

Gemini

a publication of the Minnesota Astronomical Society



<http://www.mnastro.org>

**August/
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My Little Observatory Project

Matthew T. Russell

The Baker Observatory sets at an elevation of 7,425 feet at the Shooting Star Ranch in Black Forest, Colorado.

This has been work in progress for the last several years with countless hours of planning and re-planning. Finally, it has become reality!

Looking back, I can't believe the sleep I've lost over this project. There were countless nights of tossing and turning while the "what-ifs" and "what-about-this" scenarios spun through my head. On the bright side, it helped pass the time (on multiple occasions) while driving through Nebraska.

I found this project so fascinating because it is such a simple design, but at the same time very complex.

To begin with, many of you may wonder how I came up with the observatory name? The name, Baker, is my grandmother's last name. I was born on July 22, 1969, two days after the first moon landing. She's never let me forget that, and I think it's one of reasons why I've been interested in space my whole life. Third, she is a firm believer that one must follow his/her dreams, no matter how far it may take you away from home. She's been a true inspiration, and I felt the name was appropriate.

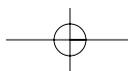
In the following text, I will outline the steps that I took to make my observatory a reality. If you are planning such a project, I hope it helps your thought process.



by Matthew T. Russell

The Baker Observatory sets at an elevation of 7,425 feet at the Shooting Star Ranch in Black Forest, Colorado.

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MAS UPDATE *Compiled by Doug Brown*

Mini Messier Marathon

There will be a Mini Messier Marathon Sept. 26 or 27 at Cherry Grove due to popular demand (however, I am looking for someone else to run it in combination with the Messier 5K Bingo which will also be going on that night). I will help prepare someone to lead this - forms, prizes, etc. I'd do it myself, but I'm planning on going to the Oki-Tex star party on that date. Over 95 Messier Objects will be visible (and it should be above freezing!).

Mars!

See it now, or wait another 50,000 years for it to get this close again! (or wait two years for it to be almost as close).

The NEW A.L. League Observing Program

Comet Observers Club. Observe and Log 12 Comets for Silver Level, and Log 30 Comets for Gold Level Certificates! You may use only two Observations prior to 2003 for this award.

Member Poll

Anyone on the board want to go over the results of the member poll? Who has the member surveys now? I had given them to Patti for her to summarize. Did she forward them on to anyone else? For some reason I thought she sent them onto Michael. I'd be willing to do the writeup for the Gemini, but I don't want to appear to be giving just my slant on things. I'd also be willing to spend a couple hours some night to talk about the results and put together a story I can tell to the membership via the Gemini. Who would like to join me?

ATM

The ATM list has had some interesting postings. -Russ Durkee purchased and is now refurbishing the Solafide 10" refractor: www2.bitstream.net/~rdukee/bigrefractor Russ has also gotten a registration number for his observatory. He is making asteroid observations.-Michael Burr is still on track to make his 16" binocular scope (yes, that's TWO 16" scopes side by side).-Carl Anderson is making a Yolo type scope: <http://hometown.aol.com/stressedglass/index.html>-Mark Peterson is still grinding his 10" f/7 mirror.

The Big Dob group

The Big Dob group is looking at ways to raise more money. They could use some ideas.

Patron Members

MAS offers a patron membership to those who want to help support our activities by paying \$50 rather than the regular annual membership fee of \$20. We would like to thank the following patron members as of May 15, 2003

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GEMINI INFO

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Send all MAS membership dues, change of address cards, subscriptions, and renewals to the current MAS treasurer. Subscriptions alone cost \$4.50 annually for members of astronomy clubs or \$9.00 for other persons. Materials for Gemini are due on the 1st of the month preceding the month of publication.

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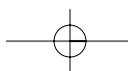
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Stage 1: Setting Goals & Determining Your Needs

My main goal was to build an observatory that was completely suitable for CCD imaging and remote operation. In my brief CCD life, I've found that equipment comes and goes very quickly, therefore, my design had to include expansion capabilities for the future.

It took me a while to come up with this list, but eventually it was completed.

- **Permanent.** My equipment now weighs in excess of 250 pounds and takes an average of 3 hours a night to setup and tear down. I wanted something that could be turned on at the flip of a switch.
- **Protection from the elements.** Colorado can have heavy snows, strong winds, and extremely hot days. No matter what the condition, I wanted to make sure my equipment was protected.
- **Cool internal temperature.** Stable and cool temperatures are very important to CCD imaging. It was important to me that the structure remained close to the ambient outside air temperature to minimize cool-down time.
- **Isolated pier.** With CCD imaging, it is very important that I had some sort of pier that was completely isolated from the rest of the structure, thus, ensuring a stable and firm platform for those long exposure runs.
- **Ample room for growth.** Because my equipment changes quite



by Matthew T. Russell

3D Drawing

frequently, I wanted to make sure I could have some flexibility with the design to accommodate for larger or smaller instruments.

