The Strolling Astronomer

ASSOCIATION OF LUNAR AND PLANETARY OBSERVERS

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In This Issue

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THE

STROLLING ASTRONOMER

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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.

S T A F F

ANNOUNCEMENTS

ERRORS IN APRIL AND MAY, 1953 ISSUE. On pg. 59, right column, line 9 read "either the light source or the eyepiece." On pg. 76, left column, line 23 read "north at the left."

NEW JUPITER RECORDER. For some time Mr. E. E. Both has been unable to perform the duties of Jupiter Recorder of the A.L.P.O. We now have as a new Jupiter Recorder:

Robert G. Brookes
P. O. Box 82
Newark, Arkansas

All observations of Jupiter during the 1953-54 apparition now beginning should be sent to Mr. Brookes, as should also any yet unreported work on the 1952-53 apparition. It will save time if Jupiter records are mailed directly to Mr. Brookes and do not need to be relayed by the Editor.

TABLES OF COLONGITUDE. Lunarians will be interested in some tables of colongitude included in a paper by Dr. A. J. M. Wanders on pp. 107-111 of The Journal of the British Astronomical Association for February, 1953. The tables enable the longitude of the sunrise terminator to be found very quickly at any time on any day in any year from 1770 to 2000, inclusive. The tables do not allow for the lunar libration in longitude and indeed could not do so without being very considerably lengthened; an error of eight degrees at most may result from this cause. Perhaps the chief value of Dr. Wanders' tables is that they allow a quick and approximate determination of the solar lighting in either future or distant past years, for which no Ephemeris is available.

PARTIAL INDEX OF VOLUMES 1-6 of THE STROLLING ASTRONOMER

We have been very conscious for some time that the lack of an index to past volumes of The Strolling Astronomer seriously hampers reference work with them. The preparation of a really complete index, with numerous cross reference, is a very considerable undertaking, on which we can report no progress. Meanwhile, however, Mr. Elmer J. Reese has very kindly submitted a partial index of our first six volumes, relating to the years 1947-52. In the thought that some index is better than no index at all we publish Mr. Reese's index here. He made no effort to include the many subjects treated in the "Observations and Comments" department each month. We hope that our readers will find this partial index useful.

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INDEX TO MAJOR ARTICLES IN THE STROLLING ASTRONOMER 1947-1952

THE STROLLING ASTRONOMER INDEX TO ILLUSTRATIONS 1950-1952

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MOON MODEL PHOTOGRAPHS AND THE INTERPRETING PROBLEM

Edward Lindemann

The question of interpreting what is seen of the moon's topography through the telescope is a perpetual one, and leads to much uncertainty. It has been the writer's thought that experimental work might reduce this uncertainty somewhat, and toward that end a small model of gray plasticine (oily modeling clay) has been photographed in five lightings, plus a setup in a sixth photograph designed to imitate bad seeing. The project is the merest beginning, and it's hoped that others will carry out such projects at proper length; the writer is not in a position to do so. The model is not a literal copy of any lunar structure.

The model itself is about 5x6 inches, and the color roughly represents the albedo of the moon. The light-angles are about 23° on the left in Fig. 1 and 45° on the left in Fig. 2. These pictures and several others were made with a 4x5 inch view camera with a Wollensak anastigmat of 9-1/2 inches F.L. A 100 watt bulb was used for lighting; the film was Kodak Super Pan Press, type B; diaphragm setting f.32. Exposures were 25 seconds each, and development was for 3 minutes in Dektol diluted 1:2. The camera was about 32 inches from the model and the image of the model on the negatives is 3-5/8 inches across. Another photograph was taken with the camera about 8 feet from the model and developed in Microdol; this negative is somewhat weak compared with the others. An electric heater was set up between camera and model so that its heat would rise into the line of sight and a window was opened to cold air at one side. The lack of clarity on the last photograph therefore comes from both a lessened effective resolving power and, I believe, from actual air movement effects. Grain, of course, has its say here also. It's unfortunate that the actual twisting and vibration of lines as seen through the telescope cannot be recorded.

Many of the formations in the model were made somewhat at random, but there was some effort to relate them to specific types of moon structures. Section A shows, at left various straight-down holes; middle, holes suggested by those west of Copernicus; right, holes made by instrument entering clay at varying angles.

Section B shows a group of four holes, which may be numbered:

1 2
4 3

Hole 1 is faintly oval vertically in the original model, and hole 3 is slightly deeper than hole 2. Various shelf formations are shown, though in only one case is there an attempt to imitate a true crater.

Section C: left, a crack; toward the bottom of it, an *-like mark incised; below this, four small crosses incised, the bottom one very faint. (In any reproduction some of these details will certainly be lost.) To the right of these is a cross in relief. These latter were suggested by Bartlett's article, "Maedler's Square", in the Sept., 1952 Strolling Astronomer. Middle, ridges and incised lines going across slopes. Right, holes made from varying angles on a slope.

Section D: left, "ring-walled plain" with shelves, and with holes made from varying angles; right, oval "craters" lying in two directions.

Section E: varying-angle holes on a ridge in two directions, and on flat surface, some showing lips. Suggested by Nininger's lunar tunnel hypothesis. (Sky & Telescope, June, 1952). (This was before it was clear that the "ridge" is an optical illusion). Incised lines on slopes, the razor blade entering at varying angles.

