The Prairie Astronomer

October 1995 Volume 36 Issue 9/10

President's Report

by Dave Scherping

PRESIDENT'S REPORT
By Dave Scherping

CONGRATULATIONS

I'm pleased to announce that **KEVIN DOWD** has recently completed the requirements for Honorary Messier Certificate. To receive this award from the Astronomical League, Kevin had to independently locate, observe and record all 110 Messier objects. Kevin nailed his last several objects at NSP.

Also, we have two members, **RANDY VOLK** and **LARRY HANCOCK**, who will be receiving the Regular Messier Certificate. For this award, they had to observe & record 70 or more Messier objects. Congratulations to these individuals. Good work! (This makes 5 awards for PAC this year!!!!)

NOMINATIONS FOR PAC OFFICERS

It's once again time to nominate & elect officers for the upcoming year. Official nominations were opened at the September PAC meeting. Nominations will resume at the October meeting, followed by elections. The following is a list of positions and brief descriptions of responsibilities:

PRESIDENT: Coordinate PAC meetings and other club activities.
VICE PRESIDENT: Facilitate the PAC meetings when the President is absent.
2nd VICE PRESIDENT: Coordinate programs at the monthly meetings.
TREASURER: Oversee financial of PAC.
SECRETARY: Handle club correspondence & publicity & distribute information.

(See club bylaws in the Jan'94 issue of "The Prairie Astronomer" for official descriptions)

CLUB ACTIVITIES

There have been several PAC activities since the last newsletter.

This year's PAC picnic was held at Hyde Observatory on August 26th. It was a great day for a picnic and we had a fairly good turnout. Unfortunately, the partly cloudy skies discouraged many observers, but those who did venture to the Atlas Site reported several brief periods of clear skies through the night.

The last of this year's Mahoney State Park public observing nights was held September 1st. It was very successful and well supported by both the PAC and the OAS. There was a total of 17 telescopes set up, including a 20" Dob, several 8-12" Dobs, a few SCT's and two nice refractors. It's hard to say how many visitors we had, but it was a great turnout. The Mahoney star parties have been well received by the Game & Parks Commission, Mohoney State Park visitors, and several surrounding schools. Thanks to all who helped out. We will be working with the Omaha Astronomical Society in the near future to schedule dated for next year's Mahoney Star Parties.

I presented the Nebraska Star Party volunteer list at the August and September PAC meetings and the September OAS meeting. Below is a list of the areas of responsibility and those who have generously volunteered their time. Note that there are still several areas open.

Coordinator:	Dave Scherping
OAS Liaison	Louis Dorland
Treasurer	John Bruce
Registrations	Tom Miller
Registration Table Coordinator	Kelly Erlandson
Registration Table Helpers	David Knisely
	Doug Bell
	Tom Miller
	Dave Hamilton
	Kevin Koutnik
	Larry Lusk
Registration Pamphlet & Pre-Star Party Mailings	
	Bob Losee
	Bryan Schaaf
	Bev Hetzel
Star Party Schedule Booklet	BillO'Donnell(OAS)
	Tom Gehringer(OAS)

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Observing Chairman's Report

by Douglas Bell

October 31st (Boo), For November observing.

Next star party:	November 17
New Moon:	November 22
Lunar object:	Plato Landslides
Planet:	Saturn
Messier monthly:	M 32,110
Top 40:	M31
Deep sky:	NGC 891
Challenge:	Hale-Bopp

Lunar feature: *Plato Landslides*
One of the most interesting craters on the Moon. Look for the plainly visible evidence of landslides on the western rim. The small craterlets inside Plato proper are a traditional test of good optics and seeing.

Planet of the month: *Saturn*
A bit of a bizarre year for the ringed planet. On November 19th the ring plane crosses Saturn's ecliptic. What do you see?

Top 40: *M 31 The Andromeda Galaxy*
This can be disappointing at first look. However, it's always sobering to realize that you're seeing and entire galaxy. In fact, half of the all the mass that's visible to the naked eye is contained in that little smudge up there. Use as low a power as your scope can take.

Messier Monthly: *M 32, 110*
The companions to the great Andromeda (M31). Easily found near the big guy, it's possible to get them all in a single wide field view (about 1.5 degree). A pretty sight on those nights when every breath makes a little cloud.

Deep Sky: *NGC 891*
Might as well stay in Andromeda this month. NGC 891 is described as a "classic edge-on with dust lane". Can you see the lane? Can you see it at all? Shouldn't we try again when it's not cloudy?

Challenge: *Comet Hale-Bopp*
Be the first on your block to see the comet of the century! Will this be the big one we've all been waiting for? Or will it be another Kahoutek? Will we be swamped with the "world is ending" hallucinations again, or will we just die laughing? Only time will tell.

Astro trivia: Why do the winter stars seem so much brighter than the summer stars?

Last month's answer: NASA has launched six different manned orbital vehicles: Mecury/Atlas, Gemini/Titan, Apollo/Saturn 1B, Apollo/Saturn V, the Space Shuttle, and.... the lunar module. And yes, this is a trick question.

I often hear of people listening to music during an observing session. However, many times it's hard to think of what's a good listen, or we don't know what others are listening to. Please let me know what your favorites are so we can include them in future newsletters. Here are some of mine:

Loreena McKennit "The Visit"
Haunting Celtic melodies just right for a spooky autumn evening. The first piece is specifically about Halloween and conjures

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The Prairie Astronomer is published monthly by the Prairie Astronomy Club, Inc., and is free to all club members. Membership status and expiration date are listed on the mailing label. Membership dues are: Regular Members...$10/yr; Family Memberships...$12/yr; Address all new memberships, renewals, or questions to THE PRAIRIE ASTRONOMY CLUB, INC., P.O. BOX 80553, LINCOLN, NE 68501. For other club information contact one of the following: John Bruce (Lincoln) 483-0389, Lee Thomas (Lincoln) 483-5639, John Lortz (Omaha) 496-1122. All newsletter comments and articles should be sent to Newsletter Editor JOHN LORTZ, 11684 MEREDITH AVE., OMAHA, NE 68164 no later than 10 days before monthly club meetings. Club meetings are held the last Tuesday of each month at Hyde Observatory in Lincoln, NE.

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Banquet & Meeting Room Coordinator	* 1 person needed
Banquet & Meeting Room Helpers	* 3-5 people needed
Tee Shirts	* 1 person needed
Canoe Trip	* 1 person needed
Traffic Control Coordinator	* 1 person needed
Traffic Control Helpers	Kevin Koutnik (6-10 people needed)
Publicity & Advertising	Doug Bell
Campground & Observing Field Coordinator	* 1 person needed
Door Prizes	Louis Dorland
Programs Coordinator	Erik Hubl * 1 additional person needed
Astrophoto & ATM Contest	Kelly Erlandson
Name That Object Contest	David Knisely
Deep Sky Challenge	Dave Hamilton * 1-3 additional people needed

The next **NSP Organizational Meeting** will be held:

Friday November 3rd
7:00 pm
Mahoney State Park - lodge restaurant

All volunteers should plan on attending and anyone else is welcome to come.

ASTROMAN

I'm sad to say that AstroMan is currently suffering from a severe case of Humor Absentitis, complicated by acute Rat Racetitis, and therefore will not appear in this issue of The Prairie Astronomer. He assures me he will be in top form next month. In the meantime, your condolences may be sent to ASTROMAN7@AOL.COM.

IN CLOSING...

This is officially my last report for this term as President of PAC. I have truly enjoyed serving as president and am proud of the accomplishments made by The Prairie Astronomy Club throughout the past year. Through activities such as Astronomy Day and the Mahoney Star Parties, PAC has introduced astronomy to many people in Nebraska. Our telescope building project was incredibly successful and will be a great asset to PAC in years to come. An article about the PAC 13" telescope is to be featured in a future issue of Sky & Telescope. And, of course, the 2nd annual Nebraska Star Party was everything we had hoped it would be. NSP generated national publicity for our club and the state of Nebraska. Many articles appeared in newspapers (released via AP), there was TV & radio coverage, and articles are scheduled to appear in Sky & Telescope, Astronomy, The Reflector, and Amateur Astronomy. In summary, the past year has been incredible. These things could never have been accomplished without the combined efforts of the many people who graciously devoted their time and effort. I could never manage to list everybody involved, but there are a few who deserve special recognition: Tom Miller for serving as NSP Coordinator, Doug Bell for serving as Observing Chairman, John Lortz for many years as editor of The Prairie Astronomer, and of course, the other PAC Officers: Tom Miller-VP, Dave Knisely-Program Chairman, Bryan Schaaf-Secretary, and John Bruce-Treasurer. Thanks to all of you.

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wonderful images of ancient times and beliefs.

J.S. Bach "The Brandenburg Concertos"
Six bright and lively instrumentals for baroque (small with harpsichord) orchestra. A perfect Autumn selection.

George Winston "December"
Nominally a holiday album, these beautiful piano solos are great for any dark night.

Andrew Lloyd Weber "The Phantom of the Opera"
Big Opera for orchestra, voices, and organ. One piece in particular should be every stargazer's anthem "The Beauty of the Night".

Ludwig Von Beethoven "Seventh Symphony"
Try something other than his 9th or 5th (da da da dummm). An upbeat piece for full orchestra.

Windham Hill Artists "A Winter's Solstice"
Great music with an astronomical title! Intended for a mid-winter's concert, these are instrumental pieces for small groups of classical instruments. You'll recognize some of the pieces as holiday selections but it's not a traditional Christmas album.

MEETING ADJOURNED (August Meeting)

Secretary's Report by Bryan Schaaf

President Dave Scherping's meeting agenda for the August 29th meeting began with "What's Up?". The answer is plenty! Comet Hale-Bopp is visible in the constellation Sagittarius. Dave provided some coordinates to locate it. He described it as appearing "elongated with a coma and a stellar nucleus" from a observation he and others made from the Beaver Crossing site on August 25th. This comet and two others, Comet D-Arrest and Comet Bradfield, were discussed at the meeting for several minutes. Comet Hale-Bopp is by far the best placed in the sky for us now. Look for it with a telescope from a dark observing site away from city lights. More details appear in the October issue of Sky & Telescope magazine.

The light shield for the Atlas Site will fit properly, but hasn't

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been put up yet (August 29th}. There was mention that the neighbor by the site said he would install it.

Copies of Associated Press newspaper articles about the very successful Nebraska Star Party this year were handed out to members at the meeting. Also, there have been many favorable comments about NSP over internet. We got great publicity!

Look for more NSP articles with photographs in various astronomy magazines. Dave Knisely has written an article for ***The Reflector***. Dave Scherping has written an article for ***Sky & Telescope***. Jason Stahl has written an article for ***Amateur Astronomy***.

Planning is already underway for NSP '96. Some persons have already volunteered for organizational positions, but there are many more vacancies that must be filled. Dave said, "For this to work we need alot of volunteers. We started something big and next year it will be a lot bigger". We may have to limit the regisration to 400 participants, since the Peppermill (restaurant) building were the banquet was held can only accommodate 300.

Nominations for next year's club officers will be open at the September meeting, followed by elections at the October meeting, so be thinking about who you want to represent our club. The officer positions are: President, Vice President, Treasurer, Program Chairman, and Secretary.

PAC has provided solar system data for Prairie Peace Park, located on exit 388 (Crete/ Pleasant Dale) on I-80. The data will be used to construct a outdoor scale solar system model. Funding for this project is still uncertain. The park director, Lincoln Justus, requested a 70 dollar donation from PAC. The decision was made to not make a decision yet. We would need more information about the project before we commit to anything.

A motion was made and carried to continue our National Dark Skies Association ($50 annual) membership. Erik Hubl pointed out that there has been some great benefit. Because of our membership influence and persistance, the city of Lincoln has adopted construction codes that include lighting ordinances. Ron Veys added that Hyde Memorial Observatory is also a member.

Kevin Koutnik brought his personal copy of his new book to show. "The Messier & Herschel Star-hopper" contains maps and listings of all the Messier and Herschel objects. He's asking for $22.00 per copy. Orders for this informative book may be sent to Kevin Koutnik, 2860 31st Ave., Columbus, NE 68601 or he may be contacted by phone at (402) 564-2432.

Meeting guests, Ralph and Kathy, announced that they want to buy a telescope. They are looking for a 8" to 10" telescope for less than $500. If you have such a telescope or know of someone that has one for sell, please contact Dave Scherping (477-2596) and he will phone Kathy and Ralph immediately.

Earl Moser brought along his nearly complete collection of PAC newsletters and announced that they will be available for the club archives in the future. He asked that if anyone has newsletters to give away, that they be added to his newsletters to complete the collection.

Earl introduced charter PAC member Werner Klammer. Werner lives in Seward, Nebraska now, but will be moving to Johnstown next year, which happens to be only 65 miles east of Merritt Reservoir! He wants to sell his Sky & Telescope issues (1961-1982) and a telescope mount that he built, but never used. The mount has 5" bearings and he would let it go for $150; the amount he paid for it years ago.

The program after the meeting was a video entitled "Optics Collimation of Newtonian Telescopes" by Richard Combs & Alan B. Gorski in association with the Tri-Valley Stargazers Astronomy Club, Livermore, California.

MEETING ADJOURNED (Sep. Meeting)

Secretary's Report by Bryan Schaaf

Although the September 26th PAC meeting at Hyde Memorial Observatory began some 14minutes late, due to a over run of the observatory steering committee meeting, numerous interesting conversations arose inside and outside the observatory in the meantime. Ralph and Kathy's Celestron 8 was tested for collimation outside and a multimedia computer presentation was being prepared on the inside.

President Dave Scherping began the meeting at 7:44 pm with recognition of visitors, of which there were many. The "What's Up?" portion of the agenda (intended as a general overview of astronomical events for next month) included the Orionid Meteor Shower peak on October 22nd and Comet Hale-Bopp which is visible "NW of Delta Sagittarius".

Descriptions of where to find each of the planets were also included, with Earth being the easiest. Dave specifically urged everyone to get outside to observe the comet, since you only have about a year and a half to observe it! It does appear to be a spectacular comet so far, considering it's far Jupiter-like distance and relative brightness (10th magnitude).

Friday, October 27th is the date for a star party at Behlen Observatory. A " 30 inch Telescope Shootout" competition is scheduled. The star party officially begins at 8:00 pm.

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The light shield, that was proposed for the neighbor of the atlas Site last June, was not accepted because the shield "concentrates the light downward too narrowly". Erik Hubl suggested that the shield could be modified slightly to direct the llight more broadly. He will check into it.

Treasurer John Bruce reported that a increase of club dues of at least $4.00 will be necessary soon, because of the price increase(s) of THE REFLECTOR quarterly newsletter and other unavoidable expenses that have ascended beyond the budget of the Astronomical League (A.L.). A discussion ensued about what benefits the A.L. provides to us. There was agreement that there are many benefits, such as reduced prices for astronomical books, free access to slides and films, regional conventions, and astronomy programs (Messier Program for one). The Pros and cons of what benefits A.L. provides us, the subsequent increase in A.L. dues, PAC dues and additional details will be provided at the October meeting for consideration.

The Nebraska Star Party T-Shirts re-order was not re-ordered yet. There is still some time to get your order in. Contact John Bruce soon, if you want a(nother) NSP T-Shirt. The NSP '96 volunteer list was handed around at the meeting and several persons signed their names to various tasks. Volunteers are desperately needed to insure that there is a NSP next year. It is certain that there will be many attendees and good organization is essential.

Nominations for next year's club officers were opened at the meeting and will remain open into the October meeting just prior to elections. The officer nominations so far are:

President: Dave Scherping, Jason Stahl
Vice President: Doug Bell, Kelly Erlandson
2nd V. President (Program Chairman): Erik Hubl, Doug Bell
Treasurer: John Bruce
Secretary: Bryan Schaaf, Dave Hamilton

John Lortz has generously donated his time as editor of the Prairie Astronomer newsletter and donated the cost of paper and postage for a number of years. His generosity to PAC has far exceeded the benefits to him from the club. He has asked that we find another editor or editors to take on the newsletter. The paper and postage expenses will have to be absorbed by the club treasury thereafter. A bi-monthly newsletter (six instead of twelve per year) format was suggested to save postage costs. After the meeting, three persons expressed interest to help edit the newsletter. At least one has reservations about taking on the task, without first acquiring the software and training necessary to continue the excellent work that John has generously provided.

The program after the meeting was a multimedia presentation entitled "Computers in Astronomy" by Leona Barratt. Leona is the daughter of Earl Moser.

LIFE ON THE EDGE

by Martin Gaskell

No, my title doesn't refer to the Dr. James Dobson film series, but to an event that happens every fifteen years or so: Saturn's rings going edge-on. We are now in the middle of the 1995-96 triple ring-plane crossings. For me this has been a very nostalgic event, because it is a re-run of the 1969 triple crossing. It is now exactly one Saturnian year later and Saturn is in the same part of the sky. I observed Saturn carefully in the 1969 apparition with the first incarnation of "Tel'Poke", the Gaskell family's homemade 6" Newtonian. The telescope might have a new mounting now but the primary is the same (as is its non-overcoated aluminum coating!). I've still got those observations packed away safely somewhere, but I want to talk about this year's events.

I first became aware that the ring-crossing was approaching in the summer of 1994 when I swung Tel'Poke round to Saturn for the first look of the apparition. The thinness of the rings took me by surprise. I had been watching the rings close over the previous few years in a casual way while showing Saturn to innumerable students but the change while Saturn was behind the sun in the spring of 1994 startled me. I took some photos with Tel'Poke that fall just to have a reminder of what Saturn looked like with rings and to start documenting the ring crossings. I had missed the ring crossings of 1979-80 as I was too busy with professional astronomy at the time. I was determined not to miss out on the 1995-96 crossings.

On the evening of May 14, the sky was clear and the seeing good. I measured the PA and separation of Castor and then moved Tel'Poke to a spot where I hoped I would have a clear view of Saturn before dawn. The first ring-crossing was less than 7 days away. Leaving Tel'Poke set up I went to bed hoping I would wake up at the right time (I couldn't set an alarm because it would wake my wife!). Fortunately I woke up as twilight was beginning. When I got outside the stars were not twinkling at all! The seeing proved to be perfect! It was the best I've ever seen, and this was just as well because Saturn was extremely low.

"Happy first Saturnian birthday!" I said to the Tel'Poke optics. Purely for nostalgia I located Saturn with the same 1" Ramsden I used to center Saturn with 29 years ago. Then I had my first high-power look with the same high-power Ramsden I used back then (remember Ramsden eyepieces anyone?!). The flaring with the low power reminded me that my eyes are much worse than they were in 1969! It was a very emotional moment as I quickly drew Saturn, concentrating on what I could see of the rings. I was being taken back 29 years in time. All sorts of things had happened in my life during those 29 years, but Saturn had faithfully come back to edge-on

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again and here I was looking at it with the same 6" mirror and Ramsden eyepieces as in 1969.

On the morning of May 19 I had finished a full night of observing at Behlen Observatory. We used the 30" Cassegrain to have a quick peek at Saturn before dawn. The seeing had been sub-arcsecond most of the night and we had a great view of the faint rings. The contrast of the disc features was much better than with Tel'Poke and I could see structure down to about 0.5 arcsecond. However, using a 30" professional telescope to look at Saturn feels like cheating somehow!

On Saturnday (Oops, I've made a typo, but it's s an appropriate one so I'll leave it in!), May 20, conditions were once again good so I set up in advance for dawn on the 21st, the day of the first ring-crossing. Once again I managed to awake with no alarm and headed off into the garden in my pajamas. Less emotionally this time I swung Tel'Poke round to Saturn.

"IT'S GONE!" I exclaimed aloud. There was Saturn, quietly sitting in the center of the field, but ringless! -- just as in 1969. The cycle was complete. I made another quick drawing as dawn broke.

I didn't pay much attention to Saturn in June and July. It was rising much too late for convenient observing. The next excitement was going to be seeing when the rings came back. On August 9/10 the Behlen 30" failed to show any rings. August 10/11, the day of the second crossing was cloudy. I wasn't too upset as I had seen the first crossing. On August 11/12, using 250X on Tel'Poke, in poor seeing, I couldn't see the rings. At least, I thought I couldn't. I seemed to be imagining two faint stubs on either side of the planet during moments of better (still not good) seeing. I didn't think they were the rings because they were well offset from the shadow of the rings on the globe, but I was convinced enough that I was seeing, or imagining, something that I made a couple of drawings of what I thought I was seeing. Many days later, on considering the earth-sun-Saturn geometry I realized that the stubs were indeed the rings.

The next night (Aug 12/13) the seeing was somewhat better. I was pretty sure I was now seeing the rings. I got a second opinion from my wife.

"They're as plain as day" Barbara said after a minute or so of looking. Since then I've looked at Saturn just a couple of times with our 6" to make a couple of really careful drawings. I've been looking at the British Astronomical Association (BAA) Saturn section report for 1969 and I'm trying to do a detailed comparison of the surface of Saturn over one Saturnian year. I've worked on getting the latitudes of the zones and belts from my drawings and I've tried to get good intensity estimates. There seem to be a couple of significant differences, in which case the seasons do not repeat exactly on Saturn. I won't tell you what I think the differences are! Make your own observations and then borrow the 1969 report from me to see if you agree!

What's next? Well, this next month, around November 19, we have sun crossing. Over a few days thereabouts the sun will gradually set on the north side of the rings and once again the rings will vanish, at least in small 'scopes. If you want to try to see the dark side of the rings and you missed June and July, Nov. 19 through Feb. 11 is going to be your chance. The dark side can be seen faintly because of "Saturnshine" and sunlight scattered through the rings. Based on the 1969 BAA report (and my own experience then) I don't expect to be able to do this with Tel'Poke (too little aperture and too much scattered light), but 10" and 12" reflectors should be able to do it.
Finally, on Feb. 11, as Saturn is fading into the sunset, we have the third earth crossing and at last we get to see the south side illuminated. This is the side we'll be stuck with until 2009.

2009 is going to be an unfavorable single earth crossing, as also is 2025. For another favorable triple crossing you have to wait until 2038-2039, so don't pass up the opportunity to participate in watching an event that occurs only a few times in the average lifetime.

A Note From the Treasurer

by John Bruce

Its that time of the year again. What time is that you ask? Time to place orders for RASC Handbooks and other assorted yearly publications that can be yours at special discounted prices.

Here is what we are offering this year.

1. RASC Observers Handbook 1996
   Published by Astronomical Society of Canada
   List price $16.95 (single piece)
   PAC special cost $11.00

2. Exploring the Universe Calendar 1996
   This is a full color "wall" size calendar
   Published by Kalmbach (Astronomy magazine.)
   List price $10.95
   PAC special price $5.50 IF we sell 5 - 10 pcs
   PAC special price $5.00 IF we sell 11+ pcs

3. Astronomy and Space 1996 Weekly Calendar
   Published by Starry Messenger Press
   This is a spiral bound 6" X 9" "desk" calendar
   It is in the two page per week format - the left side being a full color picture and the right being calendar
   PAC special price $11.00 IF we sell 2 - 4 pcs
   PAC special price $10.00 IF we sell 5 - 9 pcs
   PAC special price $9.00 IF we sell 10+ pcs

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4. Discover the Universe 1996 Calendar
   Published by Tide-mark Press
   This is a "wall" type calendar by Richard Berry
   (former editor of Astronomy Magazine)
   List price $10.99
   The only way I will order these is if we sell 12 or more of them. Otherwise they cost the full retail.
   PAC special price $5.00 IF we sell 12 or more only

We do not need to collect until we deliver the products. (we have enough $$$ in the treasury to float this for a month or so) BUT IF YOU ORDER YOU ARE EXPECTED TO BUY (PAY). I will of course take advance payments if you want to do it that way, but if a price goes down because of quantity between the time you pay me and the time things arrive, think about making the difference a donation to the club. I will refund differences but please recognize the time and effort that a $.50 or $1.00 refund takes. Just for your peace of mind, PAC will profit no more than $0.15 per item on any of the above. (Just so no one thinks that the officers are planning a trip to the Winter Star Party)

PS
I have not seen anything about the Ottwell materials as of this writing, if I get anything I will bring it to the meeting or publish a notice in the next newsletter.