- **Remote operation.** My house is approximately 450 feet from the observatory; plus I like to spend summers at our cabin in Cross Lake, MN. It was absolutely necessary to control this telescope from anywhere in the world.
- **Electrical organization.** I wanted to make sure I wouldn't be tripping on power cords once my observing session started. The biggest bummer is when you are just about done with an imaging run, and you accidentally trip on a power cord, and the cord comes flying out from the socket.
- **Low heat retention.** Anything that retained heat and released it slowly throughout the night was off limits. Cement slabs, rocks, stucco and tar roof shingles were all left out for good reasons.
- **10 degrees from southern horizon.** Visibility higher than 10 degrees was important. Being that low in the sky for CCD imaging is far from optimal, but there are just too many gems in the southern sky to pass up.

Once I came up with this list, it was evident to me that for my needs a



by Matthew T. Russell

View facing Southwest. Wall construction is complete. The Dome Base Ring has been installed. The dome itself rotates on this piece

fiberglass dome structure was the best solution. I decided on a 10-foot Home Dome by Technical Innovations (<http://www.homedome.com>) and Digital DomeWorks, a software program that completely automates dome control. I researched many different dome manufacturers, and based on the reputation of this company, I felt I couldn't go wrong.

Stage 2: Conceptual Design

Now that my goals were defined, I had numerous ideas and visualizations of what I wanted to build. The first place I started was a free book by Technical Innovations (<http://www.homedome.com>) called "At Home in a Dome". It talks about everything you've ever wanted to know about building a home observatory. Another excellent resource is the Amateur Astronomical Observatories (<http://www.seds.org/billa/obs/obslist.html>) page maintained by Bill Arnett. There are examples of hundreds of observatory designs such as domes, roll-off roofs and custom structures.

Stage 3: Knowing Your Limitations

One thing I came to terms with is the fact that I am not very good at building things, unless the pieces are already there and cut out. You know, like a plastic model. Therefore, I had my builder, Len Anderson, build the structure. I wanted to make sure this building was done right, otherwise the whole effort would have been a waste of time and of course...money.

If you're going to have someone else build your observatory, you also must realize that the builder may have some limitations as well. Hopefully, these aren't structural (if they are, find another builder), but not understanding some standard observatory concepts. For example, our builder felt that a 12 inch isolated pier would suit my needs just fine. It ended up being 24x24 inches thick with a base of 36x36x36 square.

He also felt that pouring a cement slab would be more advantageous than building a deck structure. I quickly outlined why that wasn't a good idea. I desired something that didn't oscillate or create vibrations if someone was walking on it. I also didn't want a cement pad because cement releases heat slowly throughout the night and could have an adverse effect on seeing conditions.

I made sure my plans were drawn out to the best of my ability. Simple things for astronomers, like finding True North can be a little challenging for someone who doesn't know the hobby. Obviously, to mess up your pier alignment with True North could be a challenging obstacle to overcome. Because I wasn't in town when the pier was actually



by Matthew T. Russell

View facing South.

poured, I provided my builder with a compass and instructions on how to align to True North. It paid off; he got it exactly right.

For those who are interested in seeing the actual plans I created for my builder, visit the following web address: <http://www.telescopes.cc/bakerobsplans.htm>

Stage 4: Finding the Location

Our land in Colorado is 40 acres, but believe it or not, finding a good location was probably one of the harder tasks. Prior to its final location, I came up with at least 10 different sites. Some were close to the house - some were on the complete opposite side of the property. Some were on high ground - some on low. Some were in treeless areas - some were not. Dilemmas...dilemmas...dilemmas.

I decided there were four main issues that were confronting me, each of which is listed below:

- **Power.** In several of my site selections, power would have been run approximately 1,000 feet from the main house. The longer the run, the more expensive.
- **Security.** The property and surrounding area is very safe, but it's always good to be cautious. The closer to the house, the better.
- **Connectivity.** Because I want to be able to operate this observatory remotely, from inside the house or from the



by Matthew T. Russell

View facing Southwest. My goal was to be able to view from 10 degrees above the horizon. To spare some trees, I built a mound for the observatory which stands approximately 5 feet tall. The cement pier's footing is below the actual ground level, prior to constructing the mound. The footing is 36x36x36 inches. As it arrives at the observatory floor, it is 24x24 inches square. All reinforced by steel rods.



by Matthew T. Russell

Caulking the seams in the dome to prevent water leakage.

Internet, network connectivity was an issue. 300 feet is the maximum distance with CAT5 cable without a signal repeater.

- **Environmental protection.** There are many trees on the property that have a trunk diameter of 3 feet. Obviously, I wanted to make sure I spared as many large and healthy trees as possible.

I settled on an area of high ground that lies approximately 450 feet from the main house. I have already tested a wireless network connection from the house to the observatory and it works just fine. It did require some signal boosters, but since it is pretty much line-of-site, it wasn't much of an issue.

