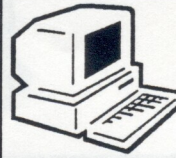


President's Report by Douglas Bell



If you have access to Internet, see the
Prairie Astronomy Club web page:
<http://www.4w.com/pac/>
E-mail us at: pac@infoanalytic.com
Omaha Astronomical Society web page:
<http://www.top.net/cdcheney>
NEKAAL web page: <http://world.std.com/~wic/>

The Prairie Astronomer

Big News! Twentieth Century Castles is exercising their option to buy the Atlas Site for \$20,000. Barring unforeseen circumstances the actual sale will occur in the next few weeks.

This leaves the issue of finding a new observing site. I am proposing that we discuss the "hows" and launch a formal search team at the May meeting. As a start, I would propose that we have a team of four to six people with the responsibility of finding a new site and reporting back to the club.

I am available for questions concerning the sale's progress at 489-8197 or via e-mail at dougbell@navix.net. Unfortunately, I will miss the April meeting as I will be out of town the week of April 27th to May 3rd.

My thanks to John Bruce for doing most of the actual work in getting it sold, and to Ron Veys who has graciously offered to run the meeting in April.

BRIEFS:

Astronomy Day is rescheduled for Sunday afternoon, April 27th from 1:30 p.m. to 4:30 p.m. in the lobby of Mueller Planetarium.

The Museum opens at 1:30 p.m., but I will be at the East door of the Museum starting at noon to help load in telescopes, computers and whatever else you can bring.

I have one planetarium show ("Comets Are Coming") at 2 p.m. and one laser show ("Music of Enya") at 3:30 p.m. There should be 200-300 people in the building from the "Science Is Everywhere" event. So we should have some good crowds (if we don't get any more spring snowstorms!). It is also "Science and Technology Week" so that fits with some of our computer astronomy. We'll have a net port or two and a phone line for a modem. Astronomy people are far ahead of some of the other sciences and educators on numbers of great web sites so we have plenty to show off. - Jack Dunn

Thank you to all volunteers that were at Hyde Memorial Observatory to help show Comet Hale-Bopp on the special public comet viewing nights and for the use of the volunteer's telescopes on those nights. - Dave Scherping

APRIL/MAY MEETING NOTICES:

ASTRONOMY DAY (RESCHEDULED)
SUNDAY, APRIL 27th, 1:30 p.m.
at Mueller Planetarium

PAC MEETING
TUESDAY, APRIL 29th, 7:30 p.m.
at Hyde Memorial Observatory

STAR PARTY
FRIDAY, MAY 2nd at Atlas Site
SATURDAY, MAY 3rd at Atlas Site (Rain date)

NSP MEETING
THURSDAY, MAY 15th, 7:30 p.m.
at Mahoney State Park Lodge, Blue Agate Room

MAHONEY STAR PARTY
FRIDAY, MAY 16th at Mahoney State Park
Soccer Field

PAC MEETING
TUESDAY, MAY 27th, 7:30 p.m.
at Hyde Memorial Observatory

FOR SALE

SIX COLOR FILTERS

1.25 INCH APERTURE

\$50 OR BEST OFFER

ALAN WEDIGE

402-489-3886

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MEETING ADJOURNED...

Secretary's Report by Liz Bergstrom



The 25 March 1997 meeting of the Prairie Astronomy Club was called to order promptly at 7:30PM by president, Doug Bell. Doug asked if there were any guests in the audience. Our guests were Dennis, Kent Thompson and his son Phillip. The club welcomed our guests.

WHAT'S UP?:

Dave Scherping told the club what's up in the sky for the last part of March and for April 1997. Events are: 31 March 1997 moon at last quarter; 7 April 1997 new moon. Jupiter is now rising in the early am in the Southeast. Pluto will be visible near the middle of the month and Mercury will be visible low in the west after sunset.

