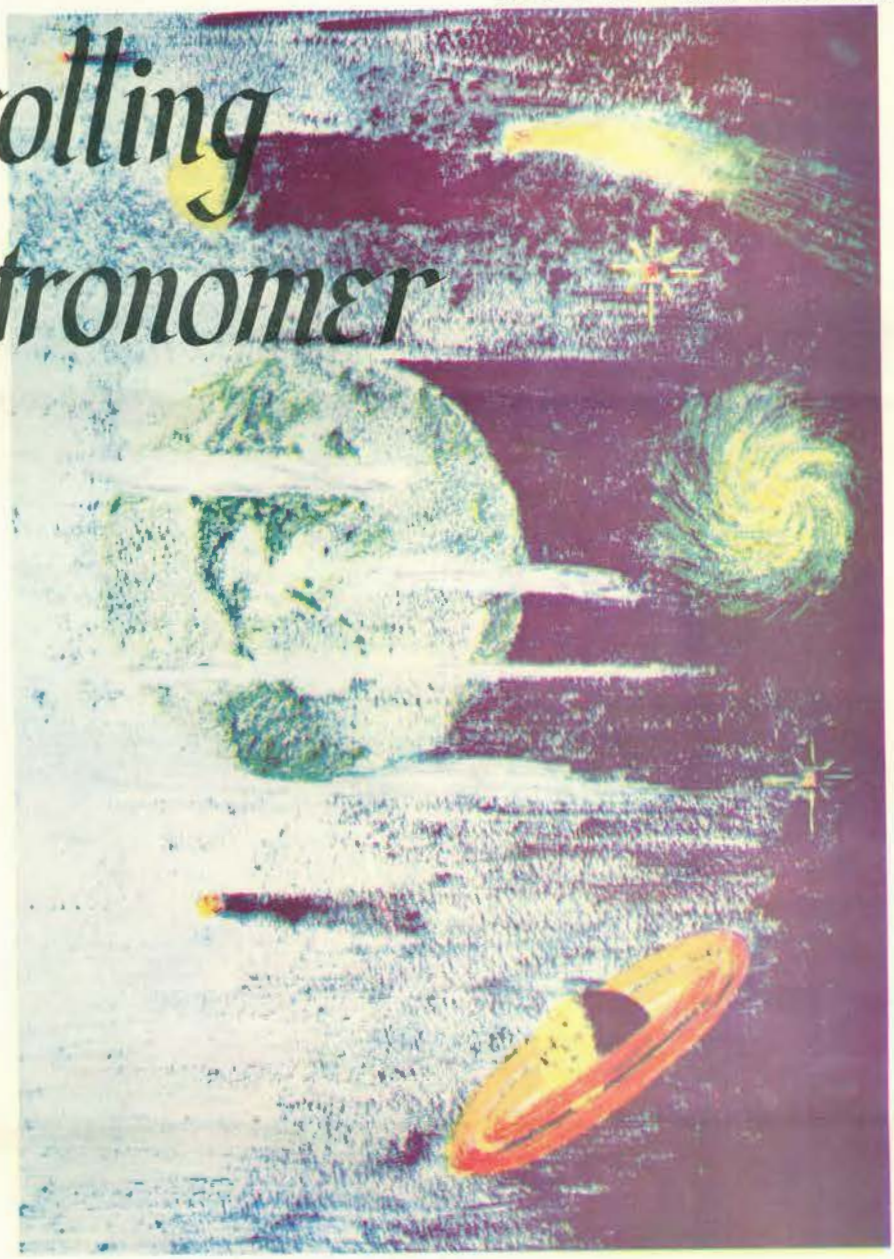
The Strolling Astronomer

Volume 5, Number 11 November 1, 1951

ASSOCIATION OF LUNAR AND PLANETARY OBSERVERS



The Strolling Astronomer
1203 N. Alameda Street
Las Cruces, New Mexico

SUBSCRIPTION RATES

1 Issue (in stock)	$0.35
6 Months	1.75
1 Year	3.00
2 Years	5.00

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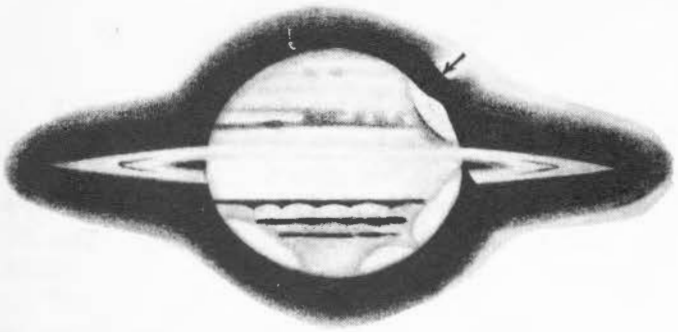


Figure 1. Saturn
T. Osawa
April 4, 1951.13^{h} 30^{m},U.T.
6-inch refl. 230X

Figure 2. Saturn
G. D. Roth
April 23, 1951.20^{h}30^{m},U.T.
4.4-inch refl. 161X

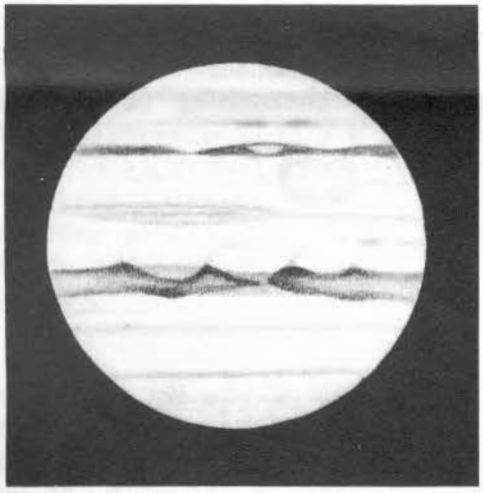


Figure 3. Jupiter
T. Saheki
Aug. 7, 1951. 18^{h}25^{m},U.T.
8-inch refl. 222X.
C.M.$_1$= 10°.C.M.$_2$= 235°.