The power line has been run, with a low-voltage line for a security system hookup. If need be, I can add additional wires through a PVC pipe that runs directly up to the observatory.

In order to reduce the need for tree removal, I decided to have my excavator build a 4-5 foot compacted mound. This spared a lot of trees and got me to the 10 degrees above the horizon I desired. You'd really be surprised at how much more visibility you have by rising up 5 feet.

Stage 5: Watching it All Come Together

The exciting part was when construction actually started. The dome arrived, which I was able to assemble myself. The structure was built exactly to my specs. Now all I have to do is paint the outside and plant some grass.

It was a lot of planning and preparation, but well worth it. Because the design was thought through, there were no changes during the actual construction and the process went smoothly. 🇺🇸



by Matthew T. Russell

View facing North. Initial construction of the octagon walls. The wall height is 48 inches.

In Memory of Colin "Mike" Ewers and Kristopher "Kit" Reilly

Subj: **Puerto Rican Stars**

Date: 6/16/03 11:20:19 PM Eastern Daylight Time

Exploration of other worlds, perhaps the ultimate goal of astronomy. Other worlds abound around me, although technically speaking I have yet to leave the planet. World wind jet planes landing in tropical islands blessed with lazy leaning palm trees and voluptuous mangos. Nights filled with the singing of cookie frogs and chirping of crickets. Caves leave their mouths gaping beneath the lush of jungle and the steam of the day and waves crash relentlessly on the waiting shores of la isla.

Rhythm rushes around the highway bends and through the city streets where salsa and old san juan lay down in the flux of rock and roll and burger king and walmart and the pueblo prisons at the roadside by the vendors selling mangos and red bananas. Evidence of American kinship is readily visible the strip malls and fast food chains, just as caribbean roots burst forth in the faces of the people and the houses in the hills, the lilting rhythmic Spanish that falls out of the mouth like it was just wandering by, not terribly intent on carrying any message, no need to be on time.

High in this mystic land lies the forefront of radio science. Energy waves fall constantly upon our little planet unhindered by the often opaque atmosphere. They are so weak that all of those that have fallen on the earth in all of its four billion year history could scarcely boil a cup of water for the tea that you may like to sip while contemplating it. And yet here in a fallen hole in the earth sits a dish large enough to feed a thousand passing dinosaurs their nightly supper, connected to rooms of computers and antennas and atomic clocks sensitive enough to measure the spin of star across trillions of miles of empty space and millions of years in time. Here I sit along side noble laureates and particle physicists sneaking glimpses at the secrets of the universe. Computer screens and data banks playing bouncing colored lines to the music of the universe, falling on the most sensitive ear in the world, one larger than twenty football fields.

But to jump of the solid terrestrial surface on which we have grown and out into the free floating freedom of space doesn't require rocket engines or orbital mechanics, it only necessitates walking to edge of this island and leaping off into the great blue beyond. With the assistance of prosthetic fins and breathing apparatus one can fall into depths as alien and exotic as science fact or fiction has ever created.

Shocking blues and yellows, purples reds and oranges. Colors out of magazines and day dreams. Crayola eat your heart out. Fish and turtles, polyps, annenemas, bubbles fins and glinting sunlight bouncing through the delicate blue waters. Turning flips and loops and spins with up and down little more than a temporal suggestion offered by the brightness, but with few immediate consequences of motion. Waters part before my outstretched hands as big black flippers propel me through beautiful blue. Approaching dark clouds of undulating motion collapsed and converged around me. Consumed by a shimmering mass of moving bodies, individually smaller than my fingers, but collectively a giant that can swallow me whole and spit me out again. Swimming at the top of the water I saw them in their dark moving mass, with a few glints of turning bodies at any given moment. Big ones herding the smaller leading them to food, or finding the food themselves. And no knowledge or concern for the strange intruders in their midst. Just leading life, unaffected by awestruck observers from distant worlds.

—Kit Reilly

February 13, 1979 – June 21, 2003

In Loving Memory

In Memory of Colin "Mike" Ewers and Kristopher "Kit" Reilly

—Arecibo Observatory
National Astronomy and Ionosphere Center

Arecibo is a place of DREAMS—a dish so big it boggles the imagination. From far and wide, dreamers come to see its construction and to learn the craft of the scientist, peering into the cosmos.

Now we have lost two of our dreamers, two stargazers, two searchers, two thinkers...but coming here was a dream of Mike and Kit, a dream fulfilled that can never be taken away from them.

By being here today, we honor the lives that they lived and the dreams that they dreamed.

