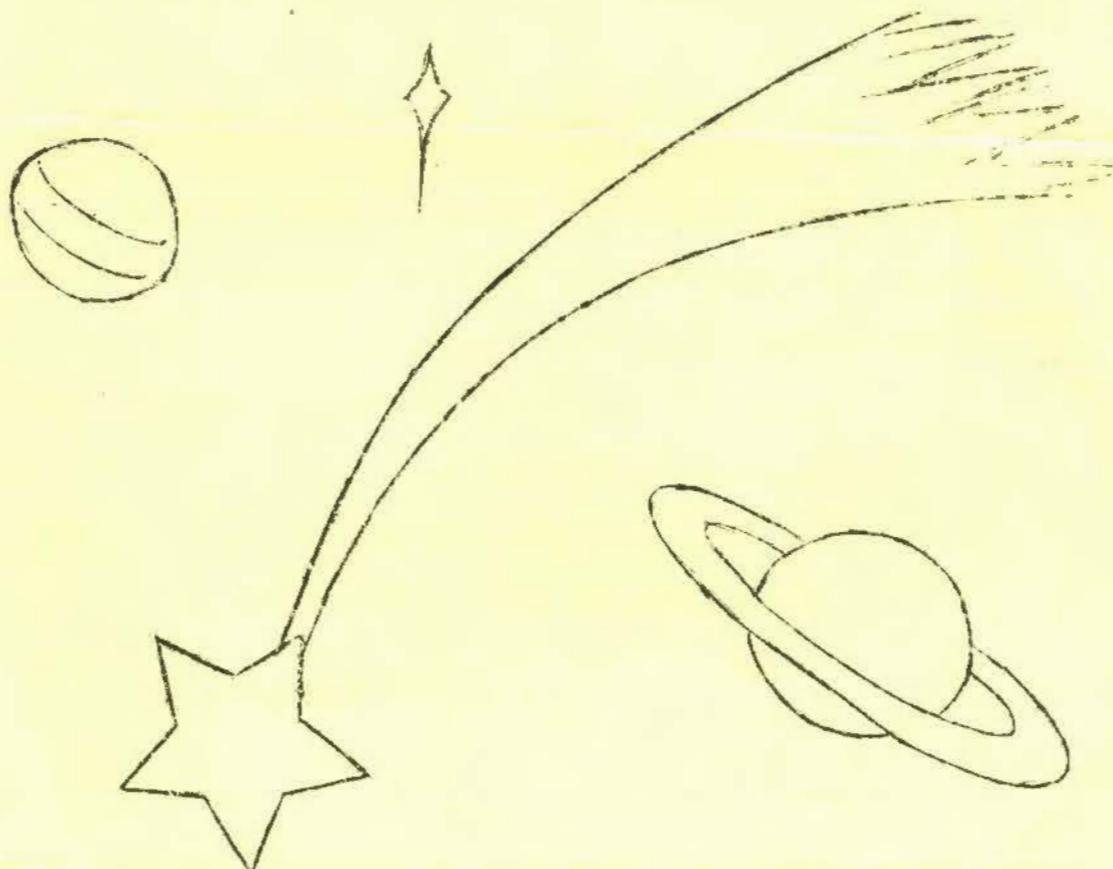


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THE STROLLING ASTRONOMER

(Association of Lunar and Planetary Observers)



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THE WONDER OF THE STARS

Seductive as a beautiful woman in veils of mist attired
Through ages worshipped, gazed on, dreamed of, desired.
Infinite power, limitless space,

constant miracle of every night

Majestic bower, rhythmic grace,

eternal mystery of time in flight.

Behold the wonder of the stars!

- Eudine Foster -

PROGRESS REPORT

We are happy to announce that The Strolling Astronomer has reached the ripe old age of one month.

At this writing The Association of Lunar and Planetary Observers numbers 21 members. We wish to thank all of you for your financial support, for your kind good wishes, and for your many suggestions relating to our leaflet. We shall try to use as many of the last-named as possible.

The primary purpose of The Strolling Astronomer is to advance lunar and planetary science, especially among American amateurs. Why not find out what your telescope will do in this neglected but exciting branch of astronomy? Then send us your observations and ask us your questions. Remember, articles for our leaflet are always welcome.

Let it be emphasized again that ours is a cooperative venture. The continuing existence and the nature of our publication depend upon you, our astronomical friends. We wish to serve many more subscribers. We think that this leaflet can become an outstanding and effective organ in its special field. With your help it will.

