

# Gemini

a publication of the Minnesota Astronomical Society



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## **The 206th Meeting of The American Astronomical Society**

**By Professor Larry Rudnick Facilitated by Ron Bubany**

“The American Astronomical Society will be holding its 206th Meeting here in Minneapolis on May 29 - June 2, 2005. MAS members are eligible to attend all activities for FREE, provided they volunteer to support at least two sessions. Professor Larry Rudnick, Interim Chair of Astronomy at the University of Minnesota is leading the local planning effort for this event and has invited MAS members to participate. Read on for all the details. We pick up our conversation with the professor at the point where our editor remembers to turn on the recorder...”

### **Professor Rudnick:**

I study supernova remnants and radio sources associated with clusters of galaxies and, in order to pursue those things, everything now is multiple wave lengths because we've got so much information that comes from a variety of different places. So I use radio information, I have done work on x-ray satellites, specifically the Chandra Observatory. I've done data from HST, I've had programs on the new infrared Spitzer telescope. Most of my radio stuff is done on the Very Large Array in New Mexico.

The specific questions that I'm interested in are mostly associated with how relativistic particles get accelerated in different environments. Actually, I've given a couple of talks to the MAS over the years on some of this work.

**Ron:** How long has it been since you talked to us?

**LR:** Umm, maybe about three years or so.

**Ron:** Oh, it might be getting time to do another one!

**LR:** I'd be glad to. At any rate, so that's on the research side. On the teaching side I teach everything from graduate students (I've had a number of students who've gotten their PHD's working with me) down through freshman seminars. These are fun little small classes that were instituted a few years ago to provide a small environment essentially where freshmen and faculty members could get to know each other. I'm teaching one right now on the topic of “Nothing” – so we explore the properties of a vacuum. we talk about quantum fluctuations of stuff that goes in and out of existence, look at the history of the number zero, and I bring in people from lots of different fields to talk about “Nothing” in their field. (Ron laughing). Oh, it's great. I have a pharmacology professor who talks about the placebo effect, I have a blind person who comes in and talks about seeing “Nothing”. I have a person from Interior Design who talks about the use of empty space in design – a whole variety of different things.

**Ron:** I think it would be great to have you on the agenda for one of our meetings and say “Professor Rudnick will come and talk to us about nothing”.

*Continued on Page 3*

## THE PRESIDENTS LETTER *by Mike Kibat*

Publishing a bi-monthly newsletter like Gemini is no small task, as those involved will testify. With this issue of Gemini, Ron Bubany was faced with the toughest challenge of any editor -- having too much content and not enough budget to publish it all. Thanks to those who contributed and thereby created this wonderful problem! [Ron's saving all the submissions and will schedule them into subsequent issues.]

Another newsletter challenge is its timing. Given the lead-time needed to layout, print, label and mail the publication the news it contains might be out-of-date, or late-breaking information doesn't get in at all. As Steve Emert noted in the last issue, the MAS home page ([www.mnastro.org](http://www.mnastro.org)) and our web-based discussion forums are both places where the most recent and up-to-date information about the MAS may be found in the time between each issue of Gemini.

Then, there are situations when the timing of the newsletter is nearly perfect -- this issue will be in your hands just a little over two weeks before our annual **Astronomy Day** event at our Onan Observatory. If you are new to the MAS or to astronomy this is a great learning opportunity, a chance to see firsthand what the MAS is all about and a wonderful chance to meet your fellow members in a fun, social setting.

From a positive perspective, the publication schedule forces us to plan further ahead than we normally would. As an example, the board is considering an MAS **fund-raising 'garage sale'** sometime near the Summer Solstice. In order to have all the details ready for publication in the June Gemini, we need them worked out by the beginning of May. (One of these details is the location for the sale. If you have space and are interested, contact a board member and let them know.)

And in the 'dated news' category, by the time you read this our first full month of MAS **star parties** will have concluded, including the Messier Marathon at Cherry Grove. I hope that mentioning this brings back fond memories of mild, star-filled evenings and observing until dawn...but this IS Minnesota, and it WAS the month of March, so more likely that's not the case. Regardless, I encourage you to take advantage of the star parties scheduled for the remainder of 2005. They are a lot of fun, a great way to learn and an opportunity to make new friends!

Don't forget about the upcoming **American Astronomical Society** meeting May 29th through June 2nd. MAS member Jon Hickman has offered to organize and coordinate those volunteering to help out. Details are available elsewhere in this issue, and online in the forums. Contact Jon for more information or to volunteer.

Some good news for anyone who considers themselves a 'beginner'--after a brief hiatus, our **Beginners Special Interest Group** is up and running again! MAS member Matt Love has volunteered to coordinate the SIG for the coming year. (THANKS, Matt!) Their events will appear in the on-line events calendar ([www.mnastro.org/events](http://www.mnastro.org/events)), in 'Beginners SIG' discussion forum ([www.mnastro.org/forums](http://www.mnastro.org/forums)) and in the SIG section of our web site ([www.mnastro.org/sigs](http://www.mnastro.org/sigs)). If you are approached by Matt to present at an upcoming SIG meeting, please consider helping out--your participation is essential to the vitality and success of this SIG.

And, finally, a fond farewell and best wishes to **Bob Bonaduer** as he leaves his director's position for the Minneapolis Planetarium and moves to Arlington, TX as noted elsewhere in this issue. Bob's contributions to the community at large and to the MAS in particular are too many to list here. Needless to say our loss is certainly the University of Texas' gain. Join me in thanking Bob for all he's done for the astronomical community here in Minnesota and wishing him all the best in the future!

Until next time, keep those Gemini submissions coming, get out and enjoy a star party or two and we'll see you at a monthly meeting!

## GEMINI INFO

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Send all MAS membership dues, change of address cards, subscriptions, and renewals to the current MAS treasurer. "See "How to pay your dues" on the last page of this newsletter."

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**LR:** I've never done it as a talk. It would be an interesting one to do.

So that's the teaching side. On the outreach type activity side I've worked since 1980 with the Planetarium. This is almost the entire time that I've been here and I'm one of the founding members of the Board of the Minnesota Planetarium Society which is desperately

trying once again at the legislature this year to get funding for a new Planetarium.

I've worked for many years with the Minneapolis Public Schools doing teacher training of science and elementary teachers doing science. I worked for many years with Newton's Apple, doing physics and astronomy guest shots for them.

**Ron:** Great. Can we now switch over to the American Astronomical Society and your involvement there?

**LR:** We are the official hosts (the Department of Astronomy) for the 206th meeting of the American Astronomical Society. This is the third time that we've done this. We did it twenty years ago. We did it ten years ago and we're doing it now.

The American Astronomical Society has two general meetings each year. They refuse to come to us in the winter, so each time we've done this as the summer meeting which this year will happen starting on Memorial Day weekend, so it's May 29th through June 2nd.

**Ron:** So you're in charge of the planning for this meeting then.

**LR:** Yes. Planning is divided into two pieces. Most of the scientific program is done by the Society itself. The Executive Committee of the Society puts together most of the scientific program. We make some suggestions for them.

Our responsibility is then to handle a lot of the local type arrangements – things like transportation, setting up the Society Banquet, hosting the opening reception, providing volunteers to help run the sessions and stuff like that. Just a whole variety of support type activities.

**Ron:** It's still no small task though.

**LR:** Oh no, we've got lots and lots of jobs. In fact, if anybody wants to get a flavor of it I can give you the web site where we're trying to keep track of our own tasks. People may find something they'd be interested in on there.

