

# Gemini

a publication of the Minnesota Astronomical Society



<http://www.mnastro.org>

**June-July 2002**  
Volume 28 Number 3

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## NCRAL 2002 Convention

**Jim Fox**

Twelve current members and one former member of the MAS worked for almost two years to bring an amateur astronomy convention to the Twin Cities area. The months of planning came to fruition on Friday and Saturday, May 3-4, as the NCRAL 2002 convention was held at the Earle Brown Continuing Education Center on the St Paul campus of the University of Minnesota. 61 registrants took part in some part of the weekend's events.

NCRAL is the acronym for the North Central Region of the Astronomical League. The MAS is one of almost 200 clubs affiliated with the national federation of amateur astronomy clubs and societies, and, by virtue of our location, one of about 36 clubs in the North Central Region of the League. Other clubs in our Region reside in the two Dakotas, Iowa, Minnesota, Wisconsin, Illinois and upper-peninsula Michigan (the 51st state, as some U-P locals refer to it).

We had reserved blocks of rooms at the Days Inn and the Radisson adjacent to Rosedale since they were convenient to the Earle Brown Center. Activities began around 5:00pm on Friday evening as Bob Schmidt and I set up a Hospitality Room at the Radisson for those folks who had come into town earlier in the day or week. Our first guest, Ken Timmons from Naperville A.A., IL, arrived as we were just setting up. Throughout the evening, the Hospitality Room served as a gathering place for old friends to renew acquaintances and for groups to depart for the evening at Onan Observatory. We provided maps for those who felt adventurous, while committee members Roy Sarver, John Connery and John Treadwell provided rides or lead carpools for those who wanted a little more assistance. In all, almost half of our registrants came through the Hospitality Room on Friday evening.



Dr. Leonard Kuhi Speaks on U of MN's Large Binocular Telescope LBT

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## Now Showing

Compiled by Ron Schmit

### Eisenhower Observatory:

Come view the night sky through a powerful telescope on top of the Eisenhower Community Center in Hopkins, MN. Viewing time varies throughout the month and is open to the general public. There is no charge, although a \$2.00 donation is requested. Space is limited, so call Diane for reservations: 612-988-4077.

### University of Minnesota:

Observing from the telescope on top of the Physics building, East Bank. Open to the general public. Fridays during the school year: 612-626-0034 for more info.

### Minneapolis Planetarium, 612-630-6155

At the end of 2002, the Minneapolis Planetarium will close to make way for a brand new Planetarium & Space Discovery Center which will open early 2006 as a part of the new downtown central library.

Spring 2002 Programs April 20 - June 13 2002

#### DR. EINSTEIN'S UNIVERSE,

E=MC<sup>2</sup>, nothing can travel faster than the speed of light, space is warped by massive objects? Discover the wonderful cosmos of Dr. Albert Einstein. Saturdays & Sundays at 2:15pm, Thursdays at 7:00pm

#### DINOSAURS IN THE DARK OF NIGHT

The planetarium is pleased to bring back it's popular dinosaur star show. Saturdays & Sundays at 1:00pm

#### ROMANCING THE STARS

2nd Saturday of every month at 7:00pm, \$8.00 per couple

## Patron Members

MAS offers a patron membership to anyone who wants to help support our activities by paying a slightly higher annual membership fee (\$40 instead of the regular \$20). We would like to thank the following patron members who helped support MAS this year:

|                    |                       |                   |
|--------------------|-----------------------|-------------------|
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## GEMINI INFO

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### Circulation

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Gemini is published six times annually in February, April, June, August, October, and December by the Minnesota Astronomical Society. **Electronic submissions for Gemini may be sent to:**

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### Hardcopy items should be sent to:

MAS Gemini  
P.O. Box 583011  
Minneapolis, MN 55458-3011

Send all MAS membership dues, change of address cards, subscriptions, and renewals to the current MAS treasurer. Subscriptions alone cost \$4.50 annually for members of astronomy clubs or \$9.00 for other persons. Materials for Gemini are due on the 10th of the month preceding the month of publication.

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Mike Kibat speaks about Onan Observatory.

The meeting began in earnest on Saturday morning at Earle Brown Center. On-site registration opened at 8:00am and introductions and brief welcoming remarks began at 9:00. Dr. Len Kuhi, Chair of the U of M Astronomy Department, gave our keynote address, talking about the Large Binocular Telescope on Mount Graham in Arizona. Through architectural drawings and photographs of components, Len showed us just how large "large" really was: imagine a two mirrors, each the size of your living room, swinging around on an alt-azimuth mounting! A series of secondary support arms can swing various secondary and tertiary mirrors into place in order to direct the collected light to various foci and the associated instrumentation.

Our next speaker was our own Mike Kibat who really outdid himself providing a synopsis of the history and current status of Onan Observatory - all within about 20 minutes! Surely that is a record for brevity on Mike's part.

