

Gemini

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2006 Texas Star Party

By John Marchetti

Doug Brown, Greg Haubrich and I decided we would make the trek to the Texas Star Party for our fourth time. We went for the first time six years ago, then the following year and we skipped one year and went again and skipped last year and decided to go this year. We put our names into a lottery for a family cabin and were selected to occupy our cabin of two years ago, cabin 44 or as we call it, "The Beehive."

We were concerned about making the trip this year because 2005 had presented terrible weather. Numbers were definitely down in 2006 with about 500 participants. The decrease was probably due in part to last year's weather, but we were quite sure that gas prices were a factor as well. I don't think we would have gone if we didn't have three of us sharing the driving and fuel costs.

We rented a 5 X 10 trailer and Greg generously used his Durango to pull this non-streamlined "brick" 1425 miles to Texas. Our equipment included Greg's new 20" Obsession, Doug's 16" refigured Meade, and my refigured 16" DOB. Also we took Doug's 6" refractor and his Losmandy mount along with Greg's 20 X 80 binoculars and "Bino Chair." Of course we took all the accessories for the scopes and clothing for various weather conditions. As you can see by the inventory, a trailer is a necessity for our excursions to Texas, and while we possibly could have carried a little more gear, the Durango was pretty crowded with three people, our cooler, some telescope accessories like Greg's rocker box and Doug's 6" lens, as well as a computer that Doug had previously loaded with hours of comedy and other programs. Have you ever heard William Shatner sing "Mr. Tambourine Man?" If you want to laugh out loud, I heartily recommend picking up a copy and playing it.

We left Minneapolis around 10 AM on Saturday and the trip went well for the first 5 miles. Greg had just remembered to call his insurance agent about coverage on



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the trailer as we were crossing the 610 bridge. Then suddenly, while he was leaving a message on his agent's phone, Greg shifted lanes and the trailer started to fishtail badly. When I say "badly" picture this: Greg is talking to his agent's answering machine while the trailer begins to fishtail. As he tries to correct the disaster while steering with one hand, Doug offers instructions about whether to brake or not brake while Greg accelerates slightly to pull the trailer out of the major back and forth swaying. How bad was this swaying? Well, the trailer would get up on one wheel and Greg would correct and then it would go up onto the other wheel and so forth. The two of them were discussing this loudly in the front seat, all the while still on the insurance agent's answering machine. I was in the back watching the trailer swerve back and forth while tightening my seat belt some more.

Greg managed to straighten us out and we drove

under 50 mph for the next 30 miles or so until we got off the freeway in Burnsville. We knew what the problem was so we pulled into a parking lot, completely unloaded the trailer, repacked it with more weight on the tongue, and ate lunch at a Subway. Once we got back on the road the trailer behaved perfectly and we were finally underway at a very stable 70 mph.

We drove as steadily as we could, stopping for gas often before ending up at our favorite barbeque place in Kansas City around 8 PM. On these trips, we always try to stop at Fierellos Jack Stack whenever we go through Kansas City, and we highly recommend it to you if you travel that way - fair prices and very good food. We spent at least an hour and a half here and got gas, (for the Durango.) Greg did all the driving up to this point and then Doug took over for a couple of hours. I usually take the night shift, preparing by drinking coffee and listening to a book on tape. At about 1 PM on Sunday, and after 1425 miles, we arrived in Fort Davis, Texas. We checked into the Beehive and set our scopes up for what we hoped would be a clear night. After we showered, we first napped, ate, and when the sun set, we observed all evening, going to bed sleep-deprived, but happy.

Doug attracted a great deal of interest in his long focal length refractor, as many people haven't really seen many of these types of refractors before. As you know, most are of the short focal length variety today, so this one is definitely a conversation piece, plus it offers views of sharp stars and nicely split doubles. Greg's new 20" with a Galaxy mirror and "go-to"/tracking was working beautifully and the views through the eyepiece were superb. I worked on finishing my Astronomical League Globular list and started the Planetary Nebulae list and the Open Cluster list. All of us tackled the 2006 TSP observing list, while Greg and Doug had patience for the Larry Mitchell lists (which have to be star-hopped). The TSP list was difficult this year since about half of it had to be done not long before the sun came up, and for most nights, the sky kept "playing" with us. While we had good seeing and transparency for every night except one, the sky to the south in Scorpius and Sagittarius would cloud over almost every evening. It would repeatedly wink in and out while the rest of the sky stayed clear. Doug and Greg had completed their TSP list at the very beginning of the



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week when this phenomenon wasn't happening, but I didn't finish my TSP list until Friday because of it.

We opted to eat our meals on the ranch as usual, but this year, in our opinion, the food was better than usual and there was plenty of it too. The head of the kitchen staff this year is the wife of the chef who does the cooking at McDonald Observatory and she did a great job. There is no breakfast served at the ranch, as most people are sleeping. However, there is a burrito shack open until 3AM for a bite to eat and drink before the last bit of observing and sleeping.

On the final day, Saturday, we climbed a very large rise to the East of the Prude Ranch and enjoyed the view from there. We also took a look at the 25 meter radio dish about a mile from the Prude Ranch. It is part of the Very Long Baseline Array and we were fortunate to see it move completely around. Hindsight makes me think we should have done this earlier in the week before our energy was low from so much observing. Our plan for our last night was a bit different this year. This time, we went to the "Great Give-Away" where the major door prizes are possible for those who stayed the final night. Many people left on Saturday for the trip home and work on Monday, so our chances of winning increased a bit. Greg won an eyepiece, so there was some joy in our group. After this event, our plan was to sleep until midnight, get up and observe until the sun came up, then pack and shower before we hit the road. Doug had agreed to go

30 Years Ago in Gemini

From the archives of Bob Schmidt

The meeting was called to order in the Members' Lounge of the Science Museum at 7:30 P.M. by our Vice President, Lauren Nelson, in the absence of our President, Pat Clements. Coffee was again available and, thanks to Cindy Blaha, we had cookies which

to sleep so he could drive the first leg. This worked moderately well, but falling asleep was difficult and getting up was even harder. I stayed up for the rest of the evening and observed many low objects until dawn. Greg and Doug got a few hours of sleep and we packed up when the sun came up as planned and showered. We started back home around ten in the morning and got home about one in the afternoon the next day. The trip usually takes us about 26 hours, but it was a more difficult drive back and we switched drivers more often as we were all suffering from sleep deprivation.