—Spoken by Adam Mott
Arecibo Observatory
June 25, 2003

Colin Michael "Mike" was born December 18, 1981 in Edina, Minnesota—the only son of Claudia and Blaine Ewers. He graduated with highest honors from Bloomington Kennedy High School in the year 2000. He fulfilled his dream of attending Carleton College in Northfield and was a senior looking forward to his 2004 graduation. Currently Mike was a visiting scientist on assignment with his professor at Arecibo Observatory in Puerto Rico, the home of the world's premier radio telescope. The observatory is a part of the National Astronomy and Ionosphere Center which is operated by Cornell University in conjunction with the National Science Foundation.

Mike died tragically in a drowning accident on June 21, 2003 with his kindred spirit, Kit Reilly of Florida, who was also a very gifted student with a passion to explore the heights and the depths of the cosmos.

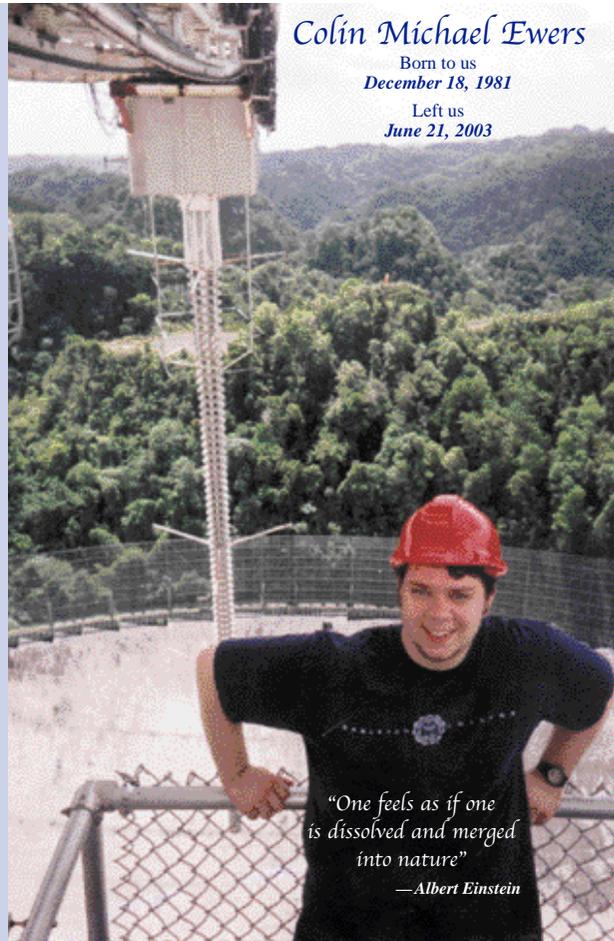
While at Carleton, Mike was involved in social activist issues. He was a leader of his Habitat for Humanity group and helped build houses in Arkansas and Mississippi. He also was an 11-pint blood donor through the American Red Cross and the War Memorial Blood Bank. Mike was a tour-guide, grader, research assistant, and bookstore employee at Carleton. He played intramural field hockey, ultimate frisbee and was in Aikido Club.

He is survived by his parents Blaine and Claudia, his sister Bronwyn Elizabeth and favorite buddy—his dog, GNU. Also, grandmothers Bernice Pierce and Artys Ewers and many, many aunts and uncles, cousins and friends.

We invite you to join the Ewers family at the Mausoleum to be with Mike. You are also invited to join us for refreshments in the fellowship hall of Southview 7th Day Adventist Church (58th Street & Wentworth Avenue - Minneapolis).

There is a time for tears.
When your heart is
too full of sorrow,
they begin to flow,
as naturally
as rain from heaven.
There is a beauty in tears.
a rightness about them.
They should be
shed proudly,
for they show how much
you have lived
and loved and lost.
Tears honor our loved ones.
There is a sacredness
about them.
Each one is a prayer
that only God can hear.
The soul could have
no rainbows
if our eyes could have
no tears.

The Ewers family would like to express their gratitude for the numerous acts of kindness and support shown to them by so many people during this sorrowful time. It gives us comfort and strength to know that Colin, "Mike", was loved by so many.

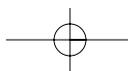


Colin Michael Ewers

Born to us
December 18, 1981
Left us
June 21, 2003

*"One feels as if one
is dissolved and merged
into nature"*

—Albert Einstein



Witness the Mars Approach

Robert J. Bonadurer



Witness the Mars Approach: Closest to Earth in 60,000 Years



Minneapolis Community and Technical College and Minnesota Planetarium Society will Host Two Free Public Events on Wednesday, August 27, Followed by a Fundraiser for the Planetarium at Joe's Garage Restaurant

On Wednesday August 27, the new Minnesota Planetarium Society will host three public events to celebrate the planet Mars' closest approach to Earth in 60,000 years! The first two events will be co-sponsored and held at the Minneapolis Community & Technical College (MCTC), 1500 Hennepin Avenue, Minneapolis, MN. See location at: <http://db.mctc.mnscu.edu/aboutMCTC/maps.cfm>

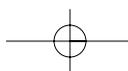
Have Coffee with Mars in the Morning Sky

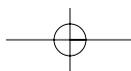
In the early morning from 4:00 am until dawn, the Planetarium and MCTC will host "I Marveled at Mars..." observing event. Only during this time will Mars be "slightly" closer to Earth than anytime in recorded history! Never again in your lifetime will the red planet be so spectacular since the next closer approach will not occur for nearly 300 years!

