



The Newsletter of the Milwaukee Astronomical Society

December 1994

FROM THE EDITORS' DESK

Dear Santa:

I know what you're thinking -- you're surprised to hear from me after all this time. Well, to be perfectly honest, I'm a bit surprised myself -- the last time I wrote to you had to be over 30 years ago. You'll be happy to know that I'm fine and that I have a family of my own now. My daughter and son are impatiently awaiting your arrival on Christmas Eve. Surely you know them well by now; they're the ones who send their wish lists to you each year by registered mail.

I know this is a busy time for you, so I'll get right to the point. About 15 years ago I joined an astronomical society. That's a group of people who like the stars, who stay out all night with their telescopes and binoculars, who spend lots of money on gizmos and whatchamacallits to help them see objects through a telescope or in binoculars that often look like cotton balls at four hundred yards, and who take a lot of grief from their spouses about how much time and money they're spending on astronomy. Believe it or not, we think this is fun.

Over the years many of us have volunteered our time and energy to our astronomical society for lots of different causes -- more than most of us can remember and quite a few of which we've forgotten. There have been countless committee meetings, Board meetings, Public Open Houses and tours at our observatory, hours spent maintaining the observatory or at the

computer doing correspondence or keeping the membership roster up-to-date or balancing the club's books or writing the monthly newsletter or

I think you get the picture. And again, believe it or not, we think this is fun.

Now, I'd love to ask you for a new telescope, or a couple of eyepieces, or some old and rare astronomy books, or to add a new meteorite to my collection this year. But as much as I could use your help in ridding my cherished hobby of light pollution forever and guaranteeing that every new moon weekend will always be clear, I've decided to ask you, personally, Santa, for something my *society* needs very much. I'd like to ask that you convince all of our members that their active support of the Milwaukee Astronomical Society is critical to its success.

Please help our officers, Board members, committee chairs, and other currently active members communicate effectively to our less active members those tasks that need to be accomplished in the M.A.S. in the coming year. Help them find members to join in the tasks that need doing, whether on committees, the Board, at the observatory, or in other areas. Help all of our members see that their physical presence at monthly meetings makes the whole organizational experience more rewarding. After all, we have meetings with speakers so that our members can enjoy each other's company and learn about astronomy. Those of us who are active in the organization believe that's why people join our group in the first place. Most of all Santa, we really need your help in

convincing as many members as possible to take up positions on the Board of Directors, or as an officer, or on the many committees that exist in our Society. Help them see that a few active members can't run the organization alone forever, and that new people are needed to keep the organization healthy, up-to-date and responsive to the needs of the whole membership. Help each member see that there really is something they can do to help the M.A.S., if they just take the time and make the effort to do it.

Even though this letter comes from someone who's, shall we say, a bit older than your average fan, I've never stopped believing in my heart that there really is a Santa Claus. I believe that each of us can accomplish anything so long as we have faith in our abilities, recognize our strengths and those of others, and use the talents each of us was given for the common good. Together, each member can make a difference in the success of the M.A.S.

Thanks for listening Santa. I'll appreciate whatever you can do to help with these requests. I know it's not easy; believe me I've been at this for many years. Maybe I'll write again next year to let you know how we did. I think you and I could make a great team.

As always, I'll leave cookies and milk for you, and sugar for your reindeer. Merry Christmas.

★ Dan Koehler

NEXT MEMBERSHIP MEETING JANUARY 20, 1995

The next regular membership meeting is scheduled for Friday January 20, 1995 beginning at 8:00 p.m. at the National Regency Retirement Home community meeting room, 13750 West National Avenue, New Berlin (on the north side of National just east of Sunnyslope Road). A complete description of the program planned for the meeting and a map to help guide you to the meeting site will appear in the January *Focal Point*.

BY-LAWS APPROVED

By a unanimous voice vote, the members present at the November 18th meeting at National Regency approved the changes to the M.A.S. By-Laws dated August 29, 1994 and subsequently mailed to all members of record on September 1, 1994.

The By-laws changes will take effect on January 1, 1995. All members of record on that date will receive a copy of the new By-Laws with their January *Focal Point*.

WHAT I DID ON MY SUMMER VACATION

In the September issue of this newsletter (our first as the new editors) we asked our fellow members to send us a brief synopsis concerning their astronomical endeavors this past summer. This request was an attempt to garner some member/reader input, and met with very limited success, to say the least. True to our word though and with thanks to three members who contributed material, we have decided to include the responses we did receive. Since two contributors mentioned enjoying the May 10th annular eclipse, we've decided to define the "summer" as beginning on that date!

From **Sally Waraczynski**, M.A.S. Librarian and member of the Board of Directors:

It was a little like the Comet Halley days,

only this time the curious neighbors smelled of insect repellent and wore shorts. Several times in July and August, Ken and I hauled our telescope out to the park behind the house and invited anyone interested to come look at the moon, the waning crescent Venus, and the new face of Jupiter they had been reading about. As we know, some nights were more revealing than others. One man who wasn't sure he saw the impact sites at first, ran across the street to have another look every time he saw the 'scope being set up. Finally, one of the big spots rolled into view and rewarded his persistence. It was true! He had seen it with his own eyes!

From **Mike Wolkomir**:

1. My evening observing plans got weathered out and mosquitoed out -- a lot!

2. With the support and help of (fellow M.A.S. member) Paul Borchardt, installed a great JMI focuser on the venerable 17.5-inch "Pete" (Smitka) 'scope.

3. Enjoyed a fabulous weekend with son Jonathon and the 17.5 at the (M.A.S.) summer campout in Amish Country.

4. Enjoyed an increasingly crowded and expensive Astrofest with the M.A.S. crew and son Benjamin. I got smart, did not take a telescope, and drove the convertible to Kankakee instead. We had a beautiful trip, and it was much more relaxing to let everyone else do the setting up!

5. Without a doubt, the highlight of the summer was the annular eclipse. The day was perfect with an azure blue sky. The occurrence of this event on a weekday prevented me from including my children. Marty Hawk (a non-astronomer friend) and I rented a Cessna 172 single engine plane, loaded a 4-inch refractor, and flew to Taylorville, IL, on the centerline, 25 miles southeast of Springfield. We arrived just in time for first contact, set-up the 'scope, and observed the whole event on the grass runway of the Taylorville Municipal Airport. Our only company was the young woman at the desk of the airport office. No one else seemed to notice that

In fact, the weather service for pilots was reporting remarks like "sky dark"! All in all, an outstanding event.

From **David Westman**, a tenth grader at Brookfield East High School:

I had my first experience with a solar eclipse on May 10th. I had read about them and seen pictures in the books at the public library but that was the extent of it. As president and founder of my high school's astronomy club (the Brookfield East Astronomical Society) I felt as though I had an obligation to fully record and document my eclipse experience while educating my fellow student members.

Unfortunately, the teachers of the classes I had during the 4-plus hours of the eclipse would not let me out of class to observe it. So, as any true teenager would do, I skipped class! (This was the one and only time in my life I had done so.) I had originally planned to project an image of the eclipse onto the side of a building with my 4.5" reflector, but these plans fell through due to circumstances beyond my control. I ended up projecting the image on cardboard, but had no one to enjoy the eclipse with except some birds who began their evening roosting habits early because the sun had suddenly disappeared! I took some pictures and made observations which I shared with my club at its next meeting.

Ed. note: David sent a very nice photograph of the eclipse he took from his backyard with his article submission.

From **the Editors of The Focal Point** :

The highlight of our summer was attending ALCON '94, the 47th annual convention of the Astronomical League at Avila College in Kansas City, MO. We left Milwaukee on the morning of July 27 and returned the evening of July 31. Our fifteenth wedding anniversary occurred on July 14, so the ALCON trip was a sort of anniversary trip as well.

Dan is a member of the five Trustees of the Astronomical League Trust Fund (ALTF) and together with Mary conducted the third annual Silent Auction

to benefit the Trust Fund during the convention. We spent the months of May, June, and July working on soliciting astronomical equipment manufacturers and retailers for donations and making the necessary preparations to run the auction in Kansas City. The auction was very successful, grossing \$3,026 from more than 30 items donated. The annual cash contribution appeal of the AL members present at the convention on July 30 was equally successful, netting \$1,006. These funds, totaling nearly \$4,000 after minor expenses were added to the principle of the fund (currently at about \$47,500). The fund has experienced fairly rapid growth over the past three years. In 1991 the balance was just over \$30,000; in 1982 it had barely surpassed \$20,000. The Silent Auction has helped draw attention to the Trust Fund and has increased the balance of the Fund through direct proceeds and by increasing cash contributions from the League's membership. The interest from ALTF principle helps fund special League projects and increases the benefits of League membership without increasing membership dues. The M.A.S. should be especially proud of its contributions to the ALTF as several of our organization's members have played a part in guiding its development. **Frank Roldan** is also a Trustee, and **Wanda Berner** was the originator of the Auction idea. **Brian Awe** and **Cheryl Awe** conducted the first Silent Auction in 1992 during the 46th annual North Central Region of the Astronomical League Convention held at the Country Inn in Pewaukee and sponsored by the M.A.S.

By the way, the convention was very nice -- very enjoyable and very well run. We had fun exploring Kansas City for several days, visiting with our League acquaintances, and attending the various convention sessions.

LIBRARY NEWS

The Space Telescope Science Institute (STSI) has graciously responded to a recent request with two new slide sets: **FIRST SERVICING MISSION: Endeavor (STS-61)** liftoff 12/2/93; includes views of the astronauts at work and new images

(after installation of COSTAR) of the Orion Nebula, SN 1987A, and Nova Cygni 1992.

HST OBSERVATIONS OF COMET P/Shoemaker-Levy 9's COLLISION WITH JUPITER: views of the comet and the impact sites including a series showing evolution of site (A) over 5-1/2 day's time.

Each set of 20 slides is accompanied by detailed literature and credit information. These fact sheets have been keyed to our slide numbers and are in the script folder in the AV closet.

Also, we were sent 3 glossy photos showing galaxy M100 in the Virgo Cluster and close-ups of a resident Cepheid variable. One of the HST's prime objectives is to help establish the Hubble parameter or rate at which the universe is expanding. In order to do this, it is necessary to measure precise distances to galaxies farther away than 30 million light years.

Cepheid variables (which brighten and dim as their atmospheres expand and contract) have historically been used as "standard candles". The pulsation period of a Cepheid is closely related to the star's true brightness. Comparing true brightness to apparent brightness gives a good distance estimate.

The photos and the accompanying literature may be found in the vertical file: **COSMOGONY**.

-★Sally Waraczynski

ASK THE ASTRONOMER

Dear Mr. Astronomer:

According to the TV meteorologist, the earliest sunset occurred on December 7, but December 21 is the shortest day of the year. How can this be? Why don't the two events occur on the same day?

--In the Dark

Dear ITD:

The short answer is that the Earth is not always the same distance from the Sun.

Next question . . .

What? You don't get it? Well, then, allow me to elaborate . . .

The earliest sunset and the shortest day are two very different events that occur because of very different circumstances. Sunset occurs when the sun reaches an observer's western horizon, while the length of a day is determined by how far south (or north) the sun is in the observer's sky.

Let's first address the issue of the length of a day, which relates to the sun's maximum altitude in the sky on a given day. Late fall's and early winter's short days are the result of the sun occupying its more southerly declinations on the ecliptic at these times of year. Consequently, it should come as no surprise that the longest day of the year occurs on June 21, the day of summer solstice when the sun is highest in our sky and at its most northern declination. (As an aside, the latest sunset occurs on June 27, but I'm digressing!) The solstices occur when the earth's axis is tilted directly toward the sun (usually June 21, in summer) or away from the sun (usually December 21, in winter). (As another aside, these dates may change by a day due to leap year, but I'm digressing again!) In 1994 the sun was above the horizon for 15 hours, 1 minute on the longest day, and 9 hours 20 minutes on the shortest day, at 40 degrees north latitude.

Sunset is determined by the exact time the sun's center "touches" the observer's western horizon. In a perfect world the earliest sunset would happen on the shortest day, but, as you have so keenly noted in your question, the two events don't coincide on the same day!

The sun cheats the observer by reaching the horizon earlier than its altitude above the horizon (or its declination) alone would dictate. How is this possible? Well, it is really the *earth* that is doing the cheating.

During the year the earth's distance from the sun changes. Because of this change, the sun's speed among the

The earth's orbital speed about the sun increases with decreasing distance to the sun, and decreases with increasing distance. When the earth is closest to the sun and therefore moving the fastest in its orbit, the sun appears to move faster in relation to the background stars than when the earth is farther from the sun. In December the earth is closer to the sun than the annual average, so the sun appears to be ahead of where its supposed to be with respect to the background stars. Astronomers say that the sun is "fast" -- on December 7 it was almost 9 minutes faster than the "mean sun", which is defined as where the sun would be in relation to the background stars if earth's orbit was perfectly circular. The result of this was a sunset on December 7 that was earlier than any other day of the year. Over the next few days the sun "lost" time, and sunsets occurred a little later than on the 7th. This same reasoning, except in reverse, applies to the latest sunsets that occur in the month of June. The sun is then "slow" by about 2-1/2 minutes.

THANK YOU

There are times in our lives when each of us realizes the importance of friends and family. We experienced this recently with the death of our infant son, Ian Michael. The support and concern of our many friends in the M.A.S. -- our 'astronomy family' -- has been heartwarming. We wish to thank the M.A.S. for the beautiful floral arrangement sent to our home. We also wish to thank all of the individuals who sent cards and notes to us, those who made phone calls to see how we were doing, and those who came to visit us in our home. Thank you all, not only for your expressions of sympathy, but also for your friendship.

-★Lee and Karen

EYE ON THE SKY FOR JANUARY

There are a wealth of celestial events to observe in January. Unfortunately many of them occur during the coldest hours

of the coldest month of the year! Don't let that stop you though. Make a New Year's resolution to observe at least a few solar system events every month of 1995! But dress warmly this month -- lest you become a human popsicle!

Anticipation will build early in the month among planetary observers about the disposition of the Comet S-L-9 impact sites in Jupiter's atmosphere. As January opens, our solar system's largest member returns to observing prominence in the morning sky in the southeast, located in the constellation of Scorpius near the Ophiuchus border and just north of Antares. The type of impact the planet encountered with Comet Shoemaker-Levy-9 last July has never before been observed, so astronomers can only speculate about how the impact sites on Jupiter have evolved since we last had a decent look at them in late October. At that time the spots were still readily visible, although several of the impact scars had merged and were becoming elongated, acquiring the appearance of one of Jupiter's dark belts in its southern hemisphere. At the beginning of January Jupiter is 32 arc seconds in diameter, and this increases just slightly to 34 arc seconds by month's end. It's brightness increases slightly from -1.8 to -1.9, making it a very prominent object to the unaided eye. Regardless of when you view it telescopically it's size should be more than adequate to glimpse the impact sites (if they still exist) even though you'll be observing Jupiter from the opposite side of the solar system! You will probably need to make observations with a 'scope of at least eight-inch aperture, though, working at 100 to 150 power or possibly more. And you'll also probably end up observing Jupiter during twilight when it will be high enough to distinguish features in its cloudtops.