Following a short break for a group photograph, Barry Beaman, Rockford, IL, talked about various outreach programs of the Astronomical League and the Astronomical Society of the Pacific. Barry and his wife, Carol, have been closely involved in Project Astro and the development of the new Family Astro programs of the ASP. Barry described the wide variety of opportunities for amateur astronomers to bring the wonders of our hobby to the general public: everything from simply letting a passerby look through your telescope to coordinated efforts with teachers in the classroom.

Orv Brettman, Racine, WI, and past president of the League, is now the project manager for the ISS-AT project. This is a League-sponsored effort to place an Amateur Telescope aboard the International Space Station within the next 6-10 years. Potential dates keep slipping, depending on the status of NASA's budget. In order to work out the details of remote telescope control and programming, an "Alpha Scope" has been established on the ground in Arizona. It is available now for amateurs anywhere to request imaging of specific objects. Check out the web site at [www.issat.org](http://www.issat.org) for details and an observing request form.

After a longer break for a buffet lunch at the Earle Brown Center, activities picked up with the Regional Council and Business meetings. I did not catch the actual number, but it

seemed that between 15 and 20 societies answered the roll-call. Not a bad representation for our non-central location. After some routine reports, the Region voted \$800 support to the ISS-AT program and accepted an invitation for next year's meeting from the Door Peninsula A.S. (Plan now for the first weekend in May, 2003, in the Sturgeon Bay, WI, area.) New Regional officers were elected as follows: Chair - Julia Bachtel, SE Iowa A.C.; Vice Chair - (I'll have to get this and fill you in, I've forgotten!); Secretary/Treasurer - Paul Castle, Popular A.C., IL.

John Thomas began the afternoon talks with a discussion of amateur radio astronomy. A long-time licensed radio operator, John converted one of his ham receivers to pick up emissions from Jupiter around 21MHz. Besides showing us plots of reception intensity, he also let us hear audio recordings of the converted sounds from the interaction of Jupiter's moon Io with the planet's magnetic field.

Returning to optical astronomy, Jim Fox described the construction of his Makali'i Observatory in suburban Afton. He showed the compromises and accommodations necessary to house his 8" refractor in its 9-foot tube. In order to make the facility more accessible in Minnesota winters, he attached the observatory as a third bay of his garage so it is totally



Bill Volna talks about his 'Tardis' Observatory accessible from inside.

Bill Volna presented an hour's discussion on the development, building and ultimate use of his Tardis Observatory. It was fascinating to see the evolution of sketches from original concepts to the final design. Bill then took us along on a trip to Antarctica with Tardis as it was used for observations near the south pole!

As our closing speaker of the afternoon, Dr. Terry Jones, U of M Astronomy Department, described several of the research programs being conducted by the department. It was clear to see that the department has branched out from its former core of infrared astronomy to encompass almost all facets of the science.

Following a delightful dinner at Earle Brown Center, Ralph Plaisted, Arctic Explorer, described his attempts to reach the north pole by snowmobile, finally achieving the goal on

April 19, 1968. His effort is now recognized as the first successful surface conquest of that goal, surpassing the questionable claims of Perry over half a century earlier. In activities closer to home, Ralph originated the Winnipeg-to-St. Paul snowmobile race that began St. Paul's Winter Carnival for many years.

Following the banquet talk, Chair-elect Julia Bachtell presented the 2002 Regional Award the Barry and Carol Beaman for outstanding service to amateur astronomy, to the North Central Region and to astronomical outreach. They are only the second "team" to have won the award in over 50 years.

Since the convention, I have heard from several of the attendees. They have been universal in their praise for the quality and smooth running of the meeting, and of the Earle Brown Center. As chairman, I accept such compliments on behalf of all the committee members who did the actual work. I simply kept things moving and cracked a whip, when necessary, to get the program back on track. In addition to those already mentioned, above, the committee included Dan Fish (door prizes), Ben Huset (MAS President), Chuck Jorgenson (banquet), Lauren Nelson (speakers, group photo), Dave Olmstead (banquet, program), Dave Runkle (web master,

program), Paul Walker (astrophoto contest). Special thanks go to Kay Sproll, EBC reservationist and original member of the Twin Cities A.C. (forerunner to MAS) and to Dr. Kuhl whose astronomy department acted as our sponsor to get us reasonable rates at the EBC for our meeting charges.

To those of you who did not participate, you missed a wonderful opportunity to meet and associate with amateur astronomers from around our area. Plan to attend a future meeting if you can. 🐉



Outside Bill Volna's 'Tardis' Observatory

## MN SFS and MAS in Boy Scout Event

Jeff Root

The Minnesota Space Frontier Society was asked for help at a Boy Scout event near Annandale (15 miles west of Monticello) on Saturday, May 4, to promote the Space exploration merit badge. Not knowing that the NCRAL convention was the same day, I said we could be there, and suggested that the Minnesota Astronomical Society could be, too, to promote the astronomy merit badge.

