

# Gemini

a publication of the Minnesota Astronomical Society



<http://www.mnastro.org>

**December 2005**  
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## Confessions of an Impatient Amateur Astronomer

By Jackie LaVaque

Man... is it winter, already?? Winter is my second-favorite season for observing. Some of the best stuff in the sky is up and ripe for viewing. It would be perfect if it weren't for one thing-it's cold. This is the time of year when I tend not to use eyepieces that have very low eye relief, because the possibility of getting my eyeball stuck to the lens makes me nervous.

I was just thinking about all the cool stuff there is to observe in the coming winter months. I opened up my online observing log database and scanned through it to see which wintertime Messiers I still have yet to nab. The inner monologue starts... hmm, I need to make a list ... could've sworn I already logged that one... maybe I should try for some of these when I visit Arizona in January... would that be considered cheating if I live in Minnesota... how in the world did Charles Messier ever see M79 at his latitude...

As is usual with me, one pursuit often dovetails off another, and not two minutes after I opened my observing log, I found myself perusing Slashdot.org, Astromart, CNN and Intellicast. All at the same time. I can have 8 browser windows open to 8 different websites at once, and be actively looking at something on all of them. Have any of you ever done that before? How about on a regular basis? Knowing I'm not the only person who does this would go a long way in convincing me I'm not a freak. :)

My ability to multi-task helps me to get a lot done, but I must admit it's probably not the best trait to have when you're an amateur astronomer. As we all know, real observing takes patience and a certain single-mindedness to do well. Be that as it may, there are so many wonderful objects up there to look at that I am often in a rush to go from one to the next at any given observing session. Books admonish the amateur astronomer to take one's time and really observe an object, but I find that once I've seen something, I'd like to get on to the next object quickly.

I read Stephen J. O'Meara's columns in Sky & Tel each month. Frankly, the man amazes me. He must sit at the eyepiece for hours, looking at one or maybe two objects all night, in order to see the detail he sees in them. I have no doubt that this man could see the inner structure of an oxygen atom if he looked at the air long enough. That kind of persistence with one object at a time just doesn't register in this hyperactive brain. I'll never be mistaken for a patient person.

I used to give myself a hard time for my impatience at the eyepiece. As I get older and a bit more relaxed about how and when I pursue my hobbies, I have eased up on myself. There's really no right or wrong way to go about this, so long as I have fun. I figure that those objects have been up there for a long while; if I really want to see them again, I can always come back to them later.

It recently occurred to me that my impatience at the eyepiece has a good side. When a crowd of folks is lined up behind your telescope, they like to see as many things as they can in the time they have-and I'm only too happy

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to oblige them. "What's up there to look at right now?" "Can we see Mars?" "Can I look at the Moon?" "How about planets, which ones are up right now?" "Can you show me the Pleiades?" If a crowd says all of those things within a 10-minute time span, I'm in my element. Maybe that's why I enjoy doing outreach so much.

The Messier Marathon is made for people like me. Observe as many "M" objects as you can in one night... and there are over 100 of them! What could be a better challenge for the impatient amateur astronomer? There's just one problem;

## 25 Years Ago in Gemini

### From the archives of Bob Schmidt

December 1980: President's Message by Carl Harstad

Our organization recently expanded, not only in membership but in projects afoot. This expansion was symbolized by a name change. We are no longer a local club, we are a statewide society, in viewpoint if not yet in fact.

As in any organization, a core group plays a more active role. As the current projects began, members of this group stepped forward to become chairpersons of the associated committees before the committees had become identifiable. Other members of the group became members of the evolving committees. In part, this is because the executive board has called upon those members who have aided the society in the past, a natural tendency.

There are now so many projects, however, that this core group is stretched too thin. Furthermore, these "old timers" recognize the need to involve newer members of the Society, as well as some not-so-new members who have never become very involved.

At the most recent executive board meeting, for example, the

March is still technically winter, and it's always been cold and windy whenever I've considered doing the Messier Marathon (alright, let's hear the cries of "WEATHER-WEE-NIE!" right now... I can handle it). I'll get to it one of these years.

But as I'm typing this (mid-October) Mars is getting higher in the east; there are several late-summer globulars I want to see before they set, and I want to see if I can nab Neptune and Uranus too. I have 30 minutes of spare time tonight. Bet I get 'em all! ─

board faced a difficult choice. The national Astronomy Day is scheduled for May 9, one week after the North Central Region convention, which we are hosting. Should we move Astronomy Day, go with the national date or forget it altogether? The outgoing board boldly elected to go with the national date, confident that members of the society who are not currently overloaded will step forward and assume responsibility.

Mike Picard has agreed to head the effort.

There are approximately 142 members of the Society, of which some 15 to 20 are assuming the vast majority of responsibility for our current enterprises. This is far too few given the ambitious projects we have embarked on. New recruits from the other 120 members are urgently needed. These 120 members are a vast resource the Society is wasting. If you are on of these 120, please step forward and lend a hand. Assist the Society in whatever way you can. Call those members already involved and offer your assistance. Be persistent. Find out what is happening with the project you have selected and how you can fit into the effort.

And just one more note, I see that Lauren Nelson was programs chair way back when too! - Ben ─



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## Minnesota Astronomical Society

### Notice - Executive Board Member Election

Elections for three Executive Board positions will take place during the December 2005 general membership meeting of the MAS. The December meeting takes place on Thursday, December 1st. The meeting begins at 7:00 p.m. and takes place in the 'Science Live' theatre at the Science Museum of Minnesota in downtown St. Paul. At the meeting, MAS members will elect new officers for the the 2006/2007 term. The candidates are:

- Vice-president: Ben Mullin

- Treasurer: Bob Benson

- Board Member At-Large: Tim Biros, Jon Hickman

If you wish to cast your vote and are unable to attend the meeting, contact MAS Secretary Steve Emert no later than November 15th to obtain an absentee ballot. E-mail lakeaires@msn.com or call 651-226-6820 or postal mail to 2173 Lakeaires Blvd., White Bear Lake, MN 55110. Absentee ballots must be completed and returned by November 30th. ■

## The MAS' Dark Sky Site Committee Update: October 17, 2005

By Greg Haubrich

The MAS is currently being polled via a survey which was mailed out in the October Gemini. Please fill out the survey and mail it in. Your opinion is important to us, as the future direction of MAS dark sky sites depend on you!

A Sky Quality Meter (SQM) was purchased and is being used to access the MAS' existing dark sky sites (<http://unihedron.com/projects/darksky/>). Any new sites under consideration will be similarly evaluated for sky darkness/quality.

The first meeting of the Dark Sky Site Committee was held in August. It was decided that we would attempt the following:

1. Survey the MAS Membership to determine their needs/wants in a Dark Sky Observing site.
2. Target a geographic area that meets the memberships Dark Sky needs.
3. First attempt to secure land via a donation by publicizing the MAS' non-profit and public out-reach status and our desire to acquire a land donation for use as a club Dark Sky Site. We would like to exhaust the donation avenue before trying a prolonged and massive MAS Membership fundraising effort.

While at the Okie-Tex Star Party this past October, I talked with some Oklahoma City Astronomy Club (OKCAC) Board Members who recently acquired some donated land for their new dark sky site. They simply composed a well written letter and targeted county and "local" papers with their letter. A few months later they had the land donated by a local farming family who's son is a science teacher!

I have no illusions that it will be this easy for us, but this will be the first avenue we'll take once the MAS surveys have been compiled.

For this approach to work, the MAS membership should be open to performing some outreach at the new Dark Sky site to support local schools and local community interest. I believe that we would naturally do this anyway, but it will be beneficial to publicize the outreach aspect of the MAS with our published letter.

Please send in your surveys so we will know what to look for! Thank you and Clear DARK Skies! - - Greg Haubrich and the MAS Dark Sky Site Committee

P.S. If you would like to send me comments in addition to the survey, please email me at: [greghaubrich@comcast.net](mailto:greghaubrich@comcast.net) ■

## Duke Skywatcher



## Astronomy 101 (part one)

By John Young

For those of you who are beginners to the world of the MAS and the wonders of the universe, you will overhear many phrases at the observatories that you may not immediately understand. For you, I offer a primer to “astronomy-speak”.

**Aperture envy**—Astronomers speak more of aperture (diameter of optical mirror or lens) than magnification. We talk of “light gathering power” or, more crudely, “light buckets”. As soon as we purchase our scope, we soon suffer from “aperture envy”, the wish that we had bought a scope with a larger aperture.

**Astronomy**—The study of the skies? No, not quite so simple. There are many aspects to Astronomy. First, the coolness of belonging to and sharing with your fellow astronomers the wonders of the universe. Second, learning about the technical aspects...lenses, eyepieces, mirrors, telescopes, drives, mounts, focal lengths, observatories, computer-driven telescopes, Barlows, collimation, chromatic aberration, flip mirrors, stella cams. Third, being able to identify the night sky—constellations, stars, galaxies, star clusters, asterisms, planets, the Milky Way, binary systems, red giants and yellow dwarves, nebulae. Fourth, learning about things we will never see through any of our telescopes, such as at the monthly meetings and in the magazines *Sky and Telescope* and in *Astronomy*. How and when did the universe begin? Is there more than one universe? What is in the center of a black hole? Can we ever hope to travel faster than the speed of light? Where is the Vagon Galaxy? Can evolution and religion co-exist? What is gravitational Lansing? How do we determine the distance, age and composition of celestial bodies? How do we calculate the age of the universe? The word “astronomical” is often used as an adjective meaning “unbelievably large” or “beyond comprehension”, and aptly so.

