newer members. Mr. Both acts as custodian of our records of Jupiter; he studies them and publishes Reports in The Strolling Astronomer, their number depending upon the amount of observational material received and upon the activity of the planet. In the same fashion, Mr. Thomas R. Cave, Jr., is in charge of our work upon Venus; and Mr. Donald O'Toole, that upon Mercury. Their addresses also appear upon the front inside cover. All observations of Mars, Saturn, the moon, Uranus, Neptune, and other objects should be sent to Walter H. Haas, 133 S. Alameda St., Las Cruces, New Mexico. It is planned to appoint more Section Recorders from time to time as colleagues both qualified and willing thus to serve can be located.

ANNOUNCEMENTS

New Subscription Rates: We hereby announce the following new schedule of subscription rates:

One issue (when in stock).....	$0.35
Six Months....................	1.75
One Year......................	3.00
Two Years.....................	5.00

It will be noticed that the rate for one year has not been changed and that a long-term subscription may now be had at a decreased rate for the first time. We have felt it necessary to increase the price of single issues and six-months subscriptions because of our own rising costs and the excessive amount of bookkeeping involved. Single issues and six-months subscriptions at the old rates of 25 cents and $1.50 respectively will be available to our present members only up to June 30, 1951, but not after that date.

Insert for Renewals and New Subscriptions. Beginning with this issue, we are inserting between pg. 14 and the Section of the Wilkins map of the moon a small sheet that provides a convenient form for renewing your subscription. It may also be used for new subscriptions by your astronomical friends and neighbors. Also, you may wish to use this insert from time to time for gift subscriptions on the occasion of birthdays, anniversaries, holidays, etc.

Request for Uranus Observations. In our February, 1951, issue we outlined a program of observations of the brightness of Uranus. A number of our members have written of having made observations in this program, and at least one society has worked upon it as a group-project. Very few persons have yet communicated their observations of the light of Uranus, however. Since the planet will be in conjunction with the sun on July 2, its effective study must cease early in June at the latest. We hence remind observers to mail all their records of the brightness of Uranus promptly to Walter H. Haas, 133 S. Alameda St., Las Cruces, New Mexico. Dr. Joseph Ashbrook of the Yale University Observatory has expressed interest in the analysis of this observational material.

Availability of Bayer-Graff Star Atlas. Mr. Ernest L. Pfannenschmidt, the Director of the Planet Section of the Bund der Sternfreunde in Germany, writes that he can obtain a limited number of copies of this Atlas for American colleagues. His address is (20b) Einbeck-Hannover, Grimsehl Strasse 18, British Zone, Germany. The Bayer-Graff Atlas is preferred by many variable star observers. It has now appeared in a good photostatic copy. (The original plates were lost.) There are 27 charts in this Third Edition; the price in U. S. currency is nine dollars and fifty cents ($9.50).

Second Convention of Mid-States Amateur Astronomers. We take pleasure in passing on to our readers an invitation to attend this gathering, which will be held at the Morrison Observatory, Central College, Fayette, Missouri, on June 15-17, 1951. Those desiring detailed information should write to the Morrison Observatory immediately, for we have room for only a brief description here. The Convention is intended as a pleasant and profitable get-together for amateur astronomers of the Central States. The equipment and facilities of the Morrison Observatory will be available to those attending, the largest telescope being a 12-inch Clark refractor. Everyone who plans to be present is urged to write a 10-minute paper on his favorite astronomical topic - or indeed to write that paper even if he cannot be present. The program includes lectures by Dr. Frank Edmonds, Professor of Astronomy, University of Missouri and by Dr. C. C. Wylie, Professor of Astronomy, University of Iowa. Among other activities planned are sessions for papers, demonstrations of observational techniques upon variable stars, the sun, and the moon and the planets, a Convention banquet, and astronomical exhibits by societies and individuals.

