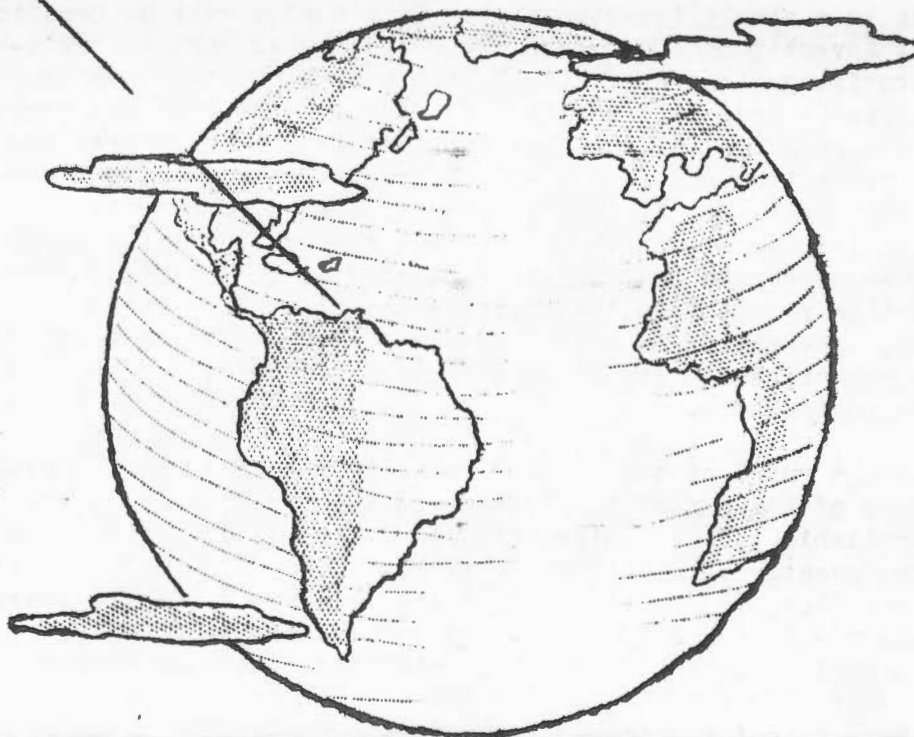


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THE STROLLING ASTRONOMER

(Association of Lunar and Planetary Observers)



Mailing Address

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Concerning Observations

Readers are reminded that all dates and times in this publication are by Universal Time, unless some other system is explicitly mentioned. This Universal Time, or Greenwich Civil Time, is the local mean solar time on the Greenwich meridian.

Saturn is now well placed in the morning sky. The only report we have is from E. K. White, who uses a 7-inch reflector; we hope that he is not the only observer! Writing on September 29, Mr. White said: "Recent poor views of Saturn show the rings very much closed from last spring. Cassini's [Division] is glimpsed at the ansae, and the ring's shadow across the globe seems about as wide as Cassini's [at the ansae]. The Crape Projection is quite invisible. The South Equatorial Belt is seen wide, single, and faint. The Equatorial Zone is still brighter than the outer portion of Ring B. The rest of the ball appears normal, but a much better view is desired."

The shadow of the rings on the ball now lies just below the rings themselves in a simply inverted view. This shadow will be conspicuous throughout November and December. It would appear that the well-evidenced surprising dimness of Ring B last spring persisted while Saturn was unobservable near conjunction. We finally note that the projection of the Crape Ring against the ball was invisible to Mr. White and recall that this projection was found to be extremely narrow by many observers in the autumn of 1947. At first, then, it seemed certain that the ring must have undergone a surprising physical change; but later on good evidence was presented that spurious changes in the apparent breadth of the projection result from the shifting position of the shadow of the Crape Ring. The matter is hardly conclusively settled, however; and observers are urged to give close attention to the Crape Ring and its projection on the ball.

On pgs. 6 and 7 of our October issue we mentioned some phase-observations of Venus near the September, 1948, dichotomy. More reports are now available. E. K. White with his 7-inch reflector found the terminator "exactly straight" on September 10.6. It was "still straight" on September 11.5. On September 13.6 the terminator was the least bit convex, and the distance from mid-limb to mid-terminator slightly exceeded the semi-diameter. White last observed concavity on September 9.5. We might adopt that for him the terminator was straight on September 11.5, $i=84^{\circ}7'$. Here i is the angle at Venus in the sun-Venus-earth triangle and measures the phase of Venus. S. C. Venter with a 6-inch reflector in Pretoria, South Africa, observed the shape of the terminator from August 26 to September 18. His skies were evidently very favorable for this program, for he observed on 21 mornings out of the 24 in this interval! The terminator was to him slightly concave on September 8.3, straight from September 9.3 to September 14.3, and barely convex on September 15.3. We might adopt September 11.8 for the time of exact straightness on the basis of these records; angle i was then $84^{\circ}5'$. Venter remarked "slightly protruding cusps" on September 5, 6, and 7; possibly he thus confirms Reese that the cusps projected beyond immediately adjacent portions of the terminator (see October issue).

E. Pfannenschmidt writes that German observers found dichotomy to fall between September 5 and 8. Some drawings by German observers appear to confirm Reese that the cusps did project beyond immediately adjacent portions of the terminator. We note, for example, that Mr. Oberndorfer on September 6 drew the terminator between the cusp-caps nearly straight, while these cusp-caps plainly projected beyond the center of the terminator. The same observer on September 15 drew the terminator between the cusp-caps to be convex; yet the cusps themselves jutted out, especially the south one, so that their tips were roughly in line with the middle of the terminator. Again, on August 26 and 28 Oberndorfer drew a sharp corner to the terminator at the edge of each cusp-cap.

"Personal equation" is apparently present in this matter of observing when the terminator is exactly straight. Reese's observed date is September 6.7; the German observers agree well with him, as does also R. Missert in two reported views. However, White and Venter place the very same event near September 11.6. Apertures used are all close to six inches, and no immediate explanation for the apparent systematic effect occurs to the editor.

The German observers, as usual reporting through E. Pfannenschmidt, have again been zealous students of Venus. There have been submitted to us five drawings by Oberndorfer with a 4-inch reflector and one by Fornfischer with a 5-inch refractor. Dates involved range from August 1 to September 15. The cusp-caps have been the easiest features, and they appear to have varied rapidly and irregularly in size and shape. Oberndorfer on September 6 and 15 and Fornfischer on September 11 drew a white area at the center of the terminator, which was thus "clearly visible for a period of at least ten [nine?] days." E. K. White wrote on September 29 of his observations with a 7-inch reflector: "Surprisingly in fairly decent views this month the semi-disc of Venus has lacked detail of any kind to me except for small dull cusp-caps." Mr. White has had greater success with detail on this planet under similar conditions in the past, suggesting actual changes on the planet.

During the last month we have received observations of Jupiter from T. Cragg, D. Garneau, E. E. Hare, R. R. La Pelle, and E. Pfannenschmidt (reporting for Messrs. Fornfischer, Maedlow, Oberndorfer, Sandner, Westphal, and Wiesenfeld). We thank all these contributors. The 1948 apparition is now almost ended, and even during September and October T. Cragg complained that he could usually see nothing but the two Equatorial Belts.

We first consider the position of the center of the Red Spot Hollow. La Pelle with a 6-inch reflector observed it to be on the central meridian of Jupiter at $1^{\text{h}}45^{\text{m}}$ on September 1 and at $1^{\text{h}}0^{\text{m}}$ on September 6. The corresponding longitudes (II) are 232° and 236° respectively. We learn from E. Pfannenschmidt that Maedlow at the end of August was granted the use of the Berlin-Babelsberg 26-inch Zeiss refractor, "the largest and most modern instrument in Germany today." He seized this opportunity to measure with a filar micrometer the longitude (II) of the center of the Hollow. He obtained 232° , with a "possible error" of two degrees either way. He further determined that the Hollow was approximately 24 degrees long.

It is noteworthy that Maedlow's micrometric determination of the longitude and length of the Hollow agrees almost perfectly with what E. J. Reese found independently in July-September by using visual C. M. transits. One has:

	prec.-end	center	fol.-end
Maedlow	220°	232°	244°
Reese	221	233	245

With the 26-inch refractor Maedlow was unable to see any Red Spot as a shading inside the bright Hollow, thus confirming the experience of American observers in 1948. However, an excellent view by E. E. Hare on August 25 showed the South Equatorial Belt South faintly present inside the Hollow.

Maedlow also measured the jovian latitude of the more conspicuous belts while having the use of the 26-inch refractor at the end of August. We are unfortunately not clear whether he reduced the measures to jov-icentric or to jovigraphic latitudes. "A series of five independent measurements was made on each night." Latitudes are, as usual, called negative when south, positive when north. The observed values are:

center South Temperate Belt	-32.0
south edge South Equatorial Belt	-19.3
north edge South Equatorial Belt	-7.1
south edge North Equatorial Belt	+5.3
north edge North Equatorial Belt	+13.1
center North Temperate Belt	+26.2

Now a number of members of the Association of Lunar and Planetary Observers have access to professional instruments equipped with filar micrometers, and one or two have written of building such an instrument themselves--no mean mechanical feat. So how about it, favored colleagues? Why not take advantage of your opportunity and measure the latitudes of the belts of Jupiter and Saturn? Such studies are of fundamental importance in planetary astronomy and are all too often neglected.

A letter from C. B. Stephenson, who observes with the University of Chicago 6-inch refractor, discusses in some detail a rather puzzling experience: the bright Red Spot Hollow has been seen as a dusky shading when near the limb of the planet! Stephenson first had this impression on July 8 at C.M. (II) 294°, when the Hollow (about 60 degrees past the C.M.) was thought to be a Red Spot considerably darker than the South Tropical Zone near it. The experienced H. M. Johnson was observing with Stephenson on July 8 and thought the "Spot" as dark as in some past years when it was plain and the Hollow was very faint or invisible. On August 15 near C.M. (II) 199° Stephenson again thought this feature darker than the zone, perhaps because it was confused with the terminator-shading; as the planet's rotation brought the Hollow nearer the C.M., its "true" brightness was revealed. On August 30 at C.M. (II) 264° Stephenson was so impressed with the duskiness of this feature that, without computing the C.M. from Ephemeris data, he had no suspicion that he was viewing the Hollow and instead supposed it to be a shading elsewhere in the South Tropical Zone that he had been watching. (This blunder should emphasize that it is important to observers of Mars and Jupiter to compute the C.M.

and not to rely naively upon intuition in identifying markings). Stephenson finally remarks that he has never found the Hollow dark when centrally placed on the disc. Now we mentioned in our October issue Reese's experience: "The intensity of the Hollow decreases with increasing distance from the C.M. much faster than that of the Equatorial Zone." Has Stephenson merely detected a more general relationship? R. Missert's finding the Hollow "murky" on August 8 at C.M. (II) 191° certainly prettily confirms Stephenson. Also, a hurried inspection of some dozens of drawings of Jupiter in 1948 by various observers appears to show that the Hollow usually did go unnoticed when more than 30 degrees from the C.M. However, Wiesenfeld and Fornfischer depicted it clearly near C.M. (II) 286° . If what Stephenson has recorded is an ordinary Jovian phenomenon, it appears strange that such behavior has not been regularly reported for the Hollow in past years. One might also expect the extensive literature on Jupiter to contain many references to features exhibiting such reversals of "brightness" and "darkness", naturally relative to adjacent areas on the disc; but that is apparently not so. And how is the Stephenson-Reese relationship itself to be explained? Is there any reason that the Hollow should seemingly reflect more light in a nearly normal direction than other Jovian regions?

We are indebted to Mr. E. Pfannenschmidt for knowledge of a huge white oval spot seen as a complete break in the North Equatorial Belt. The "discovery" observation was reported to the Heidelberg, Germany, Observatory on September 19 in the following telegram:

"Observatory Heidelberg stop Jupiter's N. E. B. interrupted by a white spot stop 273° (System II) stop length 10° stop discoverer(s) L. Fornfischer and E. Wiesenfeld stop 1948 September 19 $18^h 0^m$ U.T. stop Volksobservatory Munich stop."

The telescope employed was a 5-inch refractor at 150X. The longitude (II) of 273° for the center and the length of 10° were adopted as the mean of three determinations: one by Fornfischer at $18^h 0^m$, one by Wiesenfeld at $18^h 10^m$, and one by Fornfischer at $19^h 35^m$. The C.M. (II) was 284° at $18^h 0^m$. "These data [on longitude and length] were checked and found correct by observations of P. G. Westphal and Dr. W. Sandner."

No other observations of this feature have been reported. Since the North Equatorial Belt very seldom exhibits gaps 10 degrees long, it would be desirable to have more information about this feature. We hence request readers to examine their observing records for anything about the appearance of the N. E. B. near longitude (II) 273° near September 19. Such assistance will be appreciated.

This gap in the N. E. B. may remind some readers of E. J. Reese's remarkable bright band of March 25, 1948 (The Strolling Astronomer, Volume 2, No. 5, pg. 8, and No. 6, pg. 8). This band reached from the south edge of the North Equatorial Belt to the South Temperate Zone, and dark belts were fainter or invisible where the bright band crossed them. In a letter written on August 22, 1948, Mr. Reese discussed this feature. We think that his ideas will interest students of Jupiter and hence quote in part:

"I am quite certain that the bright sections in the various belts which made up the band on March 25 did not endure long after that date. Therefore, the bright band poorly seen on May 10 did not result from a simple alignment of bright sections after one rotation of System I relative to System II. However, it is still possible that the alignment of some unseen forces (perhaps electrical) could have produced the bright bands on March 25 and May 10—but this is indeed idle talk coming from one who knows nothing of the relative levels of Jovian features nor the laws governing their appearance and motion. [Does anyone else?—Editor]

"Now the bright band or break in the S. E. B. N. seen on March 25 is not in itself unusual for the apparition. Similar breaks were seen frequently during April, May, and June. It may be significant that these breaks were seen only near the following end of the Hollow (220° to 300° II)....

"Ed Hare's drawing of April 18, 1948, at $10^h 12^m$, U. T., shows a definite alignment following the Hollow which apparently lacks only brilliancy to resemble the March 25 band."

A drawing of Jupiter by T. Cragg with a 6-inch reflector on September 26 shows well E. E. Hare's enclosed white area in the South Temperate Belt. Mr. Hare first observed this feature at 155° (II) on May 27. Mr. Cragg drew it more than half way from the C. M. to the preceding limb at C. M. (II) 76° , and a longitude of about 40° is hence suggested. It appears clear that the rapid deceleration of almost a degree per day (October issue, pg. 10) was maintained in September.

Mr. E. J. Reese and several other observers are continuing their study of Conon, a crater in the Apennines about 15 miles in diameter (according to W. Goodacre's Moon). Reese is now preparing a map of the crater on the basis of about 130 drawings by ten different observers. Lunarians should not fail to write him for a photostatic copy. Even the best and most detailed maps of the moon show scarcely any markings on the floor of Conon; yet Reese and his colleagues have observed here a cleft, a narrow dark streak, several low hills, a few bright spots, and some tiny craterlets! Their success should surely be an excellent example in showing what careful observing and good instruments can accomplish in mapping lunar areas. Readers interested in these studies cannot do better than to contact Mr. H. Percy Wilkins, the capable and energetic Lunar Director of the British Astronomical Association. Their Lunar Section is actually world-wide and enrolls more than 70 members. Mr. Wilkins' address is 127 Eversley Ave., Barnehurst, Kent, England.

Wilkins writes that he has been studying the crater Proclus since F. H. Thornton with an 18-inch reflector detected alternating bright and dusky bands on its inner slopes. Proclus is a very easy object to find; it is a rather brilliant crater between the Mare Crisium and the Mare Tranquillitatis, and it is the center of a system of bright rays. Thornton's bands have been confirmed by Wilkins, Smith, Wilkinson, and Brown, all B. A. A. observers. Wilkins further writes that the Proclus bands are "somewhat similar to those associated with Aristarchus, and it is remarkable that they have not previously been seen; for I have, in the past, especially looked out for any." It would appear possible, then, that

the Proclus bands are growing more conspicuous. One is reminded of a thesis developed by Mr. Robert Barker in an article in Popular Astronomy a few years ago, namely, that the dark bands on the inner walls of the crater Aristarchus have been growing progressively more intense during the past 80 years or so. Such studies of possible long-period lunar changes require the exercise of considerable caution; when one is comparing observations with different eyes, different telescopes, different solar illuminations, etc., it is very easy to be misled. Nevertheless, one ought to be willing to consider carefully evidence presented for the occurrence of such changes. A study of old observations of Proclus is indicated.