Again it must be stressed that this experiment was a crude beginning. A series of carefully planned and executed models photographed with much variability would I believe, help solve some interpretation problems. Such a project might include: (1) Photographs in ten or more lightings; (2) Photographs in ten lightings each, with model slanted to left, then to right; this arrangement would give some foreshortening resembling that of near-limb structures; (3) light and dark streaks in imitation of rays and dark areas on the moon; on flat surfaces and across ridges and valleys.

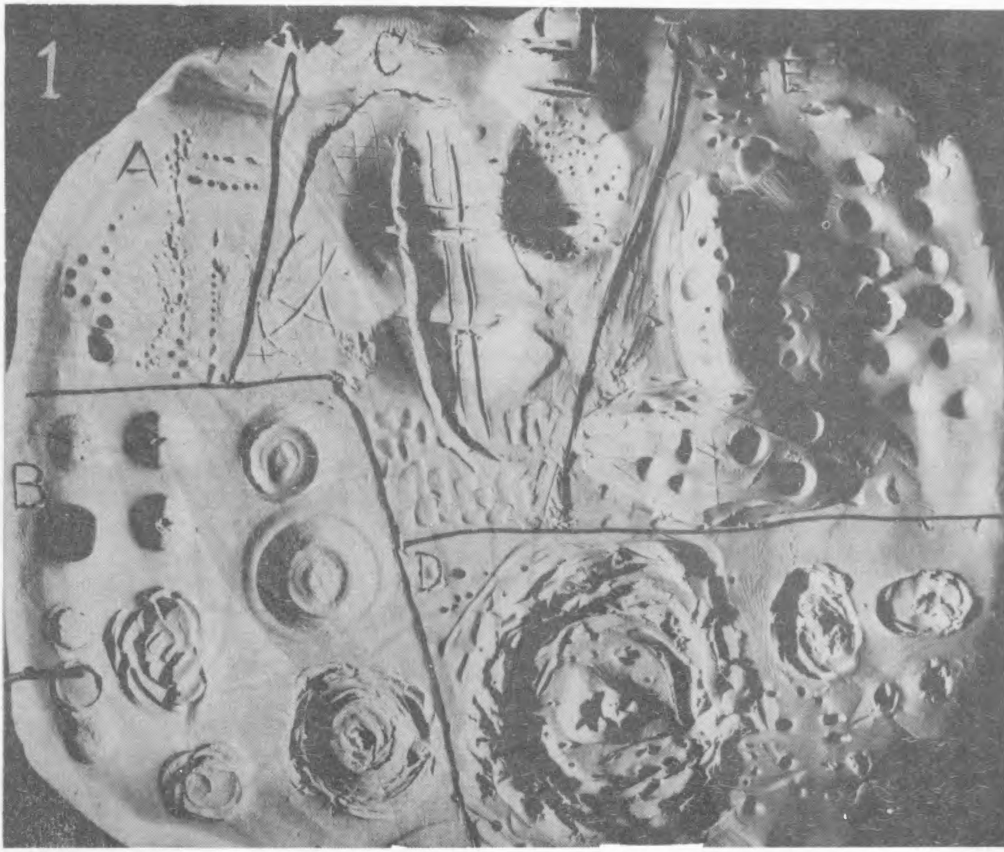


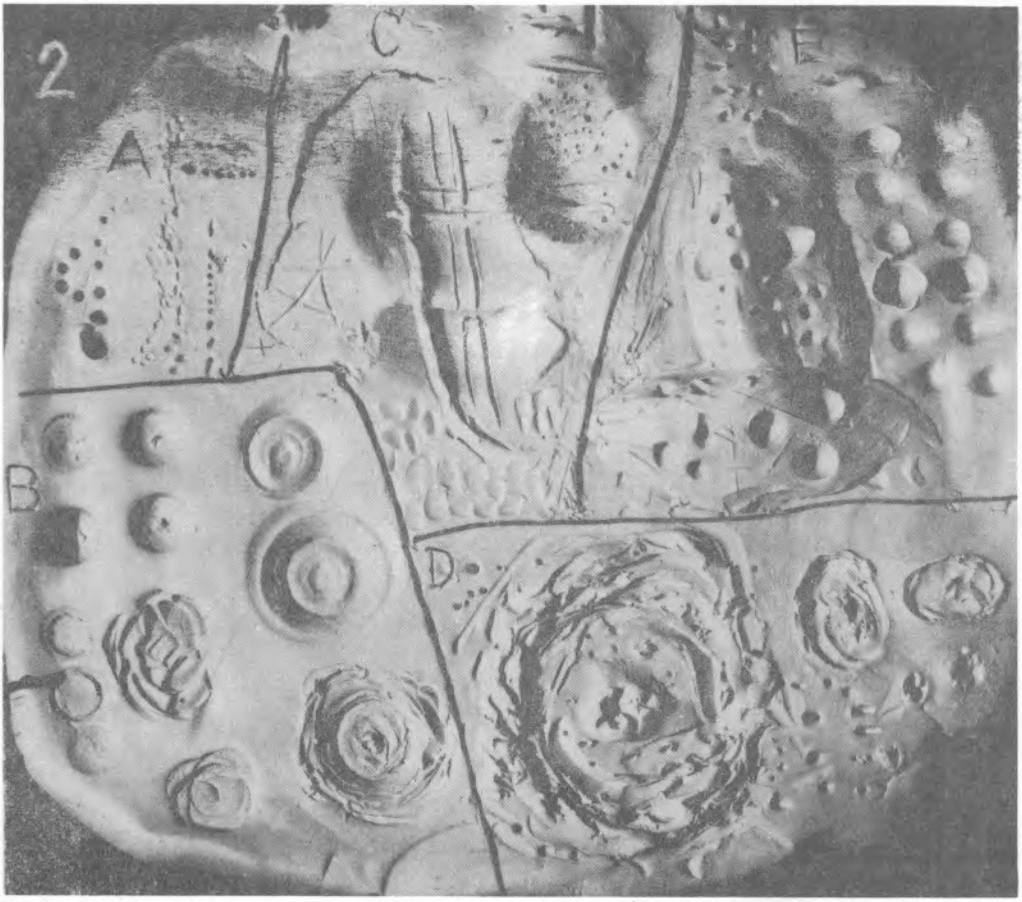
FIGURE 1

I believe that we neglect a large area of aid in not concentrating a good deal more on such experimentation as is possible in astronomy; lunar work especially lends itself to such experiments. The start made by Nasmyth, Langley, and a few others could be carried forward by amateurs with definite benefit.

(Figures 1 and 2 are samples of Mr. Lindemann's photographs of his model; space is lacking to publish several other photographs he kindly sent prints of. Mr. Lindemann's address is 367 Whalley Ave., New Haven, Conn. - Editor.)

A VERY URGENT REQUEST

Mr. W.E. Fox of the British Astronomical Association on July 12, 1953 wrote Mr. Elmer J. Reese that any transit observations of markings in the South Equatorial Belt of Jupiter during October and November, 1952 were wanted at once. Such observations are needed because of a gap in the B.A.A. records of Jupiter. They may be of very great value for testing some ideas Mr. Reese has advanced in regard to the rotation of the underlying solid surface of Jupiter. We hope to say



FIGURES 1 and 2. Moon Model Photographs. Refer to article by Edward Lindemann in this issue.

more of this matter later; briefly, there is evidence of a constant period of rotation for one or two centers of activity in the S.E.B. May these be Jovian "volancoes" below the visible surface? At any rate, we ask all readers having Jovian observations of the kind described above to submit them at once to Mr. Reese at 241 S. Mount Vernon Ave., Uniontown, Pa. In this way they can help Mr. Fox in his effort to advance our interpretation of the nature of the planet Jupiter.

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BOOK REVIEW

by Walter H. Haas

A Guide to the Moon. By Patrick A. Moore, F.R.A.S. 255 pages. $3.95. W.W. Norton and Company, New York, 1953.

This book is a most delightful and very welcome oddity in recent years, a discussion of the moon by an author thoroughly acquainted with the lunar surface from personal observations. Mr. Moore, of course, needs no introduction to our readers, being a regular contributor to these pages. He is the Secretary of the Lunar Section of the British Astronomical Association. The style of writing is very clear and will hold the attention of the least attentive reader. It is refreshing to find an author who is willing to admit that some lunar mysteries are mysteries to him! We are honored that Mr. Moore's membership in the A.L.P.O. should be mentioned on the title-page.

