

# Gemini

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## In the pages of the Gemini

### **MAS DARK SKY SITE COMMITTEE FORMED**

By Ron Bubany

### **ATM SPECIAL INTEREST GROUP MEETINGS**

By Ben Mullin

### **DRIBBLES FROM PLUTO'S HYDRANT**

By Ron Bubany

### **25 YEARS AGO IN GEMINI**

By Ben Mullin

### **MARSWATCH 2005**

By Michael Kibat

### **ASTRONOMY SUMMER CAMP**

By Kirk Mona

### **IN MEMORY OF MATT STELTER**

By Paul Wright

### **JEFFERS STAR PARTY**

By Matt Love

### **MEASURE THE VELOCITY OF LIGHT IN YOUR BACKYARD IN THE DARK!**

By J.H. Archibald

### **SOLAR ECLIPSE 2006**

By Ron Schmit

### **BEGINNER'S SPECIAL INTEREST GROUP: WINTER OBSERVING**

By Greg Haubrich

## Build a "Bino" Chair

By Don Hewitt

**Binocular advantages:** There is something wonderful about looking at three to five degrees of sky and seeing all those stars. Globular clusters are seen within their starry context, and some objects, like M31 and many open clusters, are way too big to see in most telescopes. Objects are much easier to find, due both to the wider field of view and the fact that the view is in the same orientation as with the unaided eye. Point where you look—there's your desired object, with your "star-hops" in view.

Improvement in acuity from binocular vision is said to be equivalent to an increase in objective diameter of up to 20%, due to the way the brain combines the retinal images from both eyes. Observing with both eyes is also less fatiguing.

Anything over about eight power is almost impossible to hand-hold without excessive shaking of the view. Also, anything weighing over a couple of pounds is fatiguing to hold, even at low power. You need something to rest binoculars on while observing—why not rest yourself as well?

Finally, it's advantageous to be able to view for an hour or more without interruption, while carefully studying substantial sections of sky. My own stargazing is often under clear, transparent, dark winter skies, but with much local light (street lights, porch lights, signs, etc.). To maintain dark adaptation, I can't be exposing my eyes to local lights, while changing view, using a viewfinder, changing eyepieces, etc. It's amazing how many more stars there are after twenty minutes of uninterrupted viewing, even while literally sitting under a streetlight!

For azimuth pivoting, "walk" front of chair around to desired view. To scan in elevation, slowly raise or lower front of chair by pushing down with legs. For large "fixed" adjustments in elevation,



Observing, while "rocked back", by pushing down with feet and lifting front legs of chair. With 25 x 100 mm binoculars.

*Continued on Page 3*

## PRESIDENT'S LETTER

By Michael Kibat

By the time you read this, Summer will be officially over — kids have been back in school for a month, Pronto Pups at the State Fair are nothing more than a fond memory, Puke and Snot are headlining at some other city's renaissance festival, and the Fall Equinox occurred on September 22nd.

Though I miss summertime activities as much as anyone else, fall remains my favorite observing season. The sun sets earlier and rises later so the hours of darkness are longer. The nights are cool, the humidity is low and only the hardiest of mosquitoes are out to bother you. If you're quick, you can still catch a few stragglers from the summer's parade of deep-sky wonders. Stay up late enough and you can snag a few of winter's celestial sights.

Equally enjoyable for me is the up-tick we see in outreach-related activities as science teachers seek to enhance their curricula and scout groups look for fun and educational events. Many of my fondest fall observing memories include participating in these events, sharing the beauty of the night sky with kids and adults, many of whom have never looked through a telescope or never given the stars overhead much more than a passing glance.

In this regard, I'm pleased to announce that Jon Hickman has volunteered to take over the role of Outreach Coordinator from Ben Huset. Jon's got some great ideas for enhancing our outreach offerings, and will need plenty of help staffing the various events that come our way. Please watch the 'MAS Announcements' forum ([www.mnastro.org/forums](http://www.mnastro.org/forums)) for outreach opportunities and assist Jon by volunteering to help if you are so inclined.

As noted elsewhere in this newsletter, we have chartered a new committee — the Deep-sky Site Selection (DSS) Committee. It is chaired by Greg Haubrich, and its mission is to drive the long-range process that will ultimately result in securing a new, dark-sky observing site for the MAS.

Given Greg's new responsibilities on the DSS Committee, he needs to step down as the Observing Chair for the Society, so we are looking for a replacement. Duties include: establish the coming year's MAS star party

schedule; make the go / no-go call for MAS star parties; update the MAS info-line with star party go / no-go announcements; distribute 'Messier/Observer's SIG Astro CDs'; organize and run the annual MAS

observing events (Messier Marathon, Virgo Venture, and the 4M); and, support the Beginner's and Observing SIGs as much as possible (presentations, etc.).

Looking ahead toward year-end, we need candidates to run for three board positions — Vice President, Treasurer and the Board Member At-Large (currently held by Michael Burr). Nominations close at the November 3rd meeting. If you can't attend the election meeting on December 1st, please request an absentee ballot from MAS Secretary, Steve Emert, no later than November 15th and return your ballot so he receives it no later than November 30th.

Lastly, much time has passed since hurricane Katrina ravaged the Gulf Coast and as I write this, I've no idea what the current priorities might be for the recovery efforts. But I encourage you to consider the emotional, physical and material needs of the multitudes affected by this disaster and do what you can to help out those whose lives have been so deeply affected. As our hobby turns our gaze outward to our solar system, our galaxy and beyond, let's not forget about those who are in such great need right here on this 'pale, blue dot' we all share and call home.

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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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Radio City features a wide selection of amateur radio equipment from Kenwood, Icom, Yaesu, MFJ and a host of other manufacturers. Visit our store in Mounds View.

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holding binoculars firmly in one hand, twist-unlock the telescoping support, raise or lower binos to desired elevation and twist-lock the handle. Bungee cord attaches U-support to binos.

Note position of hands, supporting binoculars and effectively shielding eyes from local light. Thumbs under oculars and against cheekbones, index fingers above oculars and resting just above eyebrows. Head against backrest, arms on U-support, ankles against chair front leg. Chair, binos and observer become one.

**Chair:** Wilderness Recliner, by GCI. About \$50 at various local and internet camper supply retailers. It weighs about 6 pounds to start — about twice that much as a completed bino chair.

See [http://www.gcichairs.com/products\\_wilderness.htm](http://www.gcichairs.com/products_wilderness.htm).

**Components:** Everything is custom-modified from parts available off-the shelf in hardware or building supply stores near you.

**U-support (upside-down “U“):** I used the 1” bent aluminum tubing that was the back leg of a junked plastic-web folding chair. The inside width of the U should be slightly less than 20”, so it “snaps” onto the altitude pivots. The inside “height” of the U should be around 23”. Drill three 3/8” holes through each “upright” of the U, about 16” and 19” from the cross-tube, and 1/4” from the ends. The holes must be parallel to the cross-tube.

**Telescoping snow brush:** This provides elevation adjustment for your binoculars by supporting the cross-tube of the U. Remove the brush bristles and scraper or squeegee. You will eventually shorten the handle, for your correct range of binocular elevations. Shorten by sawing off the bottom of the outside tube and top of the inside tube. Put a crutch-tip on the bottom, to protect you and your chair seat.

**Padded support head:** Cradle the cross tube of the U in the head of the snow brush. Fasten with plastic wire-ties, threaded through holes drilled in brush-head and looped over cross-tube. Pull tight to fasten head securely to U-tube. Fold a thick, lint-free washcloth to make a pad a little larger than the snowbrush head, and cover with non-slip rubber matting. Bind together the snowbrush head, cross tube and pad at each end, with wire ties or Velcro straps.

**Attach a bungee cord** on either side of the pad with Velcro straps. This is looped over the binoculars and steadies them on the padded head, and still allows freedom to position them. **Warning: Bungee cord will not hold the binoculars onto the support; you must always have one hand firmly on the binoculars, or they will surely fall into your face or even more sensitive body part!**

**Altitude pivots:** The assembly of U, telescoping support, and padded bino support head, is attached by pivots to the side tubes of chair-back frame. Drill a 3/8” hole through each side frame, just above the canvass back webbing. Holes

must be accurately in-line across the chair, or the U-support will bind. Ideally, these pivots should be just below your armpits. Bolt the U-tube loosely to the chair, with a 3/8-20 bolt, with a nylon washer between U and chair. Use a Nyloc nut on the inside of the frame.

