VOL. 26 NUM. 1 JAN. 1985

NEUTRINO UPDATE

Remember the neutrino? I remember back in the late 60's when Raymond Davis of the Brookhaven National Laboratory set up an experiment using a chlorinated cleaning fluid to detect neutrino's coming from the sun. The magic number that theorist John Bahcall said should be detected was 7...Davis counted only 2. Since then his experiment has been refined, checked by many different sources and recalculated but still his numbers stand. No one yet has come up with why what we actually see is not what we should get.

In looking at the theory and the neutrino measuring experiment there are possible reasons why the two don't coincide. One possible reason is that Bahcall may have miscalculated the sun's temperature and Davis' experiment only counts neutrinos that come from a rare reaction that is very temperature dependent. But even if the temperature is slightly incorrect, Davis says that there is still no way to lower the number of what is expected to be seen to those of what Davis actually sees.

What the real problem may be is that physicists a wrong about the neutrino in the first place. In theory, when the sun's hydrogen is changed to helium the by-products are electrons, photons, and the neutrino. Neutrino's alone are able to escape the sun's core directly and fly into space at the speed of light in large amounts. And since they do go into space unchanged, they should provide Earth scientists with direct information on what's going on at the sun's core.

But the one catch that imposes into any discussion on neutrinos is that although scientists know there are three so-called "flavors" of neutrinos, no one knows if they can change randomly back and forth between flavors. Davis' experiment only measures one of these flavors...so if neutrinos are changing flavors on the 93 million mile trip from the sun to Earth, Davis would understandably miss them and come up with the lower than expected number.

So far, no one has found if neutrinos oscillate from one form to another. Recently a new form of Davis' experiment has started using a medium that can measure neutrinos in a wider range. If these experiments come up with the same number that Davis has so far gotten, then there will be little question but that they do oscillate...and that in itself will open a whole new can of worms!

Presidents' Message

Believe it or not it's getting close to that time of when we all break out our telescopes. vear again. computers, posters, VCR's and whatever else we have the annual Astronomy Day observance. This years official date for astronomy day is Saturday, April 27th...that's only 3 meetings away counting this next meeting. past few years the PAC program chairman has been head of the event, but this year our program chairman (Andy) will out of the country, so we will need to I hope that one of you will volunteer for the substitute. at the next meeting...if not I'll have to someone (maybe myself) to be in charge. The job is really too difficult if you select a good committee to help Tasks can be divided up so that no one person out. We also will load. Please consider it. bears the passing around sign-up sheets for people to bring telescope, VCR's, computers, posters, or whatever else you have. I hope everyone will think about getting involved this year.

Starting this month we will be having PAC Board meetings after each of our regular PAC meetings on tuesday nights. We hope that by doing this we can shorten the time taken for the regular business meeting. Many members have commented that the business part of the meeting takes too long. From here on out we will try to limit the business meeting to real business. 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.

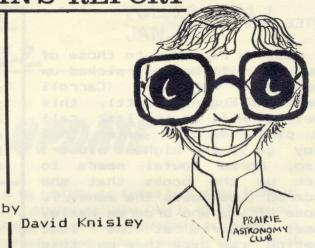
DBSERVING CHAIRMAN'S REPORT

February 15th is the date of the next star party so get your telescopes ready. A good starting object this month is the fairly bright galaxy NGC 2403 in Camelopardalis. Located about a degree west of 51 Camelopardalis, the galaxy is visible in 7x50 binoculars and shows some patchy details in an eight inch.

Farther south in Lynx 5 1/2 degrees west and one degree south of alpha is the nearly edge on spiral galaxy NGC 2683. It should be visible in a four inch telescope and my eight inch shows it as a fairly long needle of light with a brighter mottled middle.

Gemini 2 1/2 In dearees south and 1 3/4 degrees west alpha is the unusual planetary nebula NGC 2371.2. should be visible in a six faint as two fuzzy inch patches of light. Another interestina planetary is NGC 2392 located about 1/2 degree south of 63 Geminorum. rather bright and small bluish inner shell with central star and a fainter outer shell.

A nice big cluster is NGC 2265 in Monoceros. It is grouped around the fairly bright star S Monocerotis and is a large group of 20 or so bright stars with some faint nebulosity intermixed. 1 1/2 degrees southwest of S is the



unusual nebula NGC 2261. known as Hubble's variable it is a small fan nebula. patch of light that shaped should be visible in a Six the inch telescope. Over vears, it changes its appearance slightly so it bears watching.

object that is really by the Lumicon nebular helped filter is NGC 2237. Rosette Nebula. located east of epsilon dearees The central star Monocerotis. NGC. 2244 is easy in cluster even small instruments but the nebula can be seen visually with the nebula filter and is beautiful when viewed with a large telescope and a filter.

NOTES FROM LEE ...

Just a reminder to those of you who still haven't picked up your RASC Handbooks (Carroll Moore and Eugene Brott), this meeting will be the last call to pick them up. After that they go to the highest bidder! Also. Norma Coufal needs to pick up the books that ordered (Lee needs the money!). Those of you who ordered Halley Comet Tshirts at the meeting can pick them up this tuesday night. For anyone who didn't get a chance to order the Tshirts at can still do so meetning. you this meeting.

THIS MONTH'S PROGRAM ...

Jack Dunn will be presenting this month's program. First he will have for us a planetarium presentation entitled "Halleys Comet Show", then he will be running a video tape on the new Digistar projection system. We hope you will make it!

IMPORTANT DATES

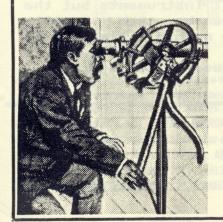
F 5th...full moon 10:19 UT
E
B 15th..monthly star party at
R Earl Moser's
U
A 19th..new moon 13:43 UT
R
Y 26th..PAC meeting 7:30pm

THE PRAIRIE ASTRONOMER c/o Prairie Astronomy Club, Inc. P.O. Box 80553 Lincoln, Nebraska 6850I





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