The book is adequately illustrated with 11 figures and 12 plates. These include the Palomar photographs of Copernicus and Clavius and several drawings by B.A.A. members.

A feature of A Guide to the Moon which will appeal very much to beginning lunar observers is a simple outline map showing 212 named formations. A key is provided to aid in locating each of these; and there is a good, if short, description of the lunar surface in an appendix. Another appendix called "Observing the Moon" gives many useful hints and guides for the beginner, and another lists some helpful lunar literature and lunar maps.

Mr. Moore's book begins with a brief description of the place of the moon in the universe and of various theories of the origin of the moon. The movements and phases of the moon are then explained. There follows a short history of lunar observation. The author then describes the different kinds of lunar features and takes us on a fascinating imaginary tour of selected lunar scenes on the visible hemisphere. A chapter on the lunar atmosphere will doubtless be controversial. Giving the usual arguments that the moon can have very little atmosphere, the author also cites the frequently observed faint extensions of the horns of the crescent, the many well-attested examples of temporary apparent veilings of familiar markings, the great infrequency of observed meteoritic impact-flares and the favorable evidence for the existence of lunar meteors, and very occasional twilight-effects in lunar shadows as indicating a lunar atmosphere with perhaps 1/10,000 or less the surface density of the terrestrial atmosphere. The author then presents different theories of the origin of the lunar formations. He strongly favors a volcanic, or at least an internal igneous, explanation and has little use for meteorites as a major agent in molding the lunar surface. A discussion of surface changes follows. The author regards the disappearance of the pre-1844 Linné as a certain change (and the reviewer would agree) and mentions several other possible changes. Speaking of the other side of the moon, the author mentions a project suitable for amateurs with small instruments, the detection of ray craters on the invisible hemisphere by means of the careful charting of rays near the limb. Perhaps this project would appeal to some A.L.P.O. members having only modest equipment. The next chapters deal with eclipses of the moon and with lunar effects on the earth. A chapter about "Life on the Moon" describes the famour "moon hoax" perpetrated on John Herschel and takes a liberal view of the possible existence of very hardy lunar plants. The dark bands on the walls of Aristarchus and certain other craters are treated in some detail; an excellent test of some of the suggested explanations given would be to determine whether these bands are present during the lunar night, naturally employing a large telescope to watch the earthshine. Mr. Moore finally looks boldly to the future and considers in general outline how we may reach the moon by rocket and eventually establish a lunar base there.

A Guide to the Moon is lucid, informative, and an authoritative account from a keen and experienced lunar observer. It deserves a place in the library of every serious student of our satellite.