Finally, fit a bungee cord across the holes in the ends of the U, to provide a stop when you “toss” the U and handle back, to enter or exit the chair.

**Azimuth pivot:** a flat base, 16” square or diameter. I used a plastic patio block, but 3/4” particle board works okay. Drill a 1” dia. hole in the center of this base, and fasten a 1” i.d. washer to the top and bottom, aligned with the drilled hole.

The azimuth pivot is a PVC tubing tee, 1-1/2” by 1-1/2” by 1” (used in in-ground lawn sprinkler systems). The straight run fits onto the 1” chair leg crossbar, and the tee fits into the 1” hole in the disk and bearing washers. To get the tee onto the chair, you’ll cut about 110 degrees of arc out of the straight run. It will then snap onto the back leg.

1” hose clamps on the leg, on both sides of the tee, keep the chair centered on the pivot.

**Finished chair,** showing U-assembly mounted on pivots, with telescoping snow brush handle, binocular support pad, and bino-support bungee. See also azimuth pivot and baseplate at back leg, and bungee cord across ends of U.

**Contact me through MAS e-mail list if you have any questions, or for late-breaking improvements too lengthy for this article.** 📧



Finished chair, showing U-assembly mounted on pivots, with telescoping snow brush handle, binocular support pad, and bino-support bungee. See also azimuth pivot and baseplate at back leg, and bungee cord across ends of U.

## MAS Dark Sky Site Committee Formed

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By Ron Bubany

We are happy to announce that the MAS Board of Directors has formed the Dark Sky Site Committee to promote a new dark sky observing location. Greg Haubrich is the committee chair assisted by members Doug Brown, Ron Bubany, Michael Burr, Steve Emert, Vic Heiner, Lauren Hoen, Bill Kocken, John Marchetti, Nathan Nesje and Cort Sylvester. Here's the tentative mission statement/charter for the MAS' Dark Sky Site Committee:

“To determine the needs and wishes of the MAS membership for obtaining a new dark sky site with significantly darker skies than our existing dark sky sites.

To identify a suitable site, raise funds if necessary, and acquire the new MAS Dark Sky Site.”

Gemini will keep you informed in each upcoming issue as to the progress being made. This is not a simple task, so please be patient as the project moves forward perhaps more

slowly than you would like.

If you have comments for our consideration (for example, you know of a free 40 acre site with good elevation, 360 degree lines of view, no mosquitoes within 15 minutes of the city) please let us know by posting the information to the MAS Dark Sky forum at [mnastro.org](http://mnastro.org). Select Discussion Groups and then scan down the page for the Dark Sky group. If you do not have Internet access, you can mail us a note. In order to control all incoming correspondence, please mail your comments to the central location below: MASDSS – Gemin, 67682 217th St, Darwin, MN 55324

All inputs will be reviewed although we obviously will not be able to send back individual responses. Nevertheless, please include contact information in your correspondence in case we need to get back to you for more information and/or clarification. ■

## ATM Special Interest Group Meetings

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By Ben Mullin

The Amateur Telescope Makers (ATM) group will be meeting Oct 13 and Dec 8. ATM members will be doing ishows and telling about their telescopes and also just plain socializing. If you are interested in the art of telescope making, please attend.

Both meetings will be held at the Eisenhower Observatory in Hopkins and will begin at 7:00 p.m. Meetings usually last about two hours. For information on the observatory log in to their website at: <http://www.hopkins.k12.mn.us/pages/district/CommED/fc-observe.html>. ■

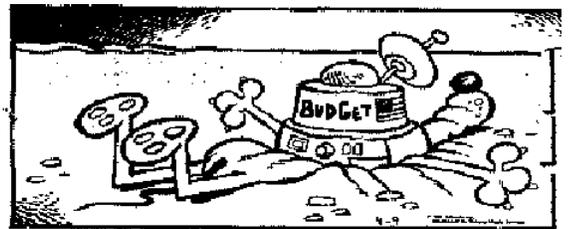
## Dribbles From Pluto's Hydrant

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By Ron Bubany

Doubtless you have noticed this issue of Gemini is not very thick. That's because I have just about spent all of your money for this year and am forced to scale things back in order to stay within the budget.