The Dark Sucker Theory

(found on the internet by John Bruce)

For years, it has been believed that electric bulbs emit light, but recent information has proved otherwise. Electric bulbs don't emit light; they suck dark! Thus, we call these bulbs Dark Suckers.

The Dark Sucker Theory and the existence of dark suckers prove that dark has mass and is heavier than light.

First, the basis of the Dark Sucker Theory is that electric bulbs suck dark. For example, take the Dark Sucker in the room you are in. There is much less dark right next to it that there is elsewhere. The larger the Dark Sucker, the greater its capacity to suck dark. Dark Suckers in the parking lot have a much greater capacity to suck dark than the ones in this room.

So, as with all things, Dark Suckers don't last forever. Once they are full of dark, they can no longer suck. This is proven by the dark spot on a full Dark Sucker. The dark which has been absorbed is then transmitted by pylons along to power plants where the machinery uses fossil fuel to destroy it.

A candle is a primitive Dark Sucker. A new candle has a white wick. You can see that after the first use, the wick turns black, representing all the dark that has been sucked into it. If you put a pencil next to the wick of an operating candle, it will turn black. This is because it got in the way of the dark that was flowing into the candle. One of the disadvantages of these primitive Dark Suckers is their limited range.

There are also portable electric Dark Suckers. In these the bulbs can't handle all of the dark by themselves, mostly due to their small size, and must be aided by Dark Storage Units. There are two types of Dark Storage Units in common use. One chemically destroys the dark placed in it by the bulb, and when the chemicals are depleted the unit is disposed of. The second type of Dark Storage Unit is reusable. The reusable type is a true storage unit which can be emptied in a docking station. This docking station is connected to the system of pylons leading to the power plants, which have higher efficiencies and are more ecologically sound than the disposable chemical units.

Dark has mass. When dark goes into a Dark Sucker, friction from the mass generates heat. Thus, it is not wise to touch an operating Dark Sucker. Candles present a special problem as the mass must travel into a solid wick instead of through clear glass. This generates a great amount of heat and therefore it's not wise to touch an operating candle. This is easily proven for light bulbs too. When you compress a gas, it gets hot, this is a law of physics. So the light bulb gets hot because of all the dark being compressed into the wire of the filament.

Also, dark is heavier than light. If you were to swim just below the surface of a lake, you would see a lot of light. If you were to slowly swim deeper and deeper, you would notice it getting darker and darker, When you get really deep, you would be in total darkness. This is because the heavier dark sinks to the bottom of the lake and the lighter light floats at the top. This is why it is called light.

Finally, we must prove that dark is faster than light. If you were to stand in a lit room in front of a closed, dark closet, and slowly opened the closet door, you would see the light slowly enter the closet. But since dark is so fast, you would not be able to see the dark leave the closet. So next time you see an electric bulb, remember that it is not a light emitter, but a Dark Sucker.

The above was obviously not written by an astronomer or physicist, nor has it been read by one yet. The reason that I say this is that either of these would have seen what I did in this exciting new discovery. THIS IS THE ANSWER TO THE MYSTERY OF THE "MISSING MASS" PROBLEM THAT PLAGUES THESE TWO GROUPS.

I would propose that the mass of dark is about 6 to 10 times the mean mass of the particles that are now known. I am going to apply for a grant to study this further, so please have the courtesy to give me time to announce my findings in reputable scientific journals. The only thing I need to ask is if any of you have the address of Pons & Fleischer at the University of Utah, so that I can contact them for advice on how to proceed from here.

HOW TO REDDEN YOUR NIGHT VISION:

By Bryan Schaaf

Red light-emitting diodes are astronomy's answer to "How can I read my starcharts, see my eyepieces, setting circles, etc. without destroying my night vision?". The red LED light is real red light, not filtered like cellophane over white light. LEDs are also low luminosity to further ensure dark adaptation. LED flashlights of many designs are available commercially, but they're also very easy to make by converting normal flashlights or Maglites.

To convert a normal two-cell flashlight into a red LED light, first, remove the lens (usually plastic) from in front of the shiny reflector/bulb assembly. Then gently crush the bulb with pliers. Carefully clean away the glass. You will see two small leads sticking out of the base of the bulb. Touch the leads of a LED (Radio Shack Cat. No. 276-046 is good) to those leads on the bulb. With the flashlight "on", the LED should light, but if not, then turn it around so the opposite leads are touching. Trim the LED leads to 1/4" long, position, and solder them. Replace the lens.

To convert a Maglite into a red LED light is even easier. Trim the leads of an LED (Radio Shack Cat. No. 276-046 or 276-041 are good) to 1/4" long. Remove the narrow white bulb and plug the LED into the little holes where the bulb was. If the LED doesn't light, then turn it around and plug it in the other way. Electrical current flows only one way in a diode, so plugging it in the "wrong" way won't damage the LED.

HOW TO MAKE A DO-IT-YOURSELF EYEPIECE-ACCESSORIES CASE:

By Bryan Schaaf

I'm not the handyman type of guy, but when I checked out the prices for eyepiece cases in a telescope accessories catalogue, I decided to make my own. Finding fishing tackle boxes too dinky and luggage cases too bulky and camera cases too expensive, I finally found an inexpensive, but durable tool box case of the right size and weight. The *toolmaster truck/van box* (priced about $12) is made of molded black plastic with a fold down handle in the center of the lid and two plastic latches that are large enough for access with gloved hands.

I couldn't find large blocks of soft foam to use inside my box. If you have large blocks of soft foam to fit your box interior, then use it, and ignore the following procedures. That material, if not too spongy, will work the best.

You will need one or two large pieces of styrofoam that is available at a lumber store or can be saved from home appliance packaging material, a roll of double-sided tape that is available from hardware stores, an X-acto knife, and a pen. Cut and fit the s-foam to match the interior dimensions of your box. Apply strips of double-sided tape to the bottom interior surface of the box and press the s-foam snuggly inside.

