

Gemini

a publication of the Minnesota Astronomical Society



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AUGUST
2000

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25

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4

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Month at a Glance

All times listed are CDT, 2400 hour format

SEPTEMBER 2000

- 6 Venus passes 1.1 deg. north of Regulus. Evening sky.
- 10 Mercury passes 0.09 deg. south of Mars. Morning sky.
- 11 Uranus is at opposition. Seen in early evening sky.
- 12 Juno is at opposition. Perseid meteor shower peaks.
- 13 The Moon passes 1.1 deg. S. of Neptune.
- 14 The Moon passes 1.4 deg. S. of Uranus.
- 20 Mercury is at Superior Conjunction, behind the Sun.
- 22 The Moon passes 2.0 deg. S. of Saturn; sky.
- 23 The Moon passes 3.0 deg. S. of Jupiter.
- 27 The Moon passes 0.9 deg. N. of Mars.
- 30 The Moon passes 4.0 deg. N. of Venus.

Check out the beauty of the heart of our galaxy, seen due south this month.

Moon

First Quarter: 6th Full: 15th Last Quarter: 22nd New: 29th

Planets

- Mercury:** Gemini/Cancer/Leo. Above the Eastern horizon early in the month near dawn, but lost in the glow of dawn within 10 days, finally disappearing behind the Sun.
- Venus:** Leo/Virgo. Lost in the glare of twilight setting just after the Sun.
- Mars:** Cancer/Leo. Lost in the glow of dawn, very close to Mercury.
- Jupiter:** Taurus. Rising in the Northeast around midnight following Saturn into the sky.
- Saturn:** Taurus. Rising in the Northeast around midnight, leading the brighter Jupiter.
- Uranus:** Capricornus. Low in the South throughout the night. At Opposition this month.
- Neptune:** Capricornus. Moving across the South, leading Uranus by 14 degrees.
- Pluto:** Ophiuchus. To the South, setting in the early morning.

- 7 Jupiter passes 5.0 degrees North of Aldebaran in the morning sky.
- 16 Mars passes 0.8 deg. N. of Regulus in the morning sky.
- 18 Venus passes 3.0 deg. N. of Spica in the evening sky. The moon passes 1.8 deg. S. of Saturn.
- 19 The Moon passes 2.0 deg. S. of Jupiter.
- 22 The Autumnal Equinox - the Sun passes South of the equator. Fall begins.
- 23 Mercury passes 0.7 deg. N. of Spica.
- 25 The Moon passes 2.0 deg. N. of Mars.
- 29 The Moon passes 8.0 deg. N. of Mercury. The Moon passes 5.0 deg. N. of Venus.

Check out with the Summer Triangle getting lower in the sky - the stars of winter, not far behind.

Moon

First Quarter: 5th Full: 13th Last Quarter: 20th New: 27th

Planets

- Mercury:** Leo/Virgo. Climbing higher into the sky at dusk, getting close to bright Venus.
- Venus:** Virgo. Climbing above the twilight on the Western horizon.
- Mars:** Leo. Moving through the lion, low in the East at dawn.
- Jupiter:** Taurus. Rises in the Northeast before midnight.
- Saturn:** Taurus. Rises in the Northeast before midnight, slightly ahead of brighter Jupiter.
- Uranus:** Capricornus. Moving low across the South. Sets by early morning.
- Neptune:** Capricornus. Low in the South, leading Uranus.

Now Showing

Minneapolis Planetarium: 612-630-6150

"Honey, I Shrank the Solar System": Everyday 14:15 Mon - Fri at 11 Thurs 7

"Aurora": Everyday at 1300.

"Romancing the Stars" 2nd Saturday of each month; 19:00.

"Minnesota Sky Monday", 2nd Wednesday of each month 1200 & 1900

Cost for shows: \$4.50 for adults, \$3.00 for kids 12 and under.

Eisenhower Observatory: 612-988-4077

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

August 12...Sidewalk Astronomy: Sunsets on Wayzata, Wayzata, MN 8pm-11pm

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Thor Olson

Circulation

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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 10th of the month preceding the month of publication.