OBSERVATIONS OF VENUS IN LATE 1950 AND EARLY 1951

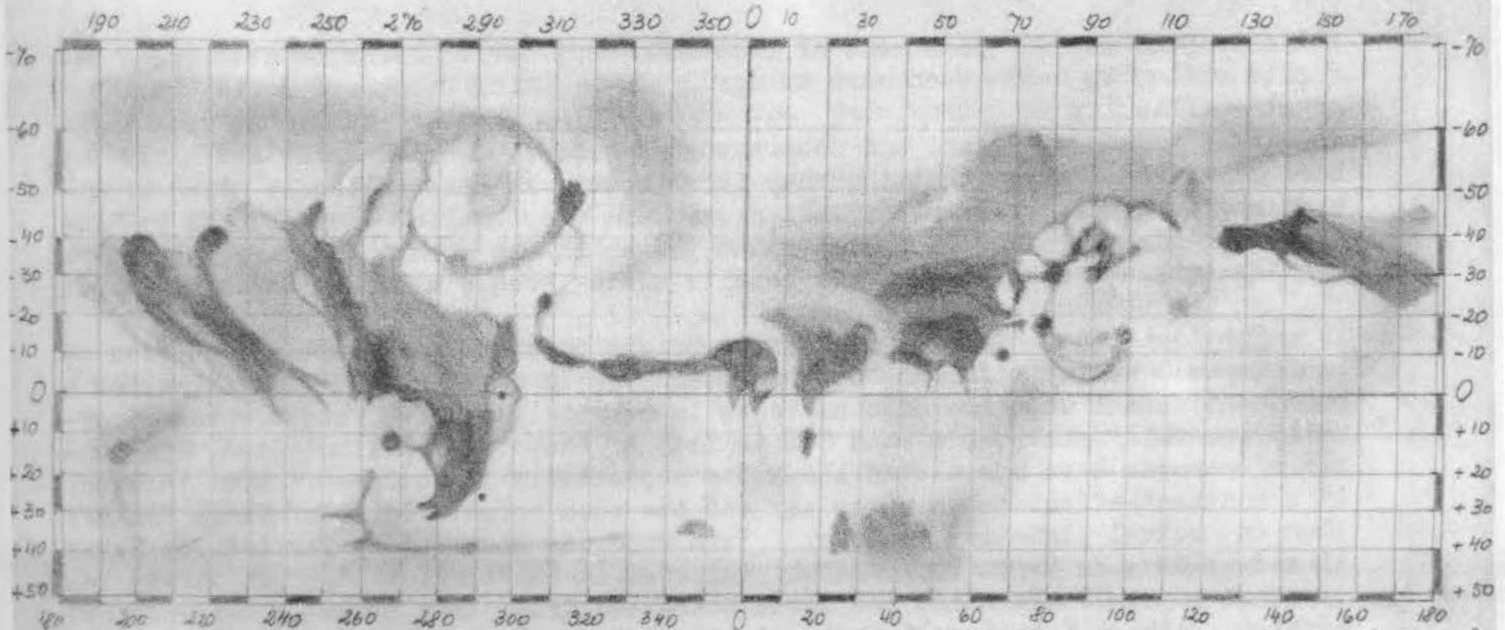
by T. R. Cave, Jr.

[The following Venus Report is illustrated by Figures 5, 6, 7, and 8 on pg. 1. These four sample drawings may be profitably examined in connection with much of Mr. Cave's discussion.]

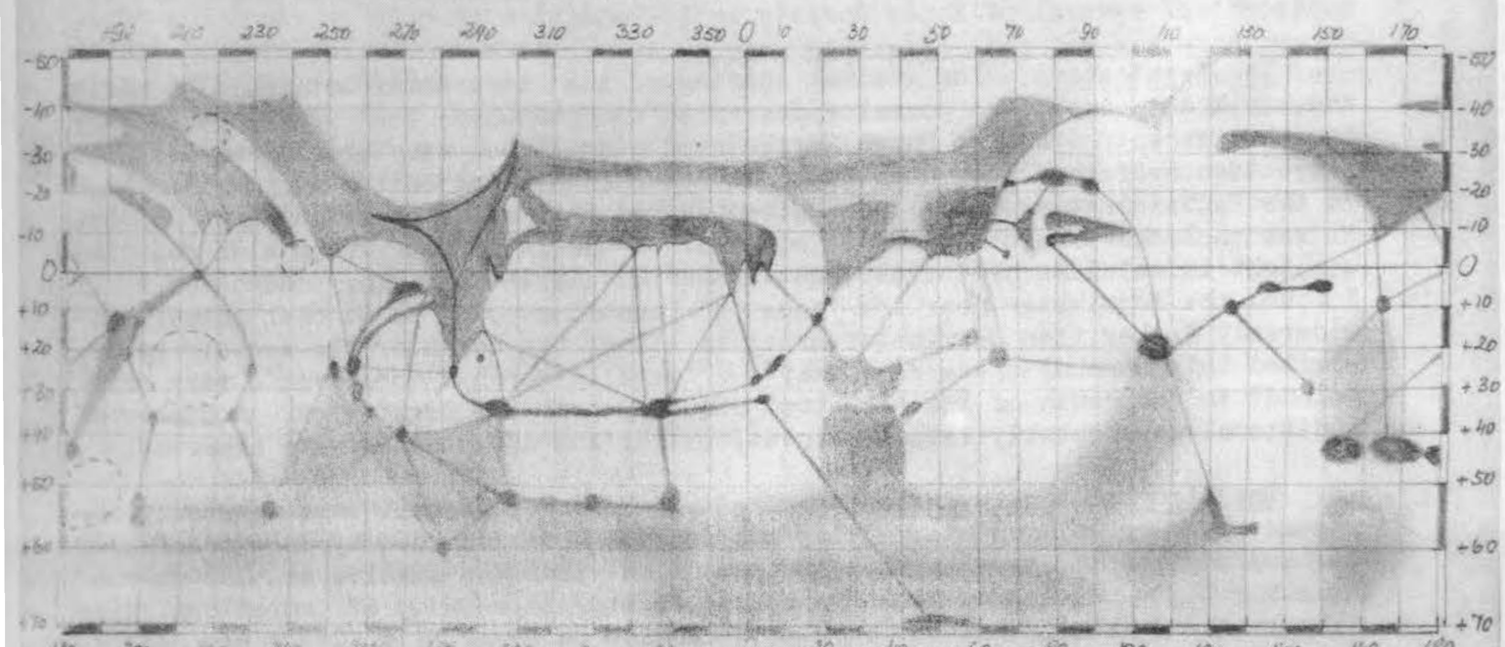
The planet Venus has attracted a very considerable amount of observational attention during recent months from A.L.P.O. members. The Recorder is happy to report that this great increase has occurred since the end of February, when the planet came into good position for evening observing. No less than 18 observers have submitted reports to the Recorder since the superior conjunction of Venus upon November 13, 1950. There are several new members of the Venus Section, and a number of old and regular contributors have again been active. The observers are as follows: J. C. Bartlett, Jr., 3.5-inch refl.; F. E. Brinckman, Jr., 6-inch refl.; T. R. Cave, Jr., 8-inch refl. and 12.5-inch refl.; I. Courtright, 7-inch refl.; T. A. Cragg, 6-inch refl.; M. Golub, 6-inch refl.; M. B. B. Heath, 10-inch refl.; L. T. Johnson, 10-inch refl.; H. Le Vaux, 6-inch refl. and 10-inch refl.; P. A. Moore, 3-inch refr. and 8.5-inch refl.; T. Osawa, 6-inch refl.; D. O'Toole, 6-inch refl.; L. Porter, 6-inch refl.; O. C. Ranck, 4-inch refr.; G. D. Roth, 4.3-inch refl.; T. Saheki, 8-inch refl.; R. Thuleen, 6-inch refl.; and B. Whipperman, 6-inch refl.

