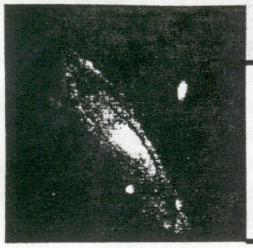
The Prairie Astronomer

December, 1996 Volume 37 Issue #12



Carroll L. Moore

October 7, 1917 - December 3, 1996

On behalf of The Prairie Astronomy Club, I wish to extend condolences and heartfelt sympathy to the family of Carroll Moore.

The funeral service was held Sunday, December 8th at First United Methodist Church and was well attended by Prairie Astronomy Club members. - Bryan Schaaf

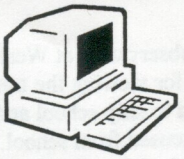
CARROLL MOORE: a personal remembrance By Rick Johnson

December 3, 1996 is when the Prairie Astronomy Club and Hyde Observatory lost their father. These two astronomical groups were certainly two of his many children. He fathered both, guided them for a short while, then let them go out on their own. A most difficult task indeed, watching your children stand on their own.

I first met Carroll shortly after he joined Nebraska Wesleyan University in 1955. Before that, he was a student, then faculty member of Doane College in Crete. I had just built my first telescope; a 6" f/12 far larger than me. My folks were out of town and I had a live-in baby sitter - I was only 10 or 11 at the time. She (Mrs. Frost) took me to see Carroll for some tips on using the telescope. Here I expected to see some giant astronomer (at least this is how I imagined him from Mrs. Frost's description). But instead here was this little fellow not much bigger than me. I asked a few very dumb questions, but Carroll acted as if they were of major importance. He had a sign-up sheet, which he asked anyone interested in joining an astronomy club to sign, so I added my name to the list. I left feeling like I now knew everything there was to know about astronomy!

The following year my folks went away again (Dad was president of the American Institute of CPAs and had to attend the national meetings) and, again Mrs. Frost took me to see Carroll. Each year he got shorter and shorter, balder and balder. I always entered his office full of dumb questions and left feeling like I was a genius. Carroll always had a way of working with kids that to this day amazes me. Each time he had that sign-up sheet and each time I signed it. This continued for several years through

(Continued on page 2)



If you have access to Internet, see the Prairie Astronomy Club web page:
http://infoanalytic.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/**

DECEMBER/JANUARY MEETING NOTICES:

PAC MEETING
THURSDAY, DECEMBER 26th, 7:30 p.m.
at Hyde Memorial Observatory

NSP MEETING
THURSDAY, JANUARY 16th, 7:30 p.m.
at Mahoney State Park Lodge

At the December meeting, Larry Stepp is scheduled to present a program called "Gemini Telescope Update". He was once a local member of the club AND is the optics manager of Gemini Telescopes (in Texas).

"I appreciate everyone agreeing to change the date of the December meeting, and I will be happy to attend on the 26th and give another update on the Gemini Project."

BRIEFS:

The new email address for NSP registrations and information requests is: *NSP@4w.com*
Also, there is a mistake in the list of corrections to email addresses on page five of the November newsletter. Email addresses for Navix subscribers should be *user@navix.net* (The navix.com domain is owned by another company). Email sent to ltec.net will still work for about another year. Anything sent to a Navix user at navix.com or ltec.com will bounce. Email addresses for Aliant Communications employees (formerly user@ltec.com) should be *user@aliant.com* . - Mark Dahmke

The January NSP meeting is on the 16th at Mahoney starting at 7:30 pm.
The final Mahoney Star Party dates are: **May 16th, June 13th, July 11th, September 5th, and October 10th.**
NSP- brochures will be out by the first of the year. The Valentine High School will not allow us to use the gym for the banquet, but we might be able to use one of the county buildings on the fairgrounds for the catered meal banquet. Or we could always go to the city park. - Jason Stahl

contents:

("Carroll Moore: A Personal Remembrance" continued from page 1)
the fall of 1959, I was in junior high by this time and still signing that blasted sheet of paper.

Carroll announced the newly reworked observatory at Wesleyan with its 6" refractor would be open to the public for viewing the transit of Mercury (November 7th, 1960). I vowed to skip school and be there for the event. My dad agreed and got me excused from school. We went to the Wesleyan Observatory where Carroll had the 6" refractor set up to project a 6" sun on a card and there was the black dot of Mercury! I was now in an "official" observatory doing "real" astronomy. At least that is the impression Carroll left me with. You guessed it, I again signed that blasted sheet of paper, though for the last time, but I didn't know that at the time. After the transit he now had enough names that an astronomy club looked possible. A preliminary meeting was held sometime in late 1960, but I couldn't attend.

