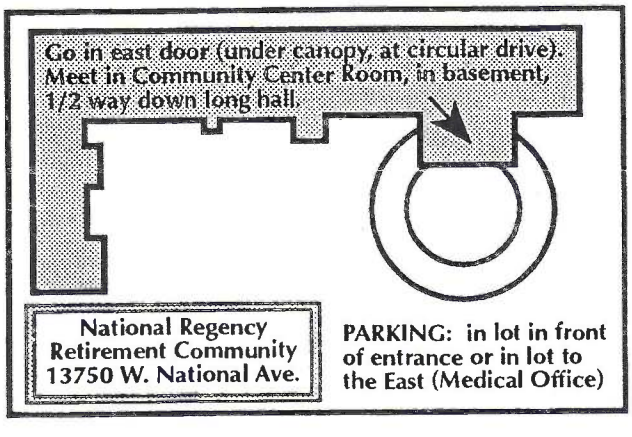
FOCAