



A COMET FOR CHRISTMAS

North Americans west of a line running from Mexico City through St. Louis will get an extra Christmas treat this year. On December 25th at 6:16am CST an artificial comet will appear in the sky just 4 degrees right of the star Spica in the constellation Virgo, and then move west toward the star Regulus in Leo. The "comet" is part of an experiment being undertaken by about 48 scientists from three different countries in order to give the best look yet at the way the solar wind interacts with Earth's magnetic field.

Spacecraft measurements up until now have shown that Earth and its magnetic field form the shape of a comet. On the Sun's side of Earth the magnetic field is compressed by the solar wind and extends outward only about 45,000 miles. However, on Earth's dark side the magnetic field stretches out a million miles into space, forming a sort of "magnetotail". The Sun's charged particles that approach Earth are apparently either deflected around the magnetic field or guided into high-altitude paths along the lines of Earth's magnetic field (the Van Allen belts are rings of these solar particles that have been trapped in the magnetic

field). Others seem to join the electric currents that descend toward Earth's two magnetic poles and light up the sky in the form of auroras when they enter the atmosphere.

But as logical as the above information seems, much of it is only guess work. In order to confirm their postulations, the scientists mentioned earlier have sent up three spacecraft which will literally paint the sky with barium and lithium, both of which will turn to glowing ions as the sun's energy strips away electrons. Then the scientists will observe the path of the gases as they spread across the sky.

As mentioned earlier, the comet experiment will take place December 25th. What we should be able to see from here in Nebraska is a reddish-yellow, then green, then purple expanding comet-like ball with a tail. It will start as a dot the size of Polaris and at maximum size it should be at least a sixth the size of the full moon. It will be visible with the naked eye for about 3 minutes and then with binoculars for about 10 minutes if all goes according to plan. Gerhard Haerendel, one of the group leaders, hopes that the "tail" will get as bright as a moonlit cloud, but cautions that no one really knows how the ions will behave.

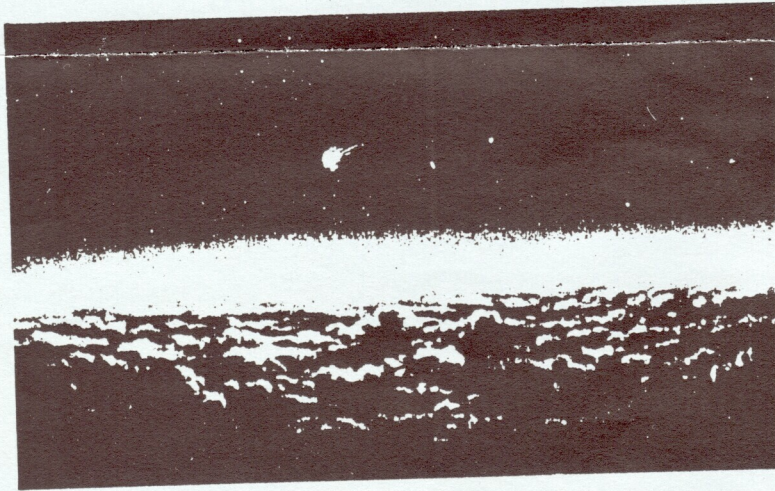
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Presidents' Message

You may notice a few differences in the newsletter this month. I hope you like them. In the month's to come we hope to add new columns and features that will keep club members informed as well as perhaps educate every now and then. We also plan to increase the actual size of the newsletter starting in January so that even more information can be passed along to all club members. Since this is your newsletter, I do hope you will offer any suggestions that you may have to help improve the newsletter, as well as offer up your creative talents now and then in the form of an article or review.

I hope some of you will seriously consider writing for the newsletter. The Prairie Astronomer is one of the few outlets we have to advertise the quality and dedication that our club has in pursuing astronomy. Feel free to call or write me any time if you have any ideas or would like to submit an article. With some teamwork, we can really have something to be proud of!

See you at the meeting,
John Lortz



The Prairie Astronomer is published monthly by the Prairie Astronomy Club and is free to all club members. Membership expiration date is always listed in the right corner of the newsletter mailing label. Address all membership renewals to: PRAIRIE ASTRONOMY CLUB, INC., P.O. BOX 80553, LINCOLN, NE 68501.

For further club membership information or suggestions contact one of the following: John Lortz (Pres.) 572-1451(Omaha), Ron Veys (V.Pres) 464-1449, Bev Hetzel (Sec.) 435-7881, Lee Thomas (Tres.) 483-5639, or Andy Corkill (Prgm. Chair.) 488-1096. All articles for the newsletter should be sent to newsletter editor, JOHN LORTZ 3119 MAPLEWOOD BLVD. #41, OMAHA, NE 68134, no later than 10 days before each club meeting date.

NOTES FROM LEE.....

Lee Thomas wishes to inform everyone that the RASC Handbooks have arrived and that anyone who ordered a handbook should have \$6.00 ready for him at the next meeting. Also, the calendars from Astronomy are in and can be picked up at the meeting for the small fee of \$4.00.

This will be the last meeting you can put in an order for Deep Sky, Telescope Making Magazine, or Astronomy Magazine for the coming year. If you haven't already put your name in for these magazines please do so Tuesday at the meeting. Lee needs to collect for your subscriptions to these mags at the meeting. Costs are...Deep Sky-\$6.00 Telescope Making-\$6.00 Astronomy-\$12.00.

THIS MONTH'S PROGRAM-----

Earl Moser, a long time and well known member of the club, will be giving a very interesting and comical program at this month's meeting. The program is entitled "The Moon, Eclipses, And The Rest Of The Story".

Also, after Earl's program we will see a film I received from a friend who obtained it from NASA. The film is called "The Universe" and from what I've heard it's an excellent film. Don't miss it!!!

Andy Corkill
Program Chairman

AT THE LAST MEETING....

For those members who can't always attend meetings we are again including in the newsletter notes from the previous month's meeting. Unfortunately, because this is the first newsletter to include the notes and a decision to include them here was made just before press time, the actual notes from the last meeting were not available. It is also unfortunate that your new newsletter editor (and president) has a brain the size of an undeveloped pea and a memory to match it...i.e., I can't remember what happened! But I will pass along to you two meeting items that did stick with me. First, we have a new(?) set of club officers:

President...John Lortz
Vice-President...Ron Veys
Secretary...Bev Hetzel
Treasurer...Lee Thomas
Program Chairman...Andy Corkill

Something seems strangely familiar about that list. Oh well, congratulations to all of you!

The second thing that I do remember about last month's meeting is that we had an excellent program by one of our younger members, Scott McMaster, on his trip to Space Camp in Huntsville, Alabama. We thank you again Scott!!!

POOR MAN'S COMET!

George Allen from the Omaha Astronomy Club dropped Ron Veys a line to let the PAC know that he is organizing a trip to Mexico to see Halley's Comet. George is suggesting that a caravan of cars could make a three day trip down to a site near Concepcion del Oro, Mexico, and spend 10 days viewing the comet as well as all those southern constellations and deep sky wonders. The details for the trip have not yet been worked out since Mr. Allen is remaining open to suggestions from anyone interested in participating. All the details of what he has proposed will be passed on to you at the next meeting, but in the meantime if you are even remotely interested, please contact George at 3390 Sth 130th St., Omaha, NE 68144. This may be something that the PAC could get involved with as a group! Please think about it.



Books From Sky Publishing

Last month the PAC mailbox received a large list of books and materials that Sky Publishing is making available at a 20% (or more) discount. At the next meeting we will have a copy of the list for you to look at so that we can place a group order before Christmas rolls around. Because of room limitations we couldn't publish the list in the newsletter, but here are a few examples of what can be found on the list: (the first price is retail and the second price is our price)

The Messier Album (\$13.95, \$9.77), Observational Astronomy For Amateurs by Sidgwick (\$5.95, \$4.76), Tirion's Sky Atlas 2000 (Deluxe Ed. \$34.95, \$27.96--Field or Desk Ed. \$15.95, \$11.17) also on Tirion's Atlas there is a special where you can get two sets of Field and/or Desk Ed. for \$18.87...that's only \$9.44 each!!! So if we get enough orders for these we will combine the orders and get these excellent star charts for only \$9.44 per set!!!

There are many more specials and great deals on the list that everyone should take advantage of. Now's the time to beef up that astronomical library! (NOTE: The PAC is not making any money on this special offered by Sky Publishing...this comes to you as one of the benefits of your membership!)