IMPORTANT REQUEST

The editor asks all members who made observations of Mars during its 1943-4 and 1945-6 apparitions to submit their records to him by May 1, if possible. It is his intention to prepare a paper for publication on each of these two apparitions in the near future. The more data he has for study, the better these papers will be.

Walter H. Haas

A T T E N T I O N

The Strolling Astronomer takes pleasure in presenting the following article by Frank R. Vaughn, one of our first subscribers and the first contributor. It is the editor's good fortune to know Mr. Vaughn, who has made valuable contributions to Astronomy with small telescopes.

Mr. Vaughn's interest in Astronomy was developed during meteor expeditions with the Des Moines, Iowa, Astronomical Association. Among the numerous mirrors which he has made and used is an excellent $6\frac{1}{2}$ -inch, which showed Encke's Division in Saturn's outer ring to an observer previously ignorant of this feature.

Mr. Vaughn has given much careful study to the lunar crater Conon and has published two papers on this object in Journal of the Royal Astronomical Society of Canada. He is now studying Journalism at the University of Chicago.

Mr. Vaughn lives and receives his mail at 1368 East 53d Street, Chicago, Illinois.

Valuable Contributions to Astronomy by Owners of Small Telescopes

By

FRANK R. VAUGHN

It is thought by the writer that many telescopes of "amateur" size lying idle in garages, basements, storerooms, and attics, might well be engaged as valuable tools in the progress of knowledge.

There are perhaps three chief reasons for this:

(1) the "amateur telescope maker" has found more pleasure in construction than in observation -- hence, after a period of "looking at the sky", the telescope has been of no further use to him (except perhaps to show to friends, or to "gaze" sporadically); (2) that the possessor of the telescope simply thinks that nothing of value can be contributed by him in this day of giant observatories and advanced techniques; (3) that the telescope-owner merely had a passing fancy, which soon died.

For those in the third group there is little here of potential interest; to those in the first and second categories, I should like to point out a few things, and to raise a few questions which may prove somewhat surprising.

The "amateur telescope maker", mentioned at first, may find observation of the moon and planets a hobby eventually even more stimulating than telescope construction (the latter is excellent preparation and background for the former). The person who thinks that "nothing of value can be contributed" by him, may find himself pleasantly surprised in the knowledge that he can make a contribution of real worth, once he has actually observed systematically and carefully.

There is a class of astronomical objects which has not yet yielded fully to any technique, however advanced, and there is room for valuable scientific work on this class of objects--the moon and planets--with small telescopes. This field of astronomical endeavor has been done incalculable damage by many of the devotees who did so much to advance it, merely by the drawing of conclusions carelessly and hastily, on the basis of essentially meritorious observational work.

This matter of carefulness and caution in drawing inferences can hardly be too strongly emphasized, for it is only through established and recognizedly scientifically valid methods of reduction of observations that results will be "accepted" (after all, the only way in which work of any considerable merit may be eventually given deserved recognition).

What is the period of rotation of Venus? What is the inclination of its axis to the plane of its equator? What is the physical nature of its visible surface (although heavily covered with cloud; quiescent, chaotic, belted, etc.)?

What is the precise nature of some areas on the moon, the observed changes of shade and form of which, under varying angles of illumination, do not conform (apparently) with those expected if dependent on the illumination-angle alone? How is one to explain the observed apparent absence of "impact-explosions" of meteorites on the surface of the moon? In this connection, it has been reliably stated that a meteoroidal body of 1-inch diameter, moving at the rate of 20 miles/sec. relative to the moon, and striking it, would, upon contact, produce an "impact-flare" visible to observers on the earth. Do observable lunar meteors exist in the rare atmosphere of our satellite?

What is the rotational period of zones of high latitude on Saturn? It has been shown that variations in the divisions of Saturn's rings may be dependent on the relative positions of the satellites. Observations of the rings would be of great value when this problem in dynamics is solved.

(Continued on Page 4)

VALUABLE CONTRIBUTIONS TO ASTRONOMY
BY OWNERS OF SMALL TELESCOPES (Continued)

Observational work on Mars needs to be continued, against the time when rather definite and accepted conceptions of its surface-nature are formed (especially in regard to the "canals" and other controversial marks).

In the above paragraphs I have presented only a few of the known problems concerning our own solar family, which may well prove to be of access with only modest instruments. And even when the above questions are settled, many will remain, for it is certain that for each answer there will be fresh questions.

Next month I shall present suggestions regarding efficient methods of using telescopes in planetary and lunar work, based on the experience of skilled observers, for there is no substitute for an excellent (if small) telescope. The observer, however talented, cannot rise above his tools.