January's Jupiter events:

- Jan 23 -- 5 degrees north of Antares
- Jan 26 -- 1.7 degrees south of the moon

While you're out shivering in the cold twilight of those frosty January-mornings looking at Jupiter, don't forget to swing that 'scope toward Venus, the other solar system showpiece object visible in the pre-dawn sky. As the planet speeds

conjunction with the sun on **Aug 21**) its apparent size will shrink from nearly 29 arc seconds on the 1st to just under 21 arc seconds on the 31st. It's magnitude will range from -4.5 to -4.3 during the month. By the end of February it won't be much to look at in a telescope. As usual though, Venus will entertain us with its seemingly endless but stunning pairings with the moon, Jupiter, and other bright stars near the ecliptic this winter and spring. Did you see the conjunction of Venus and the crescent moon on the morning of **Nov 30** when the two bodies stood just two degrees apart?

January's Venus events:

- Jan 13 -- Reaches greatest western elongation (47 degrees) from the sun
- Jan 14 -- 3 degrees north of Jupiter
- Jan 15 -- 8 degrees north of Antares
- Jan 16 -- The planet's sphere appears half-lit for telescope viewers. This is referred to as "dichotomy".
- Jan 27 -- A mere .2 degrees south of the waning crescent moon. Many Latin American observers will see the moon occult Venus this morning.

Jan 13 -- Venus, Jupiter, and Antares will form a straight line in the sky this morning.

January's lunar events:

- Jan 01 -- New Moon occurs at 4:56 a.m. CST on New Year's Day, a rather unique coincidence of "new" events!
- Jan 08 -- First Quarter at 9:46 a.m. CST
- Jan 16 -- Full Moon at 2:26 p.m. CST
- Jan 23 -- The waning gibbous moon occults 1st magnitude Spica (Alpha Virginis). Disappearance occurs on the bright limb about 4:50 a.m. and well before the onset of twilight; reappearance occurs on the dark limb about an hour later and just after the start of twilight.
- Jan 24 -- Third Quarter at 10:58 p.m. CST
- Jan 30 -- New Moon at 4:48 p.m. CST (note that this is the second New Moon this month!)

Other January events to observe:

Saturn, in Aquarius, is in the evening sky near the meridian at sunset. It sets about midnight. The planet's ring system

pass through the ring plane on **May 22** and **Aug 10** (and again in **Feb '96**) making for a "ringless" Saturn in telescopic views. When this occurs, we will be viewing Saturn's rings "edge-on" for the first time since 1980. Saturn is at magnitude 1.0 and about 16 arc seconds in diameter all month.

Mercury, in the western sky, is barely visible just after sunset each evening most of the month. It should be easiest to spot during the third week of the month. It is at inferior conjunction on **Feb 03**. Greatest elongation east of the sun (19 degrees) occurs on **Jan 19**.

Uranus and **Neptune** are pretty much "out of range" this month. Conjunctions with the sun occur on **Jan 13** and **Jan 16** respectively.

Mars observing should be in full swing this month. The red planet will be visible all night long. Although from a size perspective this is the most unfavorable apparition of the 1990's, Mars is always worth a look whenever it is close to us. Perihelic opposition occurs about **Feb 12** (its closest approach to us is on **Feb 11**). Try to observe Mars from now until the end of March while its apparent diameter is above 10 arc seconds. The planet is in Leo, riding high enough on the ecliptic to allow observations for ten or more hours on a continuously cloud-free evening. That corresponds to nearly one-half of a Martian day, so you'd be able to observe nearly one-half of the entire Martian surface area in one very long observing session! Near the end of the month Mars is close to Regulus (the period in the backwards question mark, or the base star in the sickle of Leo) every evening.