I would describe our trip this year as very enjoyable with good skies except for one night. It is so nice to be a little further south to see constellations that only skim our tree tops up here, plus the higher altitude greatly improves the seeing. While it is theoretically possible to see all of Scorpius at our latitude, I have never done it from here. In southern Texas, it is very high and the "false comet" part of the tail is spectacular. I recorded an open cluster from the list in Corona Australis, minus 39 degrees declination. Also for the TSP list, "Eye On The Sky, we all saw the open cluster NGC 5286 at minus 51 1/2 declination. I'm not convinced that TSP has better skies than the Okie-Tex Star Party, but I am convinced that they are better than almost any night in Minnesota, and it is a joy to see many new objects at lower declinations. Our state was well-represented with about ten Minnesotans that we knew about. Tim Parson came down with two of his daughters and Steve Leikind was there as usual doing some fine imaging. I can't remember all the names of the others, but it was nice to see other Minnesotans. This year was also a little nicer because it was a little earlier in the year and we had cooler days. They also had a sizable group of vendors, so of course, some shopping is always in order.

I would hope that more people from our club would make the trip to Texas, as it is always a good time. I have often said that for visual observers or imagers, it is wonderful to set up for a week amongst like-minded people. Also, I should mention that there are many things to do during the day if you would like your family members to come along. However, as my wife has often remarked, "I don't know if I could spend a week with 500-600 guys wearing plastic pocket protectors and staying up all night." Of course, she exaggerates, because there actually are numerous women and children who attend. I hope you take an opportunity to enjoy one of these larger, week-long star parties - I guarantee that it will be a memorable experience. ■

she had baked.

A brief business meeting preceded the showing of the scheduled pictures. NSP has donated electrical equipment, thanks to the efforts of Andy Fraser, and manpower is now needed to complete the installation of our electrical hook-up at the Metcalf observing site in Afton. You can help - contact Andy Fraser. ■

Chasing the Shadow

By William Glass

People who enjoy chasing solar eclipses frequently begin making plans several years in advance. In 1999, I was in Turkey for an eclipse and we enjoyed telling our tour guides that we might be back in March of 2006 for another eclipse. Although we knew that the eclipse path crossed northern Africa and that the weather prospects there would be good, at the time, it was almost impossible for a US citizen to visit there.

What a difference a few years makes. In February of 2004, the US lifted the travel restrictions that had prevented US citizens from visiting Libya for over a decade. A few months later, NASA's Fred Espenak went to Libya to look for a good viewing site. His search took him south of Benghazi on the single paved road that penetrates the Libyan desert. With his GPS, he located the centerline about 80km south of Jalu and marked the spot with a message tucked into a bottle and placed under a rusty wheelbarrow. This marker would be used by the Libyan tour operators to determine the location for a tent camp to house the hoard of tourists that would come to watch the eclipse.

In March, I headed for Libya to join a group of 86 people on a tour organized by Spears Travel and led by Fred Espenak. After a few days of sightseeing along the coastal areas near Tripoli and Benghazi, we boarded our buses for the five hour long drive to the tent camp. South of Jalu, Fred began watching his GPS so that he could locate the eclipse path. He was watching the GPS so intently that we drove past the large sign and group of soldiers that marked our turnoff for the tent camp. About 20 minutes later, Fred finally realized that something was wrong and our three-bus convoy turned around and headed back north. On second try, we spotted the sign and turned off the paved road to head to the eclipse camp that was three miles away.

The tent camp was truly amazing. We felt as if we were in the middle of nowhere - no signs of human habitation, almost no vegetation, and just a large flat sandy plain. Suddenly, we came to a collection of 500 two-man tents, two large tents for dining halls, and a large number of porta-potties. Close by was another camp with 200 tents and a short distance down the road were two more camps. The Libyan military had set up a small base to provide security, a small clinic, and three helicopters. There were generators to provide lights, a grocery store, some souvenir stands, and (believe it or not) an Internet café with 12 computers and a WiFi hot spot.

Our accommodations were fairly simple - a sleeping bag, a pillow, and a thin mattress pad. The tents didn't have floors, so sand quickly got into everything. Meals were served cafeteria style, but the facilities were over taxed and we usually had to wait in line for over an hour before we could eat. The porta-potties were neat and clean at first - out of toilet paper by the next day - and

How can I learn more about the Astronomical League?

By John Jardine Goss, Astronomical League Secretary

Amateur astronomers from across the country benefit from perusing the many pages of the Astronomical League's website, www.astroleague.org. Naturally, this is the place to go if you're looking for information about upcoming events and League news. But there is so much more...

Want to learn all about one of the great League observing programs? Go to www.astroleague.org/observing.html.

pretty rank by the time we left. The weather was warm during the day and at night it was chilly enough that the sleeping bags were needed. The camp quickly filled up as tour buses kept arriving and new tents were being put up almost continuously. Everyone was in good spirits. There wasn't a cloud in the sky and it was fun to wander around the camp and talk to other eclipse chasers from around the world.

The next day was eclipse day and most people got up early so that they could get breakfast and then begin to setup their equipment. Most of the camp had been set up as simple rows of tents so people moved just outside the camp to setup their equipment. Because of Fred Espenak, our group received special treatment. A large open area in the middle of the camp was surrounded by our tents and was effectively reserved for our private use. This was a great help for people like Fred who brought a great deal of equipment - they could set up close to their tent and not have to carry their gear a couple of hundred yards.

The weather was practically perfect - not a cloud in the sky, very little wind, and just a little bit of dust. First contact occurred just after 11 AM with the sun almost 60 degrees above the horizon. Totality arrived just before 12:30 and lasted for just over four minutes at our location. I thought that the "diamond ring" at second contact was spectacular and it seemed to last for ages. Venus was easily visible (even before totality) and so were Mercury and Mars. Many people saw shadow bands, but in the excitement, I forgot to look down, so I didn't see them. The corona was fairly uniform and there were several small prominences. And then all too soon, third contact arrived and totality was over.

I've frequently enjoyed watching people a few minutes after third contact. By then, the celebration has ended and many people start dismantling their equipment. It's always amazed me that the partial phases that were so exciting just a short time earlier are now virtually ignored. By 2PM, the eclipse was over and everything was back to normal.

Most of us spent the afternoon lounging around, visiting the Internet café, and just goofing off. Everyone was in high spirits - the eclipse had met everyone's expectations - it would have been difficult to have had a better day.

The next day, we packed up our bags and headed off to a small airport near Jalu for our chartered flight back to Tripoli. By early afternoon, we were back in our comfortable hotel with air conditioning, hot showers, and indoor "facilities". I'm sure that the Libyans spent several days dismantling the tent camps and by now, there's probably very little left to mark the place where thousands of people went to watch the eclipse.

And yes, we have been talking about the next eclipse. It's on August 1, 2008 and the current front runner for a viewing location is in Mongolia. Of course, I'm planning on going. ■

Do you know of a worthy candidate for one of the many League awards? Look at <http://www.astroleague.org/al/awards/awards.html>.

Are you interested in buying a particular book about our fascinating hobby? Then go to www.astroleague.org/al/bookserv/book-serv.html.