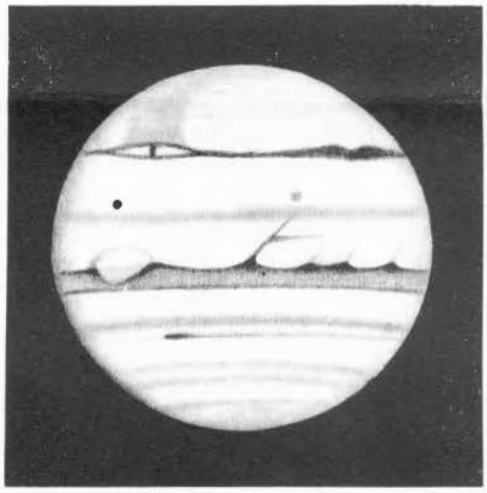


Figure 4. Jupiter
T. Saheki
Aug. 27, 1951. 20^{h}15^{m},U.T.
8-inch refl. 222X,400X.
C.M.$_1$= 356°. C.M.$_2$= 68°.

Figure 5. Lunar Crater Atlas.
T. Osawa
August 9, 1951. 10^{h}, U.T.
6-inch refl. 230X.
Colongitude = 352°2

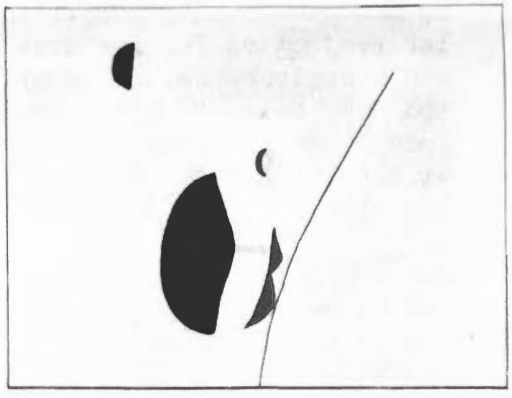


Figure 6. Lunar Crater Kies A.
P. A. Moore
April 16, 1951. 23^{h}24^{m}, U.T.
8.5-inch refl. 350X.
Colongitude = 34°2

Errata in October, 1951, Issue. On Figure 3 on pg. 1 Jupiter III is not visible, as it was stated to be on pg. 11, because the background of sky reproduced around the planet did not include the position of the satellite. On pg. 14, line 46, it was in our January, 1949, issue that we first discussed the relative sizes of the twin craterlets in the north central part of Plato. The article was called "The Twin Craterlets in Plato."

1952 Ephemeris. It is time for readers who expect to do useful observing near year to order the new volume of The American Ephemeris and Nautical Almanac from the Superintendent of Documents, Washington 25, D. C. The price is $3.75. This book contains tables of central meridians on Mars and Jupiter, lunar colongitudes, phase-data for Mercury and Venus, positions of the moon and all planets, apparent angular diameters of all planets, and many others. The Ephemeris is a must for the serious observer. Since your order may not be filled for a few weeks, it is wise to order immediately so as to be sure to receive your copy before January first.

Der Meteorbeobachter. The attention of students of meteors is directed to a worthy new German periodical in this field, Der Meteorbeobachter (translation: The Meteor Observer). It is published once a month in a simple mimeographed format to reduce costs; numerous line-drawings are very satisfactorily reproduced thereby. Subjects discussed in recent issues include brilliant fireballs observed in Germany, radio astronomy as it applies to meteorics, simple meteorical calculations, and current observational projects. For more information write to Mr. Fritz Wieser, Reifenstuel Strasse 12, Munich 5, Germany. Der Meteorbeobachter is written in the German language.

Availability of 100-Inch Reproduction of Wilkins Map of the Moon. For some time now we have been reproducing serially the H. P. Wilkins map of the moon; Section XIV appears on the back inside cover of this issue. Many people, however, may prefer the larger scale of 100 inches to the moon's diameter on which Mr. Wilkins originally published his map. By special arrangement with Mr. Wilkins we are now able to offer this 100-inch map for sale to all persons living in the United States, who can thus completely avoid the inconveniences of foreign exchange. Our offer is of the Third Edition of the map, which has been revised and corrected by Mr. Wilkins; it has a gridwork of horizontal and vertical lines for easily specifying the position of any lunar feature. This Edition consists of the 25 Map Sections, each on a separate sheet, a title-page, an index-page, and three Special Sections. One of these Special Sections shows the libratory regions (reproduced in our July, 1950, issue); another represents the limb-regions on a stereographic projection, thus as a ring or annulus; and the third is a polar projection for features in very high latitudes in both the north and the south hemispheres. The price of the complete Third Edition is eight dollars ($8.00); somewhat lower prices can be offered to those who do not want the three Special Sections and/or the title and index pages. To order your copy of the Wilkins map of the moon on a 100-inch scale or to obtain additional information about it write to the editor at 1203 N. Alameda St., Las Cruces, New Mexico.