Procrastinating until the last minute to track down anyone who wasn't participating in NCRAL, I contacted Bruce Goettman, who said he could represent MAS, and two graduate students in the University of Minnesota Department of Astronomy: Ed Rhodes and Mike Schuster, who could assist. I also asked my sister, Jennifer Bezek, to help me get to and from the site, Rod Nerdahl and Bob Bonadurer at the Minneapolis Planetarium to provide materials, and Ben Huset to do anything he could.

I got more help than I asked for. Ben provided hand outs, posters, computers, a Mars globe, and drove me and a big load of stuff out to the Onan Observatory for the star party the night before the Boy Scout event. The Planetarium people went out of their way to print extra sky maps. Bruce Goettman arrived at the site first, early in the morning, and set up the first table with MAS display materials. Ed Rhodes put together a two-sided handout sheet on the Sun and the Moon, with a quiz question and answer for each. Jennifer Bezek made copies of info about the upcoming planet watch (May 13 & 14) and the Minnesota Space Frontier Society to hand out.

The event was outdoors, in a large field, with only a 10-foot square canopy over the display tables. The day started out with a light sprinkle of rain as Jennifer and I arrived, but it was only enough to scare us, then it quit for the rest of the day. It remained cloudy, though, and very cold, and very, very windy. The wind was an almost constant menace. Boy Scouts ran after flying papers more than once, and we wished we had brought even more and larger rocks for use as paperweights. I ran a slide show on my computer. My advice: If you are displaying outdoors, don't bother with a computer display unless you know it is visible in outdoor light. An ordinary monitor can't hack it.

There were said to be 3800 boys attending the Viking Council Camporall 2002, who had come from all over the Twin Cities a wide surrounding region. We all talked with many of them. Jennifer handed out many SETI posters, and I spent much of the time explaining what I was doing with a couple of 8" glass disks (mirror blank and grinding tool), how high my model rockets can fly (several boys identified my tiny "mosquito" model by name), and that the globe was not the Moon but, yes, you are right, the polar ice cap is the clue that tells you it is Mars.

I talked with a couple of hundred boys and dozens of adults one-on-one and in groups of up to about six at a time. Bruce did likewise. Ed and Mike brought an 8" Celestron scope and had kids using it. A very successful event. But very cold and verrrry windy. 🐉

# A VISIT TO MARS HILL

Jackie LaVaque

Hi, gang. I am on a long-needed vacation in sunny, warm southern Arizona. I am visiting my sister and brother, who live here. One of the stops on my vacation so far has been to visit Lowell Observatory, which is located in Flagstaff. My sister, her best friend and myself took a drive up there last Monday.

Flagstaff is a very nice town. It's got this strange old-new feel to it- it's part old southwest, and part modern, trendy college town. It's the home of Northern Arizona University, which is a large institution within the downtown area. Flagstaff has a population of about 60,000, and it reminds me a lot of Duluth- except that Flagstaff has the dramatic backdrop of the San Francisco Mountains just to its north, with Mt. Humphreys, at over 12,000 ft., being the highest point in Arizona. Lowell Observatory is located on a hill, dubbed Mars Hill, on the western fringes of downtown Flagstaff.

As we made our entrance into the downtown area, I took careful note of the lighting situation in the town. As you probably know, Flagstaff has been very forward-thinking in its approach to light pollution. I noticed the full cut-off light fixtures lining the streets, and there were fewer of them than you would see in an average downtown area in a city of this size. We visited with some friends of my sister after we left Lowell. My sister's friends live just north of downtown. I asked them if they could see the Milky Way from their backyard, and she said that they could indeed.

The weather was cool in Flag that day - everyone here calls it "Flag", for some reason (and they all seemed to think that I've got an \*accent\*). It was about 55 degrees and very windy. That didn't deter us from going up to Mars Hill for a trip into the past.

Lowell Observatory is the nation's largest privately-funded observatory. It is kept running by Percival Lowell's trust fund, and by the generous donations of large Arizona-based companies and other wealthy benefactors. It really is like taking a trip back in time.

There is a newer visitor's center, the Steele Visitor Center, which is the first place one normally starts on their tour; in the exhibits room, you will find many items of interest, including a large exhibit on how telescopes work and how the human eye and brain processes vision. You will also see the tools of the astronomer's trade, such as spectrographs, Schmidt cameras and CCDs. The exhibits are interactive, so they encourage one to get hands-on in their discovery. The staff are friendly and knowledgeable about their observatory and its history, and they were fun to talk to. There is a theater that was showing a short film about super novae hunters; that was quite interesting. When that was over, we heard an announcement that a guided tour was about to start, so we got in line for that. There were about 20 others with us on the tour.

Megan was our tour guide. She is a student at NAU and is majoring in- you guessed it- astronomy and physics. Our first stop on the tour was to see the 24" Clark refractor, built in 1896 and still in operation, though most serious research of the observatory is now done at a site about 20 miles to the west. Even though Flagstaff is very determined to keep the city's light pollution to a minimum, the Lowell site still gets light pollution from Phoenix, 130 miles to the south.