There is even something to help your club function better. Try www.astroleague.org/al/socaid/socaidid.html

Make the most of your Astronomical League membership! To find out more about what the Astronomical League offers you, why not log on to www.astroleague.org today? ■

Dark Sky Site Committee Update July 9, 2006

By Greg Haubrich

A brief recap of DSS Committee efforts to date:

A MAS survey was conducted to determine the MAS membership requirements and priorities for a new Dark Sky Observing Site.

A MAS press release indicating the MAS' intent to secure a new Dark Sky Site was given to, and subsequently published by several targeted local newspapers in Aitken, Carlton, and Pine Counties.

Three positive responses were received to potentially allow the MAS to use land for a Dark Sky Site. One was from a farmer near Kettle River who had some light pollution from the nearby Moose Lake Prison. The other two were from the Audubon Center west of Sandstone, and the Long Lake Conservation Center (LLCC) between Aitken and McGregor.

A meeting was held with the director's of both facilities on two separate occasions, along with a review of the facilities offerings for a DSS Observing Area. The Audubon Center's visit was detailed in last month's report.

The following is a detailed report of the LLCC visit:

Michael Burr and I met with Todd Roggencamp (LLCC Director), Mark Jacobs (Aitken County Land Commissioner), and Ross Wagner (County Forest Resource Business Development Manager, and our original contact), Thursday afternoon, June 1, for about 2.5 hours at LLCC between Aitken and McGregor (about a 125 mile drive from Champlin, and 2.25 hours drive time with light traffic). This site, as the crow flies, is about 100 miles from the center of the Twin Cities in the dark blue area of the light pollution map (the Blue area on the light pollution map is the lowest light pollution possible within a 3 hour drive of the Twin Cities).

The meeting went extremely well. LLCC Staff and the county representatives are very flexible toward meeting our Observing needs, and they do not expect consistent and frequent outreach support in return (one outreach event every other month seemed OK to them, and they realize that we are a volunteer organization without the ability for any hard and fast commitments). The LLCC staff can turn off almost all on-site lighting -which is numerous- when we are scheduled to Observe. They would only leave on some lighting near the lodging buildings when people/students were onsite. These lodges have full cutoff fixtures (with one exception on the "Energy Building") and are distanced/shielded by the proposed Observing area by significant pine and deciduous trees.

The Observing area is a medium sized open field with two parking lots nearby (both with lights that can be turned off). It has a view of the sky from 10 degrees above the horizon to the S, SE, and SW; with about 15 to 20 degrees above the horizon elsewhere. There are lights on the field which can be shut off (it's the orienteering course and playing field for the center, with a small shed and electrical access nearby via extension cords). While not an ideal horizon, it's significantly better than our Metcalf site's horizon view. The other somewhat negative issue is that a dirt/gravel road leading to about 15 lake cabins traverses two edges of the proposed Observing Field. However, Todd indicated that after 11 PM during the summer that this road is seldom used.

On the positive side, LLCC overnight accommodations (bunks, bathrooms, etc.) would probably be available for use as overnight/warming house/bathroom accommodations for MAS

members (i.e. two separate, multiple bunk, men's and women's bunkhouses/rooms).

The next step for the LLCC effort is to meet with the Aitken County Park Board (which governs the LLCC) the 3rd Monday in July at about 8:30 PM in the LLCC Dining Hall for a MAS DSS Presentation, and as a get acquainted session. Eventually, we also probably need to write some type of memorandum of understanding between the MAS and LLCC to make sure that we are all on the same page and to finalize relations.

Before signing on completely with the LLCC, we need to consider the Audubon, and get light meter readings there and determine it's acceptability vs. LLCC. The distance is much closer too. The MAS' willingness to perform Astronomy Outreach also needs to be assessed.

The discussed DSS options to date are not necessarily permanent options (i.e. if we can acquire donated land, for exclusive MAS use, we can either continue our relationships with other shared use facilities, or choose to drop them after an appropriate time). But we need to move forward with what's currently on the table. Additionally, the MAS would be expected to contribute some amount of Astronomy Outreach to the LLCC as part of this mutual agreement.

The LLCC is interested in any astronomy outreach that the MAS can provide to the 100 to 168 on-site 4-6 graders typically at the LLCC during the week. Jon Hickman, the MAS' Outreach Chair, is trying to get a read on MAS members interest in providing occasional outreach (2 to 3 times a summer total from the MAS?). Please email Jon, or Greg Haubrich (greghaubrich@comcast.net) if you are interested in performing this type of astronomy outreach.

Note that none of these potential DSS sites is ready for MAS General Membership usage yet. The DSS Committee is working hard to get us there however. Stay tuned!

Clear DARK Skies!

Greg Haubrich

DSS Committee Chairman

P.S. Here's a summary of Dark Sky Readings taken with a Unihedron Dark Sky Quality Meter (calibrated to NIST standards allegedly) during clear, no moon, conditions:

(note: all in units of "magnitude per square arcsecond")

CGO: 21.45, Baylor: 21.30, Metcalf: 20.10

LLCC: 21.74 (equivalent w/ lights turned off)

Audubon Center: T.B.D. (we still need a clear, moonless, weekend night to get out there!)

Okie-Tex Star Party: 21.68

Please check out the following article to gain an understanding of these measurements:

<http://www.rasc.ca/light/print/berry.htm>

In this reference, Richard Berry indicates that 21.7 mag/arcsec² is zero light pollution. The last 0.3 to 0.4 (from 21.4 to 21.7) makes a very large difference in the sky darkness - - i.e. the starlight is the primary source of light vs. the light pollution, so the reading does not drop off as quickly, but the noise/light pollution drop off which still improves the reading corresponding to darker sky between stars, making faint deep sky objects relatively much more contrasty. ■

Astronomy On (and Under) the Prairie - Part II:

By Glenn Lee

Minnesota Meteorites

Has a meteorite hit you today? Or did you perhaps just run into one while walking the dog or mowing the lawn? The odds are good that you have. Meteorites come in all sizes from the huge planet-killers to microscopic cosmic dust particles in the air around us. Consider, for openers, that the earth is bombarded by an estimated 30,000 tons of meteoritic material each year. No one really knows much about the geographic distribution, but that amount spread evenly over the surface of the earth amounts to about a third of a pound per square mile every year. And that means that our fair share in the Gopher State would be something on the order of 12.5 tons.

On a worldwide basis, most of our meteorites come in the form of tiny particles called micrometeorites that range in size from 50 to 500 microns in diameter. For comparison, human hair ranges in size from 40 to 120 microns, with blondes and redheads representing these two extremes. At the smaller end of the scale, micrometeorites simply sift down unobtrusively and end up in the soil, on your roof, or clogging the filter in your air conditioner. The ones with a small amount of iron tend to get concentrated by running water, and can actually be collected with a magnet and examined under a microscope.