There are two areas where we could use assistance. The main thing is, during the meeting itself, we're going to need lots of volunteers. The volunteers will serve in a variety of capacities. Most of the time they will be the AV people who are sitting in a room making sure the projector's there, and get the CD's from people that need their talks up, or running to find

a person when the bulb burns out. All that critical support stuff that you need when you're running a meeting like that.

That's the meeting itself. And, before the meeting we just have lots of these little organizational things where we have groups of people working on various things. Anybody that felt like getting involved before the meeting would be welcome as well. To get some idea of the tasks, you can go to this web site  
[http://www.astro.umn.edu/~ginny/LOC\\_tasks.html](http://www.astro.umn.edu/~ginny/LOC_tasks.html).

Getting back to the meeting itself, what happens is a combination of things. There are, I would say maybe, four main activities that go on at the meeting.

Major scientific talks. What we would call plenary addresses. Those are scientific talks which are given for a fairly broad audience. They would be somewhat accessible to the amateurs. They might be a bit of a challenge sometimes, just depending on each person's individual background. In general the plenary talks are given for people that aren't working in that specialty, so they are a bit broader. In fact, two of our faculty members are going to be giving those addresses. The opening address for the entire conference is going to be given by Liliya Williams. She is going to be talking about using gravitational lensing to study the distribution of dark matter in the universe. Then the second one will be given, I don't remember which day, by Chick Woodward (another member of our faculty). He's going to be talking on the origins and evolution of "Dust". (Ron laughing again). There will be one or two other plenary addresses, but I haven't seen the program yet.

The second thing that happens is that there are lots and lots of scientific sessions on special topics. They'd be parallel sessions where there might be five or seven running at any one time. So there'll be like a morning session, or two different morning sessions, and people just look through the program and choose the programs they want to go to. That's partly where we would use volunteers is to be at those small sessions and be manning the AV equipment and running around if there are problems.

The third thing that goes on at the conference is that most of the scientific presentations now are not done orally, but rather they are done with posters. There will be a big room with posters set up and that's the way people will present their scientific investigations. So there will be a new set of posters that come up every day and those are topic organized. There may be a couple of rows that are doing planetary systems, or red giant stars, or whatever. It's all special topics.

And then the fourth area is the Exhibit Hall. There will be exhibitors there – some will be educational, people trying to sell to educational institutions. There will be book publishers



Professor Larry Rudnick

there. There'll be people there that just sell things like posters. In addition, most of the major observatories will have their own exhibits showing what latest instrument developments are going on and stuff like that.

Then, on Tuesday night, there will be a public lecture. The Astronomy Department hosts a public lecture every year anyway in honor of Karlis Kaufmanis. So, the public lecture will be the Kaufmanis lecture for this year. He is now a deceased faculty member that has a loyal following of thousands of people who took his courses over the years. He was just a very well loved professor. And now we have a lecture series where we bring people in each year in honor of him.

This year's lecture will be given by Carolyn Porco, Head of the Imaging Team from Cassini/Huygens, talking about their mission to Saturn and Titan.

And then the last thing that goes on is the Society Banquet on Wednesday night and it will be a dinner with some awards presented and we're arranging some entertainment for the evening.

Oh, there will also be some special meetings but I don't know yet what they're going to be. Sometimes there'll be like a presentation from the National Science Foundation that wants to bring some issue to the Society, or talk about prospects. Maybe somebody from NASA who will have a special meeting where they're going to inform people of some issues that might be coming up and they want to get some feedback from astronomers.

So that's what the meeting is all about.

**Ron:** What kind of people come to the meeting? These are all professional people, right? Are they all from the educational community or is it broader than that?

**LR:** It is largely the professional research community. There'll be some people there who are interested in educational things. So part of it won't be people that are involved in research but are involved in education. There will be a lot of graduate students but also a lot of people in faculty positions, observatories, and things like that.

Now, in terms of what the volunteers will get out of this. There's one very specific thing in that we have to register, it's like a couple hundred dollars or so to register for the meeting. And people that volunteer for two sessions will get registration for the whole meeting. This means that a person who volunteers for two tours of service can basically go to anything.

**Ron:** How about the Banquet at the end of the meeting?

**LR:** Yes, volunteers may attend, but there's an extra charge for that as there is for all registrants. The dinner will probably be about \$40.

Finally, if people want to get a sense of this meeting, it's a great opportunity to gain an understanding of what's going on in astronomical research these days. You're hearing a lot of stuff that's on the frontier – it's the latest stuff that people are doing. People are talking about works in progress, so they're

giving preliminary reports. It's often stuff that isn't published yet and hasn't made it out into the media.

**Ron:** I suppose if you are attending a session that's over your head you could pretend you're sick or something and walk out.

**LR:** Unless you're running a slide projector.

**Ron:** You are too quick!

**LR:** People run in and out of these sessions all the time because they may want to hear somebody in one session and then they know that somebody else is going to speak in another. So, people are constantly walking in and out and sort of just sampling these different things.

**Ron:** Well, you've made this awfully easy for me. I haven't had to ask too many questions.

**LR:** That's what happens with a professor. You just sort of wind them up and they just start talking.

**Ron:** Well, it's appreciated. Any last words you want to throw in?

**LR:** No, I don't think so. I appreciate your taking the time and effort to put this in the newsletter.

**Ron:** Oh, one last question. If your wildest dreams came true, how many people could you use from our organization?

**LR:** Well, I haven't thought that through yet, but I would bet that we could make use of fifteen or twenty. That's just off the top of the head. Because, not everybody will be working at once, I mean people would be spread out. Some people would be working a couple of slots here, somebody a couple of slots there. So I don't think we would have any trouble at all using that many people.

**Ron:** And, the location for the event? On campus?

**LR:** No, good question. It's going to be at the Convention Center in Minneapolis. It's a big group, so the headquarters are the Hilton Hotel and the Convention Center.

**Ron:** OK. Thank you very much for the interview, Professor Rudnick. The MAS will do its best to get a good turnout of volunteers for this exciting event.

Want to get involved in the event? There are two ways:

If you are "web enabled", go to the MAS web site and join the "usergroups" forum. You can reach this by entering the URL [www.mnastro.org](http://www.mnastro.org). When the page displays, select "discussion forums" from the left hand menu frame. Then, when the forum list appears, select "usergroups" from the top of the page. Should be easy from there on.

If you are not web friendly, write or email Jon Hickman, our coordinator, with your contact information:

Jon Hickman 410 Narcissus Lane Plymouth, MN 55447  
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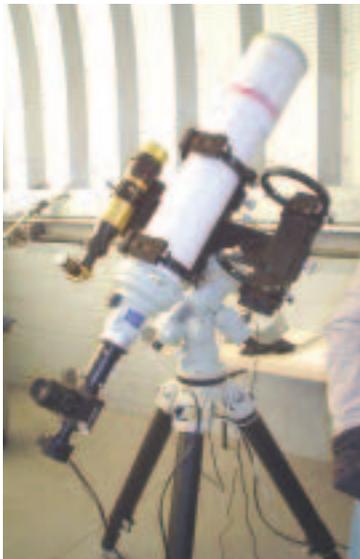
## TOA-130 Status

By Michael Kibat

As mentioned in the last issue, the Onan Observatory received a fantastic donation of a Takahashi TOA-130 5" refractor and an SBIG STV imaging system. Since that time, we also received a Takahashi NJP mount, a tripod, the electronics and hardware for 'GOTO' capabilities (the Takahashi Temma 2), AND the laptop computer and software needed to operate it all!