We wish to welcome to the Venus Section Messrs. Courtright and Golub, members of a new group of observers in Venice, Calif. Also among our new contributors are Mr. Owen C. Ranck of Milton, Penna., and Messrs. Whipperman, Porter, and Thuleen, who observe together in Compton, Calif. Mr. Haas has forwarded to the Recorder some observational notes from Mr. M. B. B. Heath, the well-known observer at Kingsteignton, South Devon, England, and from Mr. T. Osawa of Osaka, Japan, who is already known to readers of The Strolling Astronomer. The Recorder was recently delighted to receive a very fine series of notes and beautiful drawings from Mr. Patrick A. Moore of East Grinstead, Sussex, England. Mr. Moore is the Secretary of the Lunar Section of the British Astronomical Association and is the translator of G. de Vaucouleurs' book The Planet Mars from French into English.

The Cusp-Caps. So far at this apparition all observers have found both the north and the south cusp-caps far more difficult to see than during either the preceding evening apparition of 1949-50 or the morning apparition of 1950. Le Vaux was able to follow Venus regularly until only two weeks before the superior conjunction last November and began regular work again only three weeks after this conjunction. Perhaps during most of the present apparition the south cusp-cap has been the more prominent of the two. Most of Le Vaux's early views show the south cap the larger, and O'Toole was in excellent agreement with Le Vaux on December 30. During January all observers agreed well upon the south cap's relative conspicuousness. Brinckman on February 4 found the north cap temporarily slightly more prominent than the south cap; however, Le Vaux remarks that shortly after that date both caps showed a noticeable fading, a fading also noted by the Recorder and confirmed by Dr. Bartlett in his early views in February. Bartlett, in fact, was unable to detect any whitening of the cusps until early March, when he and most other observers noted the north cusp-cap to be slightly the more prominent. Osawa on March 18 found the north cusp-cap the larger and perhaps the more prominent, but it was vaguely outlined. Johnson on March 25 recorded a broad and dark band around this north cusp-cap, and he re-observed this same feature on April 7. P. A. Moore's fine series of drawings



Mars in 1939 (after photographs by E.C. SLIPHER.) Ernst E. Bothe



Mars in 1950 (after drawings by members of the ALPO) Ernst E. Bothe indicates the extreme faintness of both cusp-caps during March;he observed a definite whitening near each cusp on April 11. During March and April Cragg had great difficulty in perceiving either cusp-cap, and he comments upon their faintness in his excellent and comprehensive notes. During April and early May most observers thought that the cusp-caps became at least slightly more prominent and more easily observed, but never were they called easy objects by any observer. The Recorder on May 13 found the south cap apparently larger and more prominent than the north cap, his results having been similar in March and April.

The Limb-Band. This rather narrow bright band has apparently been seen about as well during the present apparition as in past years. It is seldom a prominent detail when the disc of Venus is extremely gibbous and becomes apparently generally observable when 85% or less of the disc is illuminated. A number of persons have speculated about its objectivity in the past, some thinking it a contrast-effect between the sky and the much brighter disc of Venus rather than an actual planetary feature. This band was observed by Bartlett on March 12 and by Cave on March 26. Saheki recorded it on February 18, but it was indistinct to him. In March and April Moore and Cragg drew it to be very narrow. However, Roth on February 25 found it wide but very faint. Whipperman, Thuleen, and Porter noted this limb-band to be moderately wide and very bright in early May. Cragg did not draw it at all early in the current apparition. In April Ranck found the band discontinuous, and in this respect his drawings are reminiscent of several of E. J. Reese's in 1949-50.

The Terminator. The gradual shading of the terminator between the north and south cusp-caps is a normal appearance except when the planet is a very narrow crescent. Cragg on March 24 observed a small but very bright and definite projection near the south cusp-cap; he regards this projection as a cloud high in the Venusian atmosphere. Cragg reobserved this white cloud on March 26, but it was no longer visible as a projection. On the later date Cragg also observed a slight indentation of the terminator near the north cusp-cap. Ranck on April 5 found the terminator near the "equator" (assuming poles to be near cusps) considerably darker than terminator areas to either the north or the south; he described this unusual areas as "fuzzy". Osawa on March 23 observed a very bright "cloud" to the south of the "equator" and very near the terminator. A number of additional but probably less prominent, bright and dusky areas were observed.