Article on Planetary Atmospheres. The attention of all serious lunarians and planetarians is earnestly directed to an outstanding article called "The Air of Other Worlds" by Mr. V. A. Firsoff in the September, 1951, issue of The Journal of the British Interplanetary Society. The article will repay repeated reading and close study; it is, however, on a level easily understandable by the non-specialist. Mr. Firsoff compresses a hugh amount of information, both theoretical and empirical, into 14 pages; he obviously has a wide knowledge of the

literature of the field, including the evidence of both visual observations (e.g., Antoniadi's veilings of detail on Mercury) and recent astrophysical investigations (e.g., polarimetric tests by Lipski and Lyot for a possible lunar atmosphere). Among Mr. Firsoff's interpretations of interest are a proposal that the redness of Mars is chiefly due to its atmosphere, not to the color of its surface, and a possible mechanism to explain how the carbon dioxide in the atmosphere of Venus can be the predominant gas above the reflecting layer of clouds, even though heavier than other gases that might be expected to be present - those who read the article will find others. The becomingly modest conclusion should be borne in mind by theorists: "The day may not be far off when we shall make personal acquaintance of the atmospheres of other planets, and I would venture a surmise that these will look very different at close quarters from what we now imagine."

The secretarial address of the British Interplanetary Society is 156, Friary Road, London, S.E. 15, England. Their general objective is described by their title; but their program borders upon astronomy, mathematical theory of interplanetary trajectories, rocket motors, rocket propellants, radio and electronics, chemistry, biology, and other fields - even upon philosophy. There is a corresponding wide variety in articles published in their Journal; almost everyone will find much of interest in it. Occasional lists of abstracts of current articles should be of great value to specialists in many different fields.

INTERNATIONAL CONVENTION OF PLANETARY OBSERVERS AT MUNICH, GERMANY IN AUGUST, 1951

Perhaps the very first international meeting of planetary observers took place at Munich, Germany, on August 12-15, 1951. By good fortune Mr. Howard A. Le Vaux of Los Angeles, Calif., was able to represent our Association of Lunar and Planetary Observers at this meeting. On September 13 Mr. Le Vaux wrote the editor a letter describing the Convention, and this article is based upon the letter. Mr. Le Vaux thinks that there may be a few factual errors in his description; we shall be glad to have any such brought to our attention. He was much impressed by the general high level of amateur planetary astronomy in Germany. About 55 delegates from the 4 zones of Germany, Switzerland, and Austria attended the Convention. Papers were presented from Germany, Austria, Switzerland, Czechoslovakia, England, and the United States. Mr. Ernest L. Pfannenschmidt was the Chairman of the Convention.

Although delegates began arriving on the afternoon and evening of August 11, the official opening of the Convention took place the next morning at the Munich Observatory. The city of Munich was very hospitable to the Convention, furnishing a banquet room where all sessions for papers were held and carrying several articles about the Convention in one of the local newspapers. After several welcoming addresses the delegates spent the balance of the first morning inspecting the equipment and instruments of the Observatory. These include 8-inch and 12-inch refractors and several transit telescopes. The first session for papers was held on the afternoon of August 12 and dealt chiefly with the work of the Jupiter Section of the Bund der Sternfreunde on the 1950-51 apparition of that planet. The Section, directed by Mr. Maedlow, accumulated about 600 observations by about 24 observers, which have been analyzed by four amateurs employed by various German observatories. Their work concentrated upon observing central meridian transits to determine longitudes, establishing the period of rotation of different latitudinal currents at the visible surface of Jupiter, and finding out

the amount of turbulence existing in each belt. They are also much interested in changes in the rotation-period of the same Jovian features during their periods of visibility. The German observers of Jupiter employ standardized outlines of the planet for making drawings, perhaps a procedure that the A.L.P.O. could profitably imitate. It is planned to continue these programs for some years before publishing all the results; the cooperation of American students of Jupiter will be heartily welcomed. Subjects treated in other papers presented during the first afternoon dealt with a theory of the colors on Jupiter, a formula for determining the height of the atmosphere of Venus from observations made near inferior conjunction, and color changes in the rings of Saturn, among other topics. The evening was spent in an informal discussion of the papers.

On the morning of August 13 there was a special conducted tour of the German Museum, perhaps the finest museum of technology and the physical sciences in the world. There are many antique astronomical instruments there on display, some even going back to the time of Galileo and before. In the afternoon there was a second session for papers. Dr. Ruegemer spoke of the photometry of Uranus and gave many helpful hints for the recording of color and magnitude changes of this planet. Since a study of the brightness of Uranus has been an A.L.P.O. project, it should interest our readers that Dr. Ruegemer reports three cycles of brightness-changes with periods of 21 years, 8 years, and about 0.45 days. The last-named appears clearly due to the rotation of Uranus and has an amplitude of only 0.1 stellar magnitudes. Mr. Ruegemer imputes the two longer periods to the oblateness of the planet and to an apparent change in the position of the polar axis. Some of the other papers dealt with a Saturnian rotation-period, a review of the meteorology of Mars (by E. E. Both), procedure in vaporizing metals, atmospheric seeing, possibilities of illusion in planetary observing, a photomultiplier, asteroid observations, and some recent developments which make the Medial telescope easier to construct. (The Medial has been described in The Strolling Astronomer, Volume 4, No. 7, pg. 3, and No. 10, pg. 2, 1950, and Volume 5, No. 2, pg. 8, 1951). The evening was again passed in friendly, informal discussion.

The final session for papers was held on the morning of August 14 and included several on miscellaneous subjects. The delegates then travelled to Pullach, a town outside of Munich, and spent a pleasant evening. On August 15 they journeyed to the Wendelstein Observatory, located in the Bavarian Alps about 100 miles south of Munich. Here they viewed the solar coronagraph and a pair of Schmidt cameras. Of course, the sky was cloudy. The Convention terminated in Munich that evening at the Hofbrauhaus. It had been a very full and very enjoyable four days.

