

Gemini

a publication of the Minnesota Astronomical Society



<http://www.mnastro.org>

April 2002
Volume 28 Number 2

In the pages of the Gemini

It's Unanimous: Passers-By Love Saturn.

by Jackie LaVaque ...Page 5

Antarctic Search for Meteorites expedition (ANSMET)

by Tim Harincar ...Page 6

A Simple Binoculars Bracket

by Mark Jay Linafelter ...Page 8

MAS Photo page

by Dennis Landucci &
Todd E Giencke...Page 7

Beginners SIGRoad Trip SIG

by Patti Neavin...page 9

Science fair awards

Ben Huset...page 10

Messier Marathon 2002

Greg Haubrich

News Flash: Approximately 20 People Reportedly Occupied the MAS' Cherry Grove Observing Site the Evening of March 15, 2002. Five reportedly occupied the premises until sunrise. Suspects believed to be associated with mysterious historical Messier person. Investigative Report follows (P.I. Gumshoe Report by Mickey Scope - a.k.a. Telly):

Circumstances leading up to the incident:

March 14, 2002, approximately 12" of snow is dumped on the Minneapolis Area. At Cherry Grove Observatory, 3/4" of freezing rain coats, trees, powerlines, power poles, etc. Travel is not recommended, numerous car accidents reported Metro-wide.

March 15, 2002:

1000 hours - An apparent bright glowing circular disk appears between the clouds in the sky, people are confused until they remember that it's the sun. It eventually leads to the sky completely clearing. The roads are plowed and travel is safe again.

1500 hours - This appears to be when the ringleader decided to make his move: accomplices were contacted via phone, email and a message service relaying "the plan". It was originally thought that all accomplices were from the Minneapolis-St. Paul area. Further

examination has proven that the Eau Claire and Rochester Clubs were also involved.

1740 hours - Cherry Grove Observatory - The ringleader (positively identified in a line-up as Greg Haubrich, a.k.a. "The Messier Madman") arrived first in a minivan carrying several suspicious looking devices of mass destruction (these were later identified as a 10" and a 16" Dobsonian Telescopes). Chris VanKrevelen, another suspect, arrived seconds later with a similar instrument that was modified for higher yield (DSS and Anti-dew). The two suspects were seen busily setting up their nefarious devices as well as entering a windowed building on the premises.

1830 hours - Accomplices started pouring in like rain from a gutter. Several other nefarious devices were assembled and manned. They were preparing for an assault, there was no doubt from reading their body language. It was almost as if it were a sport for them, taking some sick satisfaction in what they were about to do. These Perps made me sick! I called in for back-up on the scrambled secure channel two-way to Mack, my superior. I said that what was going down could be big, REAL BIG. After all, who in their right mind would be out in 15 degree Minnesota winter weather apparently dressed to be out all night long? I was obviously dealing with some seriously obsessed people with some REAL Obsessions. They could not

Continued on Page 3

Eisenhower Observatory:

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

University of Minnesota:

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

Minneapolis Planetarium, 612-630-6155

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

Spring 2002 Programs April 20 - June 13 2002

DR. EINSTEIN'S UNIVERSE,

E=MC², nothing can travel faster than the speed of light, space is warped by massive objects? Discover the wonderful cosmos of Dr. Albert Einstein. Saturdays & Sundays at 2:15pm, Thursdays at 7:00pm

DINOSAURS IN THE DARK OF NIGHT

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

ROMANCING THE STARS

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

Patron Members

MAS offers a patron membership to anyone who wants to help support our activities by paying a slightly higher annual membership fee (\$40 instead of the regular \$16). We would like to thank the following patron members who helped support MAS this year:

Gregory Baril
Robert Benson
James Bowditch
Richard Brown
Albert and Dona Champlain
Bud Clawson
Michael Conley
Chris Cowen
Daniel DesLauriers
W. Michael Garner
William Glass
Martin Hage
Michael Haydock
Eric Hegmen
Victor Heiner
Dennis Johnson
Chelen Johnson
Sally Jorgensen
Michael Kauper
Aris Kekedjian
Michael Kibat

David Kleinendorst
Charles Latterell
Michael Lavelly
John LeVasseur
Joseph Luhman
Beverly Miller
Mark Petersen
Warren Sampson
James Schenz
Robert Schmidt
Robert Seabold
Timothy Sinks
David Siskind
George Skinner
Gary Smith
Charles Smith
John Steinmetz
Kathy Thompson
Daniel Werkema
William White
Glenn Wirth

Editors

Thor Olson
Brian Litecky

Circulation

John Treadwell

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

blitecky@yahoo.com
thor.olson@efi.com

Hardcopy items should be sent to:

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

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

MAS Officers

President: Ben Huset

651-628-9275
benhuset@skypoint.com

Vice President: Dave Olmstead

763-559-5940
david@davidolmstead.com

Secretary: Jackie LaVaque

651-484-0742
buzzygirl@isd.net

Treasurer: Chuck Jorgensen

612-332-1140
jorg0140@tc.umn.edu

Board Member: John Treadwell

651-645-7581(H) 612-624-4007 (W)
j-trea@maroon.tc.umn.edu

Board Member: Doug Brown

612-786-8483

be expected to act rationally. This was a powder-keg ready to go up at any time! Mack said that I should continue surveillance until the SWAT Team got there in a few hours.

1900 hours - I had to switch over to the Infra-red Night Vision system to continue surveillance as darkness fell. The friendly atmosphere between Perps calmed as they got down to business. They all seemed to be aiming their devices toward the west. Apparently most hadn't invested in State-of-the-Art targeting systems as they all seemed to be frantically searching the sky for their targets. I felt that I should move in before they found them, but I would be hopelessly swarmed by the multitude. I'd best wait for back-up. I lit up a cigarette and started taking notes.

2000 hours - I could sense an atmosphere of excitement - and believe it or not, enjoyment- with these Perps. Several cries of excitement were heard as targets were locked onto. But just like most perpetrators, they were not satisfied with just one target, they greedily wanted more. They were obviously jotting down the launch coordinates for each new target they found. The sky was mostly clear, but a thin high cirrus haze appeared to complicate their targeting for the first hour or two. They appeared to be able to find some of these targets, but with difficulty. They were not all business, most were seen talking with others after the initial frenzied targeting was through. But the targeting pace did not let up much. Boy, where was that SWAT Team! Once the targeting was complete, who knows what would happen.

2010 hours - Suddenly, an intense blast of green high energy photons ripped through the atmosphere blasting electrons up orbital levels in the atoms of the atmosphere itself, releasing a maelstrom of energy visible up to 9000 ft. in the air! My hand went for my trusty 45 magnum, should I bust up the party now? What could this mean? After further study, I realized that they seemed to be blasting a green beam toward a certain star! Others seemed to also be looking up at this star. Could they be signaling someone, or....something?! Just then the thought occurred to me that I should call my friend Maldure at the FBI. I bet he would know what's going on here. I tried his office number on my cellphone, but his phone message said that he wasn't back from his alien abduction yet...Try back next week. Oh, well.

2100 hours - I decided to break out the parabolic amplified auditory snooper ear. I started picking up snippets of coded phases like M76, Cassiopeia, and the VIRGO Cluster. What could this mean? People went into the

warming house and appeared to drink hot apple cider and eat cookies (I have good bins).

March 16, 0000 hours - The sky cleared cleared nicely with good transparency and seeing. Targeting was still continuing! How many would be enough? These guys were greedy! There was a subdued party-like atmosphere. Some mentioned of Logging over 40 Messier Objects at that time (whatever that means).

0015 hours - The darkness is suddenly broken by a pick-up truck as it suddenly roars up to within 60 ft. of stop sign at the Cherry Grove intersection and locks them up and almost skids off the road (the driver quickly threw it into reverse on the fly and threw gravel to barely stop short of a road sign). He then proceeds to join the star party for about 30 minutes or so! He appeared to be an inebriated local who had a curious interest in the what the Perps were up to. He asked a few questions which were answered politely, talked awhile and then moseyed on.

1245 hours - The crowd thins as some Perps leave the party early. They all seemed happy and satisfied, "the plan" must be progressing! But I must keep my post until back-up arrives (where are they?!). There's still about 8 Perps left! They just won't back off! Ever ready Rabbit, stand aside!

I must keep my post until back-up arrives (where are they?!).

0200 hours - I dozed off at my post.

0520 hours - I awoke to the sound of the Perps tearing their frost-covered equipment down. There were 7 left as dawn broke over the frozen landscape. They must have launched on their targets as I dozed! (just then Mack arrives with the back-up). We stormed the site and apprehended the Perps and under intensive interrogation learned the following:

Messier Marathon 2002 Highlights/Results (everything above minus the Mickey Scope perspective happened at the Marathon):

- 1) Comet Ikeya-Zhang was seen by many in the evening twilight. It was fairly bright (brighter than nearby M74! It was found inadvertently by someone searching for M74.2) 20+ amateur astronomers from three different Astronomy Clubs participated in the event (The Rochester, Eau Claire, and the MAS)! Many hardy amateurs stayed late into the night. Seven made it to dawn! (Martina and Tim Parson, Cort Sylvester, Tom Lindquist, Thor Olson who was taking Messier pics, Dave Venne, and me). Apologies if I forgot

someone (I went off the signout list).

3) The full spectrum of experience was there:

a) First timers that had only seen a few Messier objects logged from 4 to 50 objects and more! Great effort! (I only logged 4-10 per night when I started out, these guys are good!)

b) A Father, Daughter and Son Team (Troy, Megan and Brian) logged 38! Way to go!

c) Welcome to Mark Callahan from Rochester, and Jon Darnehy from Eau Claire. Please bring more friends with you next year!

d) An Astronomy Professor from Augsburg College (sorry, I forgot your name) was out there racking up an impressive Messier count with us too!

4) Ben Husset, the MAS President, showed up to cheer us on and to drop off some extra prizes that I will award at the next meeting. Thanks Ben!

5) Doug Brown MAS Board Member at Large was working on his Binocular Messier Certificate with a set of Giant Binos. I believe he logged about 16. Thanks Doug!

6) Tom Youngblood teamed with me as an observer that would view objects as I found them. Tom read off and remembered many details of each Messier Object such as object type, magnitude and distance as we viewed it. Thanks Tom!

7) Here's the Messier Count as listed in the Sign-out Log: Tim and Martina Parson: 108 (Starhopping) Tina was the only person under 13 years old to log Messier Objects. Tina wins the under 13 year old Prize category. Way to go!

Greg Haubrich and Tom Youngblood: 102 (Starhopping)
Dave Venne (Solo Starhopping Prize Winner for 2002!):

Gemini Market Place

4.5 in. f/8 reflector on a Dobsonian mount. Primary (spherical) and secondary mirrors from Orion Telescope. Mirror cell is silicone pads on birch plywood with 3 spring loaded collimation bolts. Spider is single stalk. OTA is octagonal 1/4" marine mahogany plywood. Mount is 3/4" maple. Accessories include a helical focuser, Daisy red dot sight, and a 7-21 mm Explorer II zoom eyepiece.

The scope will be one of many items auctioned at the Twin Cities MCC Relief Sale at the Anoka County Fairgrounds on April 27. Proceeds from the sale go to Mennonite Central Committee, the relief and development agency of the Mennonite Church. TC MCC Sale is a 501(c)(3) non-profit organization. Contact Tony & Karen Schrock schrock@ieec.org

For sale: Coulter Odyssey I (13.1" f/4.5 Dobsonian reflector) with Telrad finder. Asking \$500. This is a great way to get into a large-aperture telescope for a very reasonable price. Contact Steve Koehler at 952-884-5384 or koehler@securecomputing.com.

Congratulations

Cort Sylvester: 75 (Starhopping)

Chris VanKrevelan: 71 (DSS)

Tom Lindquist: 68 (Starhopping)

Joe Linn: 53 (DSS)

Tim Hagen: 55 (Starhopping)

Troy, Megan and Brian Eagen: 38 (Starhopping)

Jon Dannehy: 22 (Starhopping)

Ben Husset: 5 (Starhopping/Imaging)

Thor Olson: 5 (Starhopping/Imaging)

Pictures at next MAS Meeting?

Sean Post: 4 (Starhopping)

Mark Callahan: (please email me your count, you forgot to sign-out)

Doug Brown: 16 (Starhopping with Binoculars).

Doug, you won the random drawing Prize! (Honest, Tina picked your number!)

A big "thank you" to all that participated, and to Dan Fish of Radio City who donated the three main prizes. We had a blast! I look forward to seeing you at next year's MAS 2003 Messier Marathon.

Greg Haubrich

Messier Marathon and Messier SIG Coordinator.

P.S. Messier SIG Members (and other MAS Members interested) please look for the upcoming Galaxy Hunting extravaganza this spring: "The Virgo Venture" where we will sponsor a Messier Object hunting session in the Virgo/Coma Cluster of Galaxies (date and location T.B.D.)

It's Unanimous: Passers-By Love Saturn.

Jackie LaVaque

I went out on Saturday night (1/12/02) for a short observing session. It turned out to be a "Sidewalk Astronomy" session, more or less... here's the account:

Saturday, January 12, was a lovely, warmish day (for mid-January, anyway) that ended up as a lovely, clear night. After sunset, I decided to take my 'scope up to the parking area at Lake Josephine, which is just four blocks from my house down Lexington Avenue. I wanted to try and catch a glimpse of Mercury, which is supposed to be putting on a good apparition soon. There are many trees obscuring the western horizon in my backyard. So I packed up the scope and headed towards the lake.

Of course, when I got to the lake, I noticed that there were some clouds obscuring the western horizon, so I couldn't see Mercury. Not to be daunted, I decided to take my scope down to the beach area (mainly to get away from a glaring parking lot lights) and just do a bit of planet observing, since it was still too light out to view much of anything else. Saturn was fairly high already, but Jupiter was covered by a power line from my viewing vantage point. So I popped in the 9 mm EP and aimed 'er towards the Lord of the Rings (that is my new nickname for Saturn).

Saturn's one of those sights I never, ever get sick of looking at. The rings, being full-on open now, never fail to take my breath away. And tonight, two of its moons were quite easy to spot on the planet's east side: Titan and Rhea.

I noted that there were a couple of guys out on the ice, getting a line wet. Most all of the ice houses that were on the lake last week are gone now, but there were still a couple of die-hards out there, evidently either not caring how thin the ice is on Lake Josephine, or just realllllly hungry for some sunnies or north-erns. After catching a glimpse of my favorite double star, lovely Albireo, now sinking low towards the western horizon,

I decided to move my 'scope to an area where I could see Jupiter unoccluded by a power line. As I walked up closer to the playground near the parking lot, I saw a guy sitting in his truck, reading something by the dome light. Almost on cue, he looked over my way, as if he knew that someone was looking at him. He gave me a tiny wave. I waved back. Friendly sort, I guess. Then I turned back to the scope to align the finder towards Jupiter. The big guy popped into the eyepiece. The four big moons were all aligned on the west side of the planet and quite close together. Two big brown equatorial bands were prominent on Big Jove himself. Just then, I heard a rattling, like that which a chain makes, and I looked over in the direction of the noise. Here comes a guy walking a Husky, and the Husky's chain's a-rattlin' all the way. The guy was close enough to me to see that I was looking through a telescope. Then as he got a bit closer, he asked me,

"Looking for UFO's??"

I chuckled and said, "No, the objects I'm looking at are definitely identifiable. Wanna take a look at something really cool?" "Sure," he said. "I used to have a telescope when I was really little. Never could see anything with it though." I quickly slewed my scope over to Saturn and lined it up. "Here, have

a look at this. Tell me what you see."

Over he walked to the scope. "I look right here, right?" he queried, pointing at the eyepiece. "Yep," I answered, "right through that little hole there." He carefully bends down to the eyepiece.

"WOW", he exclaimed, sounding genuinely enthused. "That's Saturn! Those are rings!!"

"Yep," I said. "Do you also happen to see the two tiny stars right on Saturn's left? Those are two of its moons. The brighter of the two, Titan, is larger than our own Moon."

"Oh wow," he said, not taking his eye away from the telescope for a second. "How far away is it?" "About 800,000,000 miles from us," I stated.

"Oh wow," he said again, for like the third time. "It's starting to creep out of the eyepiece. Can you get it back in? You don't mind that I'm hogging up your 'scope, do you? This is just very neat." I chuckled. "Not at all. Take as long as you want to look at it. If you'd like, I can show you Jupiter. That's pretty cool in a telescope too."