VIEWING NEWS:

Dave Knisely reported that he had gone to Rockford Lake Recreation Area near Beatrice, Nebraska in the early morning to view Comet Hale-Bopp, which at that time had a brightness of between -.6 to -.8 and to take photos of the comet. Dave brought the photos to show the club. These were excellent photos. Dave said that he used Kodak Royal Print Film with an ISO of 1,000 and gave the exposure times as an experiment of between 10 to 20 seconds. He stated that those photos with a 15 second exposure seemed to have the best rendition. Rick Johnson scanned in some photos (forwarded through the Internet from England) into his computer to show views of the comet's arcs as the jet spews out material from the nucleus forming the arcs as it rotates once every 11 1/2 hours. These arcs are gasses and form repetitive ever expanding arcs as they move away from the comet.

Martin Gaskell also had photos of the comet taken from his home which he showed to the members. These were interesting as it showed that the comet is exceedingly bright and can be seen from an urban setting.

ASTRONOMY DAY:

Dave Knisely again reminded every one that Astronomy Day will be held on Saturday 12 April 1997 at 8:00AM at Mueller Planetarium on the UNL campus. The sign up sheet was passed around for those who want to help. **Note that this event was rescheduled for Sunday, April 27th, 1:30-4:30 p.m.**

NSP NEWS:

Doug Bell said that some of the registration packets and brochures for the 4th annual Nebraska Star Party were available for pickup at this meeting. One of the speakers at NSP will be Bob Linderholm of Cambridge, NE who searches for asteroids and has found a new one with the help of several of the local high school students.

CLUB STAR PARTIES:

Dave Scherping reported that the 7 March 1997 club star party at the Atlas site was well attended. Lots of people came especially to see Comet Hale-Bopp. There was a guest from Springfield Illinois who had heard of our monthly star party who came to view the comet. Please check your news letter for the exact date and location of the monthly club star party.

SITE NEWS:

John Bruce reported that 20th Century Castles had tendered an offer of \$16000 for the Atlas Site, sight unseen on the inside. The club refused the offer and will hold out for an offer of at least \$20,000 or more for the site. See President's Report for late breaking news on this subject.

VOLUNTEER OF THE YEAR:

Jack Dunn, said that the Hyde Observatory supervisors vote every year on a volunteer of the year award. This year there were two volunteers recognized for their efforts and outstanding devotion to Hyde. Volunteer of the year plaques were awarded to Rick Johnson and Ben Rush. The plaques were mounted on the service roster in the lobby of the observatory.

HELP!!!:

Jack Dunn made a pitch for any one with a scope to bring it to the observatory and for others to just come out to help direct traffic on the nights that Hyde will be open to the public for comet viewing.

OTHER NEWS:

Bryan Schaaf mentioned that he had received a letter from Steve Bornemeier that he was hoping that he would be in Lincoln to view the comet.

DOOR PRIZES:

Door prizes of a poster of the Andromeda galaxy, a Hubble packet and two coated lenses donated by Steve Bornemeier for a refractor telescope were awarded.

No further business was brought up for discussion therefore the meeting was moved and seconded for adjournment.

MARTIN GASKELL brought his testing equipment for a demonstration of the procedure to test mirrors for telescopes.

Martin said that he is in the process of making another telescope and has been grinding and polishing the glass for the main mirror for approximately a year with the help of his children. The process for grinding is that of rubbing two pieces of glass together, one of which is convex and the other concave, with a coarse type grit and then as the mirror glass takes its concave dished shape a finer and finer grit is used. Finally the glass is ready for final polishing with a type of black pitch. After the pitch polishing is done the glass is ready to be tested for the correct concave shape.

Martin referred to a book written by Sam Brown which describes how to build a mirror tester. Martin built his own testing equipment using the book as a guide. He then proceeded with the help of Rick Johnson's computer equipment to demonstrate how to determine the curvature of the mirror via the TV's at the observatory. He showed the tolerances required and various wave patterns which are used to determine the actual shape of the mirror as compared to the correct ideal shape of the mirror.