Fund-raising is now underway to purchase accessories needed to fully outfit the telescope for both visual use and for imaging. Included on the accessory list are:

- Finder and mounting bracket
- Eyepieces, a barlow and filters
- Cover for the telescope and mount
- Solar filter
- Adapters to attach telescopes or cameras side-by-side with the TOA-130
- Dew control heaters
- Computer accessories
- Automated focuser



The fund-raising goal for these accessories is \$3,800. As February ended, we had raised \$541.50. Earlier that month the MAS board approved a dollar-for-dollar matching grant of \$1,900, so this effectively doubled that amount to \$983.00 (the \$541.50 includes money raised from last year's Ottewell calendar sales, so only \$441.50 is eligible for the match).

As a result we have to raise a little more than \$1,448.42 dollars to take full advantage of the matching funds, and reach our \$3,800 goal.

Your help is needed! Any amount is appreciated and is matched dollar-for-dollar.

There are two ways to donate. You can donate online using PayPal by visiting the Onan Observatory web site ([www.mnastro.org/onan](http://www.mnastro.org/onan)) and following the link named '2005 Campaign' in the left-hand column. Or, you can send a check, made out to 'Minnesota Astronomical Society' to:

Onan Observatory Fundraiser  
c/o Mike Kibat, 4717 Nord Cir S., Bloomington, MN 55437

[Note 'Onan accessories' on your check to ensure it is correctly posted.]

This is truly a 'first class' telescope that deserves 'first class' accessories. Help us outfit the scope so we can all enjoy all the capabilities it offers in the months and years ahead! ■

## ASTRONOMY 101

By John Young

Are you familiar with these terms... "declination, Telrad, parfocal, ecliptic, parsec, collimation, sidereal, apochromatic"? If you can define these terms, this article is not for you. Can you find Orion, M31, the square of Pegasus, Sagitta, Castor and Pollux in the night sky within 15 seconds? Can you split Alberio? If you can, skip this and go to the next Gemini article.

If you can't, this article is specifically for you.

You are new to astronomy, new to stargazing. You have looked up in awe at the night sky and you have somehow known that there is a lot more than twinkly points of light up there. You somehow know that other more wondrous things are there for you to discover. But two things bother you. First, you are shy about revealing how little, as a newcomer to the MAS and the world of amateur stargazing, you really know. Second, you are a little bit intimidated by the depth of celestial knowledge you have seen in fellow MAS members. I guess those are two sides of the same coin.

I have been a member of the MAS for less than a year. Before that, I could point out the Big and Little Dippers. I never owned a telescope before that time, so let me help you through.

Everybody starts out dumb about the wonders of the night sky. That includes me, you, and everybody else in the MAS. High school and college teachers are fond of saying, "There is no such thing as a stupid question". You and I know from experience that is not true, that there are many stupid questions in school. You have asked them and you have heard them asked. But not in the MAS, not with your fellow amateur astronomers. I have never seen a group of enthusiasts so friendly and so eager

to help you understand as I have with the MAS. Skygazers come in every conceivable degree of knowledge, they own \$100 scopes and they own \$5,000 scopes, some can name just 20 constellations and others can discuss the spectral differences between blue giants and brown dwarfs, but all are happy to share with you the wonders they have found. I have asked every dumb question I could and have never been put down.

I wrote an article for the Gemini involving upgrading the Larson telescope at the Onan Observatory utilizing Digital Setting Circles. The first thing I had to do was to find out what Digital Setting Circles were!

I asked, and was answered in an educational, friendly way. I now know. As a new astronomer, one who knows much less than many of the other MAS members, one of my greatest pleasures is taking my 8 inch Dob to public events and pointing out what little I know to those who want to know more. And they are impressed! When they get too impressed with my knowledge of the night sky, I point to a star and say, "Do you know the name of that star?" When they say "no," I say "neither do I!"

As a beginner, you should read the "discussion forums" section of the MAS websites frequently. You will be surprised at how much you can learn. When you go to a star party, the best question you can ask your fellow astronomers is "what have you got in there?" They will be happy to show you their latest find, as well as describe it for you.

The farther you delve into your new hobby, the more in awe you will become of the unbelievable distances, times and sizes of the universe we call home. ■

# Observing SIG: Messier Object Field Observation Tips

by Greg Haubrich

A main purpose of the Observer's/Messier SIG is bring Members together to share thoughts and ideas and to encourage one another in Observing all 110 Messier Objects with the intent of individually obtaining the Astronomical League's "Messier Club Certificate".

Below are a few thoughts of mine that I'd like to share with you. It's a few items that I've picked up so far. Please share your ideas and observing tips with the SIG too.

**1. Constellation Recognition:** Because the Messier Club Certificate requires the use of "Star-Hopping" to find the Messier Objects (i.e. manually pointing your telescope without any artificial aids other than "Telrads" or Magnified Finder Scopes), some basic familiarity with at least 1/4 the constellations as readily seen from the northern hemisphere helps tremendously. Once you can identify the big and easy constellations, the dimmer, lesser known constellations are easily learned with a "Planisphere" under the stars. However, it does help to learn the constellations before searching for Messier Objects in them.

**2. Your Telescope:** Get familiar with your telescope. Just like driving a new car, the more that you use it, the better an operator/driver you become. Eventually, it almost becomes a natural extension to your reflexes and senses. It helps to have a passing understanding of the terms: Field-of-View, Focal Length, Focal Ratio, Magnification, Exit-Pupil, and Magnitude as they pertain to your telescope and observing. Check out <http://www.astrobuysell.com/paul/fov.htm> , <http://www.televue.com/engine/page.asp?ID=139> , or <http://www.televue.com/engine/page.asp?ID=140> for descriptions of these important concepts. Being able to point your telescope via the finder is a must (I would highly recommend using a Telrad or Telrad-like 1:1 reflex finder - they are so much more effective and easier to use than magnified finders).

**3. Human Vision:** (and your vision personally)

It also helps to understand Human Eye Dark Adaptation, personal Entrance/Exit-Pupil (vs. eyepiece focal length and telescope focal length), Averted Vision, and "wiggling the scope" in viewing faint Deep-Sky Objects.

**4. Visual Observations Color:** Full color Hubble pictures are a fallacy as far as what one sees with visual telescope observing. Most Deep Sky Objects (Galaxies, nebula, and most star clusters) will show no color (except maybe the Orion Nebula, which to me looks slightly green tinted). They simply do not have the light intensity necessary to turn on our color vision (the "Cone" cells in our eyes). However, individual stars will definitely show color.

**Brightness and Detail:** Additionally, at first glance, most Deep Sky Objects appear dim and diffuse. Only with training one's eyes and mind will details start to appear after the

object is studied long enough by the observer. Many times adjusting the magnification will affect the details seen by the observer.

**Knowing what to expect:** It's usually much easier to find and identify the objects once you have seen them before. Having a good idea of what you are looking for can help speed up finding and identifying objects considerably. Also do not be fooled by the overall "Magnitude" (brightness) listed for Deep Sky Objects; the size of an object is equally important. The way Magnitude is measured, one can take a star of the same listed magnitude and "defocus" it to cover the entire object's area. Thus larger objects have much lower surface brightness, or brightness per unit area (i.e. M33 is notoriously difficult to see for a Magnitude 5.7 Galaxy). Surface brightness is the key factor in the contrast that allows objects to be visible against the night sky. Light pollution can lower this contrast significantly and make the lower surface brightness objects invisible in Urban/Suburban light pollution if they are too close to the horizon.