After a couple of minutes, the passer-by with the Husky wanted me to point the 'scope at Jupiter. So I did. Just for kicks, I popped in the 7 mm Nagler, so I could get the maximum amount of detail out of Jove.

"WOW!!", passer-by with Husky exclaimed. "What are those four bright things on the right? Are those its moons too?"

"You are right," I said. "Those four moons were discovered over 400 years ago by the scientist Galileo. Three of them are larger than our own Moon, and they move quickly. If you were to come back in a few hours, you'd notice that they will have moved considerably."

Passer-by with Husky was just mesmerized. "This is the coolest thing I've seen in a long time," he said. "I think I'm going to have to get one of these things." He gestured towards my scope. I reached into my case and grabbed an MAS business card. "Here," I said. "If you're ever interested in looking through lots of different scopes in nice, dark skies, give us a call and when it gets warmer, around April and May, you can come out to one of our star parties. If you think this was fun, you will have a blast at a star party."

"Oh, THIS has been a blast!" he exclaimed heartily. "I was just out walking my dog here, and I didn't think I was going to see planets just like they look in some book. I really saw those rings! That was amazing!!"

"Great," I said. "I'm so glad you had fun. Really, if you want to see planets and lots more, do call the information number on the card and come out to one of our public nights or star parties."

"I will," he said. "Thanks for letting me look through your telescope. This was the highlight of my night-- no! The whole week, in fact!" We said goodbye to one another and I watched him jaunt away with his surprisingly-patient Husky.

Then I realized that I never did get his name. ■

Antarctic Search for Meteorites expedition (ANSMET)

Tim Harincar

The Minnesota Astronomical Society (MAS) and local web developer Tim Harincar of webExpeditions.net have teamed up in support of this year's Antarctic Search for Meteorites (ANSMET) expedition, taking place from mid-November, 2001 through January, 2002 in the area around Darwin Glacier of Antarctica. MAS and webExpeditions.net are working together to provide this year's expedition with a website that will follow the team's daily adventures on the Antarctic ice for more than 2 months. WebExpeditions.net is developing the site with its interactive journal, XJournal, while MAS has provided the funds necessary for satellite communications airtime that will be used in communicating the journal entries and images.



ANSMET Team

ANSMET, lead by Dr. Ralph Harvey of Case Western Reserve University, has been responsible for collecting some 10,000 meteorites, and specifically a number of the well known Martian meteorites, including ALH84001, that have fueled speculation of life on Mars.

The expedition web site, located at <http://www.webexpeditions.net/ansmet/>, will not only provide regular reports from the field, but also contains maps of the search area, background on the expedition logistics and field life, science background on meteorites, team bios and the ability to contact the team with questions. Users can also request to receive XJournal entries via email.

"We have a number of goals we'd all like accomplish with this project," says Harincar, webExpeditions.net president. "First, we all have the desire to show that science can be adventurous and exciting, and that people will go to great lengths in the quest for knowledge. Part of the MAS charter is to promote interest in astronomical-related science, and this is a good way to connect astronomy to real people and real research. In addition, ANSMET's specimens have had a

profound affect on the way we now look at the solar system, its evolution and the way life might arise. Secondly, by doing the journal in essentially real-time, with actual team members doing the reporting, it can be much more interesting for the site visitor to follow along. By giving people a first hand look at what the team does on this type of expedition, we hope users feel more connected to the team and the science. Lastly, getting text and image information from these extreme latitudes is notoriously difficult for light weight, mobile teams, and we hope that using XJournal will enable the team to provide a depth of reporting not possible in any previous Arctic and Antarctic expeditions. As with many expeditions, weight and power are everything. This is a highly mobile team, living in tents, so a large, fixed communication station is not possible."



More information and journal entries from the expedition can be found at:

<http://www.webexpeditions.net/ansmet/journal.asp?id=89>

At a future meeting of MAS an ANSMET member will give a summary of the expedition's events. ■



MAS Photo Page

Dennis Landucci

The photo is of NGC2264 which is the Christmas Tree cluster with nebulosity and includes the cone nebula. The telescope was a 5" Flat Field Camera using an ST-7 CCD camera with a redfilter attached. The exposure time was 60 minutes. Thanks again for your quick response!