The first official meeting was held in April, 1961 and nothing could keep me away. The Prairie Astronomy Club was a reality! I was now at Southeast High. Carroll never let me forget that the sign-up sheet said at the top to sign up only once and I had signed up more than a dozen times; nine more than anyone else (at least someone else couldn't read either).

Like a good father, Carroll provided guidance from the background. He never took part as a working officer, but was always there with advice and a program when nothing else was available. He provided the meeting place; a very old, rickety, science building on the Wesleyan campus and watched as his child slowly grew and grew, always taking a special interest in the young members.

One of our founding members was another Southeast High student, Pete Schultz. Carroll took a special interest in Pete for two reasons. First, Pete wanted to be a professional astronomer and secondly, as long as Pete was a member, Carroll wasn't the shortest member of the club! Like Pete, Carroll was no whiz at math (even though, at Doane he was listed as a math and science professor). Pete was worried this would prevent him from ever getting anywhere in astronomy. In fact, even after placing high in the Westinghouse science contest, Pete was sure he'd never make the grade, but Carroll never let him give up. Often, with a foot planted firmly on Pete's backside, he kept Pete on track. Pete is now a well respected planetary geologist who has appeared on PBS science specials, thanks to abilities he didn't know he had and Carroll's foot! Carroll booted him on into the professional world even though it meant Carroll was again the shortest member of the club; a sacrifice he never let Pete forget!

At this time Carroll only had a bachelor's degree and needed a master's degree. He had to take leave from Wesleyan to get his degree from the University of Nebraska and thus, we lost our meeting place and mentor. The club did just fine, moving from one home to the next. In fact, we even felt strong enough to try and start a public observatory. I remember going onto more than one morning show (I'm not a morning person) to plug for it. We fell flat on our face not understanding the complexities that were involved, nor the money needed. But we were young and foolish, so what the heck!

Finally, Carroll completed his work and Wesleyan had a brand new state-of-the-art science building. We had a new home. This one didn't make you feel like you were going to fall through the stairs any second. The club really began to grow and attract young members again. This time we could hold our business meetings upstairs in the lecture hall, while Carroll gave a planetarium show to the kids and any adult who wasn't interested in the business side of the meeting. Each kid was expected to learn enough to provide a 15 minute program once a year to the main group. Boy, were they scared, but they learned astronomy! Carroll made sure of that.

Carroll picked up our botched idea for a public observatory and turned it into a reality. He almost gave up as the task of gathering interesting enough people (people with money, that is) seemed impossible. But to the shortest club member, nothing was impossible - heck he was guard on the Doane College football team! Carroll put together a team of people from all walks of life and before long, but not before one heck of a lot of work, Hyde Memorial Observatory was a reality in November, 1977 and the Prairie Astronomy Club had a new home. Carroll took the reins of the Hyde steering committee the first years, then passed them on to the other supervisors. The last few years he was content to just watch his children fly on their own and come to the meetings wearing fuzzy dinosaur shoes that growled with each step, when he wasn't chasing another solar eclipse, that is.

Carroll, you should have told us you were a huge professional wrestling fan. I would have introduced you to "The Claw" who now runs a tourist curio shop only a few miles from my cabin in Minnesota.

Thank you Carroll, for giving us our wings. You always said you were the shortest club member, but you were one of the biggest men I ever knew.

Carroll Moore:

It is with great sadness that we note the passing of Carroll Moore on December 3rd.

Carroll was a founding member of the Prairie Astronomy Club and was a leading advocate of astronomy in the community. He was also instrumental in creating the Hyde Observatory, the lighting standards which help protect the observatory, and introducing thousands to the wonders of the night sky.

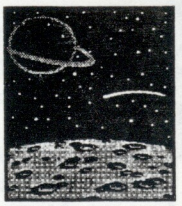
He will be missed. - Douglas Bell

While driving north of Lincoln on highway 77 at about 1:30 a.m., December 8th, there was a brief flash of light that illuminated the car interior from my left side. I immediately looked up to my left (east) and noticed a six degree long meteor trail in Leo by the star Chi Leonis.* The sky was very clear then. I wonder if any one actually saw it. - Bryan Schaaf

*It is certain that M.A.M.A. (Mothers Against Mobile Astronomy) would not approve of this activity. - AstroMan

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...$15/yr.; Family Memberships...$17/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 schaafb@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 January observing:

New Moon:	January 9, 1997
Lunar object:	Earthshine mare
Planet:	Mars
Messier monthly:	M 36
Top 40:	Copernicus
Deep sky:	The Horsehead
Challenge:	Counting the Pleiades

Quote of the month: "The best scope is the one you use". The small telescope mantra.

Tip of the month: Break down and buy some honest to goodness wool socks.