**Seeing Conditions:** The transparency and stability (seeing) of the atmosphere can have a great affect on what is observed at the eyepiece. The seeing in Minnesota usually limits the maximum amount of magnification that can be practically used on most nights. Additionally, subtle details can be lost, or whole objects missed if the seeing is poor enough. Objects that are visually "Jaw Droppers" on nights of good seeing can turn into "ho-hum" diffuse blurs on nights of poor seeing (or be missed altogether). Light Pollution effects make sky transparency even more critical. For example, while in the vacuum of space, Hubble observes during the "day"; conversely as atmospheric transparency degrades, more light pollution is scattered making light pollution's effects much worse during nights of poor transparency. If you've seen the Messier Objects only once, unless it was under ideal seeing conditions and at various magnifications, you will see more almost each time you re-observe them (i.e. you don't have to feel guilty about looking at the same objects over and over, as long as you see something new just about every time!)

**Hunting for and Identifying Objects:** Patience, and "Practice makes Perfect": Patience and a some knowledge of the night sky is necessary to find objects. My first Messier Object (M57) took me 45 minutes to find. But it was all down-hill from there! After carefully taking about a year and a half to go through the Messier Club Certificate, I was able to go through 102 Messier Objects in one night at this past year's MAS Messier Marathon via Star Hopping. Hint: Start out with a low-power eyepiece giving a wide 1 degree field-of-view or more, and then switch over to a higher power eyepiece if desired (much smaller field-of-view) after the object has been found.

**Navigating the Night Sky:** Geometric Dead-Reckoning: Once you know the constellations, it is relatively easy to point the telescope close (within a degree and a half of the object of interest). One can increase the initial pointing accuracy by imagining geometric shapes consisting of stars at each vertex (i.e. triangles, rectangles, pentagons, etc.) but leaving one imaginary vertex which is where the object of interest is located in the sky. This can often times get one to within a couple of telescope fields-of-view, it's just that you don't know what direction to go from there without looking at a Star Chart. Thus, look through the eyepiece and begin searching. A Star Chart is then used to unambiguously identify the surrounding star field and thus the object of interest (brighter stars tend to form discernable patterns relative to the object of interest).

**Star-Hopping:** Start at a "bright star" and by using a Star Chart as a map, hop from one "bright" star, or star pattern, to the next until you get near the object of interest. Verify the star field and object per above. Navigating the night sky is an acquired skill, don't be too frustrated, be patient with yourself. Before too long you will have it mastered.

## After you've "seen them all" and want an additional challenge, try the annual MAS Messier Marathon in mid-March to early-April.

**Star Charts: Computers:** While mentioned above, this deserves extra attention. Planetarium programs can display star fields as faint as most telescopes can view visually (down to 16th magnitude). Newtonian Telescopes invert (180 degree flip) the image and their actual field-of-view can be simulated easily and surprisingly accurately by these planetarium programs (other telescopes also have predictable field rotation). The Messier Object locations are also displayed (often size and orientation as well). One can easily print out a zoomed-out (approximately 45 degree sky view), and a zoomed-in telescope field-of-view for each Messier Object (approximately 2 degree field-of-view). I put mine in a 3-ring binder. Alternately, if a laptop computer can have it's display covered with a dark red filter, it can be made into a very flexible and dynamic "Star Chart".

**Books:** Uranometria, Millennium, and other fine Star Charts/ Sky Atlases also work well.

**Equipment:** In addition to the obvious (Telescope, eyepieces, finders, de-dewing equipment, detailed finder Star Charts, red flashlight, and counterbalance weights), I would recommend the following: A portable table (for Charts/or Laptop Computer, eyepieces, Observing Log, Binoculars, etc.), a small micro-cassette recorder for logging in the dark,

a pencil in addition to a pen, a snack with water, and a chair. Dressing for at least 10 degrees colder than actual conditions is usually a good idea due to the lack of physical activity during observing.

**"Observing Buddies":** Even though the Messier Club Certificate is a solo effort for finding, observing and logging the Messier Objects, teaming up with a like-minded Messier Hunter/ Messier SIG Member(s) is a very good idea. In addition to not having to observe alone, you can encourage each other, swap observing hints, and even provide eyepiece "sanity checks" when you think you have the Messier Object Identified (depending on the size of your telescope, and the quality of the skies, you may be inadvertently observing one of 10000+ NGC or IC objects attainable with amateur instruments). You can even run informal competitions among Observing Buddies/SIG members.

**Have Fun and don't hurry through it!** The fun is in the journey as much as, or more than, in the end-goal. Enjoy! It took me 8 months to go through the Messier List and I considered myself highly driven. My observation log was strictly via words. Others have even drawn sketches of each object. Please read the Astronomical League Logging requirements before you begin to log seriously.

**Re-Observing the Messier Objects:** Even though I've seen almost all of the Messier Objects at least a few times (some probably hundreds of times), I find myself trying different magnifications, and hoping for better seeing conditions. Some surprises I've found from re-observing my old favorites under different magnifications (certainly not seeing this every night!):

The Clear Spiral Structure in M51, M101, M81.

The central star of M27.

The "eyes" in the "Owl" Planetary Nebula, M97.

The multitude of galaxies visible in with the same 1 degree FOV as M84 and M86 (at least 7!). Dust Lanes and an embedded NGC object, (NGC205), in M31.

A planetary nebula (NGC2438) clearly visible inside M46.

A double open cluster of M38 & NGC1907.

After you've "seen them all" and want an additional challenge, try the annual MAS Messier Marathon in mid-March to early-April. Here it's possible to see 109 of the 110 Messier Objects in one night! I only managed 105 Star Hopping so far. But this gives me reason to try again!

See you out OBSERVING! ■

## The Amateur Telescope Making Special Interest Group (ATM SIG)

By Steve Emert

After Ben Mullin's excellent article re-introducing the ATM SIG to the MAS in the February Gemini, our illustrious and hard working editor asked if I could follow up with an article on additional aspects of ATMing – getting started, how it's done, etc. Of course, being probably the least qualified member of the ATM SIG to write this particular article, I threw caution to the wind and promptly said, "yes". So here it is!

Amateur telescope making to most people means one thing: grinding and polishing telescope mirrors. Now just getting started at grinding, polishing and figuring your first mirror can be a rather daunting task. However, there are ways to get around the intimidation factor. There are occasional classes in the area that you could attend (I hope Greg Furtman and Rick Swenson repeat their class at the Chippewa Valley Astronomical Society's Hobbs Observatory again this year, hint, hint), there is a wealth of information on the web, and the MAS also has quite a few members with a lot of experience who are willing to help as you get started and to help when you get stuck along the way.

But first, there are several other ways you can get started in ATMing as well. Remember, the mirrors and lenses are "only" the most important part of the system. As I read somewhere, "A reflecting telescope is primarily a couple of microscopically thin pieces of aluminum precisely curved and placed to funnel a lot of light into an eyepiece so that it can reach your eye. All the other stuff is there to keep those pieces of aluminum aligned and to allow them to move smoothly as you point to different places in the sky." And there are a lot of other pieces to deal with! Those "other pieces" give the beginning ATMer a chance to gain some experience and the confidence to work up to a bigger and more complex project.

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**"A reflecting telescope is primarily a couple of microscopically thin pieces of aluminum precisely curved and placed to funnel a lot of light into an eyepiece so that it can reach your eye."**

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One way to get started in ATMing is to think about your recent observing experiences. Is there anything you'd like to do to improve your observing sessions – making yourself more comfortable during your session, making it easier to locate objects, even coming up with a better way of thwarting dew? Any of these can be good starting ATM projects. For example, do you get a sore back from stooping down to the eyepiece for long periods of time or do you find yourself limiting the time you view an object because you get tired standing in one position? A great ATM project is some kind of observing chair. If you have any woodworking or metal-working skills – or want to build them – this can be a good

project. For example, my first "ATM" project was a Denver Observer's Seat. (<http://members.tripod.com/denverastro/seat.html>) Made of 2x4's and hardware store parts, it is an inexpensive and easy to build item that really improves your comfort while observing. Of course if you want to go fancier, you can design your own or borrow on ideas like the Catsperch chair which looks a little nicer. (<http://www.catseyecollimation.com/cperch1.html>) If you have some electrical knowledge, it may be worth your time to "roll your own" dew heater. It can range from the simplest set of heating elements all the way to a fully thermostatically controlled unit. All these can be considered ATM projects, even though they aren't specifically building a telescope itself.