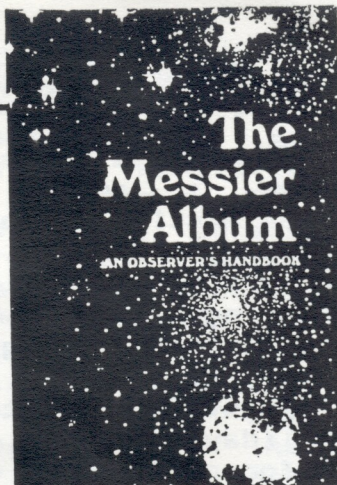
THE REVIEWER

This month we begin a new feature in the *Prairie Astronomer* called The Reviewer. As you might guess, in this column you'll find reviews on books, equipment, movies, etc. that various club members have encountered first hand.

Our first review is by Ron Veys...

The Messier Album

by John H. Mallas & Evered Kreimer
Sky Publishing Corp., 1978
244 pages, hard bound, \$13.95



Let me say right off the bat that this book is probably the most useful and most used book in my rather extensive astronomical library. It was invaluable to me when I was working toward my Messier Award and I still turn to it for information on the "M-Objects". Read on, and I think you'll see why.

This book will tell you everything about every one of the 110 Messier objects -- what it is, where it is (and how to find it, which is not the same thing), what it looks like, what others have said it looks like, what Messier said about it. etc. The opening chapter is a brief but fascinating account of Messier: the man, his astronomical work, and the assembling of his catalog. Here we find out that his original list contained 103 objects -- the additional 6 objects were added by Messier's contemporary Pierre Mechain. Although Messier was familiar with these objects, he "never got around" to revising his first list. Similarly, we have evidence that Messier was aware of other nebulae (specifically NGC 205, which has recently been proposed as M110) which he never added on to a revised Messier list.

The second chapter is a real gem. Here, in reduced facsimile, is the original Messier catalog -- the real thing, as written and published by Charles Messier in 1787. His observations make for very fascinating reading -- IF you know French! (You didn't think Messier was an American now did you?)

Then, after a few pages on how this book was compiled, the authors get to the real meat of the matter. Here's where you get your money's worth. For each of the individual M-Objects we are given (1) a black-and-white long-exposure photo that shows the object in all its glory; (2) a small-scale finder chart (about a 2-degree field); (3) a paragraph of basic data giving all the particulars about that object; (4) the official NGC description of the object; and (5) the visual appearance of the object, which is quite often accompanied by a sketch. This last feature, my friends, is worth the price of the book alone!! I've found nothing quite as handy in any of the other "Observer's Handbooks". Each of the M-objects is described (& sketched) as it appears through the author's 4-inch refractor, and this matches almost exactly with what I was seeing through my 6" reflector from Earl's front yard. Now, how many times have you seen beautiful pictures of spiral galaxies (like M33 or M101) but missed them completely in the telescope because you didn't know that all you were going to see was a faint little smear of light? Now you know why this book was always on my observing table right next to my Skalnate-Pleso and Observe Manual. (And I also caught glimpses of some of you sneaking a quick peek under the furtive glare of your red flashlights!)

The last 50 pages or so contain Hints For Beginning Observers, a checklist for logging your own observations, technical data on each of the photos in the album (exposure time, developer used, developing time, etc. - a real bonus to budding astrophotographers!), and 26 pages of gorgeous color photos of some of the finest M-objects.

This book should definitely be in any amateur's library. I give it a 5 stars.

P.S. This month you can order this book through the club for only \$9.77 (see article elsewhere in this newsletter). With this book and Tirion's Atlas (buy both for under \$20), you're all set to get your Messier Award!!!

COMET STORY CONT....