The Light and Dusky Areas. These two kinds of detail were probably observed about as well as previously and perhaps were recorded by more observers. It has appeared to the Recorder for some time that the smaller and better-contrasting light areas may lend themselves better to a study of rotational displacements of detail than the much more elusive dusky details. Cragg has made a special study of them in recent months; and in several respects his work is in excellent agreement with that of Saheki, Osawa, Moore, and Le Vaux. All these observers have seen a very persistent dark area near the center of the illuminated disc. Mr. Heath in England remarked: "I had persistent impressions of a darkish spot a little preceding the center of the nearly full disc with two faint streaks radiating from it toward the terminator side." This same type of indistinct dusky detail is usually visible on Moore's excellent drawings, although the overall appearance of this central dusky area is somewhat different to different observers.

Le Vaux has made a careful study of all his own drawings and notes prior to December, 1950. He concentrated attention upon 14 apparent shifts of the dusky type of Venusian detail. He thus obtained a tentative rotation-period of 31.5 days, with a few scattered values five days on either side of this mean. [This very interesting piece of work by Le Vaux is, to the Editor's knowledge, the first direct visual confirmation of the much-advertised 30-day period of rotation. When first proposed, this period was little but a rather meaningless compromise between conflicting kinds of data.] Those observers who have studied Venus for a long time may find such an investigation of their own work most interesting.

G. D. Roth of Munich, Germany, has made some interesting investigations of Venus with the use of standard commercial color filters and has found striking differences in the aspect of light and dusky details observed in different visual wave-lengths. On February 25 Roth observed the central dark area described above without using color filters, but much of this appearance vanished when color filters were employed.

Osawa comments on the difficulty of drawing the very faint and elusive dusky areas, saying that he can see them but finds it very difficult to represent them accurately. W. H. Haas and several others, including the Recorder, heartily agree.

Comments by the Recorder. It is hoped in a future Report to discuss the light and dusky details more fully than space has permitted here. The Recorder wishes to warn new observers of Venus to draw only what they can see with reasonable certainty. Sketches lacking in detail may be preferable to ones covered with false features. The Recorder thanks all contributors for their fine work and hopes that they will continue to observe Venus as often as convenient. Dichotomy will occur in June, and careful attention should be paid to the exact shape of the terminator all month. We propose again to determine the time of observed half-phase, if possible to within one-tenth of a day. The cooperation on this project of all observers, including beginning ones, will be most welcome.

LIST OF SPANISH METEORITES AND FIREBALLS

by Anthony Paluzíe - Borrell

[Foreword. The following article is a continuation of, and a supplement to, Mr. Paluzíe's article "On the Spanish Meteorites" on pp. 4-7 of our May issue. Our contributor is the Librarian of the Sociedad Astronómica de España y América; his address is Diputacion 337, Barcelona, Spain. Mr. Paluzíe has written extensively in Spanish journals upon a variety of astronomical subjects. We express our thanks to our colleague for his contribution and send our greetings to the astronomers of Spain.

In the article below the number 1 before the date of a meteoritical fall means that a specimen is preserved in the U. S. National Museum at Washington. The number 2 means that a specimen is preserved in the Ward Coonley Collection at Chicago.]

939, July 1. Zamora. Mentioned in the "Cronicón Burgense."

1300,?. Aragon. Mentioned in a chronicle.

1433, January 5. Ciudad-Rodrigo. Fireball seen by King Jean II of Castile.

1438,?. Maderuelo (Province Segovia). Rain of spongy stones, surely not meteoritic.

1520, May 26. Oliva, Gandia (Valencia). Meteorite mentioned in "Annals of Aragón"by Zayas.

1704, December 25. Barcelona. Fireball mentioned in "Daybook of the Ancient Barcelonian Council."

1773, September 17. Villanueva de Sigena (Huesca). 8 specimens weighing 5 pounds, 3 ounces. Density 3.46. Sporasidereous oligosidereous of Daubrée.

1796, February 10. Tasquinha (Portugal). Meteoritic stones weighing 10 pounds, later history unknown.

1811, July 8. Berlangas de Roa (Gurgos). 7 pieces, 2 pounds, 13 ounces. Density 3.49 to 3.57. Aumalite of Meunier's classification.

1825, July 5. Torrecilla del Campo. Rain of stones weighing from 1 ounce to 1 pound.

2. 1842, July 4. Varea (Logroño). 5 pieces, 3 pounds, 15½ ounces. Density 7. Sporasidereous polisidereous of Daubrée's classification.

2. 1851, November 5. Nulles (Tarragona). 15 pieces, 18 pounds. 12 2/7 ounces. Density 3.81. Chantonnite of Meunier.

1855,?. Valls (Tarragona). Assumed to be the same as Nulles 1851.

1856, August 5. Oviedo. 2 pieces, 1 1/14 ounces. Luceite of Meunier's classification.

1,2. 1858, December 24. Molina (Murcia). 7 pieces, 252 pounds. Chantonnite of Meunier's classification.

2. 1861, May 14. Cañellas (Barcelona). 14 pieces, 2 pounds, 1 ounce. Montrejíte-Limerickite of Meunier.

2. 1862, November 1. Seville. 5 pieces, 4 ounces. Density 3.55. Montrejite of Meunier.

2. 1866, December 6. Cangas de Onis (Oviedo). 18 pieces, 50 pounds. Density 3.7. Mesminite of Meunier.

1,2. 1870, August 18. Cabeza de Mayo (Murcia). 19 pieces, 2 pounds, 1 ounce. Density 3.54. Oligosidereous of Daubrée's classification.

2. 1871, spring. Roda (Huesca). 9 pieces, 7 ounces. Density 3.37. Asidereous.

1879,?. Linares (Jaén). Fireball.