Patron Members

MAS offers a patron membership to anyone who wants to help support our activities by paying a slightly higher annual membership fee (\$40 instead of the regular \$16). We would like to thank the following patron members who helped support MAS during 1999:

James A. Bowditch
Chris Cowen
Jon A. Geiss
J. Mark Gilbert
William H. Glass
Barry R. Jensen
Denny Johnson
Michael E. Kibat
John R. LeVasseur
Gerald L. McDougal, Jr.
Beverly D. Miller
Rick Richardson
Mark D. Sawyer
Paul Schroeder
Timothy A. Sinks

Volunteer construction crews completed the transition between mama and baby bear, and installed the outside half of the translucent panels in the end of baby bear. The north end of the building, both inside and out, now sports a clean, finished appearance.

Major progress occurred regarding the roll-off roof. Thanks to the newly installed replacement wheels and brackets, the operation of the roof greatly improved. However, a new problem arose. Somewhere during the installation process, the overall geometry of papa bear's roof changed slightly. As a result, the roll-off rail became misaligned with mama bear's rollers. Shortening mama bear's support brackets solved the

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problem (plus the brackets were enhanced to improve their strength). Now only two people are needed to move the roof.

Though the roof now rolls much easier, there are still problems with the mechanism. The first set of wheels on the south end of the building still deform slightly over time under the weight of the roof. The deformation isn't bad enough to prevent the roof from rolling, but it would be an easier task with better wheels (possibly steel).

Another major milestone of the project occurred the evening of June 24th at the month's scheduled public event. For the first time since the Larson telescope arrived on site, the roof was rolled fully back, allowing the telescope to access the full extent of the skies above it. Visitors and MAS members were treated to nice views of the double star Albireo, the Ring Nebula and M13, the globular cluster in the constellation of Hercules. A view of M51, the Whirlpool Galaxy, was disappointing, lacking in detail. However, a key telescope component — the interior baffle — was not installed at the time (and some other telescope issues exist), so it may be premature to read too much into this.

Now that the roll-off roof operates reliably, we can proceed to evaluate and refurbish the telescope. The initial evaluation indicates some tweaking of the collimation, and reinstallation of the telescope's internal baffle is required. The planned near-term addition of a Telrad mounting plate, a 2" focuser and a small refractor for a finder scope will result in major operational improvements.

The big news in June was the receipt of a \$10,000 general operating grant from the Onan Family Foundation.

Onan Report, continued

We also learned shortly after that the ADC Telecommunications Foundation, after reviewing our “letter of inquiry”, has invited us to submit a formal grant request for consideration in the September timeframe.

Plans for the months ahead are centered on completing the transition between papa and mama bear, and generally weather-proofing the building before winter arrives. Trim installed on the front of papa bear will dress up the exterior. A bent angle iron, installed inside the curvature on papa bear’s north end should improve the roof’s geometry, further improving the function of the roll-off roof. These, along with the planned telescope improvements, will insure the Onan Observatory will enter the fall season fully ready to meet its primary mission of public outreach and education.

April was a busy month at the observatory, and the project reached several major milestones.

On the construction front, volunteer work crews made substantial progress closing in the transition area between mama and baby bear. The inside half of the translucent panels are in place, lending a finished look to the northern end of the observatory. Installation is now underway for the outside half of the panels. Lighting is also now installed in mama bear.

The news regarding the roll-off roof is less positive. Analysis of the problems with the roll-off roof resulted in two key findings.

First, the wheels upon which the roof rolls do not meet the original specifications given the supplier. They are only rated to carry 1/2 the weight of those originally specified. As a result, the weight of the roof deforms the wheels, creating a flat

spot which prevents the roof from rolling. Replacement wheels were ordered, and have been received.

The second finding is that the brackets on the east side of the building seem to have deformed — possibly as a result of the “brute force” efforts used in the past to force the roof to move, or due to the loading effect of prevailing winds at the site. New brackets were designed, and are being fabricated. The new brackets combined with the improved wheels should dramatically improve the roof’s ability to roll.

In other developments, the computer system which will eventually control the telescope is up and running.

And, probably the most substantial milestone of the month: the refiguring of the telescope optics is complete, and the Larson telescope now rests upon its mount and pier at the observatory — its first permanent home in almost 20 years! The optics, recently collimated, are performing well, though further evaluation is required before a final judgment is made.

And finally, on April 28th, the first public event at the observatory occurred. Over one hundred attendees, including dozens of MAS members, enjoyed a beautiful, clear night under the stars. The 1987 vision of a public observatory located at Baylor Regional Park this month became reality.