For those of us who have never seen a comet or who are pessimistic about the Halley encounter in 1986, this may be a good time to indulge in some comet hunting. Or for those with more of a romantic imagination, we can use the comet as our own "Christmas Star" to celebrate the holiday season. (For more information see the December Science 84 vol.5, #10 or call NASA at (301)344-0470)



DEFINING ASTRONOMY



APPARENT MAGNITUDE

The apparent brightness of a star, or other celestial body, expressed in terms of the system of stellar magnitudes. The system had its origins in the classification by brightness of some thousand stars carried out by Hipparchus in the second century B.C., and was standardized by Pogson in 1850. The mean of the twenty brightest stars in the sky is defined to be magnitude 1 (or first magnitude), while the faintest stars normally visible to the unaided eye on a clear dark night are said to be of magnitude 6 (or 6th magnitude); stars which are between these extremes take intermediate values of magnitude. Thus, the brighter the star, the lower its magnitude. 6th magnitude stars are defined to be 100 times fainter than 1st magnitude stars, i.e. a difference of 5 magnitudes corresponds to a difference in brightness of a factor of 100. The scale is logarithmic.

ABSOLUTE MAGNITUDE

The Apparent Magnitude which a star would have if it were located at a standard distance from the Earth of 10 parsecs (32.6 light years). Clearly the apparent magnitude of a star depends upon the amount of light it emits (luminosity) and on its distance (brightness diminishes as the square of distance); if all stars were at the same distance then their apparent magnitudes would be true indicators of their relative luminosities. By definition, the absolute magnitudes of stars provide a measure of their relative luminosities, by comparing the apparent brightnesses which stars would have if they all lay at the same distance.

OBSERVING CHAIRMAN'S REPORT



The Star Party for this month will be held on December 21st. In the meantime, start your winter observing with the spectacular open cluster M37, located 4-3/4 degrees south and 1-1/2 degrees west of Theta Aurigae. Almost any telescope larger than two inches will show the many stars in the cluster...and in a six inch, the object is a sight not soon to be forgotten!

In Taurus, those with small telescopes should try the Crab Nebula, located just over a degree northwest of Zeta Tauri. It has been seen in instruments as small as 2.4 inches and it looks the same in small telescopes as it does in large ones (except that it's brighter in the big ones).

For those of you who like challenges, try the small planetary nebula NGC 1535, located 2-1/2 degrees south of 39 Eridani. It shows as a small bluish green disk with a faint central star and should be easy in any 'scope larger than 4 inches.

In northern Orion is the very faint planetary nebula NGC 2022

located just over a degree east and a bit south of psi 2. It's size is larger than one would expect from most charts but it is marginal in an 8-inch and I doubt a 6-inch would show it. Several nice open clusters are also present. NGC 2169, located a degree west-southwest of Xi Orionis, is a beautiful group of 20 bright stars in two triangles looking quite a bit like a prism. NGC 2194, located 1-1/2 degrees south and 1/2 degree east of Xi, is faint but beautiful and shows several star streams.

David Knisely
Observing Chairman

IMPORTANT DATES

Nov. 27th--PAC Meeting, 7:30pm, Hyde Observatory

Nov. 27th--(PBS)NOVA "Space Women" 7pm

Dec. 13th--Geminid meteor shower

Dec. 21st--Winter Solstice 11:23am

Dec. 21st--Monthly Star Party at Earl Moser's

Dec. 21st--Ursid meteor shower

Dec. 22nd--New moon 11:47UT

Jan. 2nd--December PAC Meeting, 7:30pm, Hyde Observatory

NOTE: November marks the 7th year Anversary for Hyde Observatory. Many PAC club members (especially Carroll Moore) were instrumental in planning and building Hyde, and it has turned out to be a real plus for Lincoln. It averages 9.000 visitors a year and of course houses our club. A big thank you and happy aniversary goes out to Hyde and it's creators!!!

EQUIPMENT SPECIALS!!

Meade Research Series 10"
f/6.5--electric slow-motions for
both axis, 3.1" guide-scope,
special coatings, all the extras.
About two years old and used only
a few times! Only \$2250. Call
Monte Cole 488-1652.

Edmund 4-1/2" f/10
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equatorial mount with clock
drive, 35mm camera mount, extra
counterweight, barlow lens, 8,
21, and 28mm lens' with cleaning
paper and cleaning brush. Just
like new! Asking \$250 for
package. Contact Dean Wedekind,
401 Nth 5th, Norfolk, NE 68701.
(402)371-6698.

NOTE ON DECEMBER MEETING DATE

Don't forget that because
Christmas falls on our regular
meeting date this year we will be
holding the December meeting 8
days late...on Wednesday, January
2nd at 7:30pm. Be sure to mark
your calendar.



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FIRST CLASS MAIL



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