It is expected that English translations of all papers presented will be available in a few months.

It is our hope that the Association of Lunar and Planetary Observers can cooperate more and more closely with other groups of active planetary observers in foreign countries. Indeed, it is only by such international cooperation that we can pursue our common goals to the fullest advantage.

OBSERVATIONS AND COMMENTS

Figures 1 and 2 on pg. 1 may be examined in connection with our discussion of Saturn on pp. 12-14 of our October issue. On Figure 1 the arrow points to the very curious bulge and hollow observed by T. Osawa on the east limb of Saturn just south of the south edge of the South Equatorial Belt. Mr. L. T. Johnson has belatedly contributed observations of Saturn secured with his 10-inch reflector on May 31 and June 6 of this year. Lighter and darker condensations

glimpsed along the ring-arms indicated the various ring-divisions, of which Cassini's was much the easiest. On the ball only the South Equatorial Belt and the North Temperate Belt were drawn, the latter being much the broader. Johnson agrees with several other observers that the North Tropical Zone (north of projected rings) was brighter than the Equatorial Zone (south of them).

Figures 3 and 4 are drawings of Jupiter by Mr. Tsuneo Saheki of Osaka, Japan, and will show something of the general appearance of the planet early in the current 1951-52 apparition. On Figure 3 the Red Spot appears as a large dusky oval in the right half of the disc. There is evidence that the Spot and the surrounding Hollow underwent rapid changes in August and September. On July 26 and August 2 E. J. Reese determined the longitude of the center of the Spot to be 254° (II), an increase in longitude of 7 degrees since the 1950 opposition of Jupiter. On Figure 4 the shadow of I, lying just south of the South Equatorial Belt North, is nearing the west (left) limb, while I itself is shown as a gray spot still somewhat east of the central meridian. Small telescopes of good quality often show Jupiter I clearly as a darker spot against the central portions of its primary; this satellite looks bright when near the more dusky limb of Jupiter; and there is naturally an intermediate region where it blends invisibly against its background. The attentive student of Jupiter will see many other things of interest on these two drawings.

O. C. Ranck employed his 4-inch refractor to observe the lunar crater Gassendi on August 14, 1951, at colongitude 48°5 and the lunar crater Vitello on August 26 at colongitude 201°4 (dates by U.T.). Vitello seemed to possess a blue-green color, but the editor is suspicious because the observation was made in full sunshine in a hazy sky. A.L.P.O. members able to undertake post-midnight work might, however, attempt confirmation.

Employing a 4-inch reflector at 168X, T. E. Howe drew the lunar crater Conon on August 12 at colongitude 25°0 and Plato on August 13 at 37°2. Streak S in Conon (use Figures 5 and 6 on pg. 1 of the August issue for the nomenclature here) was very black and conspicuous to Howe on August 12 (U.T.); we wonder whether any others observed on that date. Cleft V was apparently not even glimpsed. A "peak", apparently K_2, flanked Streak S. The shadow on the west inner wall was not quite black, probably because of light reflected into it from the sunlit east inner wall. In his drawing of Plato on August 13 Howe shows three craterlets near the south and west walls, each surrounded by a whitish halo. He is fairly sure that he saw these as craterlets. The floor of Plato had a bluish cast, and there were darker shadings upon it. It is very curious that Howe shows no sign of what are ordinarily the four most conspicuous craterlets on the floor.

Figure 5 on pg. 1 is a drawing of the lunar crater Atlas by T. Osawa of Osaka, Japan, when Atlas was about three days inside the sunrise terminator. A broken strip of shadow still lay on the southwest wall; here there was much complex detail, perhaps including a few craterlets. At the foot of the south west inner wall the floor looked rugged and uneven. The southeast wall of Atlas was rather dusky, but the north and northwest walls were broad and bright. The two main dark areas on the floor, one in the southeast quadrant and the other in the northwest quadrant, were no more than moderately dark at this forenoon illumination. There were several craterlets on the floor; in the principal one, which lay near the center of Atlas, it was possible to see the sunlit northeast wall and shadow on the southwest wall. A few band-like dark marks were seen on the walls of Atlas. Additional details will be noticed on Mr. Osawa's drawing. Topographical studies of this kind are recommended to members of the A.L.P.O. A six-inch telescope of good quality is capable of useful work, and a few skillful observers have done well with even less aperture. The Lunar Section of the

British Astronomical Association has here furnished an excellent example, and our study of lunar topography will be more effective if joined to theirs.

These B.A.A. lunarians have become very interested in recent years in "banded craters". The classic example is Aristarchus, on the east inner wall of which several dark bands are so prominent that they are easy for even a three-inch telescope. (Refer to Figure 4 on pg. 1 of our March, 1951, issue.) Dark bands have also been recorded on the walls of Kepler, Brayley, Birt, Bessarion, Moore (Hippalus A) Proclus, Dionysius, Kies A, a crater northwest of Kircher, a crater southwest of Schickard, a small crater near Vendelinus, and others. Figure 6 on pg.1 is from a sheet of drawings of "banded craters" kindly supplied by Mr. Patrick A. Moore, the Secretary of the B.A.A. Lunar Section. Mr. Moore writes that he thinks that the band in Kies A is growing more prominent. In 1949 he considered it less conspicuous than the main band in Moore (formerly Hippalus A or Agatharcides A), but now he finds very little difference between the two bands. Similar increases in conspicuousness have been suspected in some other similar dark bands on the walls of other craters, but it is very difficult to obtain satisfactory evidence. The matter will certainly bear careful study on the part of observers of the moon.