AID TO OBSERVING

The United States Government publishes a book that the serious observer can hardly get along without. Write "The Superintendent of Documents", Washington, D. C., for the 1947 volume of The American Ephemeris and Nautical Almanac. The price is \$2.00.

GENERAL INSTRUCTIONS ON OBSERVING

We beg the indulgence of those of you who are mosquito-bitten, frost-covered veterans or hundreds of hours at the telescope while we offer some sage advice to innocent beginning lunar and planetary observers. Since our goal is to further observational lunar and planetary astronomy, it is proper that we give instructions on correct procedure therein. We shall deal with individual objects later, but shall now speak of certain general rules to be followed. These are fully as vital to success in lunar and planetary observations as is practicing simple chords to playing the piano.

Begin by getting yourself a notebook, and make it a habit to keep a written record of telescopic impressions. Memory is a very poor storehouse for such data. The mere routine of writing things down will develop attentiveness and improve accuracy.

It is well worthwhile to take some pains to achieve comfort and convenience at the telescope. Such accessories as a flashlight, a writing-stand, an eyepiece-box, etc. will greatly encourage purposeful and useful observing.

Now there are certain things that ought to be recorded about every observation and reported along with it. These are:

1. The observer, his instrument (size and kind), and his station.
2. The date and the time. The editor may forgive you for stealing his purse but not for submitting important observations lacking these items. The date includes the year. The time should be given to the nearest minute (usually an error of five minutes is not serious). The beginner will do best to employ the time kept by his watch. He should always state what kind of time he is using (E.S.T., C.D.S.T., etc.)
3. The magnification. A power of 150X to 250X is best on ordinary telescopes.
4. The seeing, or steadiness of the atmosphere. We recommend a numerical scale of from zero (hopeless) to ten (perfect, and experienced only in dreams). Words such as "bad", "fair", and "splendid" may also be helpful.
5. The transparency or clearness. We advise a scale of from one (very hazy) to five (very clear).

(Continued on Page 6)

GENERAL INSTRUCTIONS ON OBSERVING (Continued)

The beginner should learn to draw planets and selected lunar areas. Word-descriptions are no adequate substitute. Few observers are artists, but anyone can develop creditable skill with practice.

Finally, do not expect too much of your early observations. With practice the amount of detail visible will increase to a degree almost incredible at first. The eye, the brain, and the hand must be trained in this specialty. Keep at it, and you will be pleasantly surprised at your own improvement. A comparative crudeness of early drawings can be found in the work of no less an observer than Percival Lowell.

ACKNOWLEDGMENTS

R. BARKER has sent us a set of drawings of Mars in 1946 by B. Burrell. These are much the best that the editor has seen for that apparition and would do credit to anyone for any apparition. Mr. Burrell has prepared a map from his drawings.

F. R. VAUGHN has kindly made photostatic copies of drawings of Venus, Jupiter, and several lunar craters, chiefly by E. J. Reese. We will gladly furnish copies upon request while the supply lasts.

H. P. WILKINS has sent us a fine series of drawings of Aristarchus and its environs by H. Hill. They are very beautifully executed.

G. BRUCE BLAIR, 1059 Sierra St., Reno, Nevada, issues Astronomical Information Sheets, a publication that no observing amateur can afford to miss. They report on such affairs as occultation, bright meteors, comets, star-atlases, etc.

O. E. MONNIG has kindly mentioned The Strolling Astronomer in his Texas Observers' Bulletin. In return, let us say that T.O.B. is well worth the \$1.50 per year charged to subscribers, especially for persons interested in meteors, meteorites, or occultations. Mr. Monnig's enthusiasm and success in hunting down meteorites is well known. His address is 1010 Morningside Drive, Fort Worth 3, Texas.

B. M. PEEK, the Jupiter Director of the British Astronomical Association, has publicized some of our work in an Association Circular. He points out that American contributions to the study of Jupiter are especially important now because the large southern declination of the planet is a severe observational handicap in the northerly British Isles.

THROUGH THE EYEPIECE

One of the most remarkable observations known to the editor was made by E. J. Reese upon the shadow of the ball of Saturn on January 30 (U.T. date), only four days after the last opposition. He used a 6-inch reflector at 240X in good seeing. "The shadow of the ball is seen as an exceedingly fine black line separating the rings from the eastern limb. The shadow is widest at the outer edge of Ring A and exceedingly narrow at the inner edge of Ring B. A narrow shading is visible beyond the shadow. This dusky shading (penumbra ? - W.H.H.) is very narrow on Ring B and wider on Ring A. A similar shading is seen at the western limb also." The breadth of the (umbral) shadow near the middle of Ring B on January 30 was probably not more than $0''.15$.