Lunar feature: Earthshine Mare

I've seen the dark side of the Moon! Well actually it's not that tough if you don't confuse "dark side" with "far side". One of my favorite sights is the new crescent Moon hanging just above the orange twilight. A close examination reveals the familiar Mare even on the dark half. Binoculars make it easy.

Planet of the month: Mars

The start of a new opposition is upon us. I'm sure we'll be revisiting Mars this Spring, but see what you can see now. Every night it is rising sooner and sooner.

Messier Monthly: M 36

M36 is the last open cluster in Auriga. Compare it to M 37 and M 38 to see how each cluster has its own character. Can you see them naked eye?

Top 40: Copernicus

An absolutely astounding crater at any magnification. You can spend hours examining the collapsing walls and central peak. The more you look, the more you see.

Deep Sky: The Horsehead

Probably the most recognized deep sky object, but not easy to see. I've tried with my 8" at the Atlas site and failed. How about you?

Challenge: Counting the Pleiades

Common knowledge says you can only see six of the "seven sisters", but as is often the case, common knowledge is wrong. A few days ago I saw 10 from my patio. I've seen 11 at the Atlas site. I'd be interested in hearing how many some younger eyes (or Dave Nash's) can see.

Astro trivia: I've heard that my '93 Chrysler has more computer power than an Apollo spacecraft. Which Apollo flight was almost aborted because the onboard computer couldn't keep up?

Last month's answer: "Contact light!" - Buzz Aldrin. By the way, the last words were "Let's get this mother outta here," by Gene Cernan.

ONE YELLOWSTONE NIGHT

By Liz Bergstrom

While on vacation this past September 1996, I had a chance to observe the night heavens in all their glory at Yellowstone National Park. I camped out the first part of the week in the park itself. I could hardly wait for night to fall so I could take my small pair of binoculars to a spot not far from the camp ground to observe.

I sat on a log at the conjunction of the Firehole and Madison rivers. The night sky was velvet black. The air was dry and cool and there were no mosquitoes. The Milky Way blazed its way brightly across the sky while the river quietly sighed and rushed by, charging over and around rocks and other obstacles. After a bit of orientation I found many of the familiar clusters, globulars and constellations. Comet Hale-Bopp was a slightly greenish glow of light in a black dust lane of the Milky Way between two faint stars in Ophiuchus. I did not notice a tail at this time.

The Perseus line leading to Cassiopeia led the way to the double cluster which could be seen naked eye in great detail. Jupiter was a great white light with its four moons well defined. A bit later, the Great Bear arose from behind a mountain for its nightly walk through the velvet sky. The night had such a mystical quality, that I felt I had become one with the universe.

A day later, I stopped in Belgrade, Montana to visit with Scott Sandness of Night Skies, a Mead and Celestron astronomy equipment dealer. I bought a pair of 20x80 giant binoculars to hopefully view in more detail the planets and deep space objects. During the next several days, as I traveled about the Butte and Phillipsburg area, the weather was a fright with clouds, rain and snow. I came back to Yellowstone where I stayed in town. The next day was clear and sunny. I hiked during the day at Mammoth Springs and on the way back to town I stopped at a picnic ground with a large parking area. Here I ate supper and then decided I would set up the new 20x80 binoculars on the tripod.

Not being too familiar with all this new equipment, it took longer to set up than I had anticipated as it was fumble, fumble, fumble and the sun was setting quickly in the west. By the time it was dark I was ready to observe. I focused on Jupiter and was blinded by the amount of light that came through the binoculars. I neatly recovered from this and thought "Thank God!!! The MOON isn't up yet, otherwise, I really would have been blind". I sort of rambled around in the sky and then focused on the double cluster, which resolved into a myriad of stars. I was totally oblivious to my surroundings.

Suddenly, headlights shone upon me and a voice said "Are you planning to camp out here?". I replied NO, that I was merely looking at the stars and had a room in town. Meanwhile, in my mind, I was randomly accessing the fact that the triangular shape of the tripod must have looked like a tent frame being set up. There was a dead silence after my answer. I could feel emanating from the voice total skepticism, [Oh Yeah!!! I'll bet!!!]. The voice then resolved itself into a park ranger complete with park vehicle. The park ranger then advised that camping was not allowed outside of designated areas and that I had

(Continued on page 4, column 1)

MEETING ADJOURNED...

Secretary's Report by Liz Bergstrom

The 26 November 1996 meeting of the Prairie Astronomy Club was called to order at 7:30 p.m. by the outgoing president, Dave Scherping. Dave bade the club adieux after having served as its president and guiding light for the last two years. Dave then preceded to install the incoming president, Doug Bell. Dave draped the new president with the traditional "India" Shawl [which had been brought to the club from India by former president Andy Corkill] and handed over the gavel of office.

Our new president asked if there were any guests in the audience. There were none.