This event will include:

- Telescopes
- A Mars Mobile featuring exhibits on the red planet
- Special "I Marveled at Mars..." certificates
- Free coffee & Mars bars from Joe's Garage Restaurant!

Meet at the corner of Maple and Harmon Place, on Loring Park, near Joe's Garage Restaurant from 4:00 am until dawn.





Then Learn about Mars

The celebration continues at 7:00 p.m. in the Minneapolis Community and Technical College (MCTC) Fine Arts Center. The MPS and MCTC will host “Spotlight on Mars” with special guest speaker and Minnesota Mars expert William Sheehan. Sheehan is the author of “The Planet Mars”, “Mars: the Lure of the Red Planet”. He is a contributing editor to *Sky & Telescope* magazine (most often on the subject of Mars) and is a Guggenheim Fellow. He will lead a dramatic reading of the great texts of Mars, including Percival Lowell, H. G. Wells, Edgar Rice Burroughs, Orson Welles’ “Invasion of Mars” broadcast and others against a backdrop of images of aliens, invocations of the Red Planet, and music. View a Mars exhibit where a real meteorite from Mars will be on display!

Help Build a New Planetarium

After Dr. Sheehan’s talk, join the MPS on the rooftop deck at Joe’s Garage for a fundraiser for the Planetarium. Suggested donation is \$50. Enjoy free refreshments, observe Mars by telescope and by computer, see Mars displays including a real Martian meteorite, become a member of the MPS, and chat with Dr. Sheehan and other astronomers. With your help we will build a new planetarium for Minnesota.

For more information about these events, contact MCTC Physics instructor & MPS President, Parke Kunkle at Parke.Kunkle@minneapolis.edu or call 612.659.6068 or contact Planetarium Director, Bob Bonadurer at rjbonadurer@mplib.org or call 612-630-6151. For directions, see the MCTC website listed above or call the Planetarium show line at 612-630-6150.

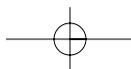
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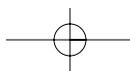


The Minnesota Planetarium Society is a diverse group of business executives, astronomers, educators, and many other people who appreciate that a Planetarium provides an essential educational experience. Only a Planetarium presents the enormity and grandeur of the universe, arousing the curiosity of all ages to explore and to learn. The MPS will develop and deliver astronomy education/outreach programs, lead a private capital campaign to support this resource, assist in establishing the vision, design, governance, and programs of the new Planetarium, and serve a broad membership from across Minnesota.



Minneapolis Community and Technical College (MCTC), Minnesota’s most ethnically diverse college, is dedicated to training students to be productive workers and engaged citizens. MCTC enrolls over 10,000 students annually; educates new immigrants for careers; trains skilled workers for high-tech employment; prepares high-potential students to go on to four-year institutions; educates professionals to meet workforce needs; and is an active partner in initiatives that strengthen our community and meet business needs.





MAS Photo Page

Matthew T. Russell

NGC 206 in the Andromeda Galaxy

Date: 8/6/2003

Location: Black Forest, CO Scope:

Equipment: Celestron C-11Mount: Paramount ME Camera:

SBIG ST-10XME

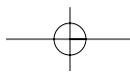
Exposure Specs: 80 Minutes BTW

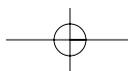


IC 1311 in Cygnus
Distance from Earth:~4,000 Light Years
Size:60 arc minutes
Date Taken:7/4/2002
Location: Cross lake, MN
Equipment:Takahashi FSQ-106nSBIG 10E,
NABGSBIG CFW-8
Exposure Specs:105 minutes total Lum: 12x5
min Red: 3x5 min Grn: 3x5 min Blu: 3x5 min
Processed with:Maxim DL v3.0 Adobe
Photoshop v6.0



NGC 6910 in Cygnus
Distance from Earth:~4,000 Light Years
Size:2.5 degrees x 5 degrees
Date Taken:10/1/2002 - 10/31/2002
Location:Minneapolis, MN
Equipment:Takahashi FSQ-106nSBIG 10E, NABGSBIG CFW-8
Exposure Specs:8 Image Mosaic 16 Hours total H-Alpha: 8x15 min ea
Processed with:Maxim DL v3.0 Adobe Photoshop v6.0





Thor Olson

Equipment problems allowed me only two photos the night of the Messier Marathon, but I managed to get a Messier count of three! M51, and then the pair M81 and M82 were obtained with a Takahashi CN-212 (8" Newtonian) at f/4, off-axis ST-4 guiding for 30 minute exposure on E200, pushed 2-stops. 📸