Never fear. If you can get to our web site, [mnastro.org](http://mnastro.org), the online version of Gemini is a full-featured issue with all of the content you have become used to. If you can't get to our site, then please be content that at least you are getting access to important announcements, as you will find in this brief publication.



Keep an eye on me next year to see if I have learned any lessons. The February issue should be back to normal and you should expect to see six full feature issues of Gemini in 2006 ■

## 25 Years Ago in Gemini

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From the archives of Bob Schmidt".

Comet Encke at Magnitude 7

Comet Encke (pronounced Enk'-uh) has an orbital period of 3.3 years, the shortest of any known comet. With so small an orbit, it is almost never beyond the reach of the largest telescopes. This year marks its 52nd observed return, and it will be quite favorably placed for amateur instruments. The least distance to Earth will be 0.2780 AU on October 28.

This will be its closest approach to Earth since November 1937, when its distance was 0.271 AU. As the chart begins, the overall magnitude is predicted to be about 8.1, and it will continue to brighten to about 7.0 by mid-November. Search for a faint, diffuse, fuzzy patch. The comet will continue to brighten as it becomes morning twilight. At perihelion on December 6, Comet Encke is inside Mercury's orbit and is unobservable. Gemini, October 1980

## MARSWatch 2005

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By Michael Kibat

In 2003, the Mars hype bordered on outright hyperbole. Remember the headlines screaming 'Closest Approach in 50,000 Years!'?

So far, this year, the initial hype has been of the the Internet-driven misinformation variety: 'Mars will appear as large as the Full Moon!'. Yeah. Right.

Well, the MAS has a chance to set the record straight October 28th and 29th when we join the Minneapolis Planetarium Society and the Eisenhower Observatory to sponsor 'MARSWatch 2005' events around the Twin Cities.

As in 2003, the MAS will conduct events at its Onan Observatory in Carver County's Baylor Regional Park. Both evening's activities start at 7:00 and continue until midnight. Weather permitting we will observe the Red Planet using the observatory's telescopes and video equipment. Regardless of the weather, presentations and table-top displays will feature the latest knowledge we've gathered regarding Mars from recent missions, as well as highlighting future missions.

## Astronomy Summer Camp

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By Kirk Mona

As the sun set on the prairie at Warner Nature Center the stars came out to the oohs and ahhs of six budding young astronomers. They spent the week studying the mysteries of the night sky and came prepared to put their skills to the test. The "Astronomy: Day and Night" summer camp was an experiment this year. Kids spent six hours a day at the center just like any other day camp but these kids also camped out one night to observe the sky.

Throughout the week the kids learned the history of astronomy, tracked the motion of the sun through the sky, experimented with optics, learned about constellations, deep sky objects, telescopes and more. They also built a scale model of the solar system, Galileo style telescopes, planispheres, spectroscopes, and models to explain the lunar phases.

The sleepover was the highlight of the week as we took an

At our previous MARSWatch evenings in 2003, hundreds of visitors -- small children and octagenarians, local residents and international visitors -- joined us each evening. This year should be no exception, so a large contingent of MAS volunteers is needed to provide additional telescopes and to help in other ways. If you are so inclined, please visit the MAS discussion forums at [www.mnastro.org/forums](http://www.mnastro.org/forums), find the 'MARSWatch 2005' topic in the 'MAS Discussion' forum and post a message indicating your interest. You can also call Mike Kibat or Jon Hickman to express your interest.

(By the time you actually read this, the plans for all events should be finalized. Check the MAS home page and the 'MAS Discussion' forum for current details.) [SPECIAL NOTE TO MEMBERS OF THE MAS: Want to avoid the crowds? Weather permitting, we will open the observatory for a 'members only' viewing session on Thursday evening, the 27th. Check the MAS info line by 6:00 p.m. that day to determine if this event is 'on'.] 🐱

SCT and a dob out to the prairie to hunt down a planet and some faint fuzzies. The evening kicked off with a viewing of Jupiter setting in the southwest. It was a beautiful sight as it hung in the sky next to the moon. The seeing was good and the kids spotted three moons around the banded planet. The international space station also graced our skies though sadly it was not accompanied by the space shuttle due to the scrubbed launch one day earlier.