John Bruce read the fiscal year end treasurer's report for the club and for the NSP accounts. John also stated that he had received a check for $15.00 from Ray Mulder for a membership to the club. Ray is the farmer who owns the land to the south of the observing site and he wants to be a good neighbor with our club.

After the treasurer's report there was a bit of discussion from some of the members who renewed their subscriptions for the "Astronomy" and "Sky and Telescope" magazines through the club. It seems as though some of the members either do not get their magazines on time or have not received their renewal issues. This situation will be looked into.

Bryan Schaaf was given a sound round of applause and yay's for taking over the publishing of the club newsletter for the past year and for his continued efforts in doing so for the coming year.

I volunteered to coordinate the ordering of the RAS Observer's Handbook for 1997 and the Guy Ottewell calendars for 1997. A sign up sheet was passed around during the club meeting for those interested in ordering either or both of these items.

Site news: A call was put out for volunteers to help put up the outhouse which was blown over in one of the horrendous wind storms last October with a date set for 8 December 1996 to meet at noon. In further discussion it was revealed that one of the members had gone out to the site and found that the outhouse had been securely put back into position by the guy building the fancy house next to our observing site.

(continued next column)

("One Yellowstone Night" continued from page 3)

better be moving along. I stated that I would be on my way. The ranger followed me to the Ten Mile Bridge on the way to town, then turned around to finish his surveillance of his territory. Needless to say, **this was definitely not** a mystical night in this person's universe. Oh well!! Things happen and this will be an experience never to be forgotten.

Next year, when I go to Yellowstone again, I will be going to a small star party put on by Scott Sandness. It definitely is something to look forward to.

He also will be filling in [perhaps has already done this] the trench for the water line. The 8 December 1996 volunteer date was canceled in view of these accomplishments.

The December 1996 meeting date has been changed to Thursday the 26th of December due to the holidays and to the availability of our out of town guest speaker, Larry Stepp.

NSP News: Dave Scherping pointed out that in the January 1997 issue of the Sky & Tel magazine there is a nice write-up on our star party for 1996 with a neat photo [taken by Mark Dahmke] of Rex's Astro Stuff vendor's tent at our 1996 party. The dates for the 1997 star party were also listed. Dave announced that there will be (was) an organizational meeting at Mahoney State Park on Thursday, 5 December at 7 p.m.

The meeting will (was to) concentrate on the registration brochure and other formative matters.

Mark Dahmke announced that he is putting together CD and video clips of the 1996 Star Party. A sign up sheet was sent around for those who wanted to order.

From the previous month's meeting the subject of "Site Keys" to the observing site was brought up. There was quite a bit of discussion regarding the keys, such as having a key lock verses a combination lock to the gate of the site, assessing a separate $5.00 fee for the use of the site. John Bruce said that there is $175.00 in this account with 14 keys out to members. He also mentioned that the club has an insurance policy to cover the liability for the site, our meeting site and the officers of the club. Dave Knisely moved that there be two levels of membership, one for those with keys and one for those without keys. Discussion intervened and it was stated that the by-laws of the club would have to be changed to accommodate this type of membership. Dave then amended his motion to charge $5.00 for those wishing to use the site. Larry Hancock moved to raise the general dues by an additional $5.00 to take care of site keys, insurance, increased fees for the Astronomical League of America and any unexpected increased fees. Dave withdrew his original motion and the amended motion. Larry's motion was seconded. Vote for this motion will be during the January 1997 meeting.

No further business was brought up for discussion, therefore the meeting was moved and seconded for adjournment so all could enjoy Martin Gaskell's presentation, entitled "Getting the Best Out of Observing Mars".

Martin said he was motivated to give the talk by how much fun he had observing Mars in the 1994/95 apparition with "Tel'Poke", the Gaskell family 6-inch Newtonian. He hoped members would have similar fun observing Mars in the already underway 1996/97 apparition and would realize that Mars should not be ignored when it is not close to the earth. He began by describing two simple naked-eye projects: deriving the orbit of Mars by plotting its position on star charts and estimating its distance from its magnitude.