Photo by Jackie LaVaque

A view of the 24" refractor's massive focuser.

If you were on the Goodsell Observatory tour last month, then you saw the 16" Brashear refractor there. The 24" Clark refractor at Lowell is a leviathan, much larger than the 16" Brashear at Goodsell. The observatory it is housed in is the original, built in 1894. I was amused and impressed by Percy Lowell's ingenuity in its design- he personally hired everyone that was involved in the construction and design. In the 1950's, the steel wheels on the rotating dome's track were replaced by tires from Ford trucks. They are still in use today and seem to work great for this purpose. Out of curiosity, I asked Megan what they did if one of the tires got a flat, and she admitted that she didn't know.

The telescope weighs 6 tons and is controlled mostly by ropes. To demonstrate how heavy this monster refractor is, she had several volunteers come down to play tug-o-war with it. I



Photo by Jackie LaVaque

The 24" refractor is 32 feet long.

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offered, along with two other burly strong male-types. We could barely move it!

Even with a wealthy benefactor such as Percy Lowell, money was tight in the early years. The 24" Clark refractor's guide scopes, a 6" refractor and a 12" refractor, use skillet lids as lens caps. They are still in use today.

A poignant reminder of Mr. Lowell's devotion to his love of astronomy is his original black chair, which is seated on a platform off to one side. This is the chair he would sit in on many very cold Flagstaff nights to view Mars. His sketchbooks With his Mars sketches are still housed in the observatory's library, and can be viewed by the public.

Our guide explained that this scope was the first used to measure the red shift of distant galaxies by V.M. Slypher, who was the red shift's discoverer. Later, Edwin Hubble applied this knowledge to his theory of the expanding universe. During the 1960s, the refractor was used to create base drawings for a NASA moon mapping project.

We then went on to the next stop, the Lowell Library. In the capacious grand room, there was a lovely stone fireplace and two twisty staircases leading up to bookshelves lining the walls of the second floor. The books are very old, and are from Percy's personal library. Unfortunately, the public wasn't allowed up these stairs, as they were fragile and in need of some repair.

Lining the walls of the lower level were glass cases filled with the Effects of a turn-of-the-last-century astronomer/mathematician- Percy's secretary's typewriter, sketchbooks, an old calculating machine, his spectacles, and so on. But the most interesting things I saw were the Zeiss blink comparator, used by Clyde Tombaugh in his search for Pluto, and V.M. Slypher's spectrograph. Talk about pieces of history! I got a chance to look through the blink comparator at copies of the original photographic plates that Clyde Tombaugh used to find Pluto. I took lots of pictures of the place, and then after the tour, I met and chatted with an amateur astronomer from Wyoming, who was leading his club's efforts to fund and build an observatory of their own. I handed him an MAS card and told him to



Photo by Jackie LaVaque

The Zeiss Blink Comparator that Clyde Tombaugh used

check out the history of Onan on our website. Their observatory is still in the planning stages, but they are getting prepared to write some grant proposals. I told him about our observatory's design and said that perhaps it is worth their while to consider such a design for theirs. His club is open to any and all ideas at this point. He said he might be contacting us in the near future for more information.

Take a visit to Lowell Observatory if you are down in Arizona- no matter where you're staying while you are down here, Lowell Observatory is definitely worth a drive. Or take a virtual tour here: [www.lowell.edu](http://www.lowell.edu).



Photo by Jackie LaVaque

Lowell's mausoleum.

One more thing: my sister was impressed by her visit to Onan last October. Being much more the "Martha Stewart" type than I am, she thought the walls of the observatory needed a bit of "perking up", so she purchased several very cool posters at the Lowell gift shop for our use out at Onan. I will be bringing them along with me to Astronomy Day and I suppose I could purchase some frames for them, so we can hang them up at some point. "It's a good thing."

I get to spend a couple more days in the Arizona sun, then it's back to MN for me- my plane's due to arrive at 5:22 pm on Saturday, then it's home to pick up my car and then I'm coming directly out to Onan for the festivities. I imagine that the 50's that are being predicted for this weekend are going to feel might-y cold to me, now that I'm accustomed to warm weather. But it will be good to get back home, because I've discovered that I'm allergic to oleanders, which my sister has growing all over her yard. (Ah-CHOO) 🐻

# Bug Free Viewing

JB Andersen

Everyone would like a swat free viewing environment. Unfortunately most good viewing is away from large city bug spraying areas.

**Problem:** The outdoor temperature is the biggest problem in controlling bugs and mosquitoes. Various mosquito species are at peak activity around 65-68 degrees Fahrenheit (18-20 C.). The upper 50s to low 70s F. (14 to 23 C.) is their broad range.