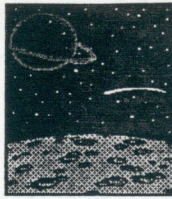
He thanked all for their interest and asked if there were any questions.

The mirror correctness testing demonstration was very interesting as this opens other aspects in the area of astronomy.

Respectfully Submitted
Liz Bergstrom, Secretary

The Prairie Astronomer is published monthly by the Prairie Astronomy Club, Inc. Membership expiration date is listed on the mailing label. Membership dues are: Regular Members...\$20/yr.; Family Memberships...\$22/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: President Doug Bell (Lincoln) 489-8197, Vice President Ron Veys (Lincoln) 486-1449, Treasurer John Bruce (Lincoln) 483-0389. All newsletter comments and articles should be sent to: Bryan Schaaf, 1309 W. PLUM, LINCOLN, NE 68522 (or e-mail to schaaafb@juno.com) ten days prior to the club meeting. Club meetings are held the last Tuesday of each month at Hyde Memorial Observatory in Lincoln, Nebraska.

Observing Chairman's Report by Douglas Bell



For May observing

New Moon: May 6th, 1997
Lunar object: Mons Pico
Planet: Pluto
Messier monthly: M106
Top 40: M 81
Deep sky: NGC2841
Challenge: Abel 1367

Quote of the month: "Have ya seen the comet yet?"

Tip of the month: A clear sky tonight is worth a dozen nights. "It'll be even better in the next few weeks".

Lunar feature: Mons Pico.
Apollo 15 forever changed my view of lunar mountains from the 1950's paintings of sharp craggy peaks to the 1970's pictures of low rounded dunes. However, Pico is still one of those lonesome mountains that evokes those 50's paintings. Check it out just after first quarter when the sun is low and the shadows are long.

Planet of the month: Pluto
Well the argument that Pluto isn't really a planet is raging now. It seems that every year the estimates of it's mass get smaller and smaller. Oh well. Astronomers are nothing, if not traditional. It reaches opposition on May 25th.

Messier Monthly: M 106
M106 is close to it's more famous cousin M51. M106 is a classic spiral in Canes Venatici (try getting that through your spell checker!).

Top 40: M 81
Hard to believe that M 81 has never been on the top 40 before. A bright spiral that looks like a blob in my scope. The contrast between M 81 and M 82 is striking. At one half a degree separation they should be easy to get in the same field.

Deep Sky: NGC 2841
Check out another spiral in the Big Bear. You know, I never thought of the Big Dipper as a galaxy hunting ground. Guess maybe I should.

Challenge: Abel 1367
Get out the big scopes and go deep. This is a faint (isn't that redundant?) galaxy cluster in Leo. The RASC handbook says there are over 30 galaxies in a 30 degree field. It'll be interesting to see if my 8" has the moxie.

Last month's answer: It's all done with mirrors. The Hubble telescope is intended to operate at wavelengths that are blocked by optical glass and so it doesn't have a single refractive lens. Even its corrective optics are made with mirrors.

Astro Trivia: Which planet takes the most energy to reach?

AstroMan's Predictions for the 21st Century Submitted by Dave Scherping

"Black Holes" and "Brown Dwarfs" will be referred to as "Holes of Color" and "Dwarfs of Color" respectively. "White Dwarfs" will still be called "White Dwarfs" since they are colorless. "Red Giants" and "Blue Giants" will be collectively referred to as "Diametrically Gifted Stars Of Color".

Similarly, Elliptical Galaxies will be referred to as "Spirally Challenged Galaxies".

Makers of "department store" telescopes will begin selling their scopes with 1.25" eyepieces. This will be approximately the same time all of the better scope manufacturers go entirely to 2" eyepieces.

SETI will finally detect life on another planet. This will happen precisely at the same time humans set foot on Mars.

It will be deemed politically incorrect for astronomers & scientists to share their knowledge with the general public. This will be referred to as "Technical Abuse". Within a few short years, thousands of teachers will be arrested for technically abusing their students and "Technical Abuse" will become the main defense for accused felons nationwide.