On March 10, E. K. White with a 9-inch reflector at 200X, seeing fairly good but sky somewhat hazy, saw "no sign of a line or band....along the N edge of the outer ring ellipse where it crosses the ball." The view was good enough to show Cassini's all the way around. The editor contrariwise does record a band here when the view is good enough. On March 17 with a 6-inch reflector at 188X, same conditions as White had, the band during the best moments "looks to be about as wide as Cassini's Division at the ansae, or perhaps slightly wider than that, and almost as dark as the Crape Ring projection on the ball." What do others see?

The prominent Disturbance on Jupiter discussed in our first issue has continued to exist, though growing shorter. We list below some longitudes (System II) of 4 points in it as determined by central meridian transits:

	<u>S prec. corner</u>	<u>N prec. corner</u>	<u>N fol.cor.</u>	<u>S fol. corner</u>
Feb. 24	329°	332°	347°	354°
Mar. 8	318	323	343	
Mar. 15	319	325	336	342
Mar. 20	319	322	333	336

I N T R O D U C T I O N

Dr. Lincoln La Paz is well known to astronomers for his research in Meteoritics.

The following problem in Atomic Physics, discussed in this paper, should be of interest to our readers. The existence of contraterrene material in the solar system can explain such phenomena as: anomalous brightenings of comets sometimes recorded, and the still unexplained and apparently irregular variations in the brightness of some of the satellites of the planets.

Dr. La Paz points out that Meteoritics and Lunar and Planetary Astronomy are closely related and hopes that the Association of Lunar and Planetary Observers may develop into an effective organization for advancing both.

On Possible Contraterrene Meteorites

By

Lincoln La Paz

Recent studies of the lateral extent of Auger (wide-spread) cosmic ray showers have shown that coincidences occur even when the Geiger tubes in the coincidence counting circuits are separated by as much as 1 Km. The existence of such extremely widespread cosmic ray showers has been attributed to "some hitherto unknown process within the earth's atmosphere". (See Physical Review, March 1, 1947, pp 315-17). Again the extraordinary phenomena accompanying the fall of Pod Kamennaya Tunguska bolide (1908, June 30) are difficult to account for in the manner satisfactorily explaining analogous occurrences at Canyon Diablo, Arizona; Henbury, Australia; Wabar, Arabia; and Kaaljärva, Estonia; because no meteorites have been recovered in the case of the Siberian fall of 1908. The meteorite-less craters at the point of impact of the Pod Kamennaya Tunguska bolide are not the only such craters suspected of having a meteoritic origin. One may cite, in addition, the Kofels rock basin, Lake Bosumtwi, the Nördlinger Ries and Steinheim Basins, and the Pretoria Salt Pan.

The reader will observe that in the case of both the very widespread Auger showers and the meteorite-less "meteorite craters", one has evidence of a process whereby vast stores of energy are released, but no trace of the source of the energy remains. With the example of the atom bomb before us, it is natural to suspect that this elusive source is to be found in the transformation of matter into

energy. Specifically, one has only to assume that in addition to ordinary meteorites of "terrene" material, such as are exhibited in most museums, the earth encounters so-called "contraterrene" meteorites; that is to say, meteorites made up of "reversed matter" in which the nucleus has a negative charge and is encircled by positrons rather than electrons. A small contraterrene meteorite would suffer complete annihilation with the release of an enormous amount of energy by mere collision with terrene air molecules. It appears that such a process as this occurring in the earth's atmosphere cannot be overlooked as a possible cause of cosmic ray showers. A contraterrene meteorite large enough to survive both ordinary and annihilatory surface ablation and to plunge into the terrene earth body would suffer explosive annihilation. In this manner all the phenomena observed at the time of the Pod Kamennaya Tunguska fall could be produced without a trace of the meteoritic material responsible for the explosive release of energy remaining. (Compare Contributions of the Society for Research on Meteorites, Vol. 2 (1941), No. 4, pp 244-47, and Vol. 3 (1943), No. 2, pp 93-95).

GOOD LUCK and GOOD OBSERVING to our "amateur astronomy" friends during the month of April.

SPECIAL NOTICE: The subscription price of \$1.00 (6 issues) will entitle a subscriber to 7 issues -- one issue with the compliments of THE STROLLING ASTRONOMER.

Please pass this message on to any friend of yours who might be interested.