In the popular view, meteors are those spectacular sights that briefly brighten the sky like extraterrestrial fireworks. Annual showers of these are big events and we've all been enraptured by their dramatic passage, seldom realizing that most of these particles are about the size of a grain of sand or a small pebble. The term "meteorite" properly applies to those bits of iron and stone that actually make it to the surface of the earth. Most meteors don't get that far, but for the ones that do, there's no end of interest. Meteorites are valuable objects. There are many collections in museums. You can even buy small meteorites on eBay, though let the buyer beware!

Prime collecting locations for meteorites are ice sheets and deserts. Minnesota doesn't have either of these features presently, but notable finds have occurred in our area. The best known recent find is the Anoka II meteorite. It came to light during a sewer line excavation in 1983. The finder, Al Stegora of Champlin, knew that it was a very unusual rock. It was about the size of a basketball and weighed 123 pounds. He lugged it to his back porch and there it sat for five years. And after that, it resided in his garage for another 7 years. But then, what is time to a meteorite? It had probably waited in the glacial till for several thousand years already, after drifting around in our solar system for unknown eons.

One day, at the urging of a friend, Al submitted the "rock" to Bob Pepin, a planetary scientist at the University of Minnesota, for identification. Pepin immediately determined that the object was a meteorite. Further analysis and investigation showed that it was solid iron, and probably represented an asteroidal core. Meteorites of this variety are extremely old, dating to the formation of our solar system about 5 billion years ago. In addition, Stegora's meteorite was chemically identical to a smaller meteorite found nearby in 1961. This earlier find was named "Anoka", hence the Anoka II moniker for Stegora's find. With two known pieces of a meteorite in hand, it's very likely that other Anoka fragments exist and are out there waiting to be found. As for the Anoka II, Stegora eventually sold it to a consortium of universities for \$38,000. Meteorite col-

lectors had offered more, but Stegora decided that the meteorite would be better off in the hands of science. A slice of it can be seen at the University of Minnesota.

The saga of Minnesota meteorites would be incomplete without mention of an enormous feature that has come to be known as the "Manson Structure". Technically, this meteorite crater is three counties south of the Iowa-Minnesota border, but one could argue that there is plenty of glory to go around in connection with this memorable find. It wasn't discovered until the early 1900's, when well drillers began to see unrecognizable rock formations in their drilling cores. Scientific investigators hypothesized in 1955 that the crater was volcanic in origin, but further evidence found in 1963 indicated that a meteorite was the true cause.

And what a meteorite it was! The now-buried crater measures over 23 miles across. Calculations based on geophysical evidence show that the Manson meteorite was a mile and a half in diameter and weighed close to ten billion tons. It hit the earth at a velocity of approximately 45,000 miles per hour, penetrated a mile into the crust, and released kinetic energy on the order of ten trillion tons of TNT. Most living organisms as far away as Denver and Chicago would have perished and everything in a 130-mile radius would have been instantly incinerated.

You can drive across the Manson Structure today and see nothing but cornfields and contented cows. The 74 million intervening years have erased all surface evidence of this mighty meteorite. Over the span of its existence, our Earth has absorbed many such blows, some far larger. At the next star party, take a moment to look down at the ground beneath you and ponder the hidden astronomical mysteries within. ■

Duke Skywatcher



Time-Compression Theory and the Dregs of Memory: Looking Back to TCAC

By Carl Harstad

What I'm about to tell you, as best I can, is what it was like to be a member of what was then named the Twin Cities Astronomy Club (TCAC) in the early days, circa 1970's. I will also recall some details of the key events in the Society's early history, events that have been related in previous articles that may not have included these tidbits of information I recall. If I recall them incorrectly, please speak up.

I came on board the club in 1973. TCAC had started the previous year, as other articles in this publication have documented. I started writing for Gemini shortly afterward.

Looking back I see that 33 years have flashed by but it seems much more recently that I joined. For younger persons who are looking ahead, 33 years probably seems like forever. Either Albert Einstein or your grandmother probably explained the time-compression phenomena regarding previous time versus future time.

The club was much smaller in the early 1970's, about 40 members, half of whom were students. Perhaps two dozen members showed up for meetings at the auditorium of the old Science Museum of Minnesota. Most of the members knew each other. Several worked for 3M, including Jim Fox and Andrew Fraser. They had been members of the predecessor of TCAC, the 3M Astronomy Club. I wish I had a list of all the old members, because some of their names have now faded in my memory, although I remember them well and could eventually dredge up their names from my subconscious after years of disuse.

One name everyone should know is Lauren Nelson. To my knowledge, he has served as director of the Society's programs since it's founding in 1972, 34 years of service. He deserves something for that, a gold telescope maybe?

In those days, we didn't have any observatories. We only had the Metcalf Nature Center as an observing site, starting in about 1974. Many members had trouble finding it in the dark the first time and difficulty navigating the tricky driveway. Initially, we had a lot of mosquitoes and nothing else there except our personal 'scopes. We used to pass around cookies during star parties, and sometimes Andy Fraser would share the contents of his flask with me.

We gradually made improvements to the Metcalf site: electricity, an outhouse and fixed piers for telescopes.

I remember conducting a long interview with Father Metcalf, who had donated the property for the Metcalf Nature Center. He lived in a house a short distance down the road from the Nature Center gate.

We were concerned that encroaching development along the I-94 corridor would increase the light pollution to unacceptable levels within just a few years. Interest in a relatively dark-sky site began to build not long after the club was founded.

In February 1979, the club hired a bus to take members to the total solar eclipse in Minot, ND. On the way there, we encountered a blizzard. At one point, we stopped to push an ambulance out of a ditch. We had little hope of seeing anything, but amazingly, the next morning the sky was clear. We had perfect viewing conditions for the event, except that it was a bit frosty.

Also, about that time or in the early 1980's, I recall attending two North Central Regional Conventions of the Astronomical League. One was at Fermi National Accelerator Laboratory (Fermilab) in Batavia, IL, near Chicago. The other was in Peoria, IL. At the latter, I had the privilege of meeting and talking to Clyde Tombaugh, the discoverer of Pluto. He was already elderly at that time, but he lived until 1997, dying at about age 91. I have an autographed copy of his book about the discovery, "Out of the Darkness."

I see from the North Central League web site that our member Jim Fox, a founder of TCAC, is secretary-treasurer of the North Central Region.

About 1980 or so, we had an opportunity to purchase the telescope of the University of Minnesota - Duluth, a 16-inch Group 128 Cassegrain. We had many meetings to discuss this purchase, where to put the telescope and how to finance it. Most of the meetings were held at the home of one or another of the members. The critical event was a loan to purchase the telescope from the father of member Bill Larson. Larson moved to Nyon, Switzerland years ago, where he still teaches mathematics.

