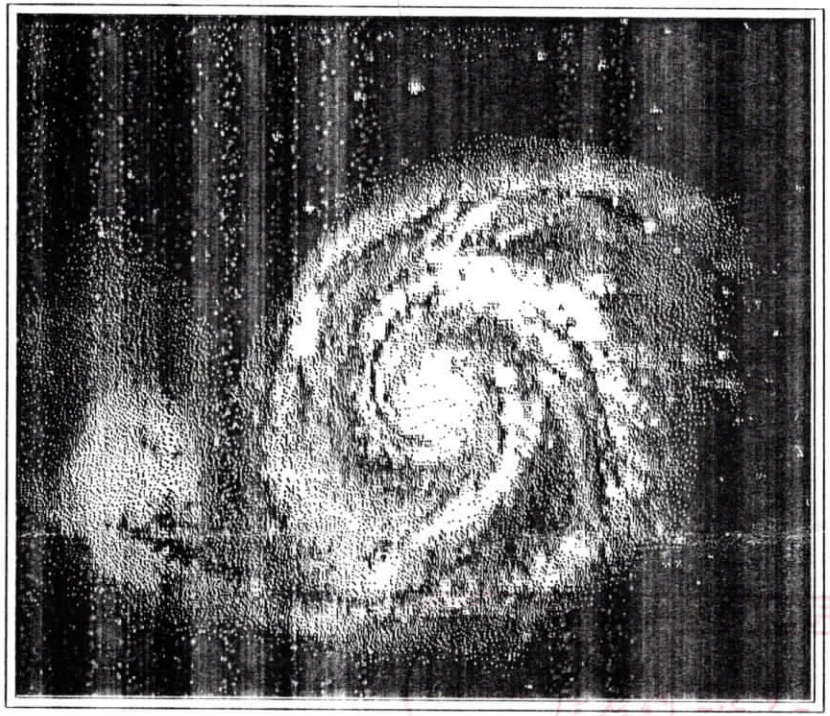
rows of stars which resemble a set of stadium lights. NGC 6946 is tilted spiral galaxy located 1.5 degrees west and 1.5 degrees south of Eta, and can be seen in the same low power field as NGC 6939. Visible in four inch, this galaxy shows hints of detail in eight or ten inch apertures, with the spiral structure being vaguely seen in a twelve inch.



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The Prairie Astronomy Club's Annual Picnic and Star Party

by Kevin Koutnik

The Prairie Astronomy Club held the annual Club Picnic and Star Party on August 10-11. Everyone met at the Hyde Observatory for some good food, conversation, and an opportunity to see a video. Also, the good Doc Manthey brought a variety of solar filters which he had constructed for each of the club's three telescopes, through which the sun was seen to have a mere one spot at about 1/3 radius NE (a relatively quiet period of activity as compared to late spring, early summer of this year).

The filters all worked fine, although definite resolutions of the sun's disk were difficult. An observation by Dave Knisely revealed that the filter's design for all three filters was rectangular and introduced a large amount of diffraction distortion. Dave educated us with the fact that solar filter design should approach a very-near circular surface to keep this type of distortion at t minimum. Thanks for the tip, Dave.

After the picnic (and piles of chicken) four carloads of telescopes and observers blasted off to the Atlas Site for some speculative, skeptical, and more precisely, "iffy" observing. The afternoon was filled with summer cumulus patches occupying over 50% of the sky and, at least during the daylight hours, wasn't giving any sign of dissipating. But all retained a conscious optimism with the amateurish enthusiasm that all hobbyists strive to maintain, and we headed out to the site anyway.

Each passing mile broke holes in the clouds and by the time we reached the site and everyone was set up, the only clouds visible occupied the lower portions of Camelopardalis, a difficult area of the sky to observe this time of year anyway from the site's main pad (it CAN be seen when one sets up on the Western or Northern boarders of the site!)