The tabloids will report that Elvis is returning in a UFO accompanying Halley's comet in 2052.

Twenty five thousand amateur astronomers will enjoy skies of limiting magnitude 8.2 at the 75th annual Nebraska Star Party. Throughout the rest of the world, limiting magnitude will be 2.5.

"The Reflector" will finally publish an article on the Nebraska Star Party.

Spotted Owls will be thriving on Mt. Graham and a group of astronomers will be picketing to "Save The Observatories" as environmentalists threaten to introduce the owls to Mauna Kea, Kitt Peak & Palomar Mountain.

The federal government will pass a law banning all aliens convicted of abducting humans from purchasing firearms.

Someone else will start making Telrads.

"Astroscan" will finally be redesigned to enable collimation.

Scientists will have found a cure for cancer and aids, but aperture fever will be reaching epidemic proportions with no cure in sight.

The Prairie Astronomy Club

May 1997

	S	M	T	W	T	F	S
<p>4 MOON OCCULTS SATURN MID-MORNING</p> <p>11 1986: 36 METEORITES HAVE BEEN FOUND IN NEBRASKA SINCE 1800'S</p> <p>18</p>	<p>5 1961: ALAN SHEPPARD'S FREEDOM 7 SPACE FLIGHT</p> <p>12</p> <p>19 1986: 13 MULTI-COLORED "PING-PONG BALL" UFO'S SIGHTED OVER BRAZIL</p> <p>26</p>	<p>6 NEW MOON 3:46 PM</p> <p>13</p> <p>20 1986: HUMANS WILL LIVE ON MOON AND MARS IN NEXT HALF CENTURY</p> <p>27 PAC MEETING AT HYDE OBS. 7:30 PM</p>	<p>7</p> <p>14 FIRST QTR. MOON 5:55 AM 1986: NASA SCALES-DOWN PLANS FOR SPACE STATION</p> <p>21</p>	<p>8 CRESCENT MOON 5 DEG. FROM COMET H-B. CAN YOU STILL SEE H-B ?</p> <p>15 NSP MEETING AT MAHONEY STATE PARK 7:30 PM</p> <p>22 FULL MOON 4:13 AM</p> <p>29 LAST QTR. MOON 2:51 AM</p>	<p>9</p> <p>16 MAHONEY STAR PARTY AT MAHONEY STATE PARK</p> <p>23</p>	<p>3 STAR PARTY AT ATLAS SITE (RAIN DATE)</p> <p>10</p> <p>17 DEADLINE FOR NEWSLETTER SUBMISSIONS!</p> <p>24</p>	<p>31 1986: MARS MOONS ENVISIONED AS SPACE COLONIES, NEXT SPACE GOAL?</p>

Comet Hale-Bopp descends in the west-northwest this month during early evenings and crosses the Earth's orbital plane on May 6th. By May 10th it will be just 6 degrees over the horizon as evening twilight ends. The comet is racing away from us this month on the side of the sun nearly opposite us, so the tail is foreshortened from our line of sight. Venus, at superior conjunction on April 2nd, begins to peak out from the sun's glare this month; very low in the west by month's end. Mars (mags. -0.4 to +0.1) is high and bright in the south in Leo during evenings. Jupiter (mag. -2.3) is that beacon that shines in the southeast sky at dawn. It will rise at 2:30 a.m. by month's end. Uranus (mag. 5.7) is 11 degrees west of Jupiter, south of a line between stars 19 Cap and Upsilon Capricorni. Neptune (Mag. 7.9) is in Capricornus 9 deg. west of Uranus and just 2 1/2 degrees north and slightly east of M75, by which it will remain throughout the year. Finder charts for Uranus, Neptune (and Pluto) appear on page 84 of the May 1997 *Sky & Telescope* magazine. Saturn rises at dawn and like Mercury is poorly placed, but does get occulted by the moon on May 4th. To see this occultation requires a very clear (dark blue) sky and will be a challenge. Let's hope for clear skies!