Martin explained that Martian apparitions go in a 16 year cycle. The apparition now underway is the last one for eight years with Mars reasonably high in our skies. We are getting our best view of the northern hemisphere of Mars this apparition. It will be 16 years before the northern hemisphere is tipped as much towards the earth as in the

(Continued on page 6)

The Prairie Astronomy Club

January 1997

S	M	T	W	T	F	S
Saturn (mag. 1.0) is the bright evening planet, but it sets in the southwest by around 11:00 p.m. early this month and sets two hours earlier by month's end. **Jupiter** (mag. -1.9) will still be low in the southwest sky after sunset very early this month, but will be lost in the glare of the Sun by mid-month followed by **Uranus** and **Neptune**. The red planet **Mars** (mag. 0.5 on January 1st and -0.2 by Jan. 28th) will rise in the east as Saturn sets. On the evening of January 28th it will be only 3 degrees north of the moon. **Venus** (mag. -3.9) shines bright in the light of dawn this month and **Mercury** (mag. 0.5) will be 3 degrees to the north of Venus on January 12th. Early this month, **Comet Hale-Bopp** appears only 10 degrees high in the eastern morning sky (in Aquila), one hour before sunrise, but by the end of January it will be 25 degrees high one hour before sunrise. By then it should be visible by direct vision, but binoculars will help improve the view. *Clear skies!*			**1** **Earth is at perihelion, 91.9 million miles from Sun, 7 PM** **LAST QUARTER MOON 7:45 PM** **Sirius transits high in the south sky at midnight**	**2**	**3** **Quadrantid Meteor Shower peaks this morning - radiant point in northern Bootes**	**4** **In the news, 1985: A private$70 million grant was announced yesterday to build the Keck 10 meter telescope on Mauna Kea in Hawaii**
5	**6** **In the news, 1978: A geologist found 21 meteorites within two hours of setting up camp in Antarctica, proving that Antarctica is the best site for meteorite hunters**	**7** **Moon - Venus conjunction, dawn (Mercury is to the lower left of the pair)** **Moon 5 degrees north of Venus, 11 AM**	**8** **NEW MOON 10:26 PM**	**9**	**10** **Moon at perigee, 224,520 miles 2:50 AM** **In the news, 1995: Astronomers aided by supercomputer calculations finally know how & why supernovae occur**	**11**
12 **Early morning, Mercury in the east, 3 degrees north of Venus**	**13** **Moon - Saturn conjunction, 2 degrees apart after sunset** **Moon 2 degrees north of Saturn, 11 PM**	**14**	**15** **FIRST QUARTER MOON 2:02 PM**	**16** **NSP MEETING AT MAHONEY STATE PARK LODGE, 7:30 PM**	**17**	**18** **Mars is 1 A.U. from Earth today**
19 **Moon passes 0.7 degrees north of Aldebaran (the bright star of Taurus)**	**20**	**21**	**22** **Apollo 5 (Saturn 1-B booster) launched with nobody aboard, first flight test of unmanned lunar module, 1968**	**23** **FULL MOON 9:11 AM** **Mercury 25 degrees from the Sun, best chance to see it - an hour before sunrise**	**24** **Voyager 2 flies past Uranus, 1986** **In the news, 1990: Muses-A, Japan's first lunar spacecraft launched, to orbit the moon 8 weeks from now**	**25** **Moon at apogee, 253,890 miles 10:45 AM**
26 **In the news, 1985: A unexpected bright light is baffling earthlings - air traffic controllers have given Venus permission to land, but it never does**	**27** **In the news, 1986: Voyager 2 revealed 10 small moons and 10 ring arcs encircling Uranus. Incredible views of deep canyons/cliffs on Uranus' moons are bewildering**	**28** **PAC MEETING 7:30 PM AT HYDE MEMORIAL OBSERVATORY** **Mars is at aphelion**	**29**	**30**	**31** **LAST QUARTER MOON 1:40 PM** **Apollo 14 launched with Alan Shepard, Stuart Roosa, Ed Mitchell aboard, 1971**	**Apollo 14 lunar module landed on the moon, Feb. 5, 1971** **Apollo 14 splashdown, Feb. 9, 1971**

COMET WINE

From the Hubbard County Enterprise, Sept. 20, 1892
Submitted by Rick Johnson

I found this article in the September 20, 1892 issue of the Hubbard County Enterprise. Stock up on wine bottled last spring and this coming spring and you'll make a mint; if still true that is! - R.J.

One of the curious superstitions which has come down from the middle ages is that wine grown in "comet years," or years which were signalized by the appearance of comets of unusual size, possessed a more exquisite bouquet than wines of other years. There is no good reason that the idea has a more substantial basis than popular superstition, but it is certain that the belief is sufficiently potent to influence the market. The wines of 1811, 1826, 1839, 1845, 1858, 1861 and 1882, which were all comet years, are said by a competent authority to command a higher price than the vintage of other years.

I find it interesting that Halley, which must have come by about 1834 or 1835 (I haven't looked it up), isn't listed. Must have been a washout as in 1986. - R.J.

(Secretary's Report continued from page 4)

1996/97. Each apparition covers only about one season on Mars. Martian seasons are almost exactly one season ahead of the earth's. This apparition we are seeing the Martian equivalent of late May through early September on earth.