"MAS to acquire 24" Dob

Michael Burr

After several months of fund raising and planning, the MAS is a large Step closer to acquiring a big-aperture Dob (BAD) for its members. In August, with about \$7,500 in donations and matching funds in the BAD account, The BAD task force agreed to buy a used 24" f/4 Starmaster telescope for \$6,800 from a private party in Washington state. Task force member Dick Jacobson plans to travel to Washington in October to inspect the scope and bring It home if appropriate. The telescope has desirable options like a Feathertouch focuser, "wheelbarrow" handles and encoders for computer navigation. The BAD task force is delighted about this scope, given its storied reputation for producing fantastic views at

the eyepiece. The 24" Pegasus mirror has a certification sheet that demonstrates the quality of its figure to be truly outstanding. (The 'scope's original owner was Herb York of Astromart/Anacortes telescope fame, and Mr. York confirmed for the MAS that the scope indeed is outstanding.) The task force is moving quickly to resolve siting issues for the telescope, and fundraising efforts are now focusing on storage and observing facilities for the BAD. The task force needs your help to raise funds and do thelegwork necessary to build facilities that do justice to this fine instrument. Contact Michael Burr at 763-263-1783 / info@mtburr.com for more information. To donate, please contact Deane Clark at drclarkjr@mn.rr.com ." 📸

ELECTIONS ARE AROUND THE CORNER!!

David Olmstead

Perhaps you have been thinking about throwing your hat into the Upcoming elections and becoming a candidate? Here is your chance to contribute your talents to help the MAS grow, and evolve, into a benefit for all of us that enjoy amateur astronomy.

The MAS Board will have three positions open at the end of this year.

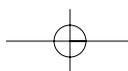
Vice President
Treasurer

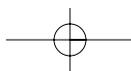
Board Member at Large

Please consider one of these positions and make a difference! The Election Committee will post more details soon.

Clear Skies!

David Olmstead
MAS Vice President 📸





Minnesota Planetarium Society

Parke Kunkle

On June 13, 2003 a new star was born, the Minnesota Planetarium Society (MPS). This article reviews the history of the Minneapolis Planetarium, discusses the goals of the MPS, lists the Board of Directors, and asks for your support.

The Minneapolis Planetarium spanned a rich 53-year history, serving over four million people. Please see http://www.mplanetarium.org/planet_our.html for more details on the history of the planetarium but briefly the Minneapolis Public Library's Science Museum purchased a Spitz Model A planetarium projector in 1951. It was installed in a room once containing the Museum's gem and mineral collection located on the 4th floor of the old Central Library on 10th & Hennepin. It is currently in storage awaiting display in whatever new facility develops. On February 4, 1961 the new Planetarium and Museum opened as part of the new Minneapolis Central Library with a wide eyed kid named Pinky Nelson in attendance. Between 1974 and 1983 various combinations of the Science Museum of Minnesota (SMM) and the Central Library either did or did not operate or fund the Planetarium. Fortunately, in 1983 the Friends of the Minneapolis Public Library assumed operations of the Planetarium. That support continues today as the Friends help the MPS make an exciting transition to a new vision, by

supplying office space, personnel, and bridge funding.

The politics of the Planetarium did not end in 1983. The 2000 Minnesota Legislature approved \$1 million in planning for a new Planetarium in conjunction with the new Central Library. Minneapolis voters also approved a bonding referendum for the new library but the referendum included no money for the planetarium. \$9 M in bonding was passed by the 2002 Legislature but that was vetoed by then Gov. Ventura. No money was allotted by the 2003 Legislature for the Planetarium.

On September 15, 2002, the Minneapolis Planetarium presented its last shows to sold out and standing room only crowds! And by January of 2003, the physical structure of the Planetarium was gone. It is at least good to know that the dome put up a good fight before it went down.

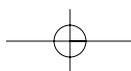
But there are hopeful signs that a new Planetarium will rise from the dust pile (OK I know that is a mixed metaphor but we didn't burn down the Planetarium so it can't rise from the ashes). On October 2, 2002 Cesar Pelli & Associates unveiled the schematic design for the new Central Library and Planetarium. For pictures and more on the vision for the New

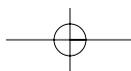
2002 Onan Observatory Public Star Parties