Ok, ok, so by this point anyone still reading this is muttering at me, "It's not amateur telescope accessory making, it's amateur telescope making"! Well, even if you're still not willing to get involved in making the optics, you can still gain a great deal of satisfaction in building the rest of the telescope. Amateur telescopes are made from wood aluminum or even plastic, all of which can be easily worked in a home workshop. Thank goodness for the Dobsonian design! Compared with the stuff ATMer's in the 50's and 60's had to deal with, making a scope on a Dob mount is a breeze. Back then most ATM projects used heavy iron pipe to create equatorial mounts with babbitted bearings - bearings made by pouring molten lead into the space between a shaft and a larger pipe acting as the bearing housing. These designs generally limited the size of the typical amateur reflecting scope to 6 or 8 inches before they became too heavy to move around. Compare that to today when we typically use regular woodworking tools like a table saw, drill and router to make the scope, and use Teflon and laminate bearings. What a difference! And besides, with the Dob design we can feed our aperture fever and still be able to haul our creations down to Cherry Grove or other dark sky sites.

Of course to get started in building a scope, it's nice to have some advice. Two great books with advice on building telescopes include "Build Your Own Telescope" by Richard Berry and "The Dobsonian Telescope, a Practical Manual for Building Large Aperture Telescopes" by Kriege and Berry. Along with these and many other books (many of which you can find on Sky and Telescope's web site and others) there is also a wealth of information on the web. Stellafane is the Granddaddy of ATM'ing. Their web site ([www.stellafane.com](http://www.stellafane.com)) and The ATM Site ([www.atmsite.org](http://www.atmsite.org)) are both good starting places for online advice. Even though it's just not the same as being able to say, "I made my own optics", at least being able to say you built the your own scope gives you a real sense of satisfaction.

You can take the "carpentry" route to ease into ATMing as I did, or you can go directly to the "big bang" of rolling your own optics. My "big bang" was attending the CVAS workshop last year at Hobbs Observatory. During a three-day weekend, each of us completed an 8" f/6 mirror. Yes, con-

trary to popular belief, you can grind, polish and figure a mirror in three days. But you do have to start out with a mirror that has a pre-generated curve rather than “hogging” it out from a flat mirror blank. Even though hogging out your first mirror blank is considered a rite of passage, I’d recommend getting a mirror blank with a pre-generated curve any day! If you want to read what you need to know to get started right away grinding your own mirror, the bible is “How to Make a Telescope” by Jean Texereau.

Of course there is also a huge wealth of resources on the web. One of the best beginner-to-intermediate tutorials on mirror testing I’ve seen is “Understanding Foucault” ([www.atm-workshop.com/foucault.html](http://www.atm-workshop.com/foucault.html)). And let us not forget our own MAS members. Many ATM SIG members done advanced projects and are willing to lend advice. Take a look at Carl Anderson’s web page ([www.geocities.com/stressed-](http://www.geocities.com/stressed-)

[glass/index.html](http://www.geocities.com/stressed-glass/index.html)) where he shows off some of his work with unobstructed reflector designs and Dale Easton’s article on the ATM Site where he compares his high resolution Robo Foucault analysis to Interferometer analysis. (<http://www.atmsite.org/contrib/Eason/RoundRobin/index.html>) My head is still spinning from the math in Dale’s article! I can see I have a lot to learn.

No matter where you would like to start in ATMing – from making accessories or modifying your commercial scope to building the housing and mount for your scope to figuring and testing your optics – there is something for nearly everyone. In the coming months we hope to get some ATM SIG workshops going where we can leverage the enthusiasm and knowledge of our members to bootstrap others with an interest but hesitate to get started, and to show off our completed and in-progress projects. ■

## Astronomy Day 2005

By Michael Kibat

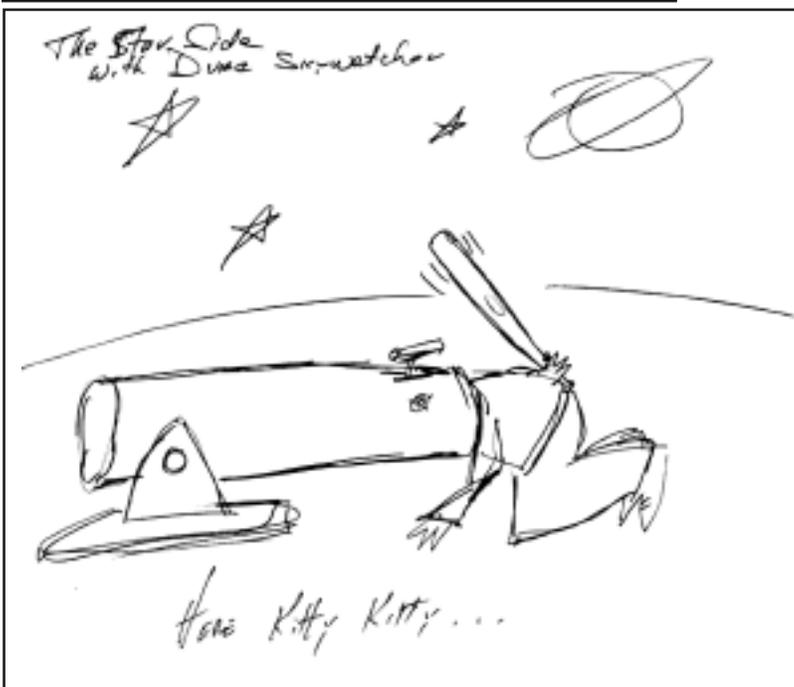
Each year amateur and professional astronomers, planetariums and science centers across the country and around the world observe 'Astronomy Day'--an outreach and educational event that 'brings astronomy to the people'. Usually scheduled near the first quarter Moon in April, this year's event occurs the weekend of April 15th.

The Minnesota Astronomical Society will observe Astronomy Day with a number of activities, beginning with a public star party at its Onan Observatory in Carver County's Baylor Regional Park the evening of Friday the 15th.

Throughout the afternoon of Saturday the 16th, starting at noon, the observatory will host demonstrations, displays and speakers, addressing a wide range of interests. Typical topics include: getting started in the hobby, making your own telescope, advanced techniques such as imaging celestial objects using film or computers, and, contributing to 'real science' though amateur research. These are organized and presented by 'special interest groups' within the MAS. Telescopes are also available during the day for safe viewing of the nearest star, our Sun (weather permitting).

The event concludes with another star party Saturday evening.

## Duke Skywatcher



All events, including the star parties, take place 'fair weather or foul', with slide presentations replacing telescope observing if skies are cloudy either evening.

Most activities, particularly the nightly star parties, are 'family friendly' and provide a wonderful way to introduce kids to the night sky and get them excited about science in general. (Note to visitors: The observatory is not heated, and open to the night sky during evening observing, so dress appropriately for the weather conditions!)