T. Osawa has reported observing a possible lunar meteor on May 14, 1951, at $10^h\ 48^m$, U.T. A sketch, which accompanied the observation, shows that this pure white bright speck moved toward lunar west-southwest, that the length of its projected path on the lunar surface was roughly 100 to 150 miles, or at least many times the diameter of the crater Conon, and that the path lay in the rugged region where the Haemus Mountains and the Appennines join. The estimated duration was 0.2 or 0.3 seconds; if the object was near the moon's surface, the corresponding velocity would be several hundred miles per second - most remarkable indeed. It is perfectly possible, of course, that Mr. Osawa's object was an ordinary meteor in the earth's atmosphere projected against the moon. Only duplicate observations can determine whether such a moving bright speck is in the earth's atmosphere or far beyond it-and why should not two or more A.L.P.O. members be the first to achieve this important success?

Mr. P. A. Moore reports what he considers to be an unusual appearance of the crater W. H. Pickering on August 20, 1951. Crater Pickering was formerly called Messier A, and Messier and Pickering are a striking pair of twin craters in the northeast portion of the Mare Fecunditatis. Moore observed with an 8.5-inch reflector at 350X. At $1^h\ 48^m$, U.T., he saw "a bright, cloud-like circular patch" on the south wall of Pickering; it was the most brilliant point in the vicinity. The appearance remained the same until 3^h, when the moon vanished behind a tree. (Joyce Kilmer, obviously, was never an astronomer.) As far as we know, no one else observed Pickering on or near August 20. At $1^h\ 48^m$ the lunar colongitude was $122^\circ.1$. The editor is somewhat doubtful that a brilliant spot on the south wall of Pickering at this solar illumination is unusual. He observed such a spot on September 19, 1950, at colongitude $120^\circ.6$ and on July 7, 1936, at $126^\circ.3$, both views being in fairly good seeing. The spot was brighter on each occasion than any other feature in or near the two craters.

In our July, 1951, issue R. M. Baum reported his observations of a red tint near the lunar crater Lichtenberg (drawing on pg. 1, text on pp. 8-9). He observed this hue on January 21, 1951, at colongitude $76^\circ.5$. On August 15 near colongitude 67° T. Osawa looked in vain, using a 6-inch reflector, for a red tint west of Lichtenberg; of course, the solar lighting was considerably different than for Baum's observation. Osawa did suspect a brownish tone along the terminator from near Oenopides to near Selecucus.

On September 5 T. Saheki wrote of some observations by himself and by T. Osawa of a "beautiful brownish shading" just northeast of the lunar crater Aristarchus. Saheki observed with an 8-inch reflector; Osawa, with a 6-inch reflector. On August 18 (U.T.) near colongitude 106° Osawa recorded a yellow-ochre hue here. On August 14 Saheki had seen only gray. The region appeared dark brown to Saheki on August 20, brownish gray to Saheki and sepia to Osawa on August 24, sepia with little brown to Osawa on August 26, brownish gray to Osawa on August 27, and dusky brownish gray with little brown to Saheki on August 28. Other A.L.P.O. members may wish to look for this brown color, preferably with reflecting telescopes.

In our August, 1951, issue we spoke of Japanese observations of "Miyamori's Valley" between the lunar formations Lohrmann and Riccioli (drawing on pg. 1, text on pg. 14). T. Saheki searched unsuccessfully for this Valley under late afternoon illumination in late August; he could see only some low hills and some narrow white streaks running halfway from Riccioli to Lorhmann. Perhaps, then, the Valley is displayed best under morning illumination; and it may be that it must be studied only over a narrow range of colongitudes centering near 76° or 77°. H. P. Wilkins writes that a drawing by Wadsworth in one of the B.A.A. Memoirs somewhat resembles Saheki's drawing (Figure 3 on pg. 1 of our August issue) but shows in addition branches of the cleft (Valley) both north and south running in to the middle. There are a number of clefts in this region, connected to the system of Hevel. Continuing, Mr. Wilkins speaks of the interior of the walled plain Riccioli, where there are many ridges each apparently requiring its own very special solar illumination to be visible. The results of the most recent observations of Riccioli by Wilkins and Moore will be found on Section XIX of the Third Edition of the Wilkins map, which is mentioned elsewhere in this issue.

On September 17 H. P. Wilkins had a good view of Endymion, then close to the sunset terminator. (The colongitude was 113°2 at 20^h, U.T., on September 17.) He was using a 15-inch reflector. The floor appeared convex. A ravine, or possibly a cleft, was distinctly seen at the foot of the west inner wall, at the position where the floor joins the wall. The feature really consists, Mr. Wilkins writes, of a chain of shallow craterlets or crater pits running along most of the west edge of the floor. This feature is a newly discovered one, to the best of his knowledge. A.L.P.O. members are urged to attempt confirmation. The editor suggests that 10 inches of aperture or more, low evening solar illumination, and moderately good seeing will be needed for success. In the United States such searches might well be made on the evenings of November 15 and December 14, local civil time evening dates.

The annular eclipse of the sun on September 1, 1951, has already been described in the October issue of Sky and Telescope. This eclipse was visible as a partial one of small magnitude in western Europe; there we have received reports from R. M. Baum and H. P. Wilkins in England and from G. D. Roth in Germany. Mr. Roth at Munich was hampered by clouds and could only establish that the time of last contact was $12^h\ 55^m$, U.T. Wilkins with a 3-inch refractor observed between clouds and saw at least three peaks in a profile on the moon's north limb. Baum in Chester, England, made a careful series of drawings of the advance of the moon over the sun's face and timed last contact at $12^h\ 48^m\ 32^s$, U.T. With a 3-inch refractor at 90X and poor seeing he detected many irregularities upon the moon's limb, which he has carefully represented in drawings. An especially large and complex mountain was visible in profile against the sun at $12^h\ 47^m$.