**Averted vision**—Some telescopic objects are so faint that they are nearly impossible to see head-on. The center of our field of vision is dominated by “cones” which see bright, colorful images while our peripheral vision has more “rods” and is better suited to darker, black-and white images. Ever notice while driving down the road at night everything seems to be shades of gray? Sometimes, through the telescope, we need to avert our vision; that is, look slightly off to the side of the object we want to see so the image can register on our retinal rods.

**Clear Sky Clock**—Atilla Danko has put together a web site to predict the viewing conditions of over 2000 places around the globe. His predictions for any of our MAS three observatories or, for that matter, your own individual loca-

tion, can be compared with Internet weather casts and newspaper forecasts to decide when there will be a good viewing night.

**Coronado**—a brand name for a telescope designed specifically for looking at the sun. We can see sunspots and prominence that cannot be seen naked eye without severe retinal damage. Currently mounted on the Temma 2 mount at the Onan with the Takahashi.

**Chromatic Aberration**—Some astronomers will claim it has to do with the optics of a scope. In reality it is a code word for ‘mental aberration’ meaning what in the world would make a bunch of supposedly mature adults stand around in the freezing weather or swatting mosquitoes and talking in ‘M’ code numbers?

**Digital Setting Circles**—Halfway between “point to” and GoTo. A GoTo telescope has a handheld unit that tells the scope exactly where to go, and motors turn the scope that direction. DSC can tell you exactly where the scope is pointing and exactly where to point it for specific celestial objects, but there are no motors...you must physically point the scope.

**Discussion Forums**—THE MOST IMPORTANT PART OF THE MAS WEBSITE! This is where you learn about celestial arguments—excuse me—discussions, lost items, upcoming events, lucky rocket ship underwear, who is doing what outreach. I check the Discussion Forums (pardon my addiction) several times a day to see what is needed at the observatories, when training sessions are scheduled, changes in opening and closing procedures, what the Vagon Leaders are planning for us. It is a rich and wonderful mix of information, education, hilarious humor, exchange of mundane information and it is just plain entertaining. If you not follow the Discussion Forums, you are missing 92.5467% of what is going on in the MAS.

**Dob-Short for Dobsonian**, named after its creator John Dobson. It sounds as if it is a description of a telescope, but in reality it is the description of a telescope mount, made of inexpensive materials and allows the beginning telescope buyer to put more of their hard-earned cash into aperture rather than the mounting system.

**Everything**—This refers to every single known aspect of our known universe, such as the size, distance, surface temperature and spectral type of every star (and I mean trillions) and exoplanets in our entire system. A true astronomer, either professional or amateur will tell you it is impossible to know everything...there is simply too much for any one person to learn, so just go with what is important to you, learn what YOU want to learn, share with others what YOU want to share. Clear Skies. ■

## ABC – Another Binocular Chair

By Steve Emert

Last spring I began to think I'd like to get a pair of large binoculars. When Orion announced their new Explorer 20x80 and 25x100 binoculars (at an introductory price as well!) I decided to go for the 25x100's. The catalog said they were big – 18" long and 10 pounds – but when they arrived I found they weren't big... they were huge! Just for grins I tried putting them on my rather lightweight photo tripod, which shook like a leaf in the wind from all that weight. Obviously I'd have to do something different. For observing comfort, a binocular chair seemed like it would fit the bill.

Several MAS members have Sim Picheloup's "Couch Potato Telescope" chair and it works well. However, because of the length and weight of 100x25 binos, I didn't think the friction mount would handle them. While looking on Cloudy Nights I found an article on a bino chair with an integrated parallelogram mount, Eugene Artemyeff's "Comet Couch" ([http://www.cloudynights.com/item.php?item\\_id=800](http://www.cloudynights.com/item.php?item_id=800)) which looked intriguing. I decided to tackle my own version of this chair.



The bino chair consists of a rotating base for a reclining folding chair and a pier for a parallelogram mount. By rotating as a unit you can easily track to any spot in the sky, and the parallelogram mount is counter-weighted to balance the weight of the binocular in any dimension. Also, with a parallelogram mount, you can position the binos virtually anywhere and you can also swing them out of the way to get in or out of the chair without contortions.

My bino chair design is similar to the Comet Couch, but I decided to deviate in a few ways. Instead of buying a full 4x8 sheet of particle board or plywood which would be harder to transport and would have a lot of left over material, I got two 2x4 pre-cut sheets of 1/2" plywood for the base. With careful planning, I was able to cut them with almost no waste into the right shapes for the bottom ground board, the platform with rails to hold the chair in place, and the extension on the left side to mount the 3" PVC pipe pier mount. By gluing the base layer and rails together and using two layers of plywood at the bumpout for the pier, the 1/2" plywood gave me sufficient strength without excessive weight.