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FOR THE BEGINNER: SOME PRECEPTS CONCERNING LUNAR AND PLANETARY DRAWINGS

No, we shall not tell you how to become a great astronomical artist in 10 easy lessons - or even in 20 difficult ones. Indeed, we shall even admit that some justly famous lunar and planetary observers have been singularly poor artists. We do insist, however, that skill in drawing the planets and lunar regions can be increased through proper practice. Even a crude drawing can be of real scientific value if it shows the markings in the correct positions and proportions and if it does not show anything not actually there.

Nature has provided an excellent subject for the new observer to practice on. The moon as seen with the naked eye or with fieldglasses is frequently available and requires no advance preparation on the observer's part. Moreover, he can easily learn later from lunar maps or photographs what he should have drawn. In this fashion he can discover errors in his drawings of the moon and, having discovered them, can hope to eliminate them. He may learn, for example, that he draws the lunar maria too small relative to the lunar disc, or that he places them too low on the disc, or that he shows dark markings more narrow than they actually are. Once he has learned of these errors to which he is prone, he can guard against them in actual lunar and planetary investigations.

Drawings are made at the telescope. They are never - no, never - altered later to improve their appearance or to make them conform more closely with the supposed true appearance. After all, if we knew what this appearance was, there would be no need to make any drawing. Perhaps Syrtis Major on Mars actually did not extend so far north as it usually does at the time of your observation. Naturally, every drawing should be an independent record. When several observers draw the same object with the same telescope, one after another, they should not discuss what they saw until everyone has finished.

The beginner is likely to make his drawings on too small a scale. Some experimenting by each observer may be necessary to decide what is best for him, but probably a scale of two millimeters per second of arc will be fairly effective. (There are 25 mms. in an inch.) On this scale Mars will be two inches in diameter at a very favorable opposition, and the major axis of Plato will be four inches long.

If a drawing is to be realistic, it must show a number of gradations of tone, not merely black and white. A pencil capable of such gradations must be chosen in advance; indeed, it may be necessary to use several different pencils. Black lunar shadows may naturally be put in after the drawing is otherwise complete. The pencils used in drawing must naturally be kept sharp.

After a drawing is finished, it is a wise plan to take a few minutes to check it before leaving the eyepiece.

On a rapidly rotating planet, it is necessary that the artist wield a very nimble pencil; otherwise, the markings drawn first will be badly displaced relative to those drawn last. Therefore, Jupiter must be sketched in only five or six minutes; Mars, in 10 to 15 minutes. A clock-drive here becomes a definite advantage. Somewhat longer intervals of time can be permitted if the observer first draws the coraser detail and then places the finer markings relative to the coarser ones. Rapid drawing is also necessary with many lunar regions under very low solar lighting, where the detail can literally change minute by minute.

A final word of warning: If you are uncertain as to whether you see something, do not draw it. It is better to have a reliable drawing of a few details than a very undependable one of a great many.

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THE CHANGEABLE APPEARANCE OF JUPITER'S GREAT RED SPOT.

by Elmer J. Reese

The physical nature of Jupiter's Red Spot remains as great a mystery today as it was in 1878 when this remarkable object first attracted the attention of astronomers the world over. Any theory of the Red Spot must explain its long life, its elliptical shape, its pronounced changes in rotation period from time to time, and its rapid changes in aspect coupled with its ability to revert back to any given aspect. The observed changes in the rotation period of the Red Spot make it almost certain that the visible Spot is an atmospheric disturbance on the Giant Plant. However, if the forces which created and maintain the Red Spot are normally present in the Jovian atmosphere, we