The photo is of M42. it was taken in Nov of 1998 at the prime focus of a 12.5" f/5.6 reflector telescope. The exposure was 15 min using Kodak PPF400 film.



Todd E Giencke

Well Craig, Bob, & Steve (sorry I forgot the last names) came over last night for some imaging. We did a big effort on doing a RGB tricolor image of M82. The image is made of a 46.5min red, 48min green, 99.5min blue image. Truth be known we could have done shorter exposures but I didn't know how the tracking was going work. It worked way better than average.

Steve brought his 8" Portaball and we did some visual observing while the camera was doing it's work. I know the exposures were in focus so I think the halos are some optical aberration. -8" SCT working at f/1.95 (Fastar)-Pixcel 237 (ST-237) CCD camera-Bessell R, V, B photometric filters. 📸



A Simple Binoculars Bracket

Mark Jay Linafelter

Like many people starting out in astronomy, I dream of really BIG telescopes and seeing the universe through the eyepiece of my telescope. Well reality has a REALLY nasty way of quashing those dreams. Very fast. Which is in part a good thing. Several years ago I read an article about what a beginner should invest for new equipment. And the first thing that was pointed out was to not buy a telescope. A lot of people that buy a telescope without knowing what to expect, end up frustrated and quickly lose interest in astronomy. The article pointed out the best way to start out in learning about astronomy is like many of our ancestors did, with just our eyes. But if you were to get any equipment, then a pair of good binoculars would be more than enough. And from my own personal experiences using binoculars, they are about the best way for a beginner to enter into astronomy.

There is only one problem about using binoculars, holding them up for very long, and trying to hold them steady to appreciate what you're looking at. Now there are commercially made brackets to mount binoculars onto a photographic tripod. But not everyone has the money, or is willing to wait for one to be shipped in. Some mounting brackets can be slightly expensive. Especially for a youth just starting out and has a limited budget to work with.

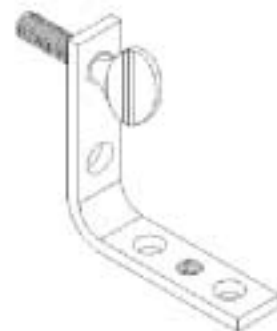
I was also in the same position and wanted to put as much of my money into a pair of quality binoculars as possible. Most mounts available were starting out around \$15 and going up from there. Thankfully my career as a Mechanical Designer/Drafter and ability as a gadgeteer came to my rescue. Owning a home means spending a lot of time at the hardware store. Enough time to basically memorize almost everything in it. So while at the local hardware store looking for something to repair something else, and trying to think of a way to make my own binocular bracket, I found the solution amongst the fasteners section.

The part needed is called a bracket. Specifically an L-bracket. Most are designed for what is called a 'inside corner'. There are a number of other bracket designs used in adding strength to furniture and cabinetry. To make one yourself, the first point is to make sure that your binoculars has a threaded hole to mount it with. The smaller compact binoculars will not have any real means to mount them easily. Not to mention that they are not suited for astronomical use. The larger binoculars that have a pivot may, or may not have the threaded hole needed. Look on the end of the pivot, opposite the eyepieces, for a 'cap' of some type. Now this cap may, or may not come off. First carefully see if it will unscrew, counterclockwise. Don't force it, if it won't turn. If it

does turn but does not come off, carefully attempt to 'pop' it off. Again don't use too much force, otherwise you could damage the binoculars. If you do get the cover off, look to see if there is a hole that is threaded. If there are threads, the next part you will need is at the hardware store. In all probability the hole is threaded for a bolt $\frac{1}{8}$ inch diameter that has twenty threads per inch. The same that is on photographic tripods. If you can smoothly thread a $\frac{1}{8}$ -20 bolt in the hole every thing is workable.