According to Larson, he came up with the name Gemini for the newsletter and, about five years later, he suggested changing the name of the organization to the Minnesota Astronomical Society. Unfortunately, we had no place to put the telescope, so it ended up on a member's garage. It was rolled out by small groups of members and used occasionally. Those members discovered it needed some work.

The search for a dark-sky observing site intensified. We eventually purchased tax-forfeited property, a corner in Goodhue County that had once been a school ground but had become a dump. I started referring to the site as Cherry Grove Observatory, because it was in Cherry Grove Township and had been the site of Cherry Grove School. The name stuck.

Many members participated in cleaning up that property, digging old car parts, jars, tin cans, wire, etc. that had been underground for years. We had some concerns about possible toxins in the soil, but we never established that any were present. After some initial cleanup, we brought in a bulldozer to help us finish digging up the remaining junk and re-leveling the site.

Unfortunately, we had to have three or four very old, giant white oak trees that lined the southern border of the property cut down in order to clear the view in that direction. Eventually, we were ready to move two buildings from the former 3M observing site to the property. I dug the hole for the outhouse and built it, so if it has collapsed or someone has fallen into the hole, it's entirely my fault.

We would have liked to purchase the woods immediately to the north of the property, where the schoolhouse had once been, but the owner wanted an exorbitant price for it. There was some confusion, because initially we thought those woods were part of the parcel MAS had purchased, but the owner later disputed the location of the property line.

Rather than move the Group 128 telescope to the Cherry Grove site, we installed a 16-inch telescope made by Macalester College astronomy professor Sherman Shultz. Shultz had tutored about a dozen MAS members, including me, for a mirror-making class at the Science Museum. I still have the 8-inch, f/5.2 RFT I made during that class.

In 1980, TCAC was renamed the Minnesota Astronomical Society, a name that announced the lofty ambition of being the club for the entire state, even though we thought there was an astronomy club in St. Cloud and maybe one in Duluth also.

During the 1970's and early 1980's, MAS had a close relationship with E & W Optical Company of St. Paul, which was located on East Hennepin Avenue. The "W" in E & W was Harold Watson, who refigured our optics as necessary and aluminized our mirrors. I had Harold touch up the figuring of the primary mirror on my 8-inch, because I wasn't satisfied with it; consequently, I have a very fine mirror to this day, although it badly needs recoating after many years since it was last aluminized. E & W Optical was a place to pick up accessories or to just stop by and chat with Harold and the others there.

Sadly, Harold Watson died. I attended his funeral at the Unitarian Church in Kenwood, by the old Guthrie Theater.

In 1981, MAS hosted the North Central Regional Convention of the Astronomical League. I was president of the Society at that time. The hard work of many key members made that event successful. Mostly, I stayed out of their way. "Hire (or in this case, recruit) good people and get out of their way" is a rule of management.

I don't know that the MAS has hosted that convention since then. I'm out of touch with MAS, because I live and teach in Beijing, China, although I plan to move back to Minnesota in August of this year.

Years passed, and we still needed a home for the Group 128 'scope. The critical event was an Onan Foundation grant for \$20,000. MAS Observatory Committee (MASOC) member, Mary Williams, arranged the grant in memory of her first amateur astronomy teachers, Charles W. and Elizabeth H. Onan.

The MASOC agonized through multiple roof and structural designs, visited the Hull Observatory in Eau Claire and tested observing sites. There was a long search for a place to build an observatory, including an aborted attempt to build it near Marine on St. Croix at Wilder Forest, near Stillwater. Eventually, MASOC returned to its original plan to build at Baylor Regional Park. Mike Kibat, as President of MAS, encouraged members of the club to begin construction of Onan Observatory.

During that time, I was managing editor of a newspaper in Lindstrom, MN and, subsequently, I was busy starting and operating an IT consulting business. I did not have adequate opportunity to get involved in constructing the Onan Observatory due to those commitments, but I knew the project was in good hands with members like Mike Kibat and John Treadwell involved in it.

I've assumed a background role in the organization, supplying funding at times for special projects and dispensing advice to long-time friends in the organization. I missed looking through my 'scope at Messier objects, but I didn't miss the mosquitoes or the hangover from staying up until dawn. Despite that, I hope to attend some upcoming star parties so I can check out the status of the two observatories and the latest members' 'scopes. I might even view a few deep-sky objects. I assume they're still visible in the night sky.

I was fortunate to be a MAS member during the interesting era when the organization was rapidly growing in membership, getting its act together and adding observing sites and observatories. Those were interesting times. I'm sure that new projects, new challenges and new programs will hold the attention of today's MAS members. Today's projects and events will all too soon be "the good old days" for the new generation that is gradually replacing us old-timers from the Stone Age of the organization. ■

MAS Photo Page

By David Siskind

M81



M104





M51



M101



M106



M109

2006 Messier Marathon and Virgo Venture Report

Bill Kocken, Observing Chair

This is a sad tale, with a happy ending. Due to the timing of the new moon, we were lucky this year to have 2 good weekends to do an all night Messier Marathon. This is the only time of the year when we can observe 109 of the 110 Messier objects in a single night. This is a dusk-to-dawn event that kicks off the observing season in a big way for amateur astronomers.

I nervously checked the Clear Sky Clock and weather websites from work on Friday, March 24 and the messages were mixed. A clearing late in afternoon had me hopeful but in the end the clouds won out and we cancelled. The Clock was more promising for Saturday, so undaunted by clouds around the cities, we declared the party "on." Bad move! Apparently the clock is less reliable at detecting low level cloud cover. About half a dozen hopeful marathoners showed up. We sat in the warming house and chatted, and chatted and chatted. The promised clearing never came and we all went home.

But hey, this year we had 2 more chances the following weekend. I was to be out of town so Steve Emert volunteered to run the show. I had hoped my sacrificial vacation to Hawaii would draw the clouds away, but it was not to be. The Marathon was clouded out for that weekend, too.

One month later, the club takes the opportunity to do some spring galaxy gazing in the Virgo Venture (VV). As far as I can tell, we are the ONLY club to offer this event. The goal of the VV is to provide a non-intimidating chance to work through the Virgo Cluster of galaxies. We provided a very nice Virgo cluster map that Greg Haubrich developed. During the full Marathon, the Virgo cluster is usually attempted sometime around midnight, after the cold has seeped into our bones and brains. It can be a frustrating experience. But during the VV, the constellation arrives into good viewing position earlier and the weather is usually warmer. To add a little level of competition, I added the Virgo Bingo option. All of the Messier Virgo cluster galaxies and a few other objects were placed on a Bingo-style card. M45 is the free space. 1st prize is awarded to the astronomer who first completes the cover-all. Second prize goes to the 1st "Bingo" and we have a door prize, just for showing up.