On September 16 at colongitude 93°3, thus near full moon, J. C. Bartlett made a drawing of Mare Smythii with a 3.5-inch reflector at 100X. This walled plain or mare is on the moon's west limb near the equator. At the time of Bartlett's observation the earth's selenographic longitude was 5°2 west; libration was thus unusually favorable to observing Mare Smythii, though not to the fullest extent possible. Bartlett comments that this mare resembles Mare Crisium, being at sunset the same dull gray color. On the floor of Smythii he saw some dull whitish spots (craterlets?), some larger craters, and some low curving ridges running principally north and south. The east wall is apparently rather low. It is rather difficult to compare Dr. Bartlett's drawing to the Wilkins map of the moon, perhaps because of the inevitable difficulties in recording features which are at best greatly foreshortened.

The mystery of Maedler's Square, or Bartlett as it has been renamed in honor of our Venus Recorder, continues to intrigue several of our members, including Dr. Bartlett himself. To recapitulate for new readers, Dr. Bartlett in an article in our December, 1950, issue directed attention to a formation between Fontenelle and Birmingham and proposed that major topographical changes must be invoked to explain very gross discrepancies between the modern appearance and descriptions and maps of several competent observers of the nineteenth century. This interpretation has been challenged by P. A. Moore and D. P. Barcroft, who regard the evidence of major change as insufficient. Recent drawings of formation Bartlett appear on pg. 5 of our July and August, 1951, issues. On September 16 Dr. Bartlett wrote in part as follows:

"As a result of a close study of this formation through two lunations, I am confident of the following:

"(1) No appearance at any time from sunrise through sunset will account for Maedler's and Neison's maps and texts.

"(2) Such apparent changes and distortions which take place as a result of, first, changing angle of incidence [of sunlight] and, second, changing libration are not such as could possibly produce a perfect, ramparted Square by illusion.

"(3) In order to obtain measurements of height for the walls described by Maedler and Neison, observations must have been made at colongitudes when sharp shadows were thrown. Observations today at the same colongitude reveal only one distinguishable wall, the northwest.

"(4) Moore's very difficult southeast wall [see article by P. A. Moore in our July, 1951, issue] does not appear either on the Lick or the Mount Wilson photos, the latter by the 100-inch Hooker - an instrument over 26 times larger than Maedler's telescope which revealed a southeast wall to him. In regard to this, it should be clearly understood that I do not question the existence of Moore's wall since very delicate details may often be visible to the eye and invisible to the camera, but I do insist that a wall visible to only 3.75 inches should certainly be caught by a 100-inch mirror. Ergo, if Moore's southeast wall is actually Maedler's southeast wall (which Neison thought fairly prominent), then it has undergone a definite transformation by way of reduction since Maedler's time. I see no alternative to this.

"(5) It is quite impossible to dismiss Neison's testimony, and it is equally impossible to reconcile it to the 1963 photo uncovered by Moore [showing modern aspect]."

All of which appears to make confusion worse confounded! Dr. Bartlett urges, however, that a whole series of close observations from sunrise to sunset by several qualified workers is needed if we are to establish that no apparent changes now observable can account for Maedler's and Neison's maps and descriptions. At present Dr. Bartlett necessarily bases this crucial opinion on his own work only. Such photographs of the moon as the editor has seen do appear to confirm it further.

Mr. T. E. Howe has kindly contributed photographic prints of Jupiter secured with his 4-inch reflector near 4^h, U.T., on September 23 and 30. He projected the image about 2.5 inches through a one-inch e.f.l. eyepiece so that the diameter of Jupiter was slightly less than 1 mm. He employed an exposure of one-fifth of a second on Super Pan Press Film (no drive). Development, in Ansco 17 with Hydram added, was for about 20 minutes. Printing was on Number 4 and 5 paper. The best images show the North Equatorial Belt (recently the most conspicuous belt) and the shaded North and South Polar Regions, perhaps also the South Tropical Zone. Mr. Howe is very anxious to correspond with anyone familiar with planetary photography. His address is 7226 Bennett Ave., Chicago 49, Illinois.

In correspondence Mr. Howe has directed attention to a photograph of Mars on pg. 68 of L' Astronomie for 1921. It was taken by M. Tuenisset of the Juvisy Observatory with an aperture of only 3.6 inches. The photograph shows Syrtis Major, Hellas, and Nilosyrtis canal, among other features. Howe wages that Iuenisset's success should encourage amateurs possessing small telescopes to try planetary photography. The editor concurs in that he thinks that amateurs taking lunar and planetary photographs with small instruments (say three to six inches) will obtain valuable experience and will gradually develop the necessary techniques. He doubts, however, that scientifically useful work can be done with less than about eight inches. But then, who isn't hoping some day to have a larger telescope?

We acknowledge with thanks the arrival of observations of the brightness of Neptune in April-September, 1951, by S. C. Venter of Pretoria, South Africa. He employed a 2.75-inch refractor.

FIRST REPORT ON JUPITER IN 1951

by Ernst E. Both

During July, August, and September, 1951, observations were received from the following members: J. C. Bartlett, Jr. (3.5-inch refl.), E. E. Both (6-inch refl., 8-inch refr.), E. Epstein (6-inch refl.), T. E. Howe (4-inch refl.), L. T. Johnson (10-inch refl.), J. J. Merritt (12-inch refl., 5-inch refr.), O. C. Ranck (4-inch refr.), E. J. Reese (6-inch refl.), and H. P. Wilkins (15.5-inch refl.). We also wish to welcome to this list of Jupiter observers Mr. Ronald N. Hartman and Mr. J. H. Westphal.