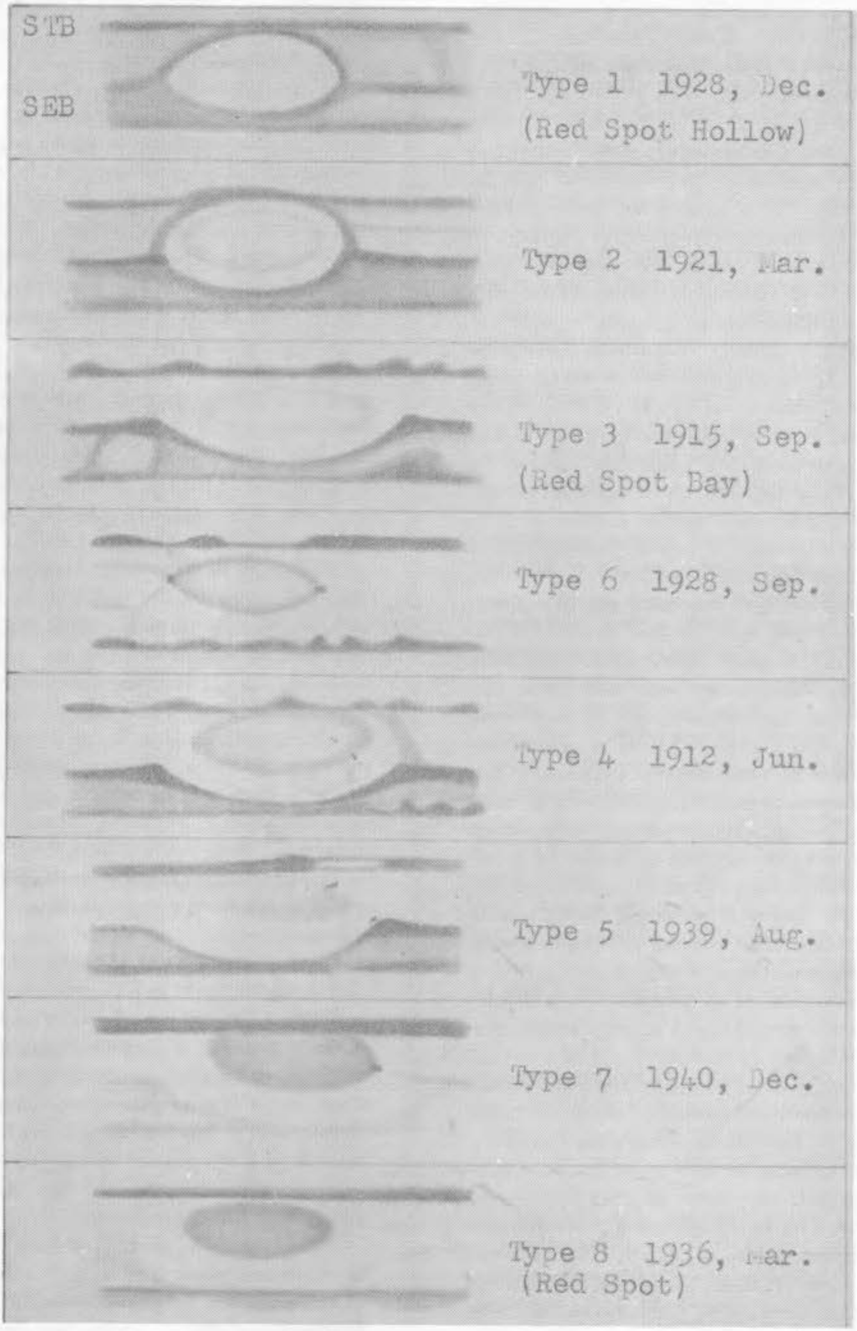

Figure 3. Different Aspects of the Great Red Spot. Based on drawings published in the Memoirs of the British Astronomical Association.

might wonder why other "Red Spots" have not made their appearance from time to time. The unique and long-enduring nature of the Red Spot in an otherwise chaotic atmosphere is a formidable problem indeed.

Despite the ever-changing appearance of the Red Spot, its is possible to classify its many aspects into a limited number of general types. A suggested classification of the various aspects follows (See Figure 3 for illustrations):

Type 1. Bright oval surrounded by a dark border. Spot invisible.

Type 2. Bright oval surrounded by a dark border. Spot visible inside oval.

Type 3. Prominent bay in south edge South Equatorial Belt. Spot very faint or invisible.

Type 4. Prominent bay in south edge South Equatorial Belt. Spot fairly distinct but has bright interior.

Type 5. Spot is fairly dark and prominent; however, the bay is more prominent than the Spot.

Type 6. A transition aspect. Spot is quite prominent but has bright interior resembling Type 1.

Type 7. Spot is dark and prominent. Bay is rather faint.

Type 8. Spot is dark and prominent. Bay is invisible. The South Tropical Zone and the south half of the South Equatorial Belt are very bright and white.

A BRIEF HISTORY OF THE RED SPOT, 1912-1943

A very brief history of the appearance of the Red Spot from 1912 to 1943 based on data published in the various Memoirs of the British Astronomical Association follows:

1912, Jun., Type 4. The Red spot is visible as a faint, hollow, elliptical ring. The Red Spot Bay is 33° long and conspicuous. Both shoulders are dark and well defined. A dusky column connects the following shoulder with the South Temperate Belt.

1913, Sep., Type 1. The Spot is invisible. The Hollow appears as a brilliant oval, 36° long, surrounded by dark material.

1914, Aug., Type 7. The Spot is distinct, pinkish. The Bay is 38° long.

1915, Sep., Type 3. The Spot is very faint. The Bay is 38° long.

1918, Jan., Type 5. The Spot is fairly dark, but the Bay is easier. The Spot is neutral-gray. The Bay is 34° long.

1919, Apr., Type 8. The Spot is rather faint. The Bay is invisible.

1920, Jan., Type 8. The Spot is gray, fairly conspicuous, 40° long (!).

1921, Mar., Type 2. Spot and Hollow both well seen. Hollow is 27° long.

1922, Jun., Type 1. The Hollow is a bright oval 31° long. Spot very faint.

1923, May, Type 1. The Hollow is very white, 28° long.

1924, Jun., Type 5. The Bay is well-defined though shallow, 32° long.

1925, Jun., Type 3. The Bay is very shallow. The spot is invisible.

1926, Jul., Type 8. The Spot is dark and conspicuous, 30° long, reddish.

1927, Oct., Type 8. The Spot is dark and conspicuous, 27° long, reddish.

1928, Sep., Type 6. The Spot is a conspicuous object, translucent pink in color, dark edges and pointed ends, 23° long.

1928, Dec., Type 1. The Hollow is visible as a well-defined whittish oval surrounded by dark matter, 27° long.

1929, Dec., Type 1. The Hollow is 26° long.

1930, Nov., Type 7. The Spot is now a well-defined elliptical object 26° long with major axis inclined in a Sp-Nf direction. Faint ligaments extend from the ends of the Spot to the shoulders of the Bay. The Spot is pinkish-gray. The Bay is 47° long.

1931, Oct., Type 7. The Spot is 26° long. The Bay is 40° long.

1934, Apr., Type 5. The Spot is rather faint and diffuse, 29° long. The Bay is prominent, 36° long. A whitish spot enroached upon the N. prec. portion of the Spot.

1934, May., Type 1. The Spot is now invisible. The Hollow once again is seen as a bright oval surrounded by a dark border.

1935, Jun., Type 7. The Spot is 30° long and fairly conspicuous. A conspicuous white rift breaks through into the prec. end of the Bay from the interior of the south Equatorial Belt. The Bay is 37° long.