Much work remains, and the problems with the rolling roof present new challenges. But, as with all the challenges of the past, the determination, hard work and creativity of those Society members involved will certainly overcome them!

Universe In The Park

The University of Minnesota Department of Astronomy, led by Professor Evan Skillman, has initiated an extensive summer public outreach program called “Universe In The Park”. Modeled after the very successful program at the University of Wisconsin, they will be hosting public viewing sessions at various state parks in the Twin Cities vicinity. These events will be staffed by graduate students and faculty from the department and will be free to the public.

There following events for August and September, each from 8:30 - 11:00 PM, are on the following dates near or shortly after new moon:

**Friday, August 4:
O’Brien State Park**

**Saturday, August 5:
Lake Mariah State Park**

**Sunday, August 6:
Interstate State Park**

**Friday, September 1:
O’Brien State Park**

**Saturday, September 2:
Afton State Park**

**Sunday, September 3:
Lake Mariah State Park**

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As a comet hunter, like many deep sky observers, I have detested the moon. Its contrast-sucking light that hides the subtle details or even completely shielding objects from the telescope has often been my bane. Yet somehow, I could never wish it from the sky. In years past, I've enjoyed its company, welcomed its light, considered its profound effects on life and the human spirit.

And now, dejected with the state of comet hunting affairs, I found myself looking for a more streamlined goal. Something done with less and smaller equipment, from my urban home, even from inside if possible. I wanted to observe, but during this time if it required too much effort or planning, I would lack the motivation to get off my butt and go outside.

I knew little of the moon. I couldn't look at it naked-eye and name major features, let alone through a telescope. Soon, as my kids got a little older and began asking for telescope experiences, the moon would be an obvious target. They'd want to know what it is we're looking at. I wanted to be able to point out seas and highlands. I also wanted to know the moon. I began feeling like a well-rounded amateur astronomer ought to have an understanding of the basic features of the moon.

I'd noticed the Observing Clubs listed in the Astronomical League's magazine, the Reflector, and the Lunar Club certificate one day just clicked with these thoughts. I decided to try it.

Theoretically, you could do the whole list of 100 objects in less than one lunation. You'd need a lot of

clear nights and sacrifice of sleep, but it could be done. It took me about 7 cycles to complete the list, from November 1999 to May 2000.

The list is divided into objects that are naked eye, binocular, and telescopic. "Rules" for the certificate are quite open, if you have trouble with an object at the binocular level, for example, you can use a telescope on it. You should be able to do the whole thing with a typical department store scope and an average chart. Here is what I used: For a chart, I started with the old Moon Map published by National Geographic Magazine. This is a pretty good chart, really, though it's difficult to use in the field because of its size. After a few sessions, I began using Rukl's Atlas of the Moon.

In general I tried to do the objects in order, naked eye first, then binocular, then telescope, but in a few cases I did other orders. For binoculars, I first used a pair of 10x50s, but I am not overly fond of binoculars and found them difficult to hold steady. I instead began using a TeleVue Pronto at 15x. Its tripod mounting made it a lot easier to use. For a few of the early sessions I used my 8" f/6 newt, but mostly I again used the Pronto at various powers from 28x to 100x. While I wouldn't call the Pronto an ideal lunar scope (it's a bit short in focal length), it provided some generally spectacular views and was well suited to the task.