1883, April 23. Tarragona. Fireball. No fallen meteorites were found.

1883, December 23. Pola de Siero (Oviedo). Great, noiseless fireball. No fallen fragments.

1,2. 1883,?. Sao Juliao de Moreira (Portugal). 11 pieces, 351 pounds. Density 7.78. Hexaedronic brechishaped iron of Brezina's classification.

1884,?. San Sebastian. A fireball a little smaller than the moon, burst without noise. No fragments found.

1885, January 19. Loja (Granada). Aerolite fell in the Sierra Nevada and was not found.

1885, January 22. Marin (Pontevedra). Aerolite fell in the sea.

1885, May 24. Santander. Fireball broke into fragments without noise.

1885, July 7. Valls (Tarragona). Meteorite fell in the prison yard, $2\frac{1}{2}$ ounces. Sporasidereous polisidereous of Daubrée's classification.

1888, September 28. Muros de Pravia (Oviedo). Meteorite fell in the forest, producing two fires.

1891, July 1. Olot and Tarragona. In Olot (Gerona) at $23^h\ 10^m$ and in Tarragona at $23^h\ 30^m$ two bolides were seen.

2. 1892, July 20. Guareña (Badajoz). 11 pieces, 81 pounds. Density 3.88. Group III, subgroup tobaceous (travertin) of Tschermak's classification.

1892, July 22. Huesca. Fireball, train visible for several seconds.

1893, summer. Puebla de Cazalla (Seville). Fireball that did not explode.

1894, January 1. Seville. Meteorite fell in the Guadalquivir River.

1894, May?. Los Martinez (Murcia). 56 pounds. Perhaps a piece of the Cabez de Mayo fall in 1870.

1895, spring. Barcelona. Meteorite fell in the sea.

2. 1896, February 10. Madrid. Famous fireball. 6 pieces, $7\frac{1}{2}$ ounces. Density 3.55. Sporasidereous oligosidereous of Daubrée's classification.

2. 1898, August 1. Quesa (Valencia). 6 pieces, 22 pounds, 15 ounces. Density 6.48. Ataxite.

1899,?. La Polvora (Gerona). 4 pieces, 5 ounces. Density 2.74 to 3.12. Chondrite.

1899, August 24. Barcelona. Meteorite crossed Spain from Galicia, fell in the sea.

1902, February 1. Guadalcanal (Seville). Fireball exploded, no fragments found.

1902, February 19. Torrehermosa (Zaragoza). Fireball exploded, no fragments found.

1902, August 2. Almaden (Ciudad Real). Meteorite fell in the Chillón r. w. station. [sic] , but no fragments were found.

1902, September 18. Toro (Zamora). Fireball crossed the provinces Leon, Zamora, and Salamanca.

1904, September 3. Segovia. Fireball seen at $19^h\ 30^m$; according to its color, it was composed of iron and nickel.

1905,?. Garraf (Barcelona). Found by a collector of minerals. 19 pounds, 7 ounces. Density 2.95 to 3.88. It contains 39.7% of iron, nickel, and cobalt.

1912, August 3. Barcelona. Bradyte seen by Mr. Raurich, Secretary of the Astronomical Society of Barcelona.

1913, March 6. Barcelona. Fireball seen by the geologist Mr. Albert Carsi.

1913, August 1. Pasteral and Bañolas (Gerona). Bolide seen by several persons.

1914, February 20. Granada. Bolide seen in Cartuja Observatory. Smoke trail.

1916, August 5. San Carlos de la Rapita (Tarragona). Meteorite fell in the sea.

1916, September 14. Barcelona and Gerona. Bolide seen at several localities, by the author at Arenys de Munt (Barcelona). Very luminous, no noise.

1916, September 14. Cassa de la Selva (Gerona). Bolide with triple explosion.

1917, September 9. Barcelona. Fireball seen by Mr. Baltá.

1917, September 18. Between Soria and Calahorra. Meteorite fell, no pieces found.

1917, November 15. Vich (Barcelona). Bolide seen by Mr. Pratdesaba through a transit instrument.

1918, August 31. Dehesa de la Calera (Seville). Bolide shining like the moon observed by Mr. Romero.

1918, December 21. Ibiza (Balearic Islands). Bolide exploded near the ground, no pieces found.

1919, December 10. Dehesa de la Calera. Second bolide seen by Mr. Romero, bright like the sun.

1921, August 19. San Feliu de Guixols (Gerona). Meteorite fell in the sea.

1922, May 16. Solsona (Barcelona). Fireball exploded with a great noise. Very bright.

1922, June 30. Ciudad-Real. Meteorite fell in the marshes of Vega del Guadiana.

1922, July 16. Valladolid. Bolide exploded very spectacularly, seen in provinces of Segovia and Madrid.

1922, July 27. Loja (Granada). Meteorite fell only 50 meters away from Revered Peregrin but was not found because of the cragginess of the mountain. Seen in provinces of Cadiz, Seville, and Málaga.

1923, October 16. Gallardos de Bedar (Almería). Meteorite fell in the sea. Seen from Ibiza, where it shook walls and glass windows when it exploded.

1924, July 9. Olivenza (Badajoz). 331 pounds. Stony with iron. Chondrite,

1926, December 10. Ojuelos Altos (Córdoba). 12 pounds, 14 ounces. Density 3.54. Olizochondrite.

1929, February 26. Olmedilla de Alarcon (Cuenca). 84 pounds. Stony meteorite. Chondrite.