Since you are at the hardware store you can get the parts you will need to make the mounting bracket. I recommend a minimum bracket that is four inches long on each leg. An L-bracket of shorter length would make mounting on the tripod too close for ease of use. A longer bracket would not be rigid enough and vibrate easily. It should preferably be made of steel. Brass would be acceptable, but aluminum would not be rigid enough and could bend too easily. You will also need a type of bolt called a "thumb screw", and a $\frac{1}{8}$ -20 nut. The thumb screw is needed instead of a regular bolt because of ease of use in this case. You will be assembling/disassembling everything in the field, often in the dark. And a regular bolt will require a wrench of some type. More to fumble with in the dark and possibly lose. Also be aware of the thumb screw length, don't get a thumb screw that will penetrate too far into the binoculars, you will only need a $\frac{1}{2}$ inch to a $\frac{3}{4}$ inch thread length to hold your binoculars on. The nut is only used to hold the thumb screw loosely on the bracket.

The next part is more difficult, but necessary to attach the bracket to the tripod. Now the mount bolt on the tripod is not very long. It doesn't have to be. It's not being used to hold a car or building together, just a camera. And most cameras weigh only a few pounds. That mounting bolt isn't long enough to pass through your L-bracket and attach a nut of some type to secure everything together. I have tried, and failed. You will need to drill and thread a new hole in the L-bracket. Many smaller hardware stores or even some automotive service stations can do drilling/threading for a few dollars for you. Otherwise a neighbor, local machine shop, or even local school could also do it. If you have a supply of tools, electric drill, drills, vise and taps, then you can do it yourself. To drill the right size hole for the tap you will need a number 7 drill bit. A 13/64 could be substituted, but no larger or smaller. Drill and tap the new hole between two of the holes on one leg of the L-bracket. Make sure there are no burrs or sharp edges afterwards. That will be the side to mount on the tripod. The thumb screw and nut will be mounted in an end hole on the other leg, as shown in the diagrams below. ■



Beginners SIG

Patti Neavin

Any member of the MAS is welcome to join us for any of our meetings or field trips.

April 6th – Beginners Star Party at Onan Observatory. We'd like some of the more experienced members that are interested in being mentors to bring their telescopes and help us out. Some of the beginners don't have telescopes yet, and some have telescopes but don't have much, if any, experience using them.

April 17th – 6:30pm monthly meeting at the West St. Paul Public Library. Phil Lefever from The Telescope Shoppe will be giving a presentation on "How to Buy a Telescope You'll Use".

May 15th – 7:00pm monthly meeting (location to be determined). Greg Haubrich will give a presentation on Messier Objects.

Beginners Special Interest Group

Patti Neavin Coordinator (patti@seamsmith.com) or days at (651) 291-7199

Road Trip SIG

Patti Neavin

It's official - we now have a Road Trip Special Interest Group. The purpose of this group will be to research and organize field trips to local or regional events, such as star parties and observatories. All interested MAS members are invited to participate in any of the events. Currently in the works is a trip to Goodsell Observatory on the campus of Carleton College in Northfield, MN, the U of M observatory, Chippewa Valley Astronomical Society Northwoods Starfest, and maybe Chicago Astrofest.

As far as the big star parties, maybe next year we can plan something if there's enough interest. I know some of you go to these star parties every year, and you certainly don't need anyone to help organize your trip.... but if there are inexperienced people interested in going on one of these trips, it would sure be nice if you experienced party-goers could give a presentation to the rest of us about what the trip was like. Even if I wasn't going to go on the trip, I would be interested in seeing some pictures and hearing about what it was like - wouldn't you?

If you have any other suggestions for trips, or what this group should be doing, please let me know.

Road Trip!

We've made arrangements for a field trip to the University of Chicago's Yerkes Observatory on May 18th. You can go to <http://astro.uchicago.edu/yerkes/> for more info about Yerkes.

We'll be staying at the Super 8 Motel in Delavan, which looks like it's about 6 or 7 miles north of Yerkes. They are holding a block of rooms for us at a discounted rate of \$55.69 per room (\$63.21 with tax) for 2 to 4 people. I think all of the rooms they are holding have two double beds. Go to <http://www.super8.com> and click on "Find a Location" from the menu bar, then search for Delavan, WI to see the details about this motel. Call them direct at (262)728-1700 to make your room reservation. Make sure you tell them you are with the Minnesota Astronomical Society to get the discounted room rate. Reservations should be made by March 31st.