As the moon set we checked out Mizar and Alcor before turning our attention to deep sky objects. We took in the whirlpool galaxy, and the Hercules cluster. The kids liked these though the real winners were M27, the Dumbbell Nebula and M57, the Ring Nebula. Having studied these earlier in the week they were excited to spot them with their own eyes.

We had a long observing list but hordes of attacking mosquitoes wore down our tenacity. The kids were unbelievably patient as they donated liters of blood to the insects. As the assault of mosquitoes continued, the excitement of a double double like epsilon lyrae just wasn't enough to keep the viewing going past one a.m. To cap off the night, we moved on to the Andromeda Galaxy. At 2.9 million light years away, it was a fitting end to our journey around the universe.

When we awoke in the morning and devoured stacks of pancakes we reflected on the class. The kids had a great time and look forward to watching the skies change with the seasons. Many expressed interest in joining the MAS to continue the learning process. With the success of this inaugural summer, we're looking forward to having a new crop of excited young astronomers next year. 🐱



## **For Sale**

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Superb deep-sky binoculars in like-new condition. Celestron 14 by 100's, center focus. Recently cleaned and recollimated by Celestron. I cannot use the 7-mm optimum exit pupil of these instruments, at my age, and have recently purchased different, higher magnification 100-mm binocs for my use. Asking \$250 or B.O. David Siskind, 612-929-0205 or dsiskind@msn.com

## **In Memory of Matt Stelter**

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**By Paul Wright**

Matt and I met at the telescope. Matt and his father were driving past my driveway early last spring while I was observing from my driveway in Rosemount. Over the past six months, Matt accompanied me to MAS Thursday night meetings. Matt was a young man who was a gentle giant who was balding with wispy hair around the sides. He was a self-taught computer authority and expert on using Palms for astronomy. I recently embarked on the learning curve of using my CCD camera to perform Variable Star photometry. We were a team in which I was helping Matt to learn astronomy and he was helping me integrate the camera, CCD Soft, and The Sky together to control the camera and reduce the photometry data.

Matt was infected with a heart virus eight years ago. A heart transplant was considered when he was diagnosed with the heart infection. However, he recovered but although only thirty-two years old, his doctor said that he had the heart of a seventy-year-old man. On August 4, our collaboration ended when Matt died unexpectedly home. He had become very familiar with astronomy web sites devoted to user evaluations of astronomy hardware. Matt was a quick learner of astronomy. He was saving his money for a telescope. After the hours that Matt and I spent at the telescope, I will always think of Matt when I look up at the sky.

## **Jeffers Star Party**

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**By Matt Love**

Are you a beginner who has never seen really dark skies. I mean really dark skies. So dark that you can almost read by the light of the Milky Way without sticking a light bulb into a candy bar.....have you ever experienced skies that dark?

Why don't you come with the Beginner's Special Interest Group (BSIG) to Jeffers. Perhaps you're unsure because: you don't know where the heck Jeffer's is; you haven't got a telescope; you've never been to an overnight starparty before; you're scared of some weird BSIG initiation rites while you sleep; or you just don't want to go alone. Whatever your reason is never fear....read on!!

The Beginner's group is going to caravan down to Jeffers Friday evening September 30, and remain there through Saturday October 1. For all the information follow this link: <http://www.mnastro.org/forums/viewtopic.php?t=1119> to the BSIG discussion area. There is nothing to sign up for, and more information will be coming in the following months, but clear your calendar and take time off work to enjoy the dark sky before it's all gone.

This isn't strictly a Beginner's event, but it sure would be nice to have a bunch of us together so we could get to know each other under the dark sky we love.

## Measure the Velocity of Light in your Backyard in the Dark!

By J.H. Archibald

In 1968 I was a senior in high school in North Haven, Connecticut. Having ground my first telescope mirror in that year I was right in the midst of acquiring the astronomy bug. What interested me then were the early attempts at the determination of the velocity of light.

Galileo had tried with his “shuttered” lanterns to make a determination. All he could conclude was that the velocity must be of such a great speed, if not instantaneous, so as to be beyond the reaction time of two people holding lanterns in the night on neighboring hill tops. One lantern was opened and this became the signal to the other distant lantern holder to open his.