**Solution:** Cool, dry nights are best for observing, with a temperature at 55 degrees F. (13 C.) and below. There is virtually no mosquito activity at that temperature and colder. This is a reason why pre-dawn observing sessions tend to have an advantage over evening sessions. The pre-dawn temperatures are lower.

**Problem:** When it's warm, we sweat to cool off, but if the humidity is high the sweat doesn't evaporate very fast. This moisture on the skin reduces the effectiveness of insect repellents.

**Solution:** It is better to be hot in long sleeved shirts and long pants of cotton than to wear shorts and a t-shirt with repellent directly on the skin. Over-spray the garments with repellent. Lotions and citronella candles appear to be the best repellents. The candles should be placed a bit away from the viewing site.

**Problem:** Bug zappers are virtually useless against mosquitoes because mosquitoes are not attracted to light. Long range host selection is done by mosquitoes through a CO2 (Carbon Dioxide) detection system. Humans breathe out CO2.

**Solution:** Don't breathe out. Insects other than mosquitoes are attracted to the light of a bug zapper so the zapper should be placed away from your viewing site. Clubs and individuals could leave the zappers on when the site is not in use and turn it off during viewing sessions.

Reducing Mosquito Breeding Around the Home and Other Viewing Sites

- The major culprit in mosquito breeding is standing water. Do not allow water to stand in cans, containers or pots of any kind. Invert the receptacles so that water can drain. Clean up around your clubs viewing sites.

- Any standing containers should have holes drilled in the bottom. Drainage holes that are located on the sides allow for collection of enough water for mosquitoes to breed.

- Clean all birdbaths a minimum of every three days or install a dripper so that the water is running not standing.

- Discarded tires are a major source of standing water.

Discarded tires are the most prolific producers of mosquitoes. Require tire collectors in your community to drill out a portion of each tire and have the hole facing downward.

- Clean clogged roof gutters on an annual basis, particularly if the leaves from surrounding trees have a tendency to plug up the drains. Roof gutters are easily overlooked but can produce millions of mosquitoes each season. Any gutters at your clubs viewing site?

- Turn over plastic wading pools when not in use. A wading pool becomes a mosquito producer if it is not used on a regular basis.

- Turn over wheelbarrows and other water holding equipment at viewing sites.

- Aerate ornamental pools or stock them with fish. Aeration keeps the water moving destroying the mosquito larvae. Fish eat the larvae. Water gardens are fashionable but become major mosquito producers if they are allowed to stagnate.

- Clean and chlorinate swimming pools that are not being used. A swimming pool that is left untended by a family that goes on vacation for a month can produce enough mosquitoes to result in neighborhood wide complaints. Mosquitoes may also breed in the water that collects on swimming pool covers.

- Use landscaping to eliminate standing water that collects on your property or viewing site. Mosquitoes will develop in any puddle that lasts more than 4 days.

- Fill all potholes on roads to viewing sites.

## Ten Ways to Beat the Bugs for Astronomical Observing

1. Observe at sites within metropolitan spray areas. Light pollution will affect viewing of course.
2. Despite the environmental hazards you should spray around your viewing area. Also be certain to spray the ground. I do a fifteen-foot circle around my scope. Be certain to spray before set up so as not to get any spray on your scope or lenses.
3. Observe only in the winter, spring and fall. There are virtually no bugs before the spring thaw or after the first fall freeze.

*Continued on Page 9*

4. Observe on windy nights. Bugs are not tolerant of wind.
5. Take a herd of bats with you. They eat their weight in mosquitoes every night. Place bat houses around your viewing site. Pre-made bat houses come with instructions on where to hang. Your club should buy or build several for each viewing site.  
*Visit the following sites:*  
<http://www.batcon.org/bhra/bhcritter.html>  
*Free instructions and designs for bat houses.*  
<http://www.batconservation.org/content/bathouse/bathouse.htm> *Order books on how to build bat houses.*
6. Use an insect repellent on yourself.
7. Wait until the death of El Nino to observe. In many areas it is causing a rainy season and hence a great breeding

- site for the devils of the night.
8. Wear mosquito netting. You can see through it.
9. Hang a lantern about a hundred feet from your viewing site. It will attract the bugs, but not mosquitoes. Be certain not to look in the direction of the lantern, as it will ruin your night vision.
10. Buy a video camera and attach it to your scope. Place the whole thing on your roof and observe from the bug free comfort of your television room.