MARTIN GASKELL'S MIRROR TESTING PROGRAM: March 5th, 1997

Martin Gaskell gave a presentation on testing telescope mirrors. He said it was a sequel to the presentation by the Gaskell family last summer on how to grind a telescope mirror. Martin again recommended Sam Brown's "All About Telescopes" and Texereau's "How to Make a Telescope" for people who wanted to learn more. He also gave a couple of useful amateur telescope making web sites (<http://www.tiac.net/users/atm> and the ATM archives at <http://www.system.missouri.edu/staff/andy/ATM/>).

Before the program Martin, Dave Knisely and Rick Johnson had set up a 6" mirror to test on the far side of the room. First Martin showed some diagrams from the Brown and Texereau books and explaining the basis of testing and how to make a tester. He showed a typical home-made tester that Dave Knisely had brought. It had been made some years ago by another club member. It was made from pieces of wood and threaded rod and had a light bulb inside a tin can.

The main interest of the program was actually testing the 6" mirror. Rick Johnson set up a video camera on a tripod behind a tester that Martin had borrowed from Don Taylor for recently figuring an 8.5" mirror. First we saw what the mirror looked like through a piece of glass with lines ruled on it called a Ronchi grating (they can be bought from Edmund Scientific or from Willman-Bell for \$3.50). The grating made bands appear in front of the mirror. The slight curvatures of these revealed the shape of the mirror. The lines deviated sharply at the edge of the mirror. Martin said this was because of a "turned down edge".

The simplest way to deal with this is to mask off the very edge of the mirror. Martin said that he had recently upgraded their 6" Newtonian to a 5.25" Newtonian! As usual during a PAC meeting(!), there was a lot of hot air in the Hyde Observatory and we could see interesting patterns on the TV as the air moved in front of the mirror.

For more precise measurements Rick and Martin replaced the Ronchi grating with a straight-edge for the Foucault test. Martin put a piece of paper in front of the mirror with holes cut in it (a so-called Couder mask) and we saw the light reflected through the holes on the TV monitors. The idea was to determine the radius of curvature of each zone by moving the straight-edge until the light in the holes on opposite sides of the mirror cut off equally. Everyone got to give their opinions on this as we could all see the TV monitors. Martin read off how close the straight-edge was from the mirror based on how much a threaded rod had turned. Then Rick setup a lap-top computer to feed into the monitors. He entered the measurements and the surface accuracy appeared on the screen: 1/15th of the wavelength of light. Martin had measured the mirror more carefully the night before without the TV camera in a room with less hot air and had also gotten 1/15th of a wave.

When asked about whether you could see defects as small as 1/15th of a wave in a telescope, Martin said that, so long as the edge was masked off, the mirror was essentially perfect. It was asked why commercial mirrors were rarely this good. The answer, Martin said, was economics. He had little trouble reaching an accuracy of 1/20th of a wave in figuring a mirror, but it took a lot of time and testing. If it cost a company \$10 per hour, that would lead to a very expensive mirror.

Mid-States Convention of the Astronomical League

June 13, 14 and 15, 1997

HOSTED BY THE ST. LOUIS ASTRONOMICAL SOCIETY

Mark your calendar for June 13 through 15, and plan to attend the 1997 Mid-States Convention of the Astronomical League!

This years Convention will be held in St. Louis, Missouri on the beautiful campus of Washington University. The campus is in close proximity to the St. Louis Science Center, Zoo, and the Art Museum. Nearby are many other outstanding attractions, including the Gateway Arch, the Riverfront, and the St. Louis Downtown area.

We have a great program planned with a variety of activities, including exhibits, entertaining speakers, a solar observing session, tours of the NASA Data Center, and use of the 6" Clark telescope at the Washington University Observatory.

Presentations of papers by Convention participants are welcome and encouraged. If you have an interesting paper which you would like to share with the group, please send your abstract to Steve Sands, or contact him by mail, phone, or E-mail by April 30.

REGISTRATION FEES

Includes buffet-style banquet Saturday evening, and coffee and breakfast snacks Saturday and Sunday mornings. If you have special dietary needs, please specify.