The first views of Jupiter obtained in July were somewhat different from those of last year. An unusual number of dark spots in the North Equatorial Belt and the South Temperate Belt were very conspicuous on the disc. The South Tropical Zone and the North Tropical Zone were very bright among the zones. The Red Spot was again seen well. Mr. Reese, who has submitted an excellent drawing of the Red Spot writes: "The Red Spot Hollow, which was so bright in 1950, has once again given way to the dusky Red Spot. The Red Spot appeared quite dusky

and yellow-ochre in color. Central meridian transits indicated that the Spot was about 25° long with its center at longitude 254° (II)."

Zones. The most conspicuous zones on the planet are now the South Tropical Zone and the North Tropical Zone, which have usually been white to brilliant white in color and equal in brightness. Occasionally the S. Tr. Z. is even brighter than the N. Tr. Z. The Equatorial Zone has been nearly always dusky, sometimes dull or cream white. Reese on July 26 found the Equatorial Zone North (north of Equatorial Band) "white and gray", the Equatorial Zone South (south of E.B.) "white". J. C. Bartlett, Jr., found it decidedly "pinkish" on August 4; on September 9 he found the E. Z. dull and so dusky south of the E.B. that it blended with the grayish, diffuse E. B. On June 19 L. T. Johnson with a 10-inch refl. at 300X at $8^h\ 40^m$, U.T., C.M. = 195° (I) and 78° (II), saw these zones: North Temperate, North Tropical (bright and broad), Equatorial Zone North (broad and crossed by a number of festoons), Equatorial Zone South (thin), South Tropical and South Temperate (equal in brightness and width), and South South Temperate (very broad and bright). On September 10 Bartlett found the E. Z. dusky south of the E.B. and dull white north of it. This aspect is somewhat confirmed by E. Both, who on September 11 and 12 found the E. Z. to be very dusky and dull.

Dr. Bartlett writes of a number of unusual festoons which he has observed in the E. Z.: "A very unusual type of festoon was seen near the following [east] limb on September 1 at $6^h\ 59^m$; two festoons with separate S.E.B. termini but with a single N.E.B. terminus. Beginning with the spot on the south edge of the N.E.B. at longitude 13° (I) one festoon ended in a flattened and grayish spot on the South Equatorial Belt North at 356° (I); the other ended in a similar South Equatorial Belt South spot at longitude 16° (I)." On September 20 at $6^h\ 56^m$, U.T., Dr. Bartlett observed another double festoon. Beginning at a spot on the south edge of the N.E.B. at longitude 34°, it had one component ending in a flat dark spot on the $S.E.B._n$ at longitude 16° and the other component ending in a spot on this belt at longitude 34°. When the festoon was observed again by Bartlett on September 22 at $3^h\ 46^m$ the eastern terminus on the S.E.B. had moved westward by about two degrees, while the western terminus on the N.E.B. had remained stationary. Observing on September 22 with the 8-inch refractor of the Kellogg Observatory at Buffalo, E. E. Both on September 22 saw this same festoon but found the N.E.B. terminus to be forked and to divide into two spots about 1°.5 apart. To Both the $S.E.B._n$ festoon appeared more or less diffuse.

Belts. One of the first observations of Jupiter in 1951 was submitted by Mr. Reese, who on July 26 at $8^h\ 45^m$ estimated colors of the belts as follows: North Equatorial red brown, South Temperate brown, South Equatorial North dark gray, North Temperate brown, South Equatorial South faint orange gray, North North North Temperate brown, South South Temperate gray, and North North Temperate light gray. During August and September four to five belts could easily be distinguished and were more or less conspicuous: N.E.B., S.T.B., S.E.B., E.B., and N.T.B. The N.E.B. was very frequently broad and dark, ranging in color from red brown (Reese in July) to a brownish gray (Both in October). The S.T.B., usually only one-fourth to one-third as thick as the N.E.B., was most of the time fully as dark as the N.E.B. Bartlett on August 3 at $6^h\ 14^m$ found the S.T.B. to be "broken by numerous gaps for 180° of its length across the disc, giving the belt the appearance of a thin dashed line."

A very interesting Disturbance in the South Temperate Belt has been recorded by Bartlett and Epstein. Unfortunately, only these two observers have reported it; hence, anyone else who happened to observe this Disturbance is asked to send his observations to the Jupiter Recorder as soon as possible. The first observation of this S.T.B. Disturbance is by Bartlett on August 19 at $5^h\ 37^m$; he

found its preceding (west) end to be at longitude 177° (II) near the east limb. On August 21 it was again observed by Bartlett, this time to be at longitude 108° (II). Dr. Bartlett writes: "It appears to have advanced 69°.2 westward at the rate of 34°.6 per day." [If confirmed, this motion would truly be most remarkable indeed! - Editor.] On August 22 Epstein confirmed this Disturbance and found its preceding end to be at 110°. [He would thus confirm Bartlett's value for August 21, but we must suppose that the remarkable motion from August 19 to 21 ceased on the latter date.] On August 25 at $4^h 37^m$ Bartlett found another Disturbance in the S.T.B., beginning at longitude 293° (II) and extending eastward to 10°. Epstein again confirms him and has submitted a very interesting drawing of the Disturbance. Bartlett writes: "There appear to have been two distinct Disturbances in this belt, the first extending from longitude 108° through 233° and the second extending from longitude 293° eastward through 10°." On August 31 near $6^h 42^m$ Bartlett and Epstein observed the first of these S.T.B. Disturbances to stretch from the west limb to longitude 214° (II). Bartlett remarks: "The true position of the western terminus was unobtainable since it may have extended around the limb, but the eastern terminus had advanced westward from 233° to 214° (II) since August 21 as if the entire Disturbance was moving westward along the path of the S.T.B."