April 21 was clouded out but at last, Saturday April 22 looked promising. The Clear Sky clock predicted good conditions after

9PM until about 1AM. Scared off by the lateness of the predicted clearing, we had a rather sparse turnout of 8 eager astronomers. But we more than made up for it with high quality fun.

Vic Heiner had the 16"CGO going and we made very good use of the 24" Starmaster. Others included a nice 100MM Orion APO, a 5" newt and 6,8 and 10" dobs mostly. We had no clouds, decent transparency and a heavy load of dew for most of the evening. Seeing was average, for MN. We easily saw the Casini division in Saturn and the great pale spot on Jupiter was detected. We saw the comet, 73P/Schwassmann-Wachmann 3, and one of the fragments. After the competition ended we used the BAD to track down some planetary nebulae that aren't featured on most star party menus.

Then there was the competition. Everyone was working on identical Virgo Bingo cards so the final race came down to who would find M83 or be the first to spot M56. M83 is also called the Southern Pinwheel. It is supposed to be one of the most luminous galaxies known, but from Minnesota it appears low on the horizon. Just spotting it at all is an accomplishment. Most of us did eventually find it, but all agreed that for all the hype, it wasn't much to look at. M56 is a globular cluster in Lyra. It's not very hard to find, but it was the last object to rise on the Bingo Card.

The Grand prize for being the first to complete all 25 objects on the Virgo Bingo card, including the difficult M83 and catching M56 when it was barely above the horizon was Jason Goltz. Just to prove that aperture doesn't always rule, Jason used his home built and hand ground 6" f8.7 DOB. Way to go! He won a copy of a very nice book called "Stars and Galaxies", donated by Radio City. Second prize, for getting the first "Virgo" on the Virgo Bingo card went to David Smith. He won a book, "8 Easy Observing Projects", although I think David is well beyond the beginner level!

The door prize went to Joan Heiner. She won an optics cleaning kit.

Our next club special observing event is the Fall Mini-Messier Marathon. (4M) on Sept. 22. We'll be doing Messier Bingo again and having a good time. Last year's 4M was a huge success, with over 20 eager astronomers attending. ■



Star Party of the South Pacific

By Gene Kremer

The bargain airfare by Air Tahiti Nui was just too good to pass up. It got me back to the Star Party of the South Pacific in Australia hosted by the Astronomical Society of New South Wales (ASNSW). Memories of drop-dead beautiful skies and good folks helped, too.

I arrived at Wiruna a bit jet-lagged, but in good shape, in time to hear the opening remarks by President Mike Kerr on Friday afternoon. Wiruna is the main dark sky site of the ASNSW located several hours northwest of Sydney, a beautiful drive through the Blue Mountains. The first speaker was Anne Adkins, co-organizer of the Texas Star Party, who gave a wonderful presentation on that event. Thanks largely to Tony Buckley of ASNSW, there is a continuing relationship between the TSP and the ASNSW. I was surprised during her presentation to see a smiling picture of myself at TSP in 2001!

Late afternoon allowed for joining a tent site group discussion. Astro-humor seems international; both groaners and dry wit prevail. Right here in wine country, the club is able to label and sell a variety of local vintages. I enjoyed; I especially liked the Star Port.

Anne, Tony Buckley, and others were avid guides in star tours that evening with their very respectable club scopes. I didn't need to bring one along this time. Dave Kriege is a frequent visitor and Obsessions are well represented, outnumbered quite a bit by homemade scopes. There is an ATM event each year. I was able to bag one of the three objects needed to complete my Caldwell list, IC 2391 in Vela, a bright, binocular open cluster that I would certainly have seen before if it weren't in all that southern Milky Way traffic.

Saturday was filled with educational programs and meeting people. The vendor session was disappointing only in that I have limited cash and space to bring things back. The maker of the Argo Navis system is a local astronomer, and he and his wife are stellar people, pun intended. If you have lurked in the Yahoo group amastro, you would likely recognize the depth of Les Dalrymple's talk on his research into the Centaurus and similar galaxy clusters. Very impressive. Lesa Moore, an astronomy graduate student, described her scheduled time at Mauna Kea and how the experience there is a fitness and acclimation test. Later in the afternoon, the awards were well earned, especially astro-imaging.

grounds found several celebrations going on, including what might pass for a costume party. Top that off with the "Spit Dinner" of excellently open-cooked beef and sides (thanks Adrian and Lachlan).

Time for a quick nap and back out for more wandering around to find out what everyone is looking at and through. Captured a few more objects for the list, as well as a lot of information and exchange of cards/email addresses. I've asked a couple of times about some kind of MAS pin or inexpensive object to trade or hand out at such events, but to no avail, yet. All in all, a great day! And the weather was clement both nights! How did that happen?

I left early the next morning on another adventure in northern New South Wales, but was pleased to get the goodbye comment from one ASNSW member that "You fit right in!" which in my estimation is a high complement.

So, I have an invitation to come back, and maybe join an adjacent (in time) trip to Coonabarabran next year. How am I going to rationalize this one? 🐼



Observing Field With Blue Mnts



Camping



Ammenities

Under Libyan Skies

By Todd Burlet

Pea soup fog? You've got to be kidding! Come on, it's a desert - where are they going to get enough moisture from? Oh yeah - chilly nighttime desert air plus moist air from the Mediterranean equals fog. That's the first thought that ran through my head as I looked out our porthole early on the morning of March 29th, eclipse day. We were docked in the Libyan port city of Tobruk, and were soon to board buses for the drive to our observing site south of Tobruk.



The adventure started in November of 2005, when we signed up at the 'last minute' with TravelQuest. We had been toying with the idea of an eclipse trip for several months, but had been sitting on the fence because of a certain degree of concern about traveling to the Middle East and North Africa. Given the sporadic terrorist attacks on tour groups in Egypt (one of the stops on the itinerary), and the still cool relationship between the United States and the Khadafi regime in Libya, there was a certain degree of apprehension on our part. After some study we concluded that the risks were low, and we got off the fence and onto the cruise.

Our cruise ship, the MSC Sinfonia, departed from the Italian port of Genoa on March 22nd, and made stops in Naples to visit Pompeii, and Syracuse to visit the ruins at Taormina. After leaving Syracuse we turned east and sailed to the Egyptian port of Alexandria for a day-trip to see the pyramids and the Sphinx. The sites were remarkable, but the experience was marred by the constant onslaught of very aggressive merchants hawking their wares. Minnesota Mosquitoes could take lessons from these folks.