1932, February 20. Vendrell (Barcelona). Bolide 10 minutes of arc in diameter. Did not explode.

1933, May 15. Catalonia. Bolide crossed Catalonia and fell in the sea. It had a great mass and was brighter than the full moon.

1934, February 17. La Rinconada (Seville). Meteorite fell on a hut, which collapsed.

1935, July 17. Palma de Mallorca (Balearic Islands). 1 pound, 13 ounces. Found by a German subject, who moved away. Later history unknown.

1944, June 12. Ibiza (Balearic Islands). Bolide seen by Canon Reverend Serra Orvay. Bright like the sun.

1946, July 7. Tortosa (Tarragona). Fireball seen by Reverend Due Rojo, Director of Cartuja Observatory, Granada.

1946, July 2. Palma de Mallorca. Bolide seen by Mr. Compte.

1946, August 11. Barcelona. Bolide seen by Mr. Esplugas. Diffuse disc.

1948, June 6. Murcia. Very bright bolide.

1948, August 15. San Feliu de Codines (Barcelona). Bolide seen by Mr. Grille. Definite disc.

1948, September 27. Barcelona. Bolide seen by the astronomer Mr. Orus Navarro in the Fabra Observatory, Barcelona.

1950, May 13. Las Palmas de Gran Canaria. Bolide seen by Mr. Anglada. Exploded.

1950, July 23. San Pol de Mar (Barcelona). Bradyte seen by Professor Masriera.

OBSERVATIONS AND COMMENTS

All students of Mercury or of planetary atmospheres in general will surely be interested in the following extract from a letter by Mr. C. B. Stephenson on February 6, 1951. Mr. Stephenson is a graduate student at the Yerkes Observatory and was formerly the Mercury Recorder of the A.L.P.O. He writes:

"I wonder if you have heard of A. Dollfus' recent polarization observations of Mercury at Pic du Midi, which indicate the presence of a thin atmosphere on the planet. There is a note about this work in Comptes Rendus, Vol. 231, No. 25, pg. 1430, recently received by the Yerkes library. The observations are the best that have been made so far, it would seem. A telescope of 60 cms. aperture was used to measure the polarization at wave lengths 5400 angstroms and 6600 angstroms of light from the center of the disc of the planet and from the cusps, at phase angles from 22° to 132° on 16 occasions, during the autumn of 1950. Conditions were said to be so good on two occasions in October that the image was absolutely perfect with a magnification of 900X. Lyot's polarimeter, a visual instrument, was used, with which the polarization could be measured to about 1%, although it is stated that the presence of dark areas on Mercury, within which the polarization is greater than for the bright areas, as for the bright and dark regions of the moon, limited the accuracy to about 3%. A difference between the polarization at the center and at the cusps was found which evidently depends on the wave length, amounting to 6% for the green and 2.5% for the red regions of the spectrum. It is this dependence on wave length which is the important point, since it suggests Rayleigh scattering by gas molecules. Dollfus concludes that if one assumes that the surface of Mercury possesses the same polarizing properties as the surface of the moon, viz. independence of wave length and invariance to the inclination of the surface, it is necessary to attribute the differences of polarization to a thin atmosphere with a surface pressure of about 1 mm. of mercury, if the atmospheric composition is similar to our own. M. Dollfus intends to repeat this work eventually with more sensitive methods. The investigation was evidently carried out with great care and seems to be well thought of here at Yerkes."

A letter from E. E. Hare on March 4 discusses, among other things, measures made by E. J. Reese of the latitudes of belts on Jupiter upon a photograph taken by Hare on August 6, 1950. The time of the photograph was $8^h 5^m$, U.T.; the central meridian of longitude was 201° in System I and 342° in System II. Hare took this photograph with his 12-inch reflector and projected the image of Jupiter so that its diameter on the film was increased to 0.23 inches; which was enlarged several times more on the print Reese measured; he gave an exposure of five seconds on Super Pan Press film. The latitudes given below are jovigraphic ones, which assume an oblateness of 1/15.4. The last column gives the mean latitudes found by the observers of the British Astronomical Association over the interval 1908-1930.

Position	Hare Photograph	B.A.A. Mean
center South South Temperate Belt	42°.1 S.(?)	41°.5 S.
center South Temp. Belt	30.6 S.	28.8 S.
south edge South Equatorial Belt	21.1 S.(?)	18.4 S.
north edge S. Eq. Belt.	7.9 S.	7.3 S.
center Equatorial Band	2.9 S.	-
south edge North Equatorial Belt	6.5 N.	7.2 N.
north edge North Equatorial Belt	17.6 N.	17.3 N.
center North Temperate Belt	27.4 N.	27.6 N.
center North North Temperate Belt	36.1 N.	37.6 N.
south edge North Polar Region	43.6 N.(?)	49.2 N.

The agreement between Hare's photograph and the B.A.A. mean values is rather good, most of the differences being well within the degree of uncertainty of the latter. There is, of course, no reason to think that the true belt latitudes on August 6, 1950, were exactly the B.A.A. mean values. This subject of belt latitudes on Jupiter is one that has received very little attention from students of the planets in the past but might well be profitably investigated. Taking photographs with moderately large telescopes is certainly an excellent procedure, and we hope that equipped readers will follow Mr. Hare's good example in the coming months.