Yerkes charges \$300 for the 3 hour program we're signed up for. To cover this cost, there will be a fee of \$15 per person, assuming that we get 20 people to go. A signup form is at <http://www.seamsmith.com/MAS/Yerkes.htm> that you should print out and mail to me with your payment. Please get it in the mail by March 31st. When we get closer to the date, we can make arrangements for car pooling for anyone that's interested. It's about 320 miles.

If you have any questions, please e-mail me at patti@seamsmith.com, or you can call me during the day at 651-291-7199.

Road Trip Special Interest Group

Patti Neavin Coordinator (patti@seamsmith.com) or days at (651) 291-7199

Science fair

Ben Huset

The following received a 'Certificate of Merit' from MAS for their science fair projects Saturday.

Thanks to Radio City, Telescope Shop, Mpls Planetarium and MN SFS for providing the handouts.

Each member received a frameable certificate, and several nice space science handouts.

Thanks also to MAS member Kandy Bierle who helped pick the winners. Pictures are at: <http://www.FreeMars.org/mnfan/tcrsf/2002/>



Stephen Varverakis
Refraction of a Beam of Light



Katy Iber
Effect of Density on Refraction



Liz Vestal
What Color is Produced by Gas Discharges?



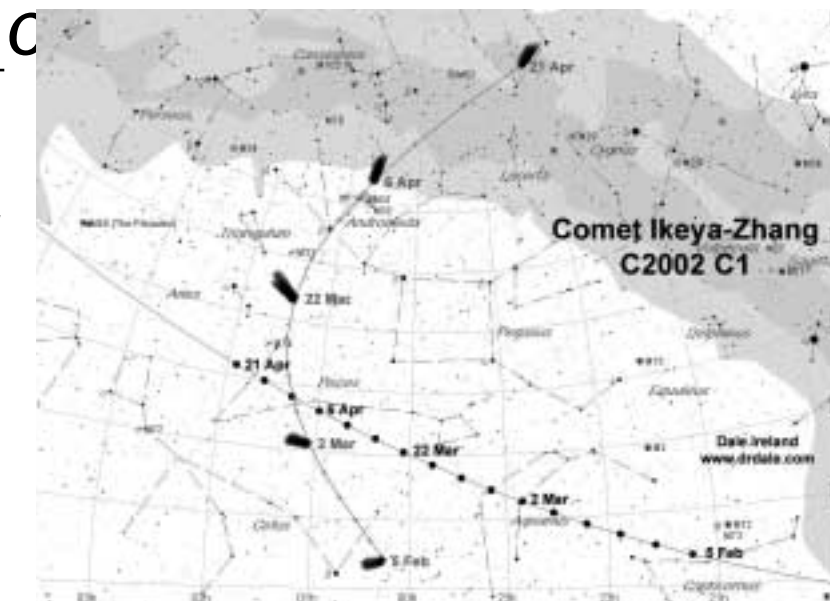
Eric St. Martin
Behavior of Light



Elizabeth Pine
Moon Size: Illusion or Effect

During the first week of April, the comet skirts north of the Sun and enters the morning sky where it will be seen very low in the northeast just before the start of morning twilight. Skywatchers in the Northern Hemisphere will likely get their best views in late April, when the comet makes a slow trek from Cassiopeia into Cepheus and then Draco.

John Bortle
<http://skyandtelescope.com>



2002 Star Parties

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

Metcalf

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

Baylor Regional Park

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

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

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

Cherry Grove

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

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



Dusk at Owan

Photo by Ben Huest

How to pay your dues

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

<i>Regular membership</i>	\$16.00
<i>Patron membership</i>	\$40.00
<i>Student membership</i>	\$10.00
<i>Subscription to Gemini for members of other astronomy clubs</i>	\$4.50
<i>Subscription to Gemini for other persons</i>	\$9.00

To Renew Your Sky and Telescope Subscription

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

To subscribe to the MAS e-mail list send e-mail to:
mas-request@mnaastro.org
with the single line
subscribe
in the body (not subject) of the message.

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



MN ASTRONOMICAL SOCIETY
P.O. Box 583011
Minneapolis, MN 55458-3011

ADDRESS SERVICE REQUESTED

NON-PROFIT
Minneapolis, MN
U.S. POSTAGE
PAID

PERMIT NO. 1407