After you have pressed the styrofoam into place you are ready to determine where in the box you want to position your accessories. Your short barrel eyepieces can be positioned vertically, but longer accessories such as barlows or large eyepieces or a telrad that exceed the depth of your box will have to be positioned horizontally. The interior dimensions of my box are 23 3/4" L x 7" W x 2" D, which allows only 2 inches of depth. Place your accessories on top of the s-foam where you want them.

With a pen, first, carefully trace (on the top s-foam surface) around the perimeter of a large accessory. An Xacto-knife is sufficient for making shallow vertical incisions over the lines you've just drawn and carefully pecking away small pieces of styrofoam for shaping the custom-sized hole. It is best to cut out small pieces at a time and finish one large accessory hole completely before proceeding to another (Oops! There are too many holes like swiss cheese). Drop your accessory into the respective hole often as you shape the hole to test it for smoothness and proper shallow depth. Remember that a generous portion of the accessory must extend above the styrofoam to be grippable (or oops! It's submerged). Small bumps of s-foam can be pressed down to level the accessory. Some bumps may have to be cut out. Follow these procedures for each of the large accessories.

By holding one of your small eyepieces with the barrel down against the s-foam you can gently press the exact sized (1 1/4" or 2" standard) circle patterns into the surface much like a cookie cutter is used to press patterns in cookie doe. Cut out the barrel holes and clean out any loose bits of styrofoam.

To finish the interior you will need a thin layer of soft foam and more double-sided tape. I laid a thin 3/8" layer of soft foam over the styrofoam and cut out holes to match those already cut. After some consideration to use contact cement to join the soft foam to the styrofoam surface, I opted to use plenty of double sided tape instead. Tape is gentle on the materials, and the interior can be easily modified. Apply strips of double-sided tape and foam to the interior of the lid also. The soft foam will hold the contents of your case snuggly in place, protect them from possible damage, and help keep them clean.

For over a year my done-it-myself eyepiece-accessories case has been a great help to my preparedness for observing. I never have to search for loose lying accessories at home and have not forgotten or lost an eyepiece in the dark.

HOW TO REDDEN YOUR EYEPIECE-ACCESSORIES CASE:

By Bryan Schaaf

For over a year my done-it-myself eyepiece-accessories case has been a great help to mypreparedness for observing. I never have to search for loose lying accessories at home and have not forgotten or lost an eyepiece in the dark. It's customized for my needs. What more could I ask for in a eyepiece-accessories case? How about interior red lighting that automatically turns on the instant the case is opened and shuts off when it is closed?

Recently, while attending a star party, I saw such a case. The owner described the construction as I gazed at it in the red-light punctuated darkness. He modified a fishing tackle box with simple electric components. Although my case and methods would be somewhat different from his, the modification is suitable for mine and any other case too. He constructed his light-emitting diode supports with strips of sheet metal attached to the case by rivets. I drilled small holes inside my case and inserted LED holders into the holes with glue. Your case may require a somewhat different modification, but it is my hope that the following procedures or ideas are helpful.

Here is a list of components I purchased from Radio Shack for about $13.00:

1.	4AA BATTERY HOLDER	Cat. No. 270-383
2.	RED HIGH-BRIGHTNESS LEDs WITH SNAP-IN HOLDERS (2)	Cat. No. 276-018A
3.	22-GAUGE WIRE (3 ROLLS)	Cat. No. 278-1224
4.	SMINI SPDT LEVER (MICRO-SWITCH) (1)	Cat. No. 275-016
5.	HEAVY-DUTY MOLDED BATTERY CLIPS (5)	Cat. No. 270-324
6.	ANY TOGGLE SWITCH OR SLIDE SWITCH	Cat. No. ?

Here is a list of additional items needed:

1. X-acto knife
2. tweezers
3. soldering gun/iron, solder, flux
4. contact cement (glue)
5. needlenose pliers
6. drill, bits
7. plastic ties (2)

To begin the modification, as I did it on my *Toolmaster Truck/Van Box*, locate a 1" wide molded hollow section spanning the full length of the lid end to end in the side where the latch hinges are attached. Drill a single 5/32" pilot hole (any similar diameter hole will work) in the interior side of the lid centered between the latches. Drill another hole on the same hollow section several inches to the right of the center hole and one likewise to the left. I arbitrarily chose a distance of 6 3/4" between the holes, but a little more distance would be fine.

Drill two more pilot holes (totalling 5) to the left and right approximately 1 1/2 inches from the ends of the lid or as desired, because all the pilot hole locations will be where you thread electrical wire inside the lid. Three holes will be the positions of your three (LED) lights. Two will be the positions of your battery holder and optional on/off switch. Note: A sixth and final hole will be drilled/shaped later on one end of the case for the location of your micro-switch. The three LED pilot holes must be redrilled with a 5/16" bit, so that the LEDs (Cat. No. 276-018A) can be inserted later. I recommend that the two remaining holes be enlarged with a 1/4" bit to make the threading of wire easier.

Thread one strand of red wire from its roll through one of the end holes and catch it with tweezers at the next hole. Pull the wire out the second hole and back into the second hole to form a 2"-3" size loop. Continue threading to each consecutive hole and leave a loop at each one. When you have the end of the red wire pulled and looped through the fifth hole, stop.

For the micro-switch, find a location that is one to two inches from the corner that's near the case hinge against the hollow section on the end of the lid. The location must be where the lid comes in contact with the interior edge of the case when the lid is closed. With the lid opened flat on a table, vertically drill a 5/32" pilot hole. Drill another pilot hole or

(Continued on page 10)

two beside it and trim away excess plastic as necessary to form a 3/4" x 2/8" rectangular size hole, so that the micro-switch (Cat. No. 275-016) body can fit snuggly inside the lid. The micro-switch will be glued in later.