At opposition in 1995 Mars was almost twice as far away from the earth as it can be at its closest, but Martin said that he had seen more on Mars then than he had seen with larger telescopes when Mars was at very close oppositions. This was because of collimating better, minimizing thermal effects in the telescope, and using the right magnification. Martin had studied what telescopes and magnifications were used for a large sample of published drawings of Mars. The best aperture seemed to be about 8". A 12" only outperformed an 8" on rare occasions and most of the time a 6" was almost as good as an 8". The best magnification was 250 - 300 X. Martin suggested putting 4.5mm to 7mm focal length eyepieces on one's list for Santa Claus!

The fun of following Mars, Martin said, was in being able to look at this other world in the sky and see what was going on. Of the last apparition he had seen changes in the darkness of surface features compared to previous apparitions; morning fog or frost, a couple of yellow dust ladened clouds and afternoon clouds forming over the high volcanoes. From what he called "crummy sketches", he had been able to measure the latitude of the polar ice cap to an accuracy of +/- 30 miles as it melted.

A Hubble Space Telescope picture of Mars was put on the front wall. The lights were turned off so that Timothy and Daniel Gaskell could shine red and blue flashlights at the picture to demonstrate how Mars's appearance changed when viewed in red and blue light. The program ended with almost everyone in the room making pencil sketches of it on A.L.P.O. report forms. Martin had a transparent overlay for members to check their positional accuracy [members can check their drawings against the image on page 10 of the June 1995 issue of Sky & Tel or page 90 of the Sept. 1995 issue].

OBSERVATIONS OF MARS: DECEMBER 6 & 7

By Martin Gaskell

Following up on my program on Mars at the November meeting, here are a few details of my season opener first look at Mars at dawn Friday. Mars is just to the west of due south in civil twilight. I could still find it with the naked eye up until around 7:15, but if you want to play it safe I would find it a little earlier, at 7:00 say. I continued to observe it after the sun had risen until almost 8:00 am. I re-found it a couple of times in broad daylight by setting Tel'Poke to the right declination and sweeping in RA with a low power eyepiece.

Mars sure is tiny: only 6.7" across according to the Sky & Telescope Mars program. I observed it with my standard 250X magnification (an old Ramsden eyepiece plus my $10 homemade Barlow) and an orange filter (equivalent of Wratten #21). If you have a larger 'scope than I do, the light red #23A is the recommended filter. Normally for a dawn viewing I set out Tel'Poke the night before so that it is in thermal equilibrium by dawn, but this morning's clear skies caught me by surprise. Tel'Poke was equilibrated, but the mirror was a few degrees on the warm side. After 45 minutes seeing was fine.

The tiny disk was obviously very gibbous (phase 90%). The north polar cap at the bottom was the most conspicuous feature. In the sharpest seeing I was fairly sure I was seeing a dark band around it. The Martian season was "early May". The longitude on the disk was almost the same as in the space telescope picture I put up for copying at the end of my program (although that picture was taken the equivalent of "late May" on Mars). After the polar cap, the next most obvious feature was a bright cloud (or it could have been frost) in the Argyre impact basin at the top of Mars (a similar cloud is seen in the HST picture). There was an obvious shading off towards the evening terminator, but no clear dark markings in the center of the disk. This was a bit surprising since Mare Acidalium, which was always a prominent dark feature last apparition should have been clearly visible. Either I was missing it on the tiny disk with my small telescope, or it was under a cloud or dust. Interestingly I read today on the ALPO homepage that there was significant dust storm activity just above Mare Acidalium in the last week. Maybe I was seeing this, but there again, I could have just been missing Mare Acidalium on the too tiny disk.

I had another look at dawn, Saturday. Mostly the seeing was worse than on Friday, but there were a few OK moments. I tried as hard as I could, but I could not see the top of Mare Acidalium. I did think that MAYBE I glimpsed the bottom half of it.

After the north polar ice cap the next most obvious feature was a large yellowish brightening in the center of the disk. When I checked maps inside afterwards it proved to be in the Chryse region. Yellow dust clouds have been often seen at this season on Mars, so there is a good chance I was seeing something real.

I'd be interested to see what people with better 'scopes see. I hope this stimulates some of you folks with bigger apertures to take a look

Merry Christmas & Happy New Year

OBSERVING MARS IN 1997 (PART 1)

by Martin Gaskell

Mars is back for its biennial visit and two U.S. probes are on their way to it. Even though Mars will not get as close as in 1999, this opposition is going to be the last one with Mars reasonably high in the sky for us northern hemisphere observers until well into the next century. Each apparition of the 16 year cycle of oppositions of Mars gives us a unique view of Mars. This opposition the north pole of Mars is tilted at its maximum towards us. This apparition will also be the last chance for visual observers to appreciate early spring in the northern hemisphere of Mars for over a decade. Here are some tips for getting the most out of observing the red planet over the next six months.