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## Jim Nygaard

Hi David,

I just wanted to let you know that they found my brother's body in the river yesterday. The autopsy showed no sign of foul play. In fact, there was a cinder block inside his jacket, in front. So it was pretty clearly suicide. I appreciate your concern early on and help you provided with getting his picture out, etc. I certainly wish that things had turned out differently. And I know that everyone who knew Jim wishes the same. He took a great deal of delight in being part of MAS. I know he did some volunteering at the observatory and attended some lectures. I'm glad he had that in his life for a little while. Thank you again for your willingness to help. Kristin Kispert 🐉



## Firefly Trails

### Thor Olson

After a beautiful sunset on a clear evening, the temperature stayed warm enough for the biomass of insects to set sail in search of their targets. For the deafening hordes of mosquitoes the target was me; the mild-mannered fireflies were in search of each other. I was trying to get the arcs of the southern stars reflected in this calm side pool of the Minnesota River. This exposure caught them and more. Fireflies left their own trails as they flashed briefly while cruising through the field of view. The near ones leave short trajectories, while the more distant ones make staccato marks in their characteristic firefly-green color, a color not found in any startrail.



Lac Que Parle on the Minnesota River  
 11:00pm 10 July 99  
 Canon AT-1 with 28mm lens at f/5.6, 75 minutes

Other things to note in this picture: the bright section of the Milky Way leaves a cloud-like smudge as it moves across the sky, not to be confused with the sodium lighting from the dam facilities a few miles beyond the horizon. The star trails themselves are modulated: they all show a thinning at their 3/4 position, and then a fading away at their westward tail.

This is due to the lens fogging over slightly, clearing, then fogging over completely as the temperature dropped. It was enough of a drop to fog the optics, but not enough to still the mosquitoes, a combination dreaded by the region's amateur astronomers. 🐉

# Astronomy Day report

## Michael E. Kibat

Here's a brief recap of Saturday's Astronomy Day activities out at the Onan Observatory. Thanks to the early-arrival crew -- Bill, Charlie, Don, Kandy and others -- we got the place cleaned and set up, just as the first visitors arrived shortly before 5:00. By 6:00 or so, a considerable crowd had gathered. For at least an hour we practiced "sucker hole" astronomy, viewing sunspots and the Moon as openings in the thickening cloud cover allowed.

Once the clouds socked in for good, there was a lot of milling about, socializing, Q & A, etc. Dave Runkle set up a satellite dish that visitors could use to scan the southern skies seeking geosynchronous satellites. Todd Giencke was busy answering a wide range of questions about imaging and his computer exhibit. Dan Fish from Radio City presided over a very nice display of wares from his shop. Patti Neavin kept the welcome wagon rolling and Kandy Bierle kept the refreshments flowing. Around 7:30 Tom Youngblood delivered the "Grand Tour of the Universe" slide presentation, and I took the opportunity to do a quick census. I counted 85 people (visitors and members) scattered around the place, most listening to Tom and enjoying the pictures, some gathered around telescopes outside the building "talking shop". (Based on my "snapshot census", and the general flow of people before and after, I would say we probably had 150 in attendance overall.) Dave Runkle repeated the show a little later in the evening for some late arrivals. Jackie LaVaque took a group of young "junior scientists" (who traveled all the way from Rochester!) on a tour of the solar system using the observatory's model.

As the visitors gradually departed, the MAS members in attendance hung around to socialize, finish off the refreshments and talk astronomy, both the "Serious" kind as well as

the not-so-serious kind ("Wink, wink...nudge,nudge...say no more!"). After cleaning up from the evening's festivities, the last 7 or 8 diehards left just after midnight.

I'd like to thank those volunteers who made the evening possible. I know I'll miss some who showed up to help unannounced, but at least here are the ones I had direct knowledge: Deane Clark, Dave Olmstead, Steve Korzenowski, John Vylasek, Steve Emert, David Venne, Michael Twohy, Tom Swensen, Hal Yngve, Tom Youngblood, Dan Fish, Phil Lefever, Kandy Bierle, Patti Neavin, Tim Hagen, Todd Giencke, Dave Runkle, Chuck Jorgensen, Charlie Ellis, Bill VanStralen, Don Gazdik, Jackie LaVaque, Randy Dietel, George Skinner, Scott Hash, Bob Albertson. (Apologies to those I missed!) No doubt that clear skies would have made for an even more enjoyable evening (and possibly a larger turnout), but I think that everyone -- MAS members and visitors alike -- considered the evening a success and time well-spent. 🍷



A crowd at Onan on Astronomy Day.

## Yuji Hyakutake (1951-2002)

### Tommy Lim

April 11, 2002 | Renowned amateur astronomer and comet discoverer Yuji Hyakutake died on Wednesday night from internal bleeding caused by an aortic aneurysm. He was 51 years old. Hyakutake is most remembered for his 1996 comet that bore his name. Regarded by many as the most stunning of the past decade, the comet (C/1996 B2), amazed skywatchers worldwide with its nearly 100°-long tail. He discovered the visitor with a pair of Fujinon 25x150 binoculars from a mountaintop near his home in the village of Hayato in Kyushu's Kagoshima Prefecture, about 950 kilometers southwest of Tokyo. His first comet find, C/1995 Y1, came only six months after he began his weekly dedicated comet hunts. But it was his second discovery that earned him worldwide recognition. In an interview that appeared in Gekkan Tenmon (Monthly Astronomy) in April 1996, Hyakutake related the story of his monumental find: "It was [at dawn on January 30th] when I unexpectedly came across a comet like object. . . .