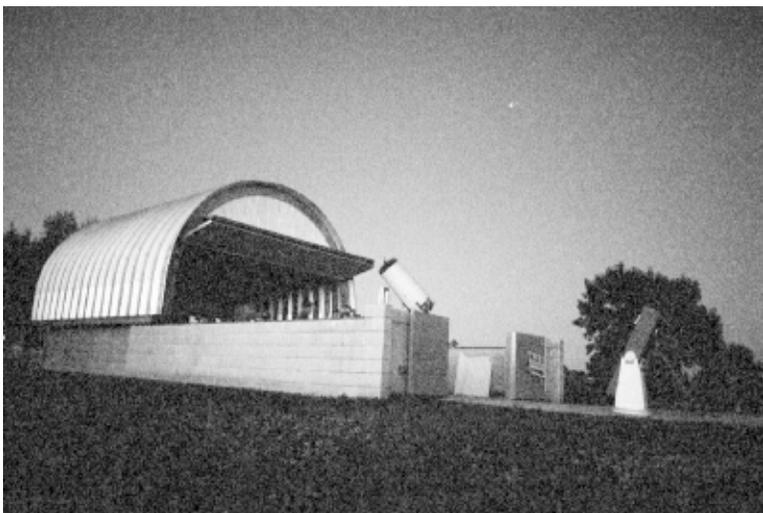
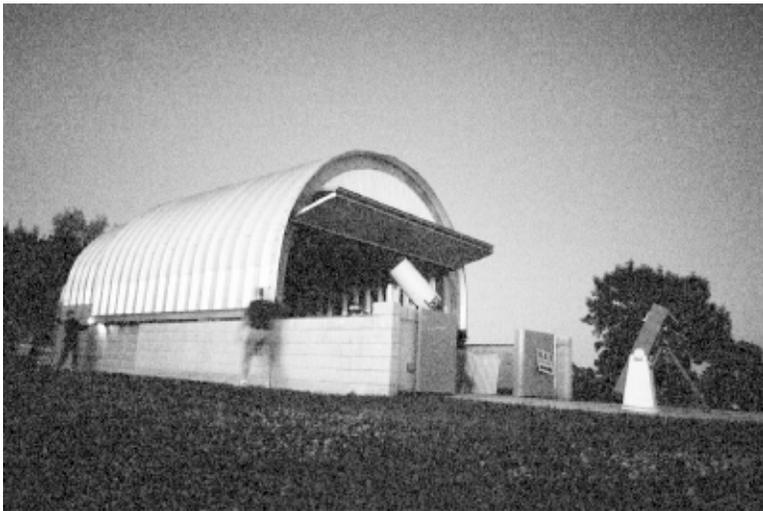
I have to admit that at the end of the list of objects that I had a nice feeling of satisfaction and appreciation for the features of the moon. I imagine that anyone completing a Messier Certificate would feel similar. But

more than just completing the certificate, I feel like I've begun to have a little understanding of the topography of the moon, and I feel like I've grown a little as an amateur astronomer. I'm less inclined to throw out an observing opportunity because of the moon, and more likely to train my telescope on it!

Tim Harincar



Stars trail overhead during a public night at Onan.



The roof rolls back. This action sequence captures the Onan observatory smoothly opening to reveal the 16" Cassegrain telescope on its mount.



The Big Dipper and a few observers were caught in this time exposure.

Announcements etc.

MAS in Congressional Record

On April 7th, the MAS, was cited by MN Senator Rod Grams in the halls of the U.S. senate.

"... In Minnesota, we are fortunate to have many groups that are determined to keep the interest in astronomy high for all generations. I would like to draw your attention to the Minnesota Astronomical Society, whose members are active in the growing movement to generate interest in astronomy. I commend them for their enthusiasm and their success in turning our attention to the skies..."

To read the entire passage goto <http://thomas.loc.gov/> and search the Congressional Record for:

106th session

1. Word/phrase:
Minnesota Astronomical Society

2. U.S. Senate Members
Grams, Rod MN

3 Limit By:
From [mm/dd/yyyy] 04/07/2000
through [mm/dd/yyyy] 04/07/2000

or if you have hard copy, look on pages : S2437 and S2438.

The U of MN, Science Museum of MN and Minneapolis Planetarium were mentioned too.

Parking at Onan Observatory

We are requested by Marty Walsh, of Baylor Regional Park, our host for the Onan Observatory, that MAS members 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 when you attend your next outing at Baylor, PLEASE PARK in the PARKING AREA.

Welcome to these new MAS members!

Paul Jacobson
Herman Bradley
David Venne
David Pagelkopf
James Grathwol
Michael Lavelly
Timothy Etter
Chris Rogers
Peter Henrich
Peter Pitman
Todd Lange
Jane Gauker
Robert Rogers
Thomas Curtin
Robert Nelson
Dale Hoepner
Jonathan Krueger
Kurt Gegenhuber
David Schaller

For Sale

Meade 10" dobsonian telescope, Super Plossl eyepieces, telerad, filters, laser collimator. All accessories in custom case. All sold together only.

Doug Johnson
763-529-8157.
dougj@pro-ns.net

Telescope: 10" f/7.1 Newtonian on Dobsonian mount. Tube length is 75", diameter 12". The tube, aluminum, rotates in a trunion box, about 14" square. Within the scope nearly vertical, the eyepiece is about 6 ft. above the ground.