The folks at TravelQuest and Sky and Telescope put together a first-rate series of talks that were presented throughout the cruise. Presenters included Sky and Telescope Editor in Chief Rick Fienberg, Sky and Telescope contributor Alan Dyer, Adler Planetarium president Paul H. Knappenberger Jr., and former NASA astronomer Stephen P. Maran, and Griffith Observatory director Ed C. Krupp.

After Alexandria we headed west along the northern coast of Africa, and reached the Libyan port city of Tobruk on the after-

noon of the 28th. Tobruk is just starting to open up to western tourists, as a result of the recent rapprochement between its government and the West. This was the first time that the MSC cruise line had docked in Tobruk, and it was reportedly the largest cruise ship to ever dock in Tobruk (though the ship is only of average size, with 11 decks and approximately 3,000 passengers). Judging from the reception we received, it was something of an event for the Libyans. We were met several miles from the port by a port vessel that continually circled us as we sailed into the port (doubtless a security contingent, not the welcome wagon). When we arrived there was a large contingent of officials on the pier to greet the ship and present the Captain with a spray of flowers. Local residents were lined up on the hills leading down to the port, watching us dock, and a group of Girl Scouts came down to serenade the ship.

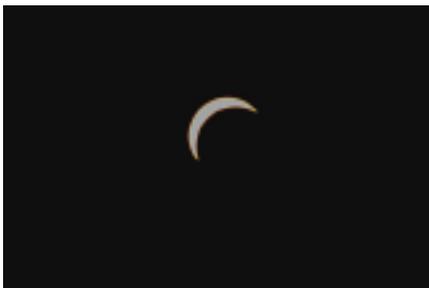
Most passengers spent the night on the ship, but a small contingent, including Sky and Telescope editor Rick Fienberg had made arrangements to spend the night in the Libyan desert, with hopes of doing some observing under very dark, clear desert skies. We learned later that, because of their concerns for the safety of the tourists, the Libyan authorities kept the encampment brightly lit throughout the night, spoiling any chances for observing.

The safety of the tourists was clearly an extremely high priority for the Libyans. As Rick Fienberg put it, being in Libya on eclipse day was probably one of the safest places to be on the entire planet. The Libyan government is hoping to develop a significant tourist industry, and they saw the eclipse as a golden opportunity to showcase their country. The last thing they wanted was for there to be any sort of incident that would mar their image. One of the security measures was for the buses to travel convoy-fashion through Tobruk and into the desert. At every intersection there was a sizable contingent of security personnel, and all other traffic was halted to let us pass unencumbered.

Okay, I can live with a 5 AM fog in the port, I can even live with a fog at 8AM as we pulled out of the port, but now its 9 AM, we're 45 miles south of the port, and the fog is so thick that the visibility is down to a few dozen yards. Just how long do these fogs last?? Finally, at 10 AM, with first contact less than an hour and a half away, the sun burned the fog away to reveal a cloudless blue sky. Whew!

As we approached the observing location, approximately 90 miles South of Tobruk on the road to Al Jaghub, there were a great number of local residents parked along and near the road, and it looked like we would have an opportunity to interact with them.

That was not to be the case, however. The buses turned off the road and drove about 2 miles east cross-country through the desert sand to an isolated encampment that was completely encircled by security vehicles. The security staff were constantly scanning the area with binoculars, looking for any approaching vehicles.



The encampment was occupied by approximately 5,000 eclipse chasers -the 3,000 from our group, plus contingents from several other tour groups. The equipment brought by the viewers ran the entire gamut from naked eye, to compact digital cameras, to telephoto lenses, to travel scopes to full-size telescopes. We arrived at the observing site around 10:30, and had plenty of time to resolve an international incident sparked by a shortage of chairs (don't ask), and those who needed to visit the restroom even had enough time to make it through the 1/4-mile long line to one of the three portable toilets. Three toilets for five thousand people -you just know that's not going to end well.

The Libyan broadcasting company was on-site to capture the event live, and there was also a public address system that broadcast the brief interviews between the tourists and a roving host. A group of approximately 50 Libyan Boy Scouts arrived by bus and provided entertainment by singing, chanting, and dancing for a half-hour, before breaking up into pairs and roaming through the crowd to meet the tourists and serve as goodwill ambassadors. It was interesting to see that they wore the international scouting patch -a white fleur-de-lis on a blue background -on their uniforms. This is the same patch that Boy Scouts across the United States wear, and it was a remarkable link between cultures.

A few minutes before first contact an announcement was made on the PA system, stating that the eclipse was underway at the observing site in Southern Libya -this resulted in a cheer going up from the crowd. The sky was utterly cloudless, the temperature was in the upper 80's or lower 90's, the breeze was light, the sun was 58 degrees high in the sky, and we knew we had come to the right place. First contact was at 09:17 UT (11:17 AM local time), with the first nick from the sun appearing at the 4 o'clock position on the solar disk.

That event was marked by cheers and the sounds of 5,000 camera shutters, and then we all settled in to enjoy the slow 78-minute march toward 2nd contact. Our kids had prepared eclipse messages by punching holes in sheets of paper to spell out words and create line art, an idea they got from Paul Knappenberger's talk, and we passed the time by observing how the solar images created by sunlight passing through the holes turned into thinner and thinner crescents. We also prepared for the shadow bands by splitting open a white plastic trash bag and laying it on the sand to provide a bright backdrop for the bands.

Just before 2nd contact there was some unexpected excitement on the ground. A group of vehicles crested the rise to our West, and with lights flashing and horns blowing they came driving toward our viewing area. While these may have been nothing more than



enthusiastic locals excited by the approaching totality, the security contingent wasn't taking any chances. The security forces converged, intercepted, and promptly encircled the vehicles, halting their advance.

With the situation contained, our attention quickly returned to the nearly covered sun. About 30 seconds before totality the shadow bands appeared, moving from southwest to northeast. The transition from crescent to Bailey's beads to diamond ring seemed unusually rapid, with only a couple of beads being briefly visible. As the diamond ring faded into totality we were greeted by a very extensive solar corona that could easily be traced 4 or more solar radii from the edge of the disk -very unexpected, given that we're near solar minimum.

So began the shortest 4 minutes of our lives. So much to do and so little time to do it: take note of the 360 degrees of sunset coloration around the entire horizon; notice how the temperature is dropping (especially dramatic due to the desert environment); listen to the cheers from the crowd; take the filters off the cameras and take your pre-planned sequence of exposures; find the planets Mercury, Venus, and Mars in the sky; and, most importantly, take the time to simply look up and enjoy the view.

Then it's everything in reverse -filters back on, diamond ring, bailey's beads, shadow bands, play with eclipse art, and wait for 4th contact. After the 'big show' of totality was over it was amazing how many people packed up and left while the sun was still a thin crescent. By the time of 4th contact there were only a few die-hards left. Although first contact had been at the 4 o'clock position on the solar disk, 4th contact was at the 12 o'clock position, because the earth had rotated during the eclipse, making the straight path of the moon across the sun into an apparent arc.