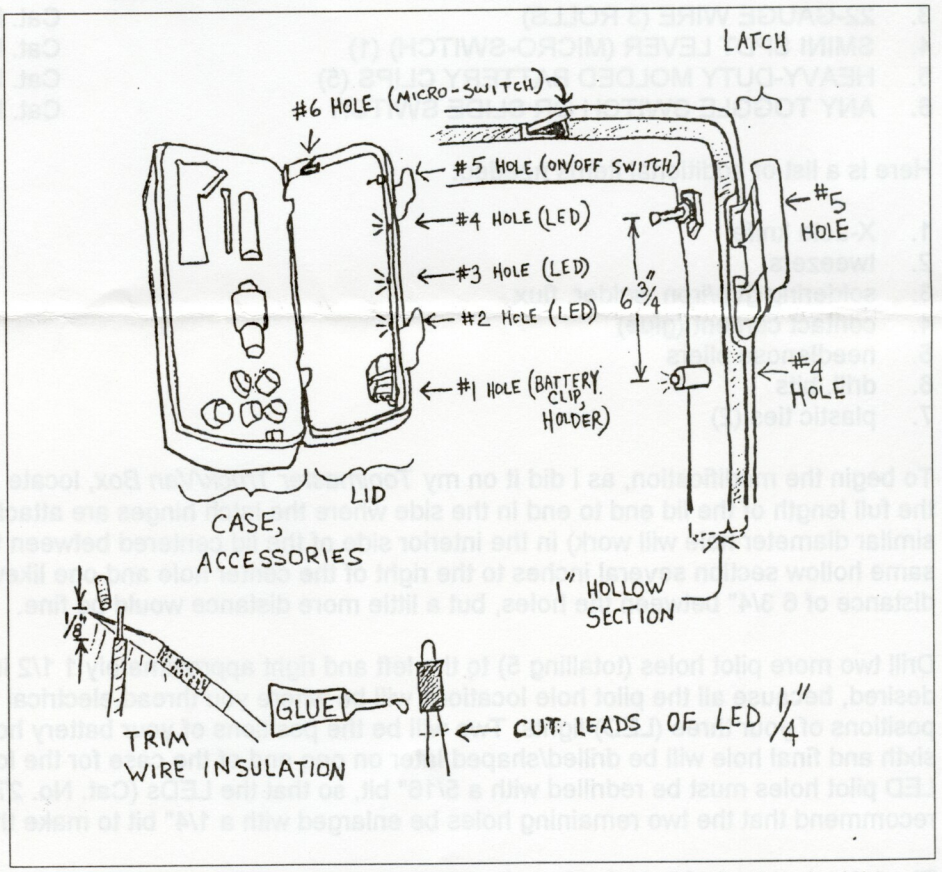
Continue pulling the red wire through the same direction as before to the micro-switch hole, while maintaining the four loops. When you have pulled a length of red wire that is 1 1/2 times the length of the case hanging out the 6th and last hole (for the micro-switch), then you are ready to proceed with the black wire.

Tape the end of the black wire to the red strand of wire close to the micro-switch (sixth) hole and pull on the red wire (the opposite direction from before) until the black wire is through the lid along-side and looped along-side the red one. At this point you should have both wires side by side and looped at each of the holes. The end of the black wire should be poking out the first (end) hole close to the red wire roll and the end of the red wire should be poking out the micro-switch (sixth) hole on the opposite end of the case near the black wire roll.

Cut the wire rolls away from the lid and trim some (1/16"-1/ 8") insulation from the red/black wire pair at both ends. Cut the red wire loop at one of the LED light holes and trim the resulting red ends the same way. Snap a battery clip (Cat. No. 270-324) onto the battery holder (Cat. No. 270-383). Insert four AA batteries and gently twist the battery clip wires to their respective colors on the lid. Gently twist the micro-switch (red/black) wire leads together.

Now the fun begins! Touch the leads of a LED (Cat. No. 276-018A) to the red wire ends at the LED hole. The LED will glow when you have the wires correctly matched. Cut the LED leads to 1/4" length and solder them to the wires. Prepare and solder the remaining LEDs the same way.

The micro-switch will work two ways, depending on how the wires are connected. There are three terminals on the switch. Untwist the wire pair and touch them to the terminals until the lights glow. When you've accomplished the correct connections, the lights will glow when the switch lever is up and go out when the switch lever is pressed. Solder the wires to the correct terminals.



The on/off switch can be any small toggle or slide switch. It is used to deactivate the lights when illumination isn't wanted. Locate the remaining hole where you want the switch to be and trim away excess plastic, so that the switch body will fit inside the hole as you did for the micro-switch. Solder the wires to the terminals.

Pull or stuff the black wire loops into the holes and thread the excess wire out the battery clip hole. Gently grasp the micro-switch and push it into the micro-switch hole, so that the body is flush with the interior edge surface of the lid. The closing angle of the hinge of the micro-switch lever must be oriented to match that of the closing angle of the lid for smooth closure. Be sure the LEDs fit properly in the LED holes, so that they are desirably aimed at the contents of the case. Note: At this time you may want to attach a elastic cord or support of some sort to hold the lid at a desired open angle for the best illumination. I might add a support to mine someday, but for now I'll prop the lid open against equipment or a structure.

When you are certain the lights and switches are working properly, with a toothpick, apply contact cement to the black LED holders and switch bodies and the edges of the holes. About ten minutes later (according to glue instructions), place the switches and LEDs into the desired positions while carefully stuffing the remaining wires inside the holes.

Locate a battery holder position on the lid that doesn't interfere with the case contents when the case is closed. Secure the battery holder in position with a plastic tie or hose clamp (two garbage bag ties together will work fine) looped through two slits cut in the interior hollow section of the lid. Cut off any excess wiring by the battery clip hole and trim/solder the battery clip wires. The battery clip wires can be tucked out of sight behind foam in the lid. Viola! You're finished!

A Letter to the PAC From Kevin Koutnik
September 24, 1995

Dear PAC Members,
Last night (September 23) I attended the first formal meeting of the Northeast Nebraska Astronomy Club, the third and newest amateur astronomy club in Nebraska. We met at the home of one of the members in Norfolk, NE. Six of us amateurs gathered informally around the dining room table after brief introductions, with only a few items on an agenda. These took as all of almost four hours to discuss because of accompanying relations of personal astronomical adventures, ideas, and relative exchanges of meaningful experiences.