Dark Spots. An unusually large number of dark spots were observed during August and September, especially in the N.E.B. and the S.T.B. Some of these spots were rather long-lasting; for example, one observed by Bartlett at longitude 50°(I) on August 3 endured for 14 days and changed its position very little (1° per week towards the east). On September 8 Both observed a very small dark spot at longitude 214° (II) in the E.B.; by September 10 it had moved to longitude 206° (II). Observing again on September 11, Both could not recover this spot.

Festoons and Gaps. The E.Z. and other zones, as well as belts, were characterized by many festoons and gaps, which often changed their positions in only a few days. On August 31 at longitude 208° (I) Bartlett observed a long, diffuse, and grayish festoon which crossed the $S.E.B._n$ and terminated in a very faint, diffuse spot in the $S.E.B._s$ at the same longitude. This festoon was visible only in red light. [This observation can be handily explained if we suppose that the festoon was bluish and reflected very little red light. An alternate, but less likely, interpretation is that the festoon lay at an unusually deep level in the Jovian atmosphere. - Editor.]

SUMMARY OF OBSERVATIONS IN JULY-SEPTEMBER, 1951

1. The brightest and most conspicuous zones were the S. Tr. Z. and the N. Tr. Z.

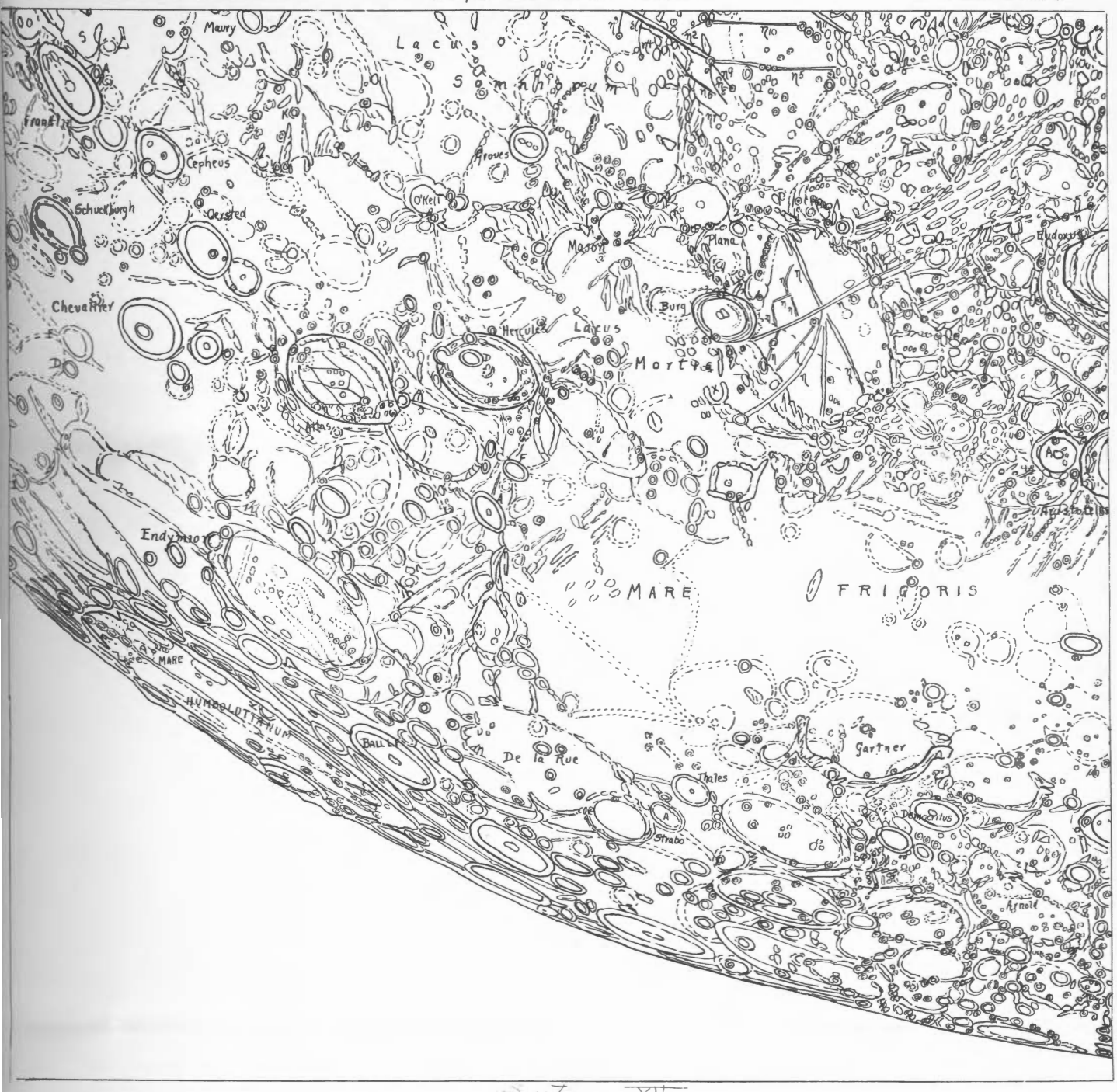
2. The darkest and most conspicuous belts were the broad N.E.B. and the narrow S.T.B.

3. There were an unusual number of black spots in the N.E.B. and the S.T.B.

4. Festoons and gaps, especially in the E. Z., were common.

5. The Red Spot Hollow had almost disappeared and had given way to the dusky Red Spot.

All dates and times in this Report are by Universal Time.



SECTION XIV

OF

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