I was very familiar with the star field of this area because I had often observed C/1995 Y1 there. . . . I said to myself, 'I must be dreaming.' "I left my binoculars for a while to calm myself down, and then I started drawing the comet like object relative to the background stars. It was much more condensed than C/1995 Y1. . . 11th magnitude, 2.5' in diameter." The new comet soon delighted skywatchers as it put on the best display since Comet West in 1976. "I'm a bit perplexed by all the attention paid to me, when it is the comet that deserves the credit," Hyakutake later said of his instant fame. Yuji Hyakutake leaves behind a wife, Shoko, and two sons. 🍷

# Project Starshine

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David E. Venne

Can you name something that brings together volunteerism, corporate giving, science and the space program? If you've seen the May 2002 issue of *Sky and Telescope*, you know that Project Starshine is just that combination. Briefly, the project enables students of all ages to become directly involved in the building of small reflecting satellites used to study drag in the upper atmosphere. The driving force behind the project is Gilbert Moore, a retired NASA engineer.

I was able to talk to Moore at a national science teachers' convention at the end of March. Moore was busy promoting Starshine to everyone visiting the Naval Research Lab's booth at the convention, and was doing so with an enthusiasm that made abundantly clear how he managed to create a program that now involves students from 48 countries. It also has helped that he considers himself to be a very good scrounger since the project is largely unfunded. And having had Dan Goldin, former NASA chief, as a devout supporter of the project didn't hurt, either. The spherical satellites, covered with mirrors polished and tested by the students, have relied on the space shuttle for getting into orbit; Goldin made sure that there would be room on board.

Despite Moore's obvious energy and optimism, he expressed some concern about the project's future. Goldin is gone, and the shuttle schedule will have less frequent launches in the future. The International Space Station will place heavy demands on shuttle resources, and room for the Starshine satellites may not be available for long periods of time. These "down times" for the project have Moore wondering if it will survive. While his health and spirits are excellent now, Moore realizes that eventually he will have to ease himself from the project. A long gap between launches may find the project trying to resume without its leader.

Moore is currently trying to muster political support for his shoestring project in order to insure its continuity. Beyond that, he's looking for someone or something to step in and provide continuity of leadership for the time when he needs to step away from his voluntary workload. My only suggestion to him was to contact the Astronomical League, which he hadn't yet done. If any of you have a suggestion that might help Moore keep Starshine going, he'd love to hear about it – contact him at [gilmoore12@aol.com](mailto:gilmoore12@aol.com) with your ideas and words of support. ■

## Beginners SIG

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**Patti Neavin**

Any member of the MAS is welcome to join us for any of our meetings or field trips. Meeting locations and additional information is posted on our e-mail list. Go to <http://lists.mnastro.org/mnastro/listinfo/beginners> to sign up.

June 19th 7:00pm monthly meeting – Doug Brown will give a presentation on telescope accessories. Location to be determined.

July 17th 7:00pm monthly meeting – Michael Koppelman will give a presentation on getting started in imaging. Location to be determined.

Patti Neavin Coordinator ([patti@seamsmith.com](mailto:patti@seamsmith.com)) or days at (651) 291-7199 ■

## Road Trip SIG

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**Patti Neavin**

May 18th – Yerkes Observatory – overnight trip to Williams Bay, WI. Possible other trips being investigated:

July 12-13 Prairie Grass Stargaze, Comfrey, MN \

August 9-11 Chippewa Valley Astronomical Society Northwoods Starfest

September 13-15 Chicago Astrofest

U of M Observatory

Patti Neavin Coordinator ([patti@seamsmith.com](mailto:patti@seamsmith.com)) or days at (651) 291-7199 ■

## 2002 Star Parties

*Star parties are held on Friday if weather permits, otherwise on Saturday. Call (651) 649-4861 after 6:00 p.m. on a star party date to hear whether it will be held.*

### Metcalf

Metcalf is the grassy parking lot of Metcalf Nature Center, about 20 miles east of St. Paul along highway 94. About 6 miles E of the 694/494 crossing is county road 15 (Manning Ave.). Turn right, then left onto the frontage road and continue east, crossing over county road 71. Turn right (south) onto Indian Trail; follow it 1.1 miles to an chicken-wire gate on the right, (marked by three blue reflectors), opening onto a dirt driveway, which is the entrance to Metcalf.

### Baylor Regional Park

Baylor Regional Park is roughly 25 miles W of the SW corner of 494. Head west on highway 5, through x, to Young America. Turn right onto county road 33 and follow it about 2 miles to the park, a right turn. The observing site is through the gate and roughly 100 yards beyond. Card-carrying MAS members may observe at Baylor at any time; call the park keepers in advance at 448-6082.