Telescope

You don't need a fantastically large telescope. To find out what the typical good observation is made with, I did a big survey of drawings published by the British Astronomical Association (BAA) Mars section. Seventy percent of their best observers used telescopes with apertures between 8" and 12.5", with the median size being 10". The apertures for published Association of Lunar and Planetary Observers (ALPO) observations last apparition were essentially the same with a median size of 9", if one included refractors, and 11", if one included all telescopes. Carlos Hernandez, one of the leading ALPO Mars observers uses an 8" Newtonian. Much of the time a 6" Newtonian like Tel'Poke is almost as good as you need. CCD planetary imaging ace Don Parker raved in Astronomy magazine about how good the views of Mars were in his 6" Newtonian when hurricane damage shut down his 16". Visually, larger telescopes almost never out perform telescopes in the 8" - 12" range. The solution for large Dobs owners is to make an off-axis mask to stop down your mirrors. I got my very best view of Mars last apparition through Tom Miller's 30" stopped down to 11" off axis. The view through the full 30" aperture was not nearly as good.

Although a drive is not essential, I have found that I am making better observations now that I have a drive on Tel'Poke. The planet can be kept right in the center of the eyepiece where the quality is highest and I can have long periods of uninterrupted viewing waiting for the very best seeing moments.

Magnification

I also surveyed what magnifications were used for the best BAA observations. The results agree well with theoretical considerations. The optimum magnification for observing Mars is in the 250X to 300X range for a 6" to 8" reflector under good conditions. If the magnification is less than this, the smallest details the telescope can resolve are not magnified enough for the eye to resolve them; if the magnification is much higher than this, the image is too faint to see low contrast features. In extremely good seeing (which we get surprisingly often in Nebraska) the magnification can be increased to 350X for an 8", or to 400X to 450X for a 12". In poor seeing one might want to go down to 200X magnification. You need a range of eyepieces to span the optimum range. If you have astigmatism (as I do) you should use a magnification towards the upper end of the range, unless you wear glasses or contacts.

Filters

The sharpness of the dark features on Mars is significantly enhanced by using a red or orange filter. If you are going to buy a screw-in one from a major supplier (that screws into the threaded end of a eyepiece), the light red #23A is the recommended one for 8" 'scopes and the dark red #25 the recommended one for larger 'scopes. For Tel'Poke I use surplus filters I got for less than a dollar each. An amber one is my favorite (probably about a Wratten #21 or #15). If you get serious about observing Mars, you will want to get a #38A Deep Blue filter. This shows up the clouds on Mars. By the way, the filter descriptions in the Orion catalog are in serious need of correction. Go by what ALPO recommends, not what the Orion catalog says! When using filters it is easier to hold them in front of the eyepiece rather than remove the eyepiece and screw them in.

Techniques

More than anything else, planetary observing needs GOOD SEEING. Local seeing effects are a large part of bad seeing. You can check to see whether you have local seeing problems by looking at a bright star or planet and bringing the eyepiece well outside the focus. If you see bands moving across the image at high speed, that's OK. They're caused by temperature differences high up in the atmosphere. If you see defects that slowly wind and twist their way around the out-of-focus disk, they are local effects you need to track down and eliminate. The top priority is to keep the primary mirror within a degree of the ambient air temperature. Second priority is to keep the tube temperature in the same range. Tel'Poke lives in an outside garage and I try set it up at least an hour before I observe. My mirror cell is very open. The remaining thing to do is to keep your body heat away from the incoming light beam. I have often found the seeing has improved while I am away from the telescope writing in my notebook!

Seeing varies from night to night. The twinkling of stars is an excellent indicator of seeing. On the nights of really bad twinkling I don't even bother to set up. I've been learning a little about the weather conditions that produce the best seeing. The seeing is almost never good when it is windy. Ten mile-per-hour wind seems to be the upper limit for good seeing. I've only rarely seen good seeing when the wind has been 15 mph. In the summer the very best seeing is about 24 hours after a front has gone through and some very clear calm cooler air has settled in. This is especially true if it stayed cool the day before. Winter is less predictable, but the seeing seems to be almost always good as gray wintry haze and clouds move in. Foggy conditions are well known for their good seeing.

Planetary observing also needs GOOD COLLIMATION. Don Parker collimated his 16" SEVERAL TIMES per night. I use a home-made Cheshire eyepiece for quick and accurate collimation.

Planetary observing also needs patience in waiting for the rare moments of good seeing. Even on mediocre nights a few moments of good seeing will come. Thanks to Tel'Poke's drive I can relax and let it keep Mars in the center of the field at 250X and just wait for those good moments.