We all watched as the ruby red sun set and the stars began slowly to peak out of rapidly darkening sky. Ron educated me with the old saying, "Red sun in the morning, sailors take warning; Red sun at night, sailor's delight!" What an adage! We watched as the Mars rival Antares appeared, the northern cross made its entrance, and just like every good night during the summer shows, the Milky Way flowed. For those of you who judge the night by our

President's Message

by Dave Knisely

THE 1991 CLUB PICNIC AND STAR PARTY WERE AN OUTSTANDING SUCCESS! I counted at least 30 people, two dogs, one cat, and a BUNCH of kids at the picnic behind the observatory. The temperature was perfect, although the skies didn't look too promising until after 7:30 pm, when they cleared up fairly well. Most of us also made it out to the site, where we were treated to views through ten telescopes including a 17 inch brought by one of our new members. The seeing was outstanding, allowing us fantastic views of Saturn at very high power. Even though transparency was hampered by occasional cirrus clouds, the Perseid meteor shower did come through, providing us with about 40 meteors per hour after midnight. And, as usual, we had a great time just talking among ourselves and not doing anything too serious. During the star party, several people apparently qualified for the Binocular Messier award by observing 50 or more objects in one evening, and we hope they will bring their certificates to a future meeting. I would like to see us keep this level of activity up at the regular monthly star parties, so mark the dates on your calendars and come on out.

Several things remain on our agenda for the next meeting. There is still time for any of you who want to be on the 1993 convention committee to sign up. We have two people who will be co-chairpersons, and about eight other members already on the list, so come to the next meeting or contact me if you want to help. WE have been asked by the Audubon Society to provide telescopes for the Nine-mile Prairie celebration northwest of Lincoln on the evening of September 15th. If you can help out in any way, please remember that date and bring your scope. There will be more details at the meeting.

After the picnic, I ran into an unfortunate problem which many of us probably have: I DON'T REMEMBER EVERYBODY'S NAME IN THE CLUB! It is a little embarrassing, with me being president and all, but I think I have a solution: Astronomy Club Name Badges. We may want to investigate obtaining low cost plastic name badges with the club log attached. This would swerve to both publicize our club when we are wearing them at the observatory, and help us all put some names on some faces. The cost of badges for other organizations I belong to seems to run about $5.00 or so. In any case, we should discuss this at the meeting and see if there is enough interest to get some made.

AS a final note, if you have anything you think might make an interesting program for a meeting, PLEASE contact Jack Dunn. It doesn't have to be terribly technical or very long, but it should be related in some way to amateur astronomy. We won't laugh at you, and we all might just learn something. After all, a lot of what you get out of our club is dependent on what is put in by its members, so please get involved. See you at the meeting.

A PLANETARY GRAND TOUR

URANUS, PLANET OF MYSTERY

by Carolyn Collins Petersen

An enigmatic gas giant world, Uranus orbits the Sun two billion, eight-hundred million kilometers away from the Earth — too far away to be studied in detail with ground-based telescopes. Yet, it was an Englishman scanning the heavens with a crude telescope — Sir William Herschel — who discovered Uranus, in 1781.

In January, 1986, 205 years after Herschel's first glimpse of the planet, the Voyager 2 spacecraft — an automated assemblage of instrument and camera -flew by Uranus, passing only 81,000 kilometers from the cloudtops of the planet. During the day-long "close approach" to Uranus, Voyager's instruments probed the clouds of Uranus and found a cloudy atmosphere of hydrogen, helium and methane gases — covered by a thin smoggy haze. The "surface" — if there is one beneath those clouds, could be no more than a water and methane ocean surrounding a tiny, rocky core.

Uranus is a planet that rolls around the Sun on its side — that is, it points one or the other of its poles toward the Sun during its 84- year orbit. This may affect the planet's magnetic field, which is offset about 55 degrees from the rotational poles. A Uranian "day" is about 15 hours long.

Encircling Uranus is a set of rings. They are composed of chunks of ice and rock, and a fine scattering of dust particles. Voyager's instruments found the rings to be surprisingly narrow — measuring from 50 meters to 20 miles in thickness, with particles ranging from dust specks to meters-wide chunks in orbit around the planet. In contrast, the rings of Saturn and Jupiter span over 32 kilometers.

As it swept through the Uranian system, Voyager photographed

galaxy's definition, the dark lane was there and apparent, but not quite perfectly defined. And it remained like that for most of the night.

While the Milky Way was seeping into the sky from above, all those with Newtonians were frantically collimating their primaries. Most were successful, though some had a little difficulty. It was suggested that one of the meeting talks cold be dedicated to the rapid and accurate collimating of scopes. At this point in the evening I was relieved to know that I only had a pair of Celestron 11x80's. Of course, that feeling very soon was diffused right of my skull.