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

Current as of: May 16, 2003

3/21/2003	Onan Public Event: Vernal Equinox	6:00 PM	10:00 PM
4/11/2003	Onan Public Event	6:00 PM	10:00 PM
4/12/2003	Onan Public Event	6:00 PM	10:00 PM
5/9/2003	Onan Public Event	6:00 PM	10:00 PM
5/10/2003	Onan Public Event: Astronomy Day	Noon	10:00 PM
5/15/03	Onan Public Event: Lunar Eclipse Observing	8:00 PM	11:30 PM
6/6/2003	Onan Public Event	6:00 PM	10:00 PM
6/7/2003	Onan Public Event	6:00 PM	10:00 PM
6/21/2003	Onan Public Event: Summer Solstice	6:00 PM	10:00 PM
7/4/2003	Onan Public Event	7:00 PM	10:00 PM
7/5/2003	Onan Public Event	7:00 PM	10:00 PM
8/1/2003	Onan Public Event	7:00 PM	10:00 PM
8/2/2003	Onan Public Event	7:00 PM	10:00 PM
8/15/2003	Onan Public Event	7:00 PM	10:00 PM
8/16/2003	Onan Public Event	7:00 PM	10:00 PM
9/5/2003	Onan Public Event	6:00 PM	10:00 PM
9/6/2003	Onan Public Event	6:00 PM	10:00 PM
9/23/2003	Onan Public Event: Autumnal Equinox	6:00 PM	10:00 PM
9/26/2003	Onan Public Event	6:00 PM	10:00 PM
9/27/2003	Onan Public Event	6:00 PM	10:00 PM
10/3/2003	Onan Public Event	6:00 PM	10:00 PM
10/4/2003	Onan Public Event	6:00 PM	10:00 PM
10/24/2003	Onan Public Event	6:00 PM	10:00 PM
10/25/2003	Onan Public Event	6:00 PM	10:00 PM
10/31/2003	Onan Public Event	6:00 PM	10:00 PM
11/1/2003	Onan Public Event	6:00 PM	10:00 PM
11/21/2003	Onan Public Event	6:00 PM	10:00 PM
11/22/2003	Onan Public Event	6:00 PM	10:00 PM
11/28/2003	Onan Public Event	6:00 PM	10:00 PM
11/29/2003	Onan Public Event	6:00 PM	10:00 PM
12/22/2003	Onan Public Event: Winter Solstice	6:00 PM	10:00 PM





Planetarium, see http://www.mplanetarium.org/planet_new.html. The City of Minneapolis has submitted a bonding request to the State for \$24 million for the 2004 Legislative session. With your help contacting legislators and friends, and with a successful private fund raising campaign, we believe the bill will pass.

The formation of the MPS seemed the next logical step. We have now filed all the necessary documents for incorporation as a 501c3 nonprofit corporation and are awaiting the ruling from the IRS. We intend to help build and operate a new state-of-the-art Minnesota Planetarium so our children can wish upon, and reach for, the stars. We will promote the spirit of technological innovation so prevalent in space research (perhaps some local companies come to mind). We will lead a capital campaign to help build this exciting new facility and we will raise money for the interim funding of planetarium operations such as outreach programs to schools and the general public (especially with continued help from the MAS).

The MPS Board includes:

- Margaret Anderson-Kelliher, Minnesota House of Representatives (Margaret worked incredibly hard to carry the bonding bill for the Planetarium through the legislature)
- Tom Burk, Manager of Innovation Services, Unisys
- Andrew D. Fraser, Director, New Business Development, Synovis Life Technologies
- Carl George, Capital Growth Partners
- Rick Krueger, President, MillionZillion Software
- Parke Kunkle, Minneapolis College (President of the MPS)
- Peggy Leppik, former legislator and mother of Karina Leppik (MAS guest speaker on Sep 4)
- Lawrence Rudnick, Distinguished Teaching Professor of

HELP BUILD A NEW PLANETARIUM - JOIN the Minnesota Planetarium Society!

Membership \$25

Additional contribution: _____

Total: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

Email: _____

Please charge my Visa/MC account!

Account # _____

Exp. Date _____

Signature _____

Make checks payable to:
Minnesota Planetarium Society

Astronomy, University of Minnesota (Sec., Treas.)
And we are grateful for the advice of Sandra Larson, Larson Consulting, and Friends of the Mpls Public Library.

The Minnesota Planetarium Society will be responsible for the vision of the new Minnesota Planetarium and will lead its private capital campaign. We anticipate that Bob Bonadurer, Director of the Minneapolis Planetarium, will continue to help in these efforts and help design the new facility and its operations. The MPS is welcoming additional financial contributions to enable this transition and to assist future operations. To succeed we will need your continued support through memberships, donations, contacts with potential donors, letter/email/phone campaigns, talking to friends, and so on. Some of you already have been very supportive and we thank you. For example, other than the MPS Board, Dave O. was the second member of the MPS! Thanks, Dave.

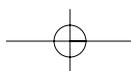
On a personal note, I believe the best way to teach kids about the sky is to have them look at it! Gee, the MAS has been saying that for years. But in the metro area we have lost our skies. Over 90% of my students have never seen the Milky Way or the Northern Lights. It is frustrating to teach the sky from Loring Park. Our kids need the Planetarium. It may be the only way they will know what they are missing. Many of you have seen the tag on my email but I will print it again here: How can our children wish upon a star when they haven't even seen one? Let's build a Planetarium for Minnesota.