Next Month: "Observing Mars in 1997 (Part 2)"

AN ANGLE OF ONE DEGREE

Submitted by Bryan Schaaf

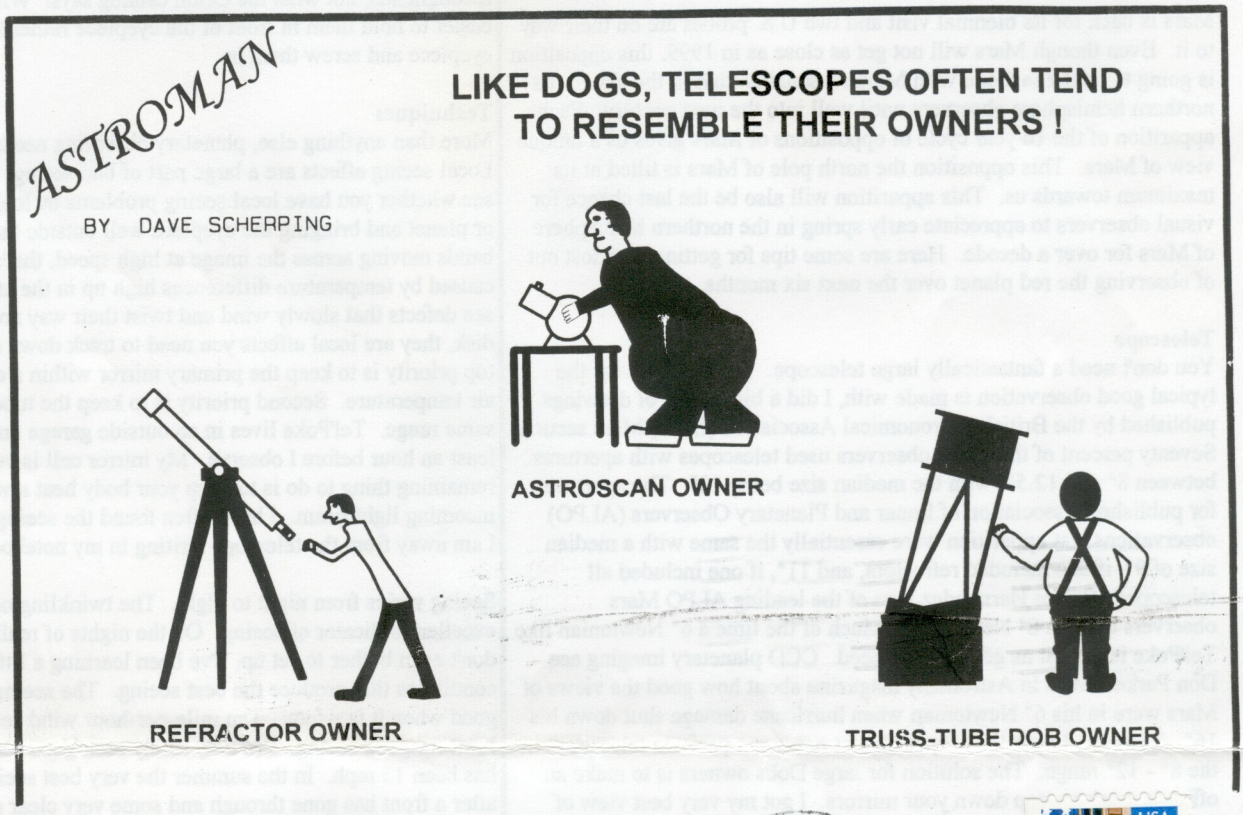
How much is one degree of angle on the sky? Here's a simple rule: Any round object held at 57 times its diameter from the eye, will occupy an angle of one degree.

A penny, for example, is 3/4 inch in diameter. If you position it 57 times the diameter from your eye (42 3/4 inches distant) the apparent diameter of the penny will occupy an angle of one degree. Resource: "Discover the Stars-A Beginners Guide to Astronomy", pp. 75, 76

Vote on Dues increase:

At the January 28th PAC meeting we are expecting to vote on a motion which raises membership dues by $5/month, eliminates the atlas site key fee, funds the Atlas Site through club dues and makes the Atlas Site equally accessible to all club members. The purpose of this proposal is to encourage Atlas site usage, make site access a general club benefit, and to recognize the fact that site funding is not totally separable from general club expenses. The increase also accommodates an expected rate increase from the Astronomical League.

At the November meeting there was much discussion over this proposal. However, we decided to postpone the vote until January in order to notify all members. Please come to the January meeting prepared to vote, so that we can keep additional discussion to a reasonable time. - Doug Bell



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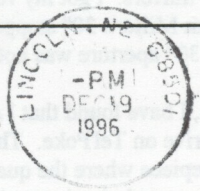

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Next PAC Meeting
Dec. 26th, 1996

DEC 96

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