I would guess that there were some 30 people who attended at some time or another throughout the night. Let me try to remember the number and type of telescopes that were at the site early on through the night. One Odyssey 17.5 inch Dobsonian: One 10 inch home-made Newtonian, Eq. mount; one 8 inch Newtonian, Dobsonian mount; one 6 inch Eq. mounted Newtonian; one 6 inch Dobsonian mounted Newtonian; one 4 1/2 inch Newtonian with Dobsonian mount; two 11x80 Binoculars; one 20x80 binoculars; two 8 inch Celestron Schmidt-Cassy's; and a few 10x50 binoculars. If I have left any out, I simply can't remember them. It was quite an assembly. Personally, I liked the star reproduction of Dave Knisely's 10 inch best of all. But I couldn't appreciate Bob's 17.5 inch Odyssey Dobsonian enough, being only a beginning amateur. The eyepiece assembly which he maintains on site is a case that looks like it could easily hold two twelve string guitars and lunch for four replete with an abundant Zinfandel!

Sagittarius became the "star" of the show with M22, the first known discovered Messier object (credited to Abraham Ihle in 1665), earning the honors (or at least most referenced object). Most of the more widely known but seldom viewed objects in Cygnus were located with a very nice filamentary definition in a portion of the "Veil" in the 17.5 inch Odyssey. Was that the Eastern or Western section of the "Veil"? Ron gave us a brief look at the "Owl" in Cassiopeia with the modern-day "ET Nebula" connotation having been dubbed as such in Astronomy Magazine. It DOES look like a bright-eyed ET with his arms outstretched.

All of the larger Newtonians and the Schmidt-Cassegrains spent a large portion of their time positioned on Saturn, which was a lone naked -eye bright object in the sky, in the area which it occupied. In my opinion, Dave's 10 inch gave the best resolution, separating the ring very well and segmenting the ring to show the Cassini division perfectly. The Cassini was black as night and the first time I had seen such a wonder. The 17.5 inch was used to search

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: Junior Members and Newsletter Only Subscribers...$10/yr; Regular Members...$26/yr; Family Memberships...$29/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 officers: Dave Knisely (Pres)223-3968, Eric Hubl (V.Pres)423-6267, Ron Veys (Sec)486-1449, Lee Thomas(Tres)483-5639, Jack Dunn (2nd V. Pres)475-3013. All newsletter comments and articles should be sent to Newsletter Editor JOHN LORTZ, 12023 PARKER PLZ #105, OMAHA, NE 68154 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.

Observing Chairman's Report

by Dave Knisely

THE NEXT SCHEDULED STAR PARTY WILL BE HELD ON FRIDAY, SEPTEMBER 6TH AT THE ATLAS SITE. Start your September observing with M30, a lonely globular cluster located about half a degree west and a bit north of 41 Capricorni. Visible in binoculars, this object takes about a six inch for any stars to be seen. A ten inch resolves it fairly well except5 for the very core, which remains bright and slightly elongated. A ten will also show three curving star chains coming out of the cluster and running south.

Northward in Vulpecula is the naked eye open cluster Collinder 399, more commonly known as the "Coathanger". Binoculars show it as an east-west line of stars with a curved arc of stars along the south side. Its extreme size makes it unsuitable for the small fields of view large instruments often have, but those with larger apertures should look on the east edge for the faint open cluster NGC 6802. Visible in a six inch, this object is very faint and looks a bit like a nearly edge-on galaxy at low power. High magnification on at least an eight inch will reveal its faint component stars arranged in several sub-groups.

In eastern Cygnus is a large and somewhat difficult object, the Veil Nebula. This object consists of several areas of faint nebulosity near the star 52 Cygni, and is so spread out that it is assigned at least three NGC numbers. The west portion (NGC 6960) consists of faint streamer of gas which runs through 52 Cygni and can be seen in a four inch rich-field scope equipped with a nebular filter. Large apertures equipped with the OIII filter reveal much complex detail in the nebula. The Eastern portion, NGC 6992, lies nearly two degrees east and slightly north of 52 Cygni, and has been seen in a pair of 10x50 binoculars as a small faint arc of light. The arc is over a degree in length, and responds well to the use of nebular filters in moderate to large apertures, showing extensive filamentary detail.