1936, Mar., Type 8. The Spot is very dark and conspicuous. It is reddish in color and 21° long.

1937, Aug., Type 8. The Spot is still fairly conspicuous, 24° long.

1938, Oct., Type 1. The southern portion of the South Equatorial Belt is once again dark and conspicuous after being very faint or invisible during 1936 and 1937. The Hollow is 24° long and appears as a light oval area surrounded by a dark border.

1939, Aug., Type 5. The light oval of 1938 has vanished. The true outline of the Spot is once again presented. The Spot, however, is unusually thin. It is 27° long. The Bay is 34° long and is more conspicuous than the Spot.

1940, Dec., Type 7. The Spot is a fairly easy object, 25° long. The bay is very faint, 40° long.

1942, Jan., Type 8. The Spot is rather faint though well-defined and yellow-ochre in color. It is 27° long. The Bay is very indefinite, especially the following shoulder. Instead of deflecting northward to form the following shoulder of the Bay, the SEBs remains parallel to the SEBn right up to the following end of the Spot.

1943, Feb., Type 8. The Spot is quite conspicuous, 24° long, yellow-ochre in color.

1943, Apr., Type ?. At the beginning of April the Spot began to show signs of assuming the well-known form of a light ellipse with curved gray columns across the South Tropical Zone at its two ends. However the Bay in the South Equatorial Belt never became fully developed, and it is uncertain whether the Hollow (type 1) or the dark border of the Spot itself (type 6) is seen.

THE RED SPOT IN RECENT YEARS

The following notes are based on observations by the writer using a 6-inch reflector:

1944, Mar., Type 1. The Spot is invisible. The Hollow is seen as a conspicuous, pale-while oval completely surrounded by dusky, tan-colored matter in the South Tropical Zone and South Equatorial Belt. The Hollow is only 20° long.

1946, May, Type 8. The Spot is quite dark and conspicuous. It is tan or reddish-brown in color and 26° long.

1947, Jun., Type 2. The Hollow is seen as a conspicuous, yellowish oval surrounded by dark matter. It is 24° long. The Spot is faintly visible within the Hollow.

1948, Jun., Type 1. The Hollow is very conspicuous. It is dull orange in color and 24° long. The bounding columns in the South Tropical Zone are very dark.

1949, Jul., Type 7. The Spot is a conspicuous orange-ochre ellipse 28° long. The very dark SEBs ends abruptly without deflection at the ends of the Bay which is 30° long.

1949, Oct., Type 2. The Hollow is once again a prominent light oval surrounded on all sides by dark matter. It is 26° long. The Spot is faintly seen within the Hollow.

1950, Jul., Type 1. The Hollow is a very bright, white oval surrounded by a very dark ring or border. It is 26° long.

1951, Sep., Type 8. The Spot is conspicuous and orange-ochre in color. It is 28° long.

1952, Sep., Type 8. The Spot is a conspicuous, yellow-ochre ellipse 27° in length. The South Equatorial Belt is very faint.

1953, Jan., Type ?. It is again uncertain whether the Hollow (type 1) or the dark border of the Spot itself (type 6) is seen (see notes for 1943, April).

1953, Mar., Type 1. The Hollow is now seen as a light yellow oval with a very dark tan border.

CONCLUSIONS

A study of the available data from 1912 to 1953 reveals no periodicity in the occur-

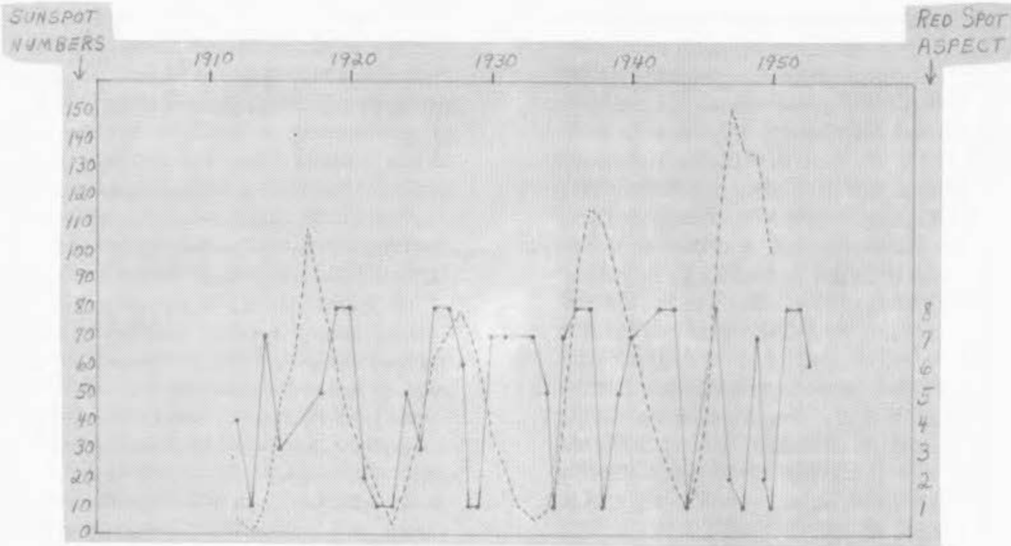

Figure 4. Sunspot Numbers (dotted line) and the Aspects of the Red Spot (solid line), 1912, 1953.