The **Quadrantid meteors** (radiant in northeast Bootes, formerly the constellation of Quadrans Muralis hence the name) peak on the evening of **Jan 03** about 6:00 p.m. Since Bootes is mostly a circumpolar constellation the radiant is above our horizon continuously. It will be best placed for viewing, however, after 12:00 a.m. on the 4th. Maximum ZHR (Zenithal Hourly Rate) ranges from 60 to 110 meteors with an average speed is 41.5 kps. Colors are mainly blue and yellow with spreading trains. The moon

Comet Borelly reaches opposition on **Jan 20**. It was a bright object in binoculars and telescopes in November and December at magnitude 7.7. It will cruise past M81 and M82 in Ursa Major between the 21st and 31st of the month, and is predicted to hold at about 9th magnitude. See the finder chart on page 63 of the January *Astronomy*.

Earth is at perihelion at 6:00 a.m. on **Jan 04** at a distance of 91.4 million miles. The latest sunrise of the year occurs on **Jan 05**.

-★DLK

THE "CANIS MAJOR" OBSERVING CLUB IS NOW FORMING

The M.A.S. remote site observing program has, in a manner of speaking, "gone to the dogs". **Wanda Berner** suggests that M.A.S. members interested in using a relatively dark site within easy driving distance of the metro area join the "Canis Major" Observing Club by applying for a dog training permit which allows entrance into the secured Ottawa Dog Trial Grounds in the Kettle Moraine State Forest. You can get a permit (it'll cost \$5 and is good for at least two years, but you'll also need a Wisconsin State Park sticker at \$15 annually) at the Forest Headquarters office on Hwy 59 between Eagle and Palmyra weekdays, or on Saturdays until 12:00 noon. You'll be asked to fill out a form and state which "bird" you are training your "dog" to hunt. Wanda suggests listing pheasants or quail on the application form, but I think it would be much more appropriate to list Aquila (eagle), Cygnus (swan), or Corvus (crow) given the situation!

The permit will be issued immediately, and you'll be given the combination for the locked gate at the site. Users must lock themselves in when on the premises, and make certain to lock the gate when leaving. The site features pit toilets and a partial shelter. It is open until 11:00 p.m. every evening of the year and is plowed in the winter. Dog trainers do not use the site after dark so it's a very secure dark-sky site for astronomers. The grounds are just east of State Highway 67 at the intersection of Waukesha

County Highways C and CI. For more information call Wanda at 691-2360.

Also, if you take out a permit, call Wanda to register for the "club". She envisions notifying members with permits a day or so in advance of any impromptu observing sessions taking place there. Permit holders will be able to use the site whenever they wish, however.

-★DLK

THE M.A.S. AND MEMBERS IN THE NEWS

A few issues of the recently reformatted **Focal Point** have hit the desk of Milwaukee's Numero Uno science editor (and our friend) **Paul Hayes** of the **Milwaukee Journal**. He was impressed enough with the content of the issues he reviewed to write a four paragraph piece about the M.A.S.'s newsletter in his **Science Notebook** column for Wednesday, November 2. His write-up included a couple of comments by the editors, taken from a phone conversation concerning the growth of membership in the M.A.S. over the past year. Thanks for the boost, Paul, and please do continue your good work on **Science & Technology** in the paper's new **Life** section every Wednesday!

Member **Liz Moy Briggs** (wife of member **John Wright Briggs**, an astronomical engineer at Yerkes Observatory in Williams Bay) was recently featured in a *Journal* article about her 2-year-old border collie dog named Cassie. Liz is an accountant at Yerkes and suffers from frequent epileptic seizures. When she is stricken, Cassie, who was rescued from the Lakeland Animal Shelter by the Okada guide dog school near Fontana, retrieves a baton that triggers a series of phone calls for help. Instructors at Okada trained Cassie to retrieve the baton, a device developed by John and his co-workers at Yerkes last year. John has just completed a year-long research position at McMurdo Station at the South Pole for the Observatory's CARA (Center for Astronomical Research in Antarctica) program.