[MAS members are encouraged to volunteer in any capacity for the event. We typically need 10 to 15 telescopes the evening of each star party, volunteers are needed to deliver presentations, we need people to staff our 'welcome / information' table, and there are always a number of logistical details that need attention both before and during the event. Contact Mike Kibat ([kibatme@visi.com](mailto:kibatme@visi.com) -or- 952.884.0039) with your questions, suggestions or to volunteer.]

See you all at Astronomy Day 2005!

## From the New Beginner's SIG Coordinator

By Matt Love

Greetings from the Beginner's SIG.

Greetings to who though? Perhaps you're wondering if you're qualified to be classified as a "beginner." If so, ask yourself a few questions: "Do I own a telescope or binoculars?" "Can I find any constellations?" "Do I know how to star hop?" (Hint it's not a dance move.) "Which end of a telescope do I point at the stars?" "Are 42 eyepieces and accessories really enough or should I buy more?" "Can I really see anything cool with a telescope this size?" If you answered yes or no to any of the above questions you have what it takes to be a part of the Beginner's SIG, and you would be a welcome addition to any of our meetings or events.

So what do beginner's like myself and possibly you need? I think we need quality presentations such as the two we have coming up this month and next. We need MAS members who are worried about doing the wrong thing at a star party, or who don't know their way around the sky. However we always have room for MAS members who do know what they're doing and can light the way for the rest of us. (With a red light of course - wouldn't want to lose our night vision).

I must confess I myself am a beginner. My name is Matt Love, I recently volunteered to coordinate the Beginners SIG. When I told Patti Neavin I didn't know if a beginner should coordinate the beginner's group she told me "who knows more about what beginner's need than a beginner?" In fact I just purchased my first telescope, an 8" Orion Skyquest. Previously I owned a pair of Meade 7 x 50 binoculars, and of course my eyes. I don't know all the constellations yet or everything there is to know about my telescope, but I'm learning, and after getting together with us in the Beginner's SIG you will too.

### Status of the Minnesota Planetarium

By Parke Kunkle

As of February 28, 2005, the Planetarium is included in the Senate bonding bill for \$24M and in the House bonding bill for \$6M. This is the best position we have been in since we began our quest five years ago. We obviously need more than \$6M but we have good support from both parties. Both bills now head to the conference committee where one bill will emerge. By the time, this article is published, undoubtedly things will have changed. But we can always use your help.

First, please contact your State Senator and Representative and ask them to support the Planetarium. Many of you can speak about this from the heart, but if you need talking points, please see <http://www.mplanetarium.org/legislature.htm> or contact me.

Second, the conference committee members (again as of 28 Feb) are:

From the House, Representatives Dorman, McNamara, Brod, Hausman, and Murphy.

From the Senate, Senators Langseth, Metzen, Pappas, Senjem, and Dille.

If any of these are your Senator or Representative, or if you have friends or relatives in their districts, please be sure to contact them and ask for their support.

Our next meeting is from 6:30 to 7:30 Monday April 18th at the Wentworth library in West St. Paul, 199 East Wentworth Ave. Paul Walker will be giving a presentation on Star Hopping and Constellations. Feel free to come as early as 6:00 to meet and get to know people before hand. For more info and directions you can check the Beginner's Forum on the MAS discussion boards, which you can link to from the MAS home page. If you don't have internet access you can call the library at 651-457-8497, or you can call me, my number is listed below.

On Thursday May 19th we're meeting from 7:00 to 8:00 in the game room of Katie Utke's condominium, Shoreview Estates 4045 Hodgson Road. Kirk Carter Mona will be giving a presentation on lunar observing and information on receiving a lunar observing certificate. Feel free to come as early as 6:30, and we have plenty of time to run over as the room is booked until 9:30. Again many thanks to Katie Utke for providing a place to meet. If you need help in finding the location, call me and I can fax you a map. North on Rice from 694 to the first stop light (1-1.5 miles). Continue straight through the light. Shoreview Estates will be on your immediate left, with a driveway on the far (western) end of the building. Turn into the drive and park in the lot, the entrance is near the middle.

Thanks for your time, and if you have internet access don't forget to drop by the Beginner's area on the MAS discussion boards. Hope to see you at the next beginner's meeting. ■

-Matt

[mlfj4901@yahoo.com](mailto:mlfj4901@yahoo.com),

651-480-8344



Third, please check the Planetarium website ( <http://www.mplanetarium.org> ) frequently for the status of the bonding bill. We will keep you updated.

Fourth, write or contact the Governor ([http://www.governor.state.mn.us/tpaw\\_contacts.asp](http://www.governor.state.mn.us/tpaw_contacts.asp) ) and ask for his support.

In the mean time, construction of the new Minneapolis Public Library is proceeding nicely. Check <http://www.mplib.org/newcentrallib.asp> for updates on that project. The Minnesota Planetarium is still scheduled to go on top.

Thank you very much for your support. Please feel free to contact me if you have any questions.

Parke Kunkle, President, Minnesota Planetarium Society

[Parke.Kunkle@minneapolis.edu](mailto:Parke.Kunkle@minneapolis.edu), 612-659-6068 ■

## The ONAN Observatory: A Resource For Everyone

By Michael Kibat

Not everyone wants to be an Onan keyholder. If you're one of these people, that doesn't exclude you from using the observatory and its equipment.

The simplest way to access the observatory is to attend a public night at the observatory. If the weather cooperates, it is not uncommon for observing to continue long after most visitors have left. In addition, public nights take place 'fair weather or foul'. So even if the weather prevents observing, you still can see, touch and, in some cases such as the computers, use the equipment.

Your next option is to attend a monthly Baylor star party. The observatory is almost always open during these events and it's more likely that the keyholder(s) in charge will be able to address your specific requests, as opposed to a busy public night.

Keyholders who schedule the observatory for personal use may occasionally share their time with others. Such announcements are made on-line in the 'MAS Discussions' forum at [www.MnAstro.org/forums](http://www.MnAstro.org/forums). If you wish to join a keyholder, please extend the courtesy of advance notice and don't drop in unexpectedly. (Plus, if they are expecting you, they can communicate last minute changes in their plans.)

But what if you want specific, dedicated access to equipment at the observatory for a longer period of time? In this case, you need

to partner with a keyholder and arrange a time to use the observatory for the desired purpose.

First, confirm the availability of the observatory for any given night by checking the online observatory calendar at <http://www.MnAstro.org/onan/showreserve.htm>.

Next, find a willing keyholder. You can check the online keyholder list at [www.MnAstro.org/onan/keyholders.htm](http://www.MnAstro.org/onan/keyholders.htm) and find someone you already know or you can email your request to [OnanInfo@MnAstro.org](mailto:OnanInfo@MnAstro.org). (Emailed requests are passed on to the pool of keyholders to solicit an available and willing volunteer.)

Once you've found a willing keyholder, they will reserve the observatory if it is not already booked for other uses.

And, of course, you can 'bite the bullet' and become a keyholder. The training covers a lot of territory but it is fun and interesting at the same time. There is a minimal service requirement for keyholders, but it can be as simple as helping take out the trash after a big event, opening the observatory for an MAS star party or assisting non-keyholders with their projects as described above.

If you have questions regarding the observatory, want further information about using it or are interested in becoming a keyholder, contact Mike Kibat ([kibatme@visi.com](mailto:kibatme@visi.com) -or- 952.884.0039). 🐱

## Refurbishing the Larson Telescope

By John Young

A flurry of activity at the Onan Observatory in the Baylor Regional Park near Norwood Young America in recent weeks indicates some exciting happenings for the 30-year-old Larson scope, the primary focus (pun intended) of the observatory. A dedicated crew of cold weather-toughened astronomers has been at work so that you can have the finest optical experience possible during the forthcoming mosquito season. The Larson telescope, a 16 inch Cassegrain originally obtained from the University of Minnesota-Duluth, has undergone a major refurbishing and is undergoing even more exciting upgrades.