On our return to Tobruk we were treated to an extra bonus -a stop at the war cemetery on the outskirts of the city. The war stories about Tobruk most often focus on the story of the Australian garrison that held out for several months against Rommel's Afrika Corp, or the combined Anglo-American army that fought Rommel back and forth across North Africa, so I was surprised to find the graves not only of Australian, British, and American troops, but also French, Greek, and Polish troops. Although their countries had fallen to the axis powers, their troops were still playing an active part in the war.

That evening the ship set sail for Tripoli, and Alan Dyer took on the daunting task of collecting digital photos and video of the eclipse from anyone who wanted to share them. By 2:00 the next afternoon he had pieced together a wonderful presentation that played to standing-room-only crowds anxious to relive and share

their experiences.

In Tripoli we took a tour of Leptis Magna, one of the three ancient cities that gave Tripoli (tri-polis, or three cities) its name. While Pompeii gets a lot of press because of the way the city was destroyed and the high degree of detail that was preserved, it was, after all, only a provincial town. Leptis Magna, on the other hand, was a major city, and that is reflected in its ruins. Leptis Magna is relatively unknown in the west, because of the isolation of Libya, but its ruins are generally agreed to be the best-preserved Roman ruins outside of Italy - they're even recognized as a World Heritage Site by the United Nations. If you have any interest in traveling to that part of the world I highly recommend adding it to your agenda. 📌



Observing Site



Pinhole
David
and
Rachel



Family
and
Extended Family



Libyan Boy Scouts



Sphinx

2006 Star Parties

Star parties are held on Friday if weather permits, otherwise they are rescheduled for Saturday.

Call the MAS hotline at 952-467-2426 after 5 p.m. (3 p.m. in the winter) to hear a message about the status for that night.

Public stargazing nights at Onan Observatory at Baylor Regional Park are staffed and held whether it is clear or cloudy.

Date	Alternate or Time	Event	Location
8/4/06	8/5/06	Metcalf star party	Metcalf Nature Center
8/4/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
8/5/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
8/18/06	8/19/06	Baylor star party	Baylor Regional Park (Onan Observatory)
8/25/06	8/26/06	Cherry Grove star party	Cherry Grove Observatory
9/1/06	9/2/06	Metcalf star party	Metcalf Nature Center
9/15/06	9/16/06	Baylor star party	Baylor Regional Park (Onan Observatory)
9/22/06	9/23/06	MAS Mini Messier Marathon (4M)	Cherry Grove Observatory
9/22/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
9/23/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
9/29/06	9/30/06	Metcalf star party	Metcalf Nature Center
9/29/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
9/30/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
10/13/06	10/14/06	Metcalf star party	Metcalf Nature Center
10/13/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
10/14/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
10/20/06	10/21/06	Cherry Grove star party	Cherry Grove Observatory
10/20/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
10/21/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
10/27/06	10/28/06	Baylor star party	Baylor Regional Park (Onan Observatory)
11/10/06	11/11/06	Metcalf star party	Metcalf Nature Center
11/17/06	11/18/06	Cherry Grove star party	Cherry Grove Observatory
11/17/06	7:00 pm - 10:00 pm	Onan Observatory.	Fair or foul weather event Leonid Meteor Shower
11/18/06	7:00 pm - 10:00 pm	Public Stargazing at Onan	Onan Observatory. Fair or foul weather event
11/24/06	11/25/06	Baylor star party	Baylor Regional Park (Onan Observatory)
12/8/06	12/9/06	Metcalf star party	Metcalf Nature Center
12/15/06	12/16/06	Baylor star party	Baylor Regional Park (Onan Observatory)
12/22/06	12/23/06	Cherry Grove star party	Cherry Grove Observatory

Directions to the Star Party Locations

For maps and further details about the sites, please go to our website at www.mnastro.org/facilities. You can also check the MAS online calendar at www.mnastro.org for a complete schedule of all MAS events.

Baylor Regional Park

To reach Baylor Regional Park, head west on Minnesota Highway 5, through Chanhassen and Waconia, to the town of Norwood-Young America. Turn right onto Carver County Road 33 and continue approximately two miles north. Baylor Regional Park is on the right side of the road, marked with a prominent sign. When entering the park, stay to the right and follow the road approx. 1/4 mile.

For an alternate route from the southern suburbs, take U.S. Highway 212 west to Norwood-Young America. Turn right at the second traffic light onto Carver County Road 33. Continue two miles north to the park entrance.

When visiting the Baylor Regional Park, MAS members are requested NOT TO PARK OR DRIVE on the grass. There is a parking lot just past the observatory.

Cherry Grove

Cherry Grove is located south of the Twin Cities, in Goodhue County, about 20 miles south of Cannon Falls. To reach Cherry Grove, head south on Highway 52. On 52 about six miles south of Cannon Falls, and just past the Edgewood Inn, is a large green highway sign for Goodhue County Rd. 1 "WEST". Turn right, and follow County 1 straight south for about sixteen miles until you arrive at a "T" intersection with County A. The observatory is immediately at your right, nestled in the shoulder of the "T". Parking is permitted on the site, or along the road, preferably County A.

Metcalf

To reach Metcalf, head east from St. Paul along Hwy. 94. About four miles east of the I-694 / I-494 crossing is Minnesota State Highway 95, also known as Manning Avenue (exit 253). Turn south (right turn) and then almost immediately turn left onto the frontage road (Hudson Road S). Continue east on the frontage road for about one and one-half miles. Turn right onto Indian Trail, checking the odometer as you turn. Follow Indian Trail south for just about one and one-tenth miles, where you'll see an unmarked chain-link gate on the right, opening onto a dirt driveway with slight up-slope. This is the entrance to Metcalf.



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How to pay your dues

Your MAS membership expires at the beginning of the month shown on your Gemini mailing label. Send your payments to the MAS Membership Coordinator at: Minnesota Astronomical Society, Attn: Membership Coordinator, P.O. Box 14931, Minneapolis, MN 55414. Make checks payable to MAS or you can pay by PayPal on the MAS web page. The current annual membership dues and subscription fees are: \$24 for regular memberships (\$56.95 including a Sky and Telescope subscription discounted to the annual member subscription rate of \$32.95), \$60 for patron memberships (\$92.95 including Sky and Telescope subscription) and \$12 for student memberships (\$44.95 including Sky and Telescope subscription).

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 \$32.95) to the MAS Membership Coordinator at: Minnesota Astronomical Society, Attn: Membership Coordinator, P.O. Box 14931, Minneapolis, MN 55414. Make your check payable to MAS. If desired, you may renew your MAS membership at the same time, and write one check to cover both payments.

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

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

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