E. J. Reese has submitted drawings of Proclus on June 14, 1948, at 1^h 0^m and on August 22, 1948, at 3^h 30^m. On the first date the crater was 41 degrees of lunar longitude from the sunrise terminator; on the second date, 14 degrees from the sunset terminator. The wall bands under discussion show up nicely on both drawings; in fact, the whole general aspect of the crater is suggestive of Aristarchus. Several elevations, probably low mounds, are drawn on the floor of Proclus.

The best evenings to study detail in Conon during the coming month will be November 9, 10, and 11 (local P. M. dates, not U. T. dates). Post-midnight observers might also try November 20, 21, and 22. Proclus will be in sunlight from November 4 to November 19 (again local P. M. dates). Information on the appearance of the wall bands under all lightings is desired.

THE A. L. P. O. AS A POSSIBLE INTERNATIONAL GROUP

by Walter H. Haas

The Association of Lunar and Planetary Observers was initially conceived of as chiefly as ^{an} organization of American and Canadian amateurs. Geography, language, and the fact that mails travel so much more slowly than light is likely to insure its maintaining this character. Nevertheless, there would be many advantages in having an effective world-wide association of skillful observers. It is only through world-wide observations, for example, that one can obtain continuous records of a given region on Mars. Also, such astronomical events as lunar eclipses and occultations of planets by the moon are necessarily visible only over a limited range of longitudes. Perhaps even more important are the cultural aspects of international cooperation. Those who have seen two world wars may be sadly sceptical that such internationalism is a magic panacea for all economic and political problems, but few will deny that there is today a more pressing need than ever before for such cooperation.

We have at this mailing the following readers outside of the United States and Canada:

Hawaii--R. Freitas
Pakistan (formerly part of India)--P. Barnes
England--A. F. Alexander, H. Dall, and H. P. Wilkins
France--R. Rigollet
Germany--E. Pfannenschmidt
South Africa--S. C. Venter

Our three English subscribers are all prominent in the British Astronomical Association. Dr. Alexander is Director of its Saturn Section. Mr. Wilkins is Director of its Lunar Section. Mr. Dall is one of its best known and most skillful optical workers.

Monsieur Rigollet is an associate ("attaché") at the National Center of Scientific Research in Paris, France. He publishes a printed leaflet called Documentation des Observateurs. Monsieur Rigollet has been so kind as to furnish us a number of copies of the leaflet, and we shall be glad to lend them to interested readers. They are in French, of course. Their general purpose appears to be to furnish information on astronomical phenomena observable with modest instruments. Among the subjects treated are dark areas on the floor of the lunar crater Atlas, the Lyrid and Gamma Aquarid showers of shooting stars, Nova Serpentis 1948 (identification chart given), the variable star Z Andromedae (chart of field), the fifth satellite of Uranus, and ephemerides of the asteroids Juno and Flora.

We have received from Herr Pfannenschmidt and his colleagues not only a considerable number of very welcome observations but also many informative astronomical periodicals and papers. One of the more unusual contents of the latter is a map of Jupiter in color for September 2-4, 1928, by W. Loebering. It is assuredly a very attractive piece of work! Herr Loebering is a professional artist; he has carried on very extensive studies of Jupiter and was an early champion of reflecting telescopes for planetary studies. The Volksobservatory in Munich, Germany, has now resumed publishing the periodical Saturn. The September, 1948, issue contains several articles of interest and also good reproductions of three drawings of Jupiter by our observer E. J. Reese in June, 1948.

Mr. S. C. Venter writes that he is working on a 12-inch reflector and hopes to have it completed before next year's apparition of Jupiter. He would like to exchange ideas with other telescope-makers. His address is: P. O. Box 451, Pretoria, South Africa.

We have recently had some correspondence with Mr. Jaromir Sireky, Director of the Planetary Section of the Astronomical Association of Brno, Czechoslovakia. We think that what he says of astronomy in his country today will interest our readers. The Czechoslovak Astronomical Association has 3,000 members and prints a monthly periodical called Rise hvězd ("The Realm of the Stars") containing reports and observational notes from members. The Association is divided into observing-sections, apparently in much the same way as the B. A. A.; the Director of the Planetary Department is Captain Karel Horka. The national

headquarters is the Stefanik Observatory at Prague; but in smaller cities, such as Brno, astronomical groups have been organized, and observatories have been built. The Stefanik Observatory has been rebuilt since it was damaged in the fighting in 1945. It possesses a Zeiss 8-inch double refractor, Rolcik's 16-inch reflector, and the Zeiss 8-inch comet finder. The Gottwald Observatory now being planned for Brno is to have 6-inch and 5-inch refractors and Gajdusek's 6-inch Schmidt camera.