If Galileo could discern a time difference in excess of the reaction time of the other lantern holder, then he would divide the distance between the two lanterns by this time and arrive at a crude value for the velocity of light.

He could not convince himself that there was anything present in his data except the reaction time.

In our high school physics text, University Physics, by Sears and Zemansky there were a few words written about a Dane named Ole Roemer who had, in 1676, devised a more astronomical method for measuring the velocity of light. In Roemer’s method, which was very ingenious, he looked to the heavens for a clock. He chose the Galilean moons of Jupiter because he knew that their periods were known fairly accurately. In fact, he set out to measure these periods over a year. The inner most moon, Io, has an approximate period of one and three quarters days. He chose to get to know Io.

Roemer had to be able to tell which of the four Galilean moons was Io at any given observation. To the novice, they all look the same. However, to an expert observer there are slight color differences and size differences that can be detected. With care and patience he was able to learn which moon was Io very reliably.

For the year he measured the period of Io. His idea relied upon the fact that if the velocity of light were measurable, then the measured periods of Io would change in the course of the year. This change, he of course knew, would be due to the extra distance that the light from Io would have to travel to reach him when the earth was on the “other side” of its orbit around the sun.

For instance, in the summer the earth is in one position and is, we will assume, closest to Jupiter. Six months later, the earth has gone half way around the sun and is now one earth’s orbit diameter further away from Jupiter. So the light from Io has to go across the diametrical distance.

The orbit diameter of the earth was known fairly accurately back then from other earlier measurements. All Roemer had to do was to find out the “apparent” difference in Io’s period that he was measuring in the course of

a year and he would be able to find the velocity of light by dividing the earth’s orbit diameter by this apparent time period difference.

Roemer did this division and came within about 4 or 5 percent of the accepted value of the velocity of light today. This was the first time that the velocity of light had been measured and it was the first time that people knew that it was not instantaneous, but finite.

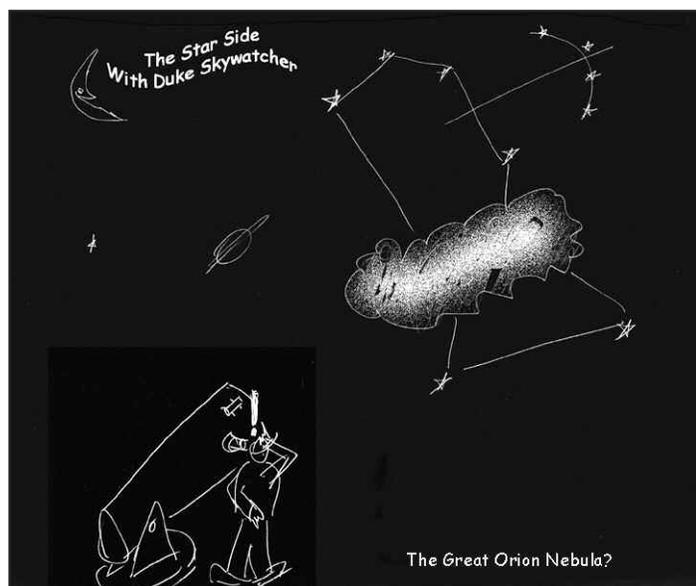
In 1968 I was given access to the 8-inch Grubb telescope at Yale University in downtown New Haven for the purpose of measuring the velocity of light. It was my own venture not at all high school affiliated, but the Ph.D. at Yale whose wing I was put “under” could not understand why it was that I wanted to measure something that was already known. He could not fathom my insistence in doing the experiment.

Well, I did not have very good luck that summer. It was cloudy a lot, I had to take a bus to Yale and although I had my own key to the observatory things just did not pan out very well. I had bitten off more than I could chew. In September I had to leave for the University of Wisconsin where I would be studying mining engineering.

Many years passed. Many mines were worked in and tons of ore mucked half a mile underground. Moved around a bit. Couldn’t seem to get back into astronomy. The usual excuses.

Then I landed in Northfield, Minnesota in 1989. A year or two later had me joining the newly formed Cannon Valley Astronomical Society. Shortly after that I took that 1968 four and one quarter inch diameter mirror and made a Springfield mount for it. I thought, now it’s time to do the Roemer experiment.