Members **David and Lynda Eicher**, and their new business venture "Well Traveled Images", were featured in an article for the *Waukesha Freeman's Life* section on November 5. Dave is well known to us as an associate editor of *Astronomy* magazine in Waukesha and the author or editor of six books on astronomy. What many people don't know is that he is an avid Civil War historian, and the author of the soon to be published "Civil War Battlefields: A Touring Guide". He has four other Civil War books currently in the works, including a bibliography of the 1,200 most influential books about the Civil War. Well Traveled Images is a stock photo agency that markets the 7,500 Civil War-related pictures in Dave's personal library to magazines, newspapers, and history book publishers. For the past six years Dave has published "Civil War Journeys", a monthly calendar of his pictures. You can find the calendar at the nearest Schwartz book shop.

NEW MEMBERS FOR 1994

We promised that the list of members joining in 1994 would be published in the November *Focal Point*, but due to space and time limitations we had to delay announcing our newest recruits until this issue. So here they are, 35 individuals and families. **WELCOME TO ALL!** We hope you become active in your Society, and that your membership with us will be long and prosperous!

David Abelson, Milwaukee

Ernest Baese, New Berlin

Shields Baker & Family, Greendale

Kerry Butitta, Waukesha

Karl Bzduck & Family, Milwaukee

Miles Cundy & Family, Pewaukee

Stephen Davis & Family, New Berlin

Dennis Filut, West Allis

Catherine Gaar, Wauwatosa

Henry Gerner & Family, Wauwatosa

Dan Ghere, Menomonee Falls

Mandy Gutkowski, New Berlin

Robert Kaegi & Family, Palmyra

Martha Kalk & Family, New Berlin

Shela King & Family, Franklin

Natasha Kotrly, Brookfield

Kathleen LoPiparo & Family, Franklin

Robert Manak & Family, Waukesha

Jim McMahon, Milwaukee

Christopher Mead & Family, New Berlin

Dr. James Pechloff, Brookfield

Lisa Piechowski, Wauwatosa

Rudy Poklar, New Berlin

Thomas Scheer, Whitefish Bay

John Schibley, Waukesha

Nancy Smith, Waukesha

Ted Stamos & Family, Mequon

Vera Stoud, New Berlin

George Stucher, Waukesha

Gary Timm, Milwaukee

Paula Visauer, Wauwatosa

Allen Wegner, Sr., Milwaukee

Randy Welniak, Milwaukee

Daniel Wendelborn, Neenah

David Westman, Brookfield

Michael Willkommen & Family, Brookfield

OBSERVATORY KEYHOLDER SCHEDULE FOR JANUARY AND FEBRUARY 1995

JAN 07	SCOTT JAMIESON 896-0119
JAN 14	JOHN PFANNERSTILL 475-6494
JAN 21	TERRY ROSS 784-2093
JAN 28	GERRY SAMOLYK 529-9051
FEB 04	TOM SCHMIDTKUNZ 352-1674
FEB 11	VIRGIL TANGNEY 327-7976
FEB 18	KEN WARACZYNSKI 321-0918
FEB 25	WANDA BERNER 646-8229

M.A.S. EVENT SCHEDULE FOR JANUARY AND FEBRUARY 1995

JAN 04	FIRST WEDNESDAY AT THE OBSERVATORY 7:30 P.M.
JAN 09	BOARD MEETING HOME OF VIRGIL AND MARY ANN TANGNEY 8034 W. Norwich Ave. 327-7976, 7:30 P.M.
JAN 20	GENERAL MEMBERSHIP MEETING AT NATIONAL REGENCY 8:00 P.M.
FEB 01	FIRST WEDNESDAY AT THE OBSERVATORY 7:30 P.M.
FEB 13	BOARD MEETING LOCATION TO BE DETERMINED 7:30 P.M.
FEB 17	GENERAL MEMBERSHIP MEETING AT NATIONAL REGENCY 8:00 P.M.