Mr. Tsuneo Saheki of Osaka, Japan, has communicated two drawings of Uranus made this year with his 8-inch reflector at 400X and 500X, the one on February 20 near $11^h 15^m$, U.T., and the other on March 8 near $11^h 30^m$, U.T. The seeing was only fair, and all detail was very faint and difficult. Both drawings show two parallel dark bands oriented in a southeast-northwest direction; the disc of Uranus was brighter between them but was a dusky bluish gray on the limb side of each band. On March 8 Saheki glimpsed a large and dusky knot in the northwest half of the southwestern dark band, which was then plainer than the northeastern one. As is frequently true with drawings of Uranus, it is very difficult to reconcile the orientation of the belts drawn with parallelism to an equator in the plane of the orbits of the satellites.

D. O'Toole drew the small disc of Mars on March 27 with his 6-inch reflector at 185X. The angular diameter was only 3".9. The season was about a month past the summer solstice of the southern hemisphere, quantity $\odot$ being 301°; and it is perhaps surprising that the south cap seemed "quite real and large." No north cap was noticed. With a central meridian of <u>about</u> 107° the few dark markings shown are hard to identify; perhaps Tithonius Lacus and Mare Sirenum are represented in a distorted fashion.

On pg. 5 there are reproduced two maps of Mars drawn by Mr. Ernst E. Both. Those specializing in the study of Mars will want to make a careful comparison of the two maps; the earlier one is for the southern summer season, and the more recent is for the northern summer. The source of material for the earlier map is reproductions of Mr. Slipher's photographs of the planet in <u>The Telescope</u> and elsewhere in and near 1941. Mr. Both based his 1950 map upon a <u>sample only</u> of the A.L.P.O. studies of Mars that year; the sample included all drawings published in <u>The Strolling Astronomer</u> during 1950 and photostatic copies of some of E. E. Hare's drawings, which Mr. Hare supplied.

We continue with some early apporitional observations of Saturn for which space was lacking in the May issue.

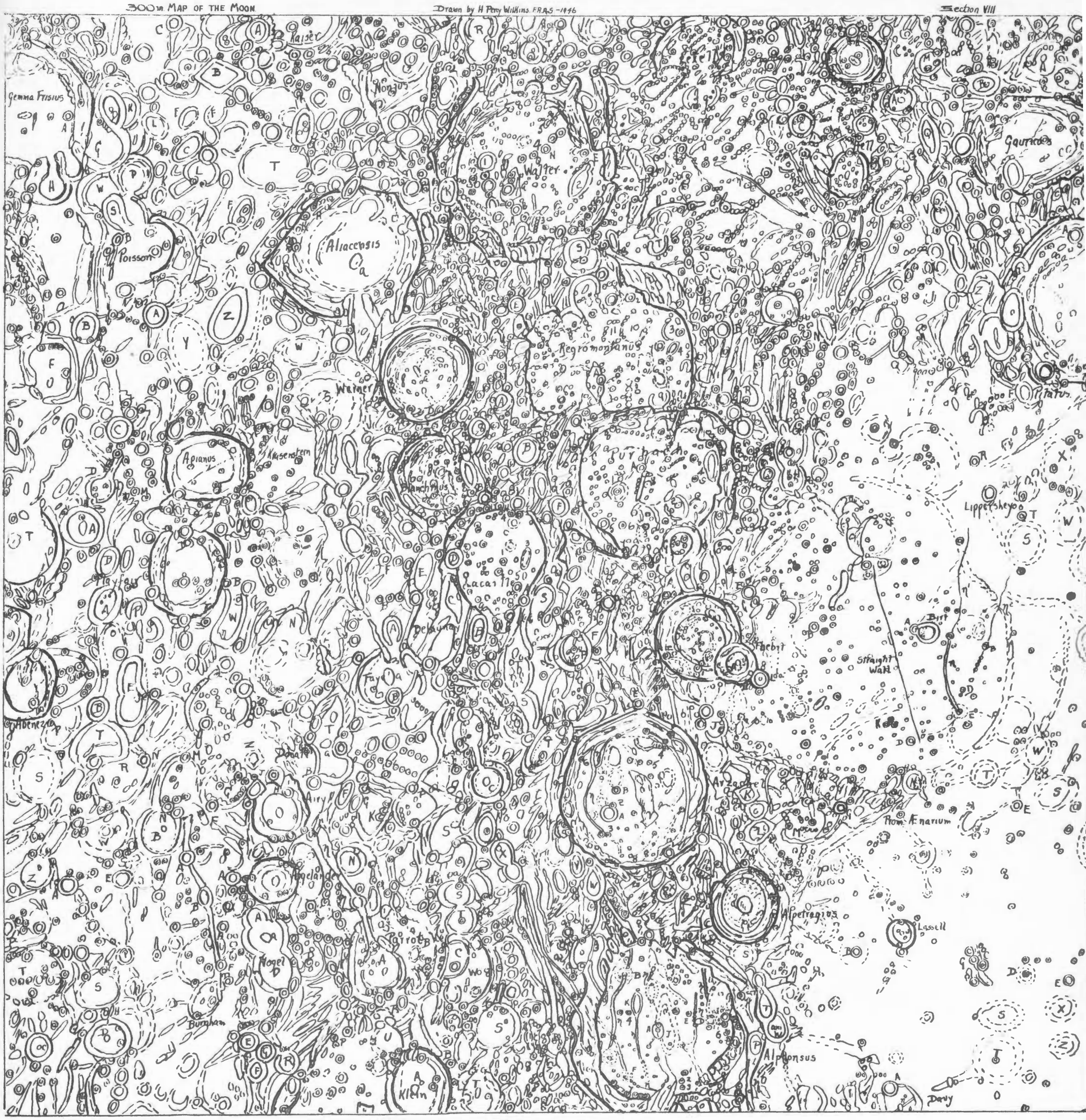
We have described in past issues a curious difference in color between the east and west arms of the rings observed with standard color filters during the 1949-50 apparition by several persons and in earlier years by Bartlett (<u>The Strolling Astronomer</u>, Volume 4, No. 1, pg. 11, No. 2, pg. 13, No. 4, pg. 10, No. 6, pp. 9-10, and No. 8, pp. 14-15, 1950). For example, if the west arm is more red than the east arm, then the west arm will be the brighter arm as seen with a red filter and the dimmer arm as seen with a blue filter. L. T. Johnson examined the relative brightnesses of the two arms on January 6, February 13, and February 19, 1951, with his 10-inch reflector and five Wratten color filters, which covered the visual spectrum from red to blue. He found no difference in the brightnesses of the two arms, except that on the first two dates the west arm was <u>suspected</u> to be the brighter with <u>all</u> filters. There was thus no difference in color. Bartlett compared the color of the east and west ring-arms on 24 occasions from March 6 to April 11, 1951, using Wratten color filters. On 21 occasions he saw no difference. On March 27 at 2^h 15^m and at 5^h 13^m, U.T., the west arm without a filter appeared bluish, and the east arm looked reddish; but color filters failed to verify this difference. On March 8 at 3^h 37^m the west arm was bluish to Bartlett; the east arm, reddish. On this occasion color filters did confirm such a difference. By 5^h 15^m on March 8 the two arms were the same color. Current work may thus agree with the findings of Haas in 1949-50 that there is little difference in color near opposition (which occurred on March 20, 1951). Readers having standard color filters should now be making post-opposition comparisons further to test the trend suggested by the work of Haas. In these studies Bartlett accidentally discovered a very curious effect. When Saturn is covered by dense haze or clouds on poor nights, he writes, the west arm of the rings is usually definitely dimmer than the east arm. They are equally bright in a clear sky or between clouds. We wonder whether others have seen anything of this kind. Bartlett writes that he may have hit upon an explanation, which we shall pass on to our readers in due time.