### Duke Skywatcher



Luck wouldn't have it. Soon had twins. Switched jobs and careers and well, it just turned into another giant excuse! You know the drill.

Tried to interest others in the experiment of Roemer. No soap. More excuses. So I resorted to doing the experiment mentally over the years until one day a few years ago I thought of a refinement to the original experiment that relies upon present day technology. However, it retains the original flavor.

The idea is this: One sets up the telescope in the backyard in the dark. Aims it at Jupiter and takes videos of Io and the others doing their orbits at fairly high magnification, maybe 100 X or more, with a good solid Springfield mount. In the background is playing a radio tuned to WWV in Boulder, Colorado. This shortwave radio station gives a time signal that beeps once a second and an announcement that occurs once a minute of the exact UTC, or Universal Coordinated Time. The observer speaks into the video tape recorder as Io crosses Jupiter's face and disappears. Mark. For the average amateur astronomer, moderately equipped, this experiment would only cost the time to do it. No excuses needed.

Now, one does this for several nights in the spring or summer. Then about six months later one repeats the experiment. When all of the videotaping is done one has a record of the exact times of when Io disappears and therefore one knows its period very accurately ( by averaging these data ) at the two seasons due to WWV and the Mark

that was spoken into the recorder by the observer. This data reduction task can all be done in the comfort of one's living room by just playing the tapes in the Video Cassette Recorder, or VCR, and taking notes.

With a little calculating one can also get the distance that the earth has moved during the course of the entire experiment. Once that has been done, as Roemer found, the rest is easy.

More accuracy can be obtained for the value of the velocity of light if Jupiter's movement is also taken into account.

Either way, the experiment should give a value that I predict could be well within one percent of the accepted value. In fact, it surprises me that no one has tried this experiment to my knowledge, including professional astronomers at observatories.

Oh, I know why they haven't. They don't understand why anyone would ever want to measure something that is already known!

John Archibald

Mining Engineer / Amateur Astronomer

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## Solar Eclipse 2006

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**By Ron Schmit**

"Nothing is strange, nothing impossible, Nor marvelous, since Zeus the father of gods Brought night to midday when he hid the light Of the shining sun." –Archilochus

Eclipses even wowed them back then....

YES! We are planning to get back to the shadow in 2006 and would LOVE to have you join us! Since the departure of Bill Allen from the Science Museum, there has been little activity in the program he left behind. So, I'm striking out on my own (well, sort of...). I've agreed to join the crew for David Price-Williams with Temple Tours to see the eclipse in Turkey on March 29, 2006 and we're putting together a package for you "umbralolics" here in the U.S.

Some of you may remember David and Temple Tours from our post-eclipse extension in 1999 in Turkey or our African eclipse safari in 2001. For those unfamiliar, he is an archeologist from England and has done extensive research in Africa, Asia Minor, and Europe. Along with our eclipse adventure, he will provide an adventure of an entirely different sort with an amazing tour of the Hellenistic ruins along the coast of Turkey. With his beautiful wooden sailing

ships as our transportation, we will leisurely cruise the Mediterranean, and take in the wonder and splendor of the area's rich history.

It would be an honor and a privilege to have you join us under the shadow again and experience one of nature's most compelling events – a total eclipse of the sun. Lasting about 3m 45s, it should be an amazing spectacle. In fact, given the beauty of the surroundings, and the historical trove right at our feet, we'll actually be offering TWO trips - one ending with the eclipse, the other beginning with it. You can see details at our website: <http://www.eclipse-of-the-sun.com/>

We plan to be dazzled again, as we watch the eclipse from the shores of the Mediterranean and explore the hidden treasures of southern Turkey.

We are coordinating with a local travel agent to provide the bookings:Katie Lyles Travel Consultant CWT/Market Square Travel LLC. Phone: 763-420-3513,Toll free: 800-466-1789,Fax: 763-420-7621, Email: [klyles@cwtravel.com](mailto:klyles@cwtravel.com) Looking forward to sharing the shadow with you next year!

## Beginner's Special Interest Group: Winter Observing

By Greg Haubrich

Beginner's Special Interest Group: Winter Observing

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Hello fellow Messier Hunters!