A complete disassembly of the scope tube and mirrors, followed by a thorough cleaning has spiffed up the Larson beyond our greatest hopes. Dave Olmstead cleaned the tube to near new and painted the interior a very flat black. The primary and secondary mirrors have been newly coated by Rod Luhman. Reassembly of the scope took many hours longer than disassembly...go figure.

Pictures of the disassembly and reassembly are available in the discussion forums part of the MAS website.

As a personal observer and participant of the action, I still have a hard time believing that men could be SO FUSSY over the scope. Every detail was agonized over. Collimation took hours. The most commonly heard comment was "as long as we are doing it, let's do it right."

End result...a clean scope with details (dew mask and light mask) that all MAS members will benefit from.

That's for the existing scope. Now, for wonderful upgrades! Paul Walker and Bill Volna are hard at work designing Digital Setting Circles (DSC). The Larson, as it was originally designed, was dependent on digital orientation (five digits from the left hand grab here and five digits from the right hand grab there...now try to point the dang thing where you want it to go)! That is all about to change. Phase One of the upgrade involves DSC, which, when properly oriented, will tell you how to point the Larson to thousands of heavenly bodies. You will, if you are an Onan keyholder, be able to key in any of thousands of celestial bodies and go to them simply by reading the DSC. A more concise description of DSC is available on the MAS website.

Phase Two will include the capability of using the drive motors to find those celestial bodies, thereby making the Larson a true "GO TO" scope, but that is fodder for another article.

Many thanks to those who have helped the project along in various ways...Steve (Spiderman) Emert, Paul Walker, Bill Volna, Tim Biros, Barb Woida, Russ Durkee, Dave Olmstead (Mr. A. R.) and Fearless Leader Mike Kibat.

In addition to the refurbishment and upgrades to the Larson scope, we are also excited about the addition of a new scope to the Onan family, the Takahashi TOA 130 refractor and the Takahashi Temma 2NJP mount, courtesy of an anonymous benefactor. But that is a whole different article altogether! 🐱

## Watch This Space

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By Jon Hickman

Thanks for all the great questions! Here's one of my favorites. George writes: "I don't get this clear sky clock thingy. I mean, I understand if the sky is clear or cloudy, but what's all the other stuff on there? What's the difference between 'seeing' and 'viewing'? As a newbie it seems like all I really need to know is if the clouds will go away or not." George, you're not alone! I (and probably most Gemini readers!) had exactly the same questions when I first started viewing the stars. Hopefully this will help, er, clarify the issue..

There are a number of factors which can influence how well we will be able to see the stars, planets, moon, faint fuzzies or whatever, any given night (or good old Sol for you daytime observers!) The most obvious have to do with basic weather issues we all understand. Rain, snow and clouds are obviously going to affect our ability to see objects in the sky. After all, if we can't see the sky, we can't see objects in it! Less obvious to a beginner is the concept of "seeing". Seeing has to do less with interference from things we can see than with things we can't see. Now, there's a concept for you! "Seeing" is worst when things we can't see are present to interfere with our ability to see the things we can see! (Which brings up a related point, viewing when you have a headache is never a good idea!)

Luckily, the Eagle's and their album (yes people, vinyl!)

"Hotel California" makes this concept perfect clear! The title song starts out: "On a bright desert highway, I saw a shimmering light..." We've all seen this before, we're driving during a hot summer day and the road ahead seems to disappear into a shimmering haze. We know the road is there, but at some point it just seems to fade away. This is the effect of seeing as light waves are distorted (reflected and refracted) as they travel through heat thermals. (I've experienced this effect sometimes as my eyebrows singe away at the grill or oven as well!) Another experience we've all seen is the effect of a drinking straw in a glass of water. Once again, distortion of the light rays as they travel through the water or the air gives us the impression of seeing the straw "magically" bend. In the same manner, thermal currents in the upper atmosphere can cause the effect of shimmering stars when we look up at night. You've seen this, a beautiful clear night, not a cloud in the sky, and the stars twinkling above. Twinkling stars are great nights for romance or poetry, but bad nights for observing! The concept of "seeing" is the effect of thermal and other upper atmospheric events on the ability to view objects outside our atmosphere. See?

As always, keep the notes and emails coming! astro@the-hickmans.com or snail mail at: 410 Narcissus Lane, Plymouth, MN 55447 🐉

### MAS Membership Directory

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The Society will publish a membership directory in the June issue of Gemini. It will list each member's full name, city and state of residence, email address and telephone number(s) as they appear in the Society's membership data base. The list will be distributed only to members of the Society. It will not be provided to any other organization or person for any other purpose.

The MAS respects your right to privacy. If you do not want your information published, you electronically submit your request by completing the form at [ww.mnastro.org/membership/directory.htm](http://ww.mnastro.org/membership/directory.htm). Or you can contact MAS board member Greg Haubrich.

### Letter to the Editor

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To the editors of Gemini,

Congratulations on publishing a wonderful issue of Gemini (Feb 2005). I was pleased and relieved that Ron Bubany could step in and fill the position that, regrettably, I could no longer maintain. The strong February issue is a tribute to the energy and talent that Ron and Brian Litecky bring to this important communication vehicle for our organization.

During the five years that I held the editor post, I watched the MAS grow considerably to become a vibrant club with diverse interests and expertise. I have long felt that the newsletter was a great way to share those interests and keep contact with the members who are not attending every meeting or every star party, but who nevertheless share a deep

interest in astronomy and vicariously enjoy the experiences and activities of their fellow members. There is persistent pressure to minimize costs by distributing newsletters electronically, or through web page updates, but somehow, for me at least, this is not the same. The lowly printed newsletter brings the MAS into my hands and into my head. I encourage the board to sustain the funding that supports this expensive, but important, member benefit.

Once again, congratulations on your work, and I am looking forward to seeing Gemini take new form as new blood guides its future issues.

Sincerely,  
Thor Olson

## Former Minneapolis Planetarium Director Moves to Texas

By Parke Kunkle



Bob Bonadurer has accepted a position as Planetarium Director at the University of Texas – Arlington beginning in April. Bob was first hired by the Friends of the Minneapolis Public Library in 1989. He served as the Director for the last 8 and half years and has taught thousands of children about the wonders of the universe. He has written and produced planetarium shows that are used worldwide from Moorhead, MN to South Korea. When the Planetarium closed a few years ago, 75000 visitors came to its shows each year, a remarkable accomplishment considering its small operating budget. He ran outreach events such as the Leonid meteor shower viewing at Afton State Park, the close approach of Mars which we viewed with 2000 people in Loring Park, and some dandy fireworks displays for Winter Solstice. He brought authors like Bill Sheehan and Ken Crowell to Minneapolis. He has given numerous talks and demonstrations at local schools and community education centers. He has been an integral part of planning and lobbying for a new Minnesota Planetarium. Bob has been a friend and colleague for a number of years and I will miss him. We all wish him the very best in his new endeavors. Grab that shooting star, Bob, and ride it through clear skies! Parke Kunkle, President Minnesota Planetarium Society

## 25 Years Ago in Gemini

From the archives of Bob Schmidt

Volume 5, Number 4, April 1980

Minutes of the April 1980 General Meeting

“Bill Larson announced that Governor Quie had issued a Proclamation that April 26, 1980 be Astronomy Day in Minnesota. Bill also displayed copies of the Proclamation. ... Dr. Sherman Schultz of Macalaster College was featured speaker of the evening, delivering an illustrated lecture "The Macalaster Method of Mirror Making". Dr. Schultz's enthusiastic presentation was preparation for those members of the Society who will be making mirrors under his direction on April 12th, 19th, and 20th.”