I have included a membership form for the MPS. Thank you in advance for your support and help.

Please complete and mail to:
Minnesota Planetarium Society
250 Marquette Avenue, Ste. 400
Minneapolis, MN 55401
Thank you.

Parke W. Kunkle
President, Minnesota Planetarium Society
"How can our children wish upon a star when they haven't even seen one?"
Build a new planetarium for Minnesota.

W: 612-659-6068
Parke.Kunkle@minneapolis.edu



2002 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	Location	Sunset	Moonrise	Moonset	Moon Phase
March/07/2003	Cherry Grove	18:06	8:47	22:54	21% Waxing Crescent
March/21/2003	Baylor	18:24		8:04	18% Waning Gibbous
March /28/2003	Cherry Grove	18:33	4:48	2:18	15% Waning Crescent
April/04/2003	Metcalf	18:42	7:12	21:47	8% Waxing Crescent
April/25/2003	Baylor	19:09	3:21	13:17	28% Waning Crescent
May/02/2003	Cherry Grove	19:18	5:40	20:44	2% Waxing Crescent
May/09/2003	Metcalf	19:26	11:27	2:24	>54% First Quarter
May/09/2003	Baylor	19:26	11:27	2:24	>54% First Quarter
May/23/2003	Baylor	19:42	1:49	12:13	43% Waning Crescent
May /30/2003	Cherry Grove	19:48	4:10	19:40	0% New Moon
June/06/2003	Metcalf	19:54	10:29	0:53	>40% Waxing Crescent
June/20/2003	Baylor	20:01	0:14	11:07	58% Waning Gibbous
June/27/2003	Cherry Grove	20:02	2:42	18:33	4% Waning Crescent
July/04/2003	Metcalf	20:01	9:33	11:21	26% Waxing Crescent
July/18/2003	Baylor	19:52		9:57	74% Waning Gibbous
July/25/2003	Cherry Grove	19:46	1:15	17:24	12% Waning Crescent
August/01/2003	Metcalf	19:38	8:36	21:47	15% Waxing Crescent
August/22/2003	Baylor	19:06		16:12	25% Waning Crescent
August/29/2003	Cherry Grove	18:54	7:37	20:14	6% Waxing Crescent
September/05/2003	Metcalf	18:41	16:20	0:36	>76% Waxing Gibbous
September/19/2003	Baylor	18:15		14:56	23% Waning Crescent
September/26/2003	Cherry Grove	18:01	6:32	18:38	1% Waxing Crescent
October/03/2003	Metcalf	17:49	15:10	23:36	62% Waxing Gibbous
October/17/2003	Baylor	17:23		13:40	57% Waning Gibbous
October/24/2003	Cherry Grove	17:11	5:22	17:01	1% Waning Crescent
October/31/2003	Metcalf	17:01	13:52	22:38	47% First Quarter
November /14/2003	Baylor	16:44		12:21	73% Waning Gibbous
November/21/2003	Cherry Grove	16:37	4:11	15:23	7% Waning Crescent
December/05/2003	Metcalf	16:30	14:54	5:26	>12% Waxing Gibbous
December/13/2003	Baylor	16:29		11:31	78% Waning Gibbous
December/19/2003	Cherry Grove	16:31	3:05	13:46	18% Waning Crescent

Metcalf

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

Baylor Regional Park

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

When visiting Baylor Regional Park, MAS members are requested to NOT park on the grassy areas next to the observatory (or any other grassy areas for that matter). This is a matter of being considerate to the park, its caretakers, and other visitors, so PLEASE PARK in the PARKING AREA. Annual Park Permits (optional, not required for observing) can be purchased by sending a check to Carver County Parks, 10775 County Road 33, Norwood Young America, MN 55397. The cost for the Annual Permit is \$18. Permits are also available at the Park Office at Baylor Park, the Carver County Government Center located at 600 4th St. in Chaska, through the honor box systems and gate houses when staffed at both Baylor and Lake Minnewashta Regional Parks. Lake Minnewashta Regional Park is located in Chanhasen off of Hwy. 41 between Hwy. 5 and Hwy 7 .

Cherry Grove

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



MN ASTRONOMICAL SOCIETY

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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 and your membership card. Send your payments to the MAS treasurer (Chuck Jorgensen) at 1615 E. River Parkway Minneapolis, MN 55414-3627. Make checks payable to MAS. The current annual membership dues and subscription fees are:

<i>Regular membership</i>	\$20.00
<i>Patron membership</i>	\$50.00
<i>Student membership</i>	\$10.00
<i>Subscription to Gemini for members of other astronomy clubs</i>	\$4.50
<i>Subscription to Gemini for other persons</i>	\$9.00

To Renew Your Sky and Telescope Subscription

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

To subscribe to the MAS e-mail list 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.