Former Beginner's Coordinator Patti asked me for a little blurb for the Beginner's SIG on "Winter Observing". I thought that I'd launch it here on Gemini too. Let me give you a very brief summary (actually about all I know in a thimble) on winter observing:

- 1) Do your "astronomy pre-observing session homework" (i.e. plan exactly what you want to look at and exactly where to find it with planetarium software, star charts, etc.).
- 2) Pick a night at least 10F above zero (or whatever your tolerance level is, this is mine) with very little wind. (beware of blowing snow on mirrors as well).
- 3) Be very careful not to breathe on eyepieces with your nose or by air diverted by scarves, collars, or hats! (or have a 12VDC or other hair dryer handy to defog!)
- 4) Dress very, very warmly (especially heavy woolen socks and good insulating boots, a good hat and a good scarf). Don't be too proud to try out a Union Suit or Snowmobile Suit as they work great! I also take a cheap pair of kid's gloves and cut off the finger tips. It kind of makes you look like an actor from Oliver Twist, but when you remove your down filled mittens to focus, it can keep your hand from freezing.
- 5) Be determined: It might be a little uncomfortable at first, but eventually you lose feeling and start to feel that everything is all right! Seriously, if you really want to do "extreme observing", do it with an observing buddy who can spot hypothermia setting in.
- 6) If you feel that you've seen it all, try the Eskimo Nebula or other such appropriate observing. Seriously, many beautiful objects in Orion, Monoceros, Auriga, Perseus, etc. are only best viewed during the winter months.
- 7) My favorite winter viewing tactics (in my backyard):

- Throw the scope out 2 hours ahead of time (for thermal equilibrium to be reached). You may want to leave an end cap on it to shield it from blowing snow.
- Dress very warmly and leave unused eyepieces in cozy and warm winter jacket pockets.
- Wear a "pirate patch" or "red goggles" (i.e. check Orion Telescope catalog) for at least 30 minutes ahead of time. Note: the significant other, kids and neighbors will really think your "cool"- - NOT! But it is essential for reaching adapted dark vision without freezing needlessly.
- Make your homework pay off: view for 10 to 20 minutes and then go in to warm up.
- Repeat above step until exhausted, satisfied, or frozen.
- Just prior to bringing the equipment indoors, be sure and cover both "ends" of the scope to keep warm air from condensing moisture unto your mirror/lens! An old plastic shower cap for the open end, and an old plastic 35mm film container work great (the film container can fit in place of a 1.25" eyepiece). I always place eyepieces in their containers cold to prevent needless condensation before bringing them indoors too.

Enjoy and OBSERVE!

Unfortunately, there is no silver bullet for winter observing, just a few tips, and endurance. And don't forget about the upcoming Messier Marathon in March. Three years ago we had to dig out 1 foot of snow to even place the scopes on solid ground. Two years ago it was the ice storm a day earlier which coated everything with 1" of radial ice. At 15 to 20F with 10MPH winds, at least 7 of us made it observing until dawn with minimal breaks. It can be done, but then I also had a bit of frostbite on the side of my nose due to it touching the side of my big 2" Nagler eyepiece (so much for the nose-relief spec!) Clear Skies (and warm feet), ...Greg

Ed note: I know, I know. We had an article on this topic last issue. But remember, this is Minnesota and we can use as much information about surviving the Minnesota winter weather as we can get! ■

## 2005 Onan Observatory Public Star Parties

*Public Star Parties at Onan Observatory at Baylor Regional Park are held on both Friday and Saturday evenings one weekend per month. Public Star Parties begin at dusk and officially end at 10:00 pm. Public Star Parties are held rain or shine - if it is cloudy or rainy, a slide show or other program is substituted for the stargazing event.*

Date	Event	Time Start	Finishing Time
10/21/2005	Public star-gazing at Onan Observatory	Dusk	10:00 PM
10/22/2005	Public star-gazing at Onan Observatory	Dusk	10:00 PM
11/04/2005	Public star-gazing at Onan Observatory	Dusk	10:00 PM
11/05/2005	Public star-gazing at Onan Observatory	Dusk	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.*

Date	ALT	Event	Location
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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The MAS list has about 40% of the membership on it.