When visiting Baylor Regional Park, MAS members are requested to NOT park on the grassy areas next to the observatory (or any other grassy areas for that matter). This is a matter of being considerate to the park, its caretakers, and other visitors, so PLEASE PARK in the PARKING AREA.

Annual Park Permits (optional, not required for observing) can be purchased by sending a check to Carver County Parks, 10775 County Road 33, Norwood Young America, MN 55397. The cost for the Annual Permit is \$16. Permits are also available at the Park Office at Baylor Park, the Carver County Government Center located at 600 4th St. in Chaska, through the honor box systems and gate houses when staffed at both Baylor and Lake Minnewashta Regional Parks. Lake Minnewashta Regional Park is located in Chanhassen off of Hwy. 41 between Hwy. 5 and Hwy 7 .

### Cherry Grove

Cherry Grove is about 20 miles south of Cannon Falls. Head south on Hwy 52. Around 6 miles south of Cannon Falls, take a right onto Goodhue County 1 and follow it around 16 miles, where it ends in a T with Dodge County A. The observatory and warming house are at your right, nestled in the corner of the T.

| Date               | Location     | Sunset | Twilight |
|--------------------|--------------|--------|----------|
| March 8 or 9       | Baylor       | 19:50  | 20:01    |
| March 15 or 16     | Cherry Grove | 18:21  | 20:01    |
| March 22 or 23     | Metcalf      | 18:30  | 3:20     |
| April 5 or 6       | Baylor       | 18:48  | 20:31    |
| April 12 or 13     | Cherry Grove | 18:57  | 20:43    |
| April 19 or 20     | Metcalf      | 19:05  | 2:07     |
| May 3 or 4         | Baylor       | 19:23  | 21:22    |
| May 10 or 11       | Cherry Grove | 20:31  | 22:35    |
| May 17 or 18       | Metcalf      | 20:39  | 1:51     |
| May 31 or June 1   | Baylor       | 20:53  | 23:16    |
| June 7 or 8        | Cherry Grove | 20:59  | 23:26    |
| June 14 or 15      | Metcalf      | 21:03  | 0:30     |
| June 5 or 6        | Baylor       | 21:04  | 23:30    |
| June 12 or 13      | Cherry Grove | 21:01  | 23:22    |
| June 19 or 20      | Metcalf      | 20:55  | 2:18     |
| June 2 or 3        | Baylor       | 20:40  | 22:43    |
| July 9 or 10       | Cherry Grove | 20:30  | 22:28    |
| July 16 or 17      | Metcalf      | 20:20  | 1:00     |
| July 30 or 31      | Baylor       | 19:56  | 21:41    |
| August 6 or 7      | Cherry Grove | 19:43  | 21:26    |
| August 13 or 14    | Metcalf      | 19:30  | 23:39    |
| August 27 or 28    | Baylor       | 19:03  | 20:41    |
| September 4 or 5   | Cherry Grove | 18:50  | 20:28    |
| September 11 or 12 | Metcalf      | 18:38  | 22:23    |
| September 25 or 26 | Baylor       | 18:14  | 19:52    |
| November 1 or 2    | Cherry Grove | 17:04  | 18:43    |
| November 8 or 9    | Metcalf      | 16:55  | 20:06    |
| November 29 or 30  | Baylor       | 16:37  | 18:21    |
| December 6 or 7    | Cherry Grove | 16:35  | 18:50    |
| December 13 or 14  | Metcalf      | 16:35  | 2:28     |



Dusk at Owan

Photo by Ben Huest

## How to pay your dues

Your MAS membership expires at the beginning of the month shown on your Gemini mailing label and your membership card. Send your payments to the MAS treasurer (Chuck Jorgensen) at 1615 E. River Parkway Minneapolis, MN 55414-3627. Make checks payable to MAS. The current annual membership dues and subscription fees are:

|  |         |
|--|---------|
| <i>Regular membership</i>  | \$20.00 |
| <i>Patron membership</i>   | \$40.00 |
| <i>Student membership</i>  | \$10.00 |
| <i>Subscription to Gemini for members<br/>of other astronomy clubs</i> | \$4.50  |
| <i>Subscription to Gemini for other persons</i>                        | \$9.00  |

### To Renew Your Sky and Telescope Subscription

If you get *Sky and Telescope* at the club's discounted rate, you must renew your subscription through the club. When you get a renewal notice from S&T, send the notice along with a check for the amount indicated on the notice (currently \$29.95) to the MAS Treasurer (Chuck Jorgensen) at 1615 E. River Parkway Minneapolis, MN 55414-3627. Make checks payable to MAS. If desired, you may renew your MAS membership at the same time, and write one check to cover both payments.

To subscribe to the MAS e-mail list visit:  
<http://lists.mnastro.org/mnastro/listinfo/>  
and follow the subscription instructions.

There is a general list (MAS) as well as special interest group (SIG) lists. Archives of the lists are also available by visiting the listinfo page for a specific list.

The MAS list has about 40% of the membership on it.



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