	Through June 1	After June 1
Single:	\$35.00	\$40.00
2 Family members:	55.00	60.00
Each Additional Family Member:	15.00	20.00

___ Single ___ 2 Family Mbrs. ___ Extra Family Mbrs.

= _____ Total Registration Fees*

ROOM RESERVATIONS

Washington University dorm rooms share a common bathroom on each floor. If you need a handicapped accessible room, please specify. All rooms are NON SMOKING.

Please designate what accommodations you wish to reserve, but send no payment for rooms now. Payment for rooms will be accepted at check-in. NOTE: Please have reservations made by JUNE 1.

Single: \$24.00 per night
Double: 22.00 per night per person

___ Single ___ Double for ___ night(s) (circle) 6-13 6-14

___ Single ___ Double (additional nights) Dates _____

For more information or a registration form, contact:

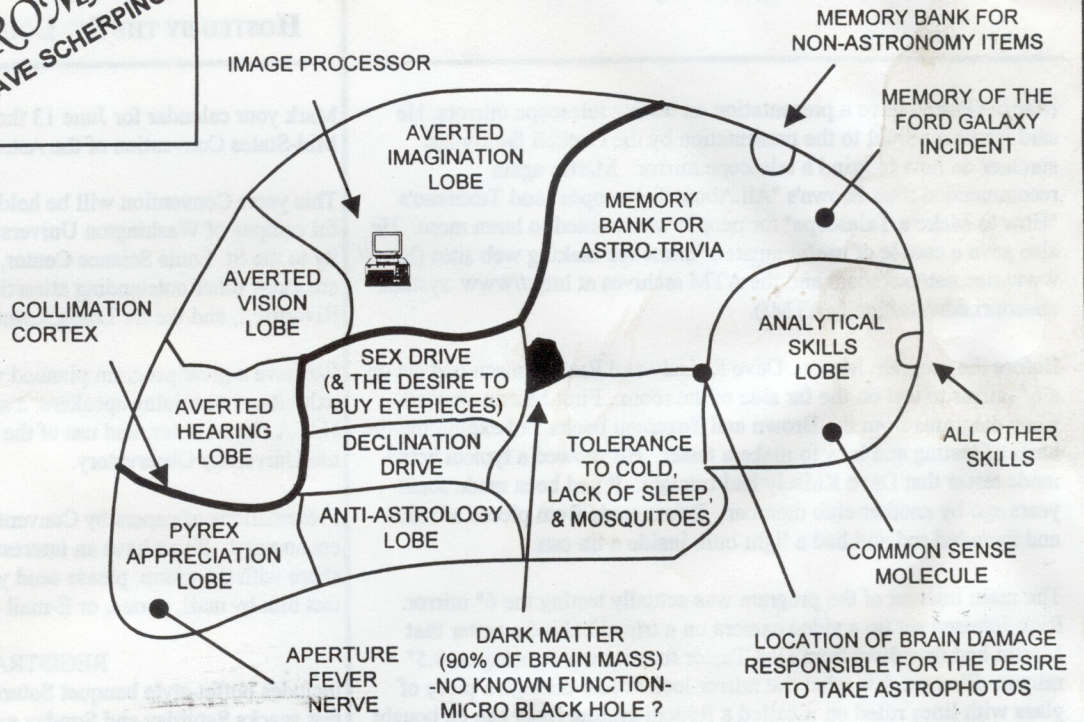
Steve Sands
911 Langdon St.
Alton, IL 62002
(618) 465-1463

*Make checks payable to SLAS and mail with registration form or with a copy of this column to: Steve Sands

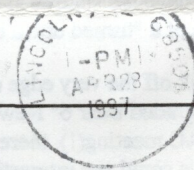
E-mail: Scopes777@aol.com

ASTROMAN
BY DAVE SCHERPING

ASTROMAN'S BRAIN



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First Class Mail

Next PAC Meeting
April 29th, 1997

4-97

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