The rotating tube makes it easy to put the eyepiece in a comfortable position at any elevation.

There is a set of wheels that fastens near the bottom of the rocker box, and a means of locking the tube in a vertical position. With this it is easy to move the scope about in an observing site or even up and down steps.

2- Brand - homemade, by me.

3- It does accept standard 1.25" eyepieces.

4- Good condition.

5- No eyepieces, Just he scope.

John Connery
612-544-5786

Onan "Comet Party" summary

Michael E. Kibat [KibatME@visi.com]

We had good weather both Friday and Saturday nights (July 21, 23). Early Friday evening we had to wait for some pesky clouds to clear, but Saturday night was beautiful from sunset on.

The comet, though not a naked eye object, was easily seen in binoculars, displaying a faint, but obvious tail. In telescopes, the coma was very bright and well defined.

Friday night we had close to 20 visitors. Saturday night we had a dozen.

Thanks to the MAS members who "officially" volunteered to help out (Joe Luhman, Ben Huset, Dave Olmstead) and to those who just showed up at the observatory both nights.

From Karl Niehaus of the Omaha Astronomical Society:

Scientists have shown that the moon is moving away a tiny, although measurable, distance from the Earth every year. If you do the math, you can calculate that 85 million years ago, the moon was orbiting the Earth's surface at a distance of about 35 feet. This would explain the death of the dinosaurs... the tallest ones, anyway.

2000 Star Parties

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

Metcalf

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

Baylor Regional Park

Baylor Regional Park is roughly 25 miles W of the SW corner of 494. Head west on highway 5, through Waconia, 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.

Cherry Grove

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

Date	Site	Sunset	Moon
25-Feb	ONAN/BAYLOR	17:33	rises 0:23
3-Mar	CHERRY GROVE	18:04	rises 5:40
10-Mar	METCALF	18:13	sets 23:25
25-Mar	ONAN/BAYLOR	18:33	rises 0:24
31-Mar	CHERRY GROVE	18:40	rises 4:13
7-Apr	METCALF	19:49	sets 23:26
8-Apr	ASTRONOMY DAY	19:50	sets 0:38
28-Apr	ONAN/BAYLOR	20:15	rises 3:45
5-May	CHERRY GROVE	20:24	sets 22:22
12-May	METCALF	20:32	sets 3:58
26-May	ONAN/BAYLOR	20:47	rises 2:16
2-Jun	CHERRY GROVE	20:53	rises 5:53
9-Jun	METCALF	20:58	sets 2:30
23-Jun	ONAN/BAYLOR	21:03	rises 0:48
30-Jun	CHERRY GROVE	21:03	rises 4:28
7-Jul	METCALF	21:01	sets 1:00
21-Jul	ONAN/BAYLOR	20:51	rises 23:44
28-Jul	CHERRY GROVE	20:44	rises 3:05
4-Aug	METCALF	20:35	sets 23:28
11-Aug	PERSEIDS	20:25	sets 3:35
18-Aug	ONAN/BAYLOR	20:14	rises 21:22
25-Aug	CHERRY GROVE	20:02	rises 1:49
1-Sep	METCALF	19:55	sets 19:54
22-Sep	ONAN/BAYLOR	19:10	rises 0:03
29-Sep	CHERRY GROVE	18:57	sets 20:20
6-Oct	METCALF	18:44	sets 1:06
20-Oct	ONAN/BAYLOR	18:19	rises 0:43
27-Oct	CHERRY GROVE	18:08	rises 7:51
3-Nov	METCALF	16:58	sets 22:51
17-Nov	ONAN/BAYLOR	16:42	rises 22:46
24-Nov	CHERRY GROVE	16:37	rises 5:45
1-Dec	METCALF	16:33	sets 21:38
15-Dec	ONAN/BAYLOR	16:33	rises 20:31

how to pay your dues

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

Regular membership	\$ 16.00
Patron membership	\$ 40.00
Student membership	\$ 10.00
Subscription to Gemini for members of other astronomy clubs	\$ 4.50
Subscription to Gemini for other persons	\$ 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). 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.

GEMINI

MNASTRONOMICAL SOCIETY

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ADDRESS SERVICE REQUESTED

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

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

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