Using a 3.5-inch reflector at 100X, Bartlett regularly recorded colors on Saturn during March. The shaded South Polar Region was brownish gray to him from March 6 to 9, yellow-gray from March 10 to 12, and greenish or bluish gray from March 13 to 25. The space between the South Equatorial Belt and the South Polar Region was gray-green from March 18 to 25 and grayish yellow or brownish yellow on other dates. The color of the S.E.B. was seldom noted, being presumably gray. The Equatorial Zone-North Tropical Zone was always white to Bartlett. The North Temperate Belt (main belt in northern hemisphere) was sometimes red-brown and rarely bluish, but usually no color could be recognized. The North North Temperate Belt was grayish. A North North Temperate Zone was white on March 6, yellowish on March 7. When present to Bartlett, the shaded North Polar Region was gray. The rings were yellowish white in a clear sky, occasionally yellow-orange when transparency was poor. In regard to Dr. Bartlett's reports of colors on Saturn and elsewhere, it appears pertinent to mention that he wrote on April 22 that he had taken a standard test for color sensitivity upon April 20 and had made a <u>perfect score</u> on it. He accordingly feels confident of the correctness of his own perceptions of lunar and planetary colors.

On March 12 E. J. Reese recorded colors on Saturn with 240X on a 6-inch reflector. He made the S.P.R. olive-gray, the South Tropical Zone yellowish, the S.E.B. reddish-brown, the North Tropical Zone white tinged by yellow, the N.T.B. red-brown, the N.P.R. olive-gray, and Ring B near the ansae white.

E. J. Reese has submitted a drawing of the lunar crater Conon made with his 6-inch reflector on December 20, 1950, at colongitude 39°.1, which compares well with a drawing by S. Ebisawa with a 6-inch reflector on November 20, 1950, at colongitude 39°.2. Both observers found "Fault B" very intense and saw dark streaks "S" and "Z" clearly. They did not see "Cleft V" except for a faint north end. Reese saw several faint white areas on the northwest inner wall of Conon.

Mr. Reese has supplemented his valuable and extensive visual studies of Conon by buying Lick, Yerkes, and Mount Wilson photographs of the moon and by making freehand sketches of Conon from examinations of the photographs with a power of 8X on a microscope. The technique is highly recommended to other A.L.P.O. members interested in lunar matters. Mr. Reese has been pleased to find that the prints show far more detail than the half-tone reproductions that most of us are familiar with. Curiously enough, the photographs examined by Reese fail to show "Streak S", although the visual evidence for its existence (and occasional prominence) appears incontestable. On March 14 Reese wrote in part as follows: "On December 20, 1950, at colongitude 39°.1 I found 'S' distinctly visible as a narrow dark line. 'Z' was also clearly seen, being slightly fainter than 'S'. 'A' was not seen <u>although looked for</u>. Now Lick photo M3 [at colongitude 37°.5] clearly shows 'A' and 'V' but not 'S' or 'Z'. However, Yerkes photo M2 [at colongitude 25°] very clearly shows 'Z' and 'A' but not 'S' or 'V' (except for north end). This is all very confusing, isn't it?".



SECTION VIII

OF

H.P. WILKINS 300-INCH MAP OF THE MOON

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