Just like Eugene, I purchased a folding reclining lawn chair, the "Wilderness Recliner" from GCI Outdoor. The azimuth bearing is a 12" diameter ball bearing lazy susan I picked up at Rockler woodworking. A PVC toilet flange is the base for the

pier and a 3" PVC pipe is the pier itself. The parallelogram's upright post consists of three pieces of 3/4" oak laminated into one piece, rounded down to fit into the PVC pipe so it can rotate. I used a block plane and sandpaper to round the oak. A lathe would have been much easier if I had one! A 1/4" steel rod is used to brace the pier. To provide tension against the brace I use a bungee cord stretched from two points on the base to a pivot on the pier. It does allow a little front to back wobble. I haven't decided if that gives enough stability or if I'll eventually have to replace it with something more solid. All the counterweights are inexpensive training weights available in the sporting goods department at Wal-Mart.



For mounting the binoculars, I made a wooden head modeled after a typical tripod head. It consists of a plywood block with a captive bolt which mates to the bino's 1/2" x 20 mounting base, with a steel shaft through it for altitude movement. A 1" hole is bored in the bottom for a counterweight shaft screwed into the bottom end. This bino head mounts to a board which connects to the parallelogram via a hinge providing the necessary rotation for pointing the binoculars. One thing really I liked in Eugene's design was the wooden hinge, but when I tried duplicating it I found I didn't have the right equipment to do it properly, so I decided to substitute a door hinge.

How does it work? Not bad. But I found the door hinge swings too easily so it's not quite stable enough in the horizontal direction. Also, because of the horizontal length of the door hinge and board holding the bino head, I had to shorten the parallelogram arms from the 15" recommended in the Comet Couch article to about 10". As a result, I found I have to scrunch down really far in the seat when viewing near zenith. I have to consider the chair a work in progress at the moment. As soon as I replace the door hinge with a wooden hinge to provide a little more friction and to allow me to extend the parallelogram arms, I think it will meet my expectations. But even in the meantime, it is nice being able to just sit in a nice padded folding chair, swing around to the right direction and view with both eyes open! ▀

## Astronomical Sketching

By Ron Bubany

We've all been there. We look at the astronomy books, the Internet and the magazines and marvel at the beautiful objects to be seen in the universe. Then we buy a telescope to have a look for ourselves. Oops.

I was looking right at the Ring Nebula and couldn't find it. The reason was that it didn't look like the pictures. It was small, colorless and faint.

We overcome this quickly, however, and move on to enjoying the night skies. We keep logs of our observations so that we can compare objects at different times and different years. We wish we could also have images of the objects we see, but want them to reflect what we see and not what the cameras reveal. Also, we can't afford the imaging equipment.

If this is true for you, you should consider sketching the objects you observe. It is inexpensive, easy and can closely resemble what you see at the eyepiece. I'm not going to go into detail here as there are many references you can check to learn about equipment and technique. See my list at the end of this article.

As an introduction however, let me present the following picture essay on at least one way to approach sketching.



### At The Telescope

- Concentrate on collecting data, not art
- Position the stars, for large stars use a number instead of a dot (representing magnitude)
- If the star has color, add a letter - such as "Y" for yellow
- Roughly smudge in the shape of the object

### At The Desktop (next morning)



- Use last night's notes to redraw the sketch
- Change the numbers to appropriately sized dots
- Shade in the fuzzy parts with the side of a pencil, or use some black charcoal
- Use your finger (or a stump) to smudge in the fuzzy

### At The Computer



- Scan the redrawn image to your computer
- Use imaging software (such as PhotoShop) to invert the colors
- Add color to the stars indicated in the original sketch

### References

- November issue of Astronomy magazine
- <http://members.aol.com/billferris/sketch.html>
- <http://www.rangeweb.net/~sketcher/why.html>
- <http://www.skyrover.net/ds/library.php?cat=8>

## 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.*

Date	ALT	Event	Location
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

## Directions to the Star parties

### Metcalf

Metcalf is in a wooded area 20 miles east of downtown St. Paul. Proceed east on I 94, about 4 miles E. of the I 494 / I 694 overpass, take Exit 253 (Manning Ave). Turn right and proceed south one block and then turn left onto the frontage road. Proceed easterly for about one and one half miles to Indian Trail and turn right. Follow Indian Trail for just under 1.1 mile to a right-hand turn-in / chain link gate. The gate is typically closed, but not locked and leads to a grassy parking observing field area.

### 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. 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.



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