Minutes of the Executive Board

Don Tate reported that a 16 inch Cassegrain telescope, built by "Group 128", and currently installed at the University of Minnesota, Duluth, is possibly available. In his report Don said that he and Alan Ominsky had inspected the instrument and that although some electrical problems exist that otherwise it is a very fine telescope. Done said that he felt that the problems that exist are able to be solved. At the conclusion of the report Bill Larson presented a motion "the Minnesota Astronomical Society proceed with an attempt to acquire and erect the Duluth "Group 128" 16" telescope." John Cooner seconded the motion. The motion carried unanimously. Bill offered to seek financial assistance.

Ed note: To this day, the Larson Telescope proudly resides at our Onan Observatory, where it was just recently refurbished. See “Refurbishing the Larson Telescope” also in this issue.

## Announcements

**Did You Know?...**

**The MAS loans telescopes to members.**

Maybe you would like to try before you buy, or you just can't afford one at the moment. We have three telescopes to loan out, and members can keep them for 30 days at a time. We have two Orion SkyQuest XT8 8 inch dobbs, and one XT10 10 inch dob. Each comes with a kit of accessories, including star charts, eyepieces, and finders. They are easy to use, no computers involved, and are good examples of scopes you might want to buy if you are new to amateur astronomy (or even if you are not). To borrow one, contact Vice President, Deane Clark, at 612-922-9638, or e-mail drclarkjr@mn.rr.com (put "Loaner scope" in your subject line to make it harder for me to miss).

## 2005 Onan Observatory Public Star Parties

*Star parties are held on Friday if weather permits, otherwise on Saturday. Call (952) 467-2426 after 6:00 p.m. on a star party date to hear whether it will be held.*

Date	Event	Time
04/15/2005	ASTRONOMY DAY: Star party	10:00 PM
04/16/2005	ASTRONOMY DAY Event	Noon to 6:00 PM
04/16/2005	ASTRONOMY DAY: Star party	10:00 PM
05/13/2005	Public star-gazing at Onan Observatory	10:00 PM
05/14/2005	Public star-gazing at Onan Observatory	10:00 PM
06/17/2005	Public star-gazing at Onan Observatory	10:00 PM
06/18/2005	Public star-gazing at Onan Observatory	10:00 PM
07/15/2005	Public star-gazing at Onan Observatory	10:00 PM
07/16/2005	Public star-gazing at Onan Observatory	10:00 PM
08/12/2005	Public star-gazing at Onan Observatory	10:00 PM
08/13/2005	Public star-gazing at Onan Observatory	10:00 PM
09/02/2005	Public star-gazing at Onan Observatory	10:00 PM
09/03/2005	Public star-gazing at Onan Observatory	10:00 PM
09/23/2005	Public star-gazing at Onan Observatory	10:00 PM
09/24/2005	Public star-gazing at Onan Observatory	10:00 PM
10/21/2005	Public star-gazing at Onan Observatory	10:00 PM
10/22/2005	Public star-gazing at Onan Observatory	10:00 PM
11/04/2005	Public star-gazing at Onan Observatory	10:00 PM
11/05/2005	Public star-gazing at Onan Observatory	10:00 PM

## Directions to the Star parties

### 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 Waconia, to Norwood Young America. Turn right onto county road 33 and follow it about 2 miles to the park which is located on the right (east) side of the road. When entering the park stay to the right, follow the park road roughly  $\frac{1}{2}$  of a mile. Card-Carrying MAS members may observe at Baylor at any time; call the park caretakers Steve and Margo by 7 p.m. in advance at 952-467-6488.

When visiting Baylor Regional Park, MAS members are requested to NOT PARK OR DRIVE on the grass. Annual Parking Permits (not required for observing) can be purchased for \$20 in the following ways:

- Mail a check to Carver County Parks, 11360 Hwy 212 W, PO Box 330, Cologne, MN 55322
- Call the Park office at 952-466-5250, can be paid with Master or Visa Cards.
- Through the honor box or gate attendant at either Baylor or Lake Minnewashta Regional Park.

For additional information about the Carver County Park system visit the park web site at [www.co.carver.mn.us/parks](http://www.co.carver.mn.us/parks) or contact the park office at 952-466-5250.

### 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.

## 2005 Star Parties

*Star parties are held on Friday if weather permits, otherwise on Saturday. Call (952) 467-2426 after 6:00 p.m. on a star party date to hear whether it will be held.*

<b>Date</b>	<b>ALT</b>	<b>Event</b>	<b>Location</b>
03/04/2005	03/05/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
03/11/2005	03/12/2005	Star Party/Messier Marathon: Cherry Grove	Cherry Grove Observatory
03/18/2005	03/19/2005	Star Party: Metcalf	Metcalf Nature Center
04/01/2005	04/02/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
04/08/2005	04/09/2005	Star Party: Cherry Grove	Cherry Grove Observatory
04/15/2005	04/16/2005	ASTRONOMY DAY: Star party	Onan Observatory at Baylor Regional Park
04/15/2005	04/16/2005	Star Party: Metcalf	Metcalf Nature Center
04/29/2005	04/30/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
05/06/2005	05/07/2005	Star Party: Cherry Grove	Cherry Grove Observatory
05/13/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
05/14/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
05/13/2005	05/14/2005	Star Party: Metcalf	Metcalf Nature Center
05/27/2005	05/28/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
06/03/2005	06/04/2005	Star Party: Cherry Grove	Cherry Grove Observatory
06/10/2005	06/11/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
06/17/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
06/18/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
06/24/2005	06/25/2005	Star Party: Metcalf	Metcalf Nature Center
07/01/2005	07/02/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
07/08/2005	07/09/2005	Star Party: Cherry Grove	Cherry Grove Observatory
07/15/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
07/16/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
07/15/2005	07/16/2005	Star Party: Metcalf	Metcalf Nature Center
07/29/2005	07/30/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
08/05/2005	08/06/2005	Star Party: Cherry Grove	Cherry Grove Observatory
08/12/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
08/13/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
08/12/2005	08/13/2005	Star Party: Metcalf	Metcalf Nature Center
08/26/2005	08/27/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
09/02/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
09/03/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
09/02/2005	09/03/2005	Star Party: Cherry Grove	Cherry Grove Observatory
09/09/2005	09/10/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
09/23/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
09/24/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
09/23/2005	09/24/2005	Star Party: Metcalf	Metcalf Nature Center
09/30/2005	10/01/2005	Star Party: Cherry Grove	Cherry Grove Observatory
10/07/2005	10/08/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
10/21/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
10/22/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
10/21/2005	10/22/2005	Star Party: Metcalf	Metcalf Nature Center
10/28/2005	10/29/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
11/04/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
11/05/2005		Public star-gazing at Onan Observatory	Carver County's Baylor Regional Park
11/04/2005	11/05/2005	Star Party: Cherry Grove	Cherry Grove Observatory
11/11/2005	11/12/2005	Star Party: Metcalf	Metcalf Nature Center
11/25/2005	11/26/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
12/02/2005	12/03/2005	Star Party: Cherry Grove	Cherry Grove Observatory
12/09/2005	12/10/2005	Star Party: Metcalf	Metcalf Nature Center
12/23/2005	12/24/2005	Star Party: Baylor	Baylor Regional Park (Onan Observatory)
12/30/2005	12/31/2005	Star Party: Cherry Grove	Cherry Grove Observatory



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