We further learn from Mr. Siroky that the Planetary Department constructed a map of Mars on the basis of 1948 observations. Instruments used range in aperture from five to nine inches. The north cap was found to grow in size during the first two-thirds of March until it reached $76^{\circ}20'$ (latitude?) An increase in size so late in the northern spring on Mars is rather perplexing; the summer solstice of the northern hemisphere fell on April 26, 1948. Mr. Siroky continues: "Then, after a considerable decrease a limit of 79° has been reached in the first third of April." a drawing on March 24 at $20^{\text{h}} 45^{\text{m}}$, U. T., by Mr. J. Sadil with a 7-inch telescope at 180X showed Nix Olympica as a very bright area. It was conspicuous only at a distance of 25 degrees from the border of the disc.

The Association of Lunar and Planetary Observers is always glad to make contacts with other groups of observers in other countries. We shall welcome the opportunity to exchange observations, publications, and ideas with interested astronomers anywhere.

ASTRONOMIE. LES ASTRES, L'UNIVERS.

The above is the title of a recently published book in French by L. Rudaux and G. de Vaucouleurs. A review by Dr. C. H. Gingrich appears on pg. 452 of Popular Astronomy for October. He describes the book as containing nearly 500 pages and as being profusely illustrated so that there is some similarity to Splendour of the Heavens. Such being so, Astronomie cannot fail to be of great interest and value even to those unable to read French. We have received a number of copies of a detailed prospectus (in French) from the publishers, Librairie Larousse in Paris, and shall send one to anyone writing for it. The price of the book is about eight dollars at the present rate of exchange.

WORLD'S LARGEST STONY METEORITE: Some Corrections and Additions

The editor has been embarrassed to discover that the note called "World's Largest Stony Meteorite" on pgs. 10 and 11 of the October Strolling Astronomer contained some errors, for which he apologizes. The present version is based upon conversations with Dr. Lincoln La Paz, the Director of the Institute of Meteoritics at the University of New Mexico, and upon the first published scientific reports of the fall on February 18, 1948, as follows:

1. "The Norton County, Kansas, Meteorite", Lincoln-La Paz, Science, Vol. 107, No. 2786, pg. 543, May 21, 1948.
2. "The Furnas County Stone of the Norton County, Kansas-Furnas County, Nebraska, Achondritic Fall (1000,400)", Frederick C. Leonard, Contributions of the Meteoritical Society, Popular Astronomy, Vol. 56, pg. 434, October, 1948.
3. A reprinted excerpt from the article "Escape from Earth" in Science Illustrated for November, 1948.

As for the corrections to our earlier note: the impact-hole of the Furnas County stone was accidentally discovered on July 3, 1948, by Messrs. A. E. Hahn and O. E. Gill when a caterpillar tractor sank into it. Investigation of the hole on August 16 by Mr. H. R. Hahn, assisted by Mr. D. Stevenson and Mr. F. Warren, disclosed the presence of the huge meteorite. The weight of the second largest known specimen of this fall, which was recovered in Norton County, Kansas, last spring, is $131\frac{1}{2}$ pounds, not 500 pounds. The weight of the Furnas County specimen is still only very approximately known but is thought to be at least 2,200 pounds.

There has been some unfortunate controversy about this fall, and we should like to put on record certain facts. The strewn-field of the meteoritic shower on February 18 in Norton County, Kansas, and Furnas County, Nebraska was first correctly located by calculations carried out at the Institute of Meteoritics early in March. The first recoveries of meteorites were made on April 28 by a field-survey party from the Institute, which party Dr. La Paz led.

All recoveries made to date (October 28) have been made in areas searched in March, April, and May by field-parties sent out by the Institute of Meteoritics; and all known recoveries of any appreciable size have been found by, donated to, or purchased by the Institute, with the single exception of the 2,000-pound Furnas County stone, which is owned jointly by the Institute of Meteoritics and the University of Nebraska.

Accurate descriptions of the places of finds were first published by the Institute in Norton County newspapers before the end of April. The first mention of the fall and of recoveries made therefrom to appear in a scientific publication was Dr. La Paz's note in the May 21, 1948, issue of Science.

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