Even before the first item was tabled, the election of club officers, we talked about such things as the 1995 Nebraska Star Party, which was held at Merritt Reservoir in western Nebraska late July of this year, and some directions which club activities can take. one of the things that surprised me about this gathering of amateurs was how greatly involved each one of them has interacted with the public already, through their own efforts.

For example, one member, who lives quite a distance from the club's headquarters in Norfolk, has a child involved in scouting. He lives and farms several miles away from any community, so his skies, when free from clouds, are among the best to be found in the state, and only a few steps from his door. Periodically he invites the scouts out to his farm and spends the evening showinb them the sights in the celestial heavens. Afterward, they retire to their conveniently placed tents. The scouts benefit by having a place to go and be for a time with nature, and they learn about something which most scouts can only ponder over without knowledge.

Three other members have spent their time educating the public about what goes on beyond the Earth's realm. They have embraced their own fascination of what they have seen at the eyepiece, haven taken the facts and endeavors of both the amateur and professional astronomers experiences found through the various media, and transformed themselves into the locally-accepted media outlet for astronomy. All have written articles for the local newspaper, which has generously accepted their input at no cost to any of the three.

Their articles, sometimes three columns in length, more often one or two, appear in the community section of the paper. They submit often enough, though irregularly, that members of the community often begin to outwardly question each other, the newspaper staff, and, gratifyingly, the three authors themselves, when too long of a time span elapses without an appearance. All of'this tends to make one very aware of just how inquisitive the general public is, and how much we all strive for pertinent knowledge Whir nfXects the advance of the human culture and endeavour.

Two of the club members have made contact with the local grade school educational system and have gained access to the process itself. Since they have children of their own and anticipate their care through PTA, etc., they've gone a step farther by making classroom presentations in the form of giving a talk in front of the classes. One member told •s over the table that the first one he gave had originally been planned to have a 15 minute duration. Both the teacher and the students were so interested in the things he was talking about and the man who was opening the universe in front of them with his eyes, beard, and speech, that one subject led to another (as it always does in astronomy and cosmology). When he ended his talk and looked at the clock, 45 minutes had elapsed, and much to the dismay of all! He said that he gave them 15 minutes of questions and answers and was relieved when he found that he could respond and answer all. Of course, he assured us all that most of the pre-teen minds, active as they are, still have less knowledge than any of our own astronomically crammed ones. That brought a laugh and relief from the members. It does prove one thing, though. Anyone who becomes involved in practical amateur astronomy can benefit everyone in society if he takes the time to share.

Another member, the only one who does any photography, has done so from the beginning with his telescope appropriation and involvement. Most of his photographs have been done piggyback, but there are prime focus shots among his astronomy album pictures. His pies are among the best I've seen with his given equipment. Because he has kept his exposers short in duration and has carefully polar aligned his driven SCT, his stars have turned out like bright little pinpoints. Because rural Nebraska's skies can be classed as among the darkest found in the nation, his backgrounds are ebony black. And objects captured provide a clarity seen and experienced in the darkroom by established and well-praised astronomical photographers, to whom subscribers of astronomy publications are very familiar with.

The direction which these fellows have taken the eyepiece aren't limited, either. As a club they are always involved in finding the dark skies. Where they differ from most clubs is in locating a site. Most clubs take a long time to find a good spot, and the commute to that site once or twice a month for the evening. NNAC members take time to communicate and provide themselves the variety needed to stimulate their own interest. One night they will observe at a site bordering the town and concentrate on sights away from town. Another time they will travel a short distance to some camping and fishing lake considered a state recreational area. They will gain access to private property through permission on a different night. All of these treks keep their interest at a peak and build on the variety found in the sky with the variety on the ground. Nothings stagnates, as things sometimes do, in either a new or an established club, than the amateurs mobility and desire to get out and look at what there is to look at. Closets do not exist for these.

As a gift to the public they plan to booth their interests at one of the Norfolk community's local celebrations. One member as a solar filter for his scope and he'll set it up for an on-hands look for the public at our Sun. Others will bring their scopes to be set up in display. And all will man the booth at times for public rebuttal.

All of these things come from the minds of individuals who have quietly FRACTICED their hobby. It's the first club I've come in contact with that seems to have been formed out of necessity, and not of want. And, I must say, even though I am a member of an already long-established astronomy club, I am now, as of last evening, a proud member of the Northeast Nebraska Astronomy Club. I DO BELIEVE I will say more...

A (final) Note from the Editor:

I must say that I do feel a bit sad at putting out my last Prairie Astronomer. Publishing the newsletter every month (well, ALMOST every month) has become a routine part of my life. To be truthful, I don't quite recall how many years I've done this now. But regardless, all things must sometime end and it's time for me to pass the torch on to someone else who can perhaps add some new life to the publication.

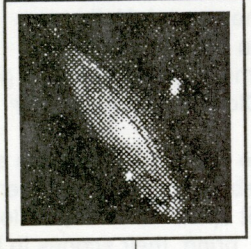
Over the years I've had some wonderful help from a large number of people who have consistently provided me with great articles and information for the newsletter, making my job as the editor a piece of cake. I want to thank all those individuals, with a special thank you to Dave Knisely, who for years provided me with Observing Chairmen reports (eventhough I never got around to sending back his floppy disks!), Dave Scherping for all his great President reports and Astroman comics, Doug Bell for all his monthly observing reports, Brian Schaff for all his insightul and interesting articles, Lee Thomas for always somehow getting me those mailing labels, gezz.... the list could go on and on. Sorry I can't name you all, but please know that I will always remember all the help you've given.

One final note: Although I will no longer be doing the newsletter, I don't plan on fading completely from sight. Mark Dahmke, who runs our web pages (http://www.infoanalytic.com:80/pac/index.html) has kindly given me permission to help him out. What I hope to do is provide him with monthly updates in html format, giving me a chance to experiment with designing web pages, and taking some of the burden off of Mark. (By the way, my e-mail address is JLortz@aol.com or JLortz@ix.netcom.com if you have any info or suggestions for the site).

I also hope to submit some computer-related articles to the new editor every now and then. And yes, you may even see me at a meeting someday.... yeah, right, you say! Hey, you never know!

Thanks again everyone!

John Lortz



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