Another interesting but faint nebula is the North American Nebula, NGC 7000, located about three degrees east of Deneb. Visible to the unaided eye as a large diffuse patch of light, this gas cloud also responds well to nebular filters. A four inch RFT equipped with Lumicon's OIII filter shows the North American form well.

About half a degree east and a bit south of 16 Cygni is the small but interesting planetary nebula NGC 6826. Visible in three of four inch apertures, this object resembles a bluish star at low power. An eight or ten inch telescope at high magnification will reveal a delicate two-shell structure, and occasionally, the central star. On the Cygnus-Cepheus border are two interesting objects, NGC's 6939 and 6946. NGC 6939 is a rich but faint open star cluster located two degrees west and 1.25 degrees south of Eta Cephei, and contains several neat

the surfaces of five icy moonlets — Miranda, Titania, Oberon, Umbriel and Ariel — and discovered another ten moons orbiting the gas giant. Each of the larger moons are unique worlds, displaying a fascinating array of craters, trenches, canyons, and other surface features.

The most interesting of these features are seen on Miranda. This tiny moonlet sports a canyon trench over 10 kilometers deep. It looks like a giant rip in the icy surface. Strange, oval features, called "Miranda Ovoids" lie on the surface, looking for all the world like churned-up race tracks -leading one Voyager scientist to dub them "Circi Maximi" — after the famous Circus Maximus of Roman times.

It will be quite some time before all of the data returned by Voyager at Uranus will be assimilated by the various science teams. Despite the limitations of the spacecraft, the tremendous distances that the data must travel, and the occasional earth-bound problem, the information returned from Uranus is a triumph of science, engineering, and human curiousity about the Solar System.

for Saturn's satellites, but I can't elaborate first hand, though I did hear off to the side that this night wasn't considered by either Dave or Bob to be a good night for such extensive examination. I'd like to thank Ron Veys for giving me my first look at the Ring Nebula. That has been one of my strong desires, and will be one of the first objects that I'll try for when I get a scope.

Young Eric Hubl gave me an under-rated and greatly appreciated assist toward my Binocular Messier award. I came to the site with 46 objects in hand and left with 52! I owe it all to he, Dave Knisely, and the rest of the club. If and when my award is confirmed and sent, I'll photocopy it and send it to the club. Another member passed the halfway point with her 10x50's easily with observing time and sky positions being her only barrier. I'll wager she gets there before the snow flies quite easily as she gains more experience with where things are. Id' advise her not to moth-ball her efforts this winter, though. There' some very easy ones in both the Southern AND the Northern skies.

Most of the members pulled up stakes between 2 and 3 am with a haze of cirrus clouds beginning to hide the difficult objects. By 3 am only four of us remained after tucking Dave off to the sandman. Ron had told his wife at home earlier that he was going to stay all night, and that he did! The night air does something to the metabolism, not to mention a distinct increase in the Greater Galactic Snore! The Pleiades was well up when we rested with a sleepy Orion up early around 4 - 4:30 (that I noticed during an early morning pit stop). The cool, calm nigh air did wonders to my soul, though when I woke up after dawn I had to take some time to uncross my eyes. Those telescopes are something of a fascination.

I've left out the Perseid and Aquarid showers. "Ohhh...", or "Oooo... there goes another one" filled the air all night long - most often with a bright Perseid, usually followed less than a minute by another. They seemed to be occurring in pairs. Someone asked, I remember, "Is anyone keeping count?" at number 8 (I was! till somewhere after a dozen). I'd guess we saw close to 80 during the night - confirmed Persieds, and maybe a dozen Aquarids, with one tagged to the constellation "Who-Knows-Where" (a definite straggler). One of them was so bright that its light lit up the entire inner tube, as seen through the open eyepiece hole in the 17.5 inch while the piece was being changed.

In the morning when we left, Steve Bornemeir dug out a plastic boomerang that he had gotten somewhere (who knows where) and gave us all a proper education in the art of dodging the return of a perfect(?) throw. It was a proper close to a long night and reminded me that I too am going to have to come to Lincoln and enjoy this wonderful and exciting activity, and the sharing atmosphere I found among the PAC members.

Club, I had a ball. My own scope is definitely just over the horizon.

P.S. The REFLECTOR informs us that there is a brand new Supernova in NGC 4527 located RA 12 34, DEC +02 39, in Virgo, near Gamma Virginis (Galaxy - Mag 10). You folks with a scope are going to have a lot of fun with this one, from the report!