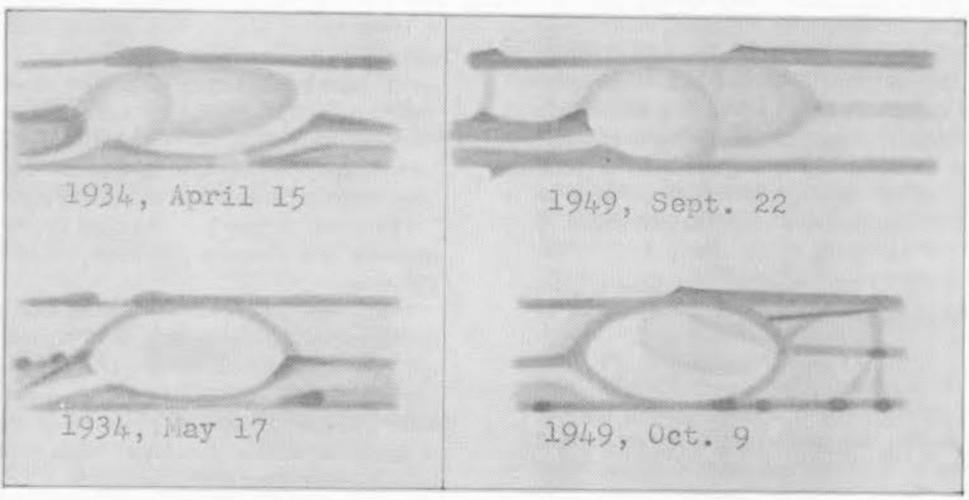

Figure 5. Transition of Red Spot to Red Spot Hollow in 1934 (T.E.R. Phillips) and 1949 (L. T. Johnson and E. J. Reese).

rence of the various aspects of the Red Spot, nor does it reveal any correlation between sunspot activity and the changing aspects of the Red Spot (see Figure 4). The changing appearances of the Red Spot, the South Equatorial Belt, and The South Tropical Zone seem to be mutually bound together, as though a common force were acting on all three. When the Spot is darkest, the South Equatorial Belt tends to be faint and the South Tropical Zone tends to be bright. When the Spot is invisible and the Hollow is bright, the South Equatorial Belt tends to be very dark while the South Tropical Zone tends to be more or less dusky. Indeed, there appears to be a mutual connection between the Red Spot and the appearance of the South Equatorial Belt even in longitudes 180° distant from the Spot. Thus it might seem that, whatever its real nature, the Red Spot is more than a local disturbance in the Jovian atmosphere.

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OBSERVATIONS AND COMMENTS

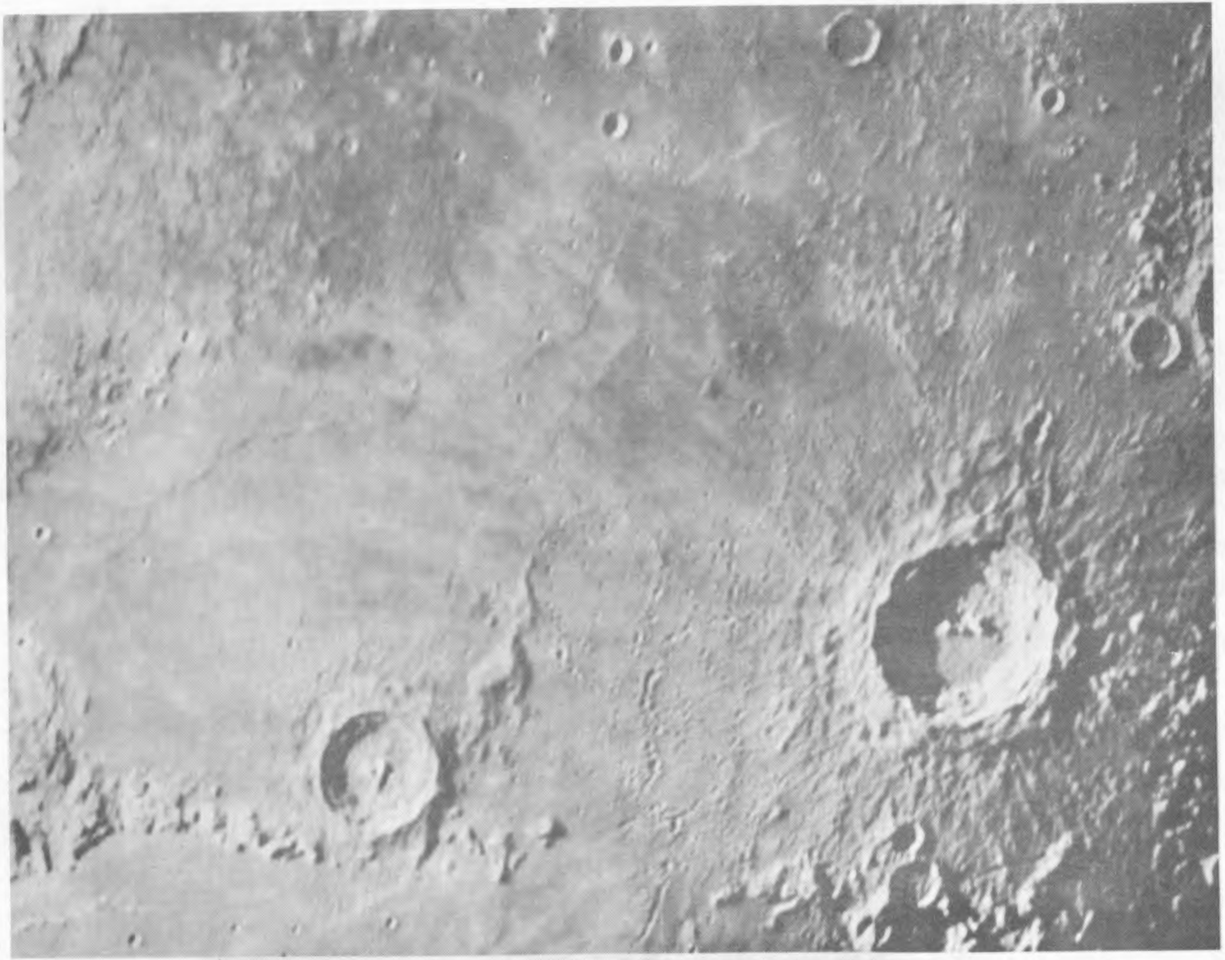
P. A. Moore has continued to contribute lunar observations. On July 7, 1952 at colongitude 85.°8 he drew Xenophanes, very close to the northeast limb on Section XVI of the Wilkins map. Using a 3-inch refractor at 120X, he saw several prominent peaks on the far wall, the long central mountain, and a previously unrecorded shallow ring to its east. The low west wall of Xenophanes intrudes upon an "old" (low and inconspicuous) cirque. On April 8, 1952 at 78.°2 Mr. Moore drew the walled plain Arthur with the Meudon 33-inch refractor. Named for the British lunarian D. W. G. Arthur, this object is also on the limb on Section XVI of the Wilkins map. The giant refractor revealed some details not shown on the Third Edition of the Wilkins map; these include a central mountain and some ridges or terraces in the northeast inner wall. On December 24, 1952 at 7.°9 Moore made a detailed drawing of Lexell with a 12.5-inch reflector at 250X. Lexell is on Section VIII of the Wilkins map. A valley running northeast from near the center of the floor (where it met the still large sunrise shadow) is apparently composed of shallow craters the walls of which have coalesced. Several ridges and a few craterlets are shown on the interior.

O. C. Ranck has contributed two drawings of Uranus with a 4-inch Tinsley refractor, one on December 8, 1952 at 2^h 15^m, U.T., and the other on February 9, 1953 at 1^h 0^m, U.T. In the December view there was a somewhat central bright area (a polar cap?) and a bright spot on the east lomb, the edge of the disc being otherwise dusky all the way around. In the February view the disc was dusky apart from an area with its center to the east of the center of Uranus; in addition, there was a bright spot on the north limb and another on the west limb.

Donald Strayhorn, 527 S. Front, Wilmington, North Carolina has contributed a drawing of the lunar twin craters Messier and W. H. Pickering and their environs in the Mare Fecunditatis on November 22, 1952 at colongitude 341.°1. He used a 3-3/4-inch refractor at 85X. Messier and Pickering are of interest to lunarians because of the large apparent changes in size and shape which they undergo; the cycle of changes is repeated every lunation but perhaps with some variations In Mr. Strayhorn's view the craters were similar in size and shape, being ellipses with their major axes lying east-west. One might note that foreshortening would cause the major axes to lie north-south at this position on the moon if the craters were circular.

Howard G. Allen, 119 Woodland Ave., Coatesville, Penna. has reported an observation of Aristarchus on July 6, 1952 at colongitude 74.°8, using a 3.5-inch reflector at 100X. Mr. Allen noted certain differences from a view on October 14, 1951 at 73°.8, thus under very similar lighting, in the same telescope. His 1951 observation may be found in The Strolling Astronomer, Volume 5, No. 12, Drawing on pg. 1 and text on pp. 14-15, 1951. In his 1952 observation Mr. Allen looked in vain for the dusky ravine or terrace on the east inner wall joining the two main dark bands on that wall and for the intense darkness of the southern of the two bands between this ravine and the rim of Aristarchus, aspects seen in 1951. In 1952 the northern band appeared to extend to the rim, not to terminate at the dusky ravine. Other aspects were rather similar in the two observations. On July 13, 1952 Mr. Allen observed Aristarchus under afternoon lighting and comments on the considerable difference from the appearance under morning lighting. Aristarchus has also been drawn under morning lighting by R. M. Adams with a 10-inch reflector on June 24, 1953 and by Jack Green with a 4-inch reflector on March 27, 1953. Both observers show the central mountain and the two main dark bands on the east inner wall. To Mr. Green the floor of Aristarchus was about as dusky as these bands.

A. C. Larrieu's note on Cassini (The Strolling Astronomer, Volume 7, pp. 59-60, 1953) has encouraged at least two A.L.P.O members to draw this lunar ring. R. M. Adams did so on June 19, 1953 at 356.°7, when Cassini was full of shadow, employing a 3 1/4-inch refractor at 192X. Three ridges or peaks were catching sunlight, one in the east part of the floor and two others in the northwest part. A pass is shown in the south wall. O. C. Ranck drew Cassini on May 21, 1953 near 1.°2 and later on June 20 at 8.°5, using both a 4-inch refractor and a 3.5-inch reflector. Ranck found Cassini A to lie well to the northwest of the center of Cassini and Cassini B to be close to the southeast edge of the floor; he says that the position of Cassini A agrees with Larrieu's chart but does not agree with the Wilkins map, on which it is nearly central. Other readers might like to examine Cassini from this point of view. Ranck did not record Larrieu's hills on the floor but did draw several craters on the broad outer walls of Cassini.



PHOTOGRAPH SP-15. Mount Wilson and Palomar Observatories. Copernicus and Vicinity with the Hale 200-Inch Reflector at 3^h6^m, U.T., on October 10, 1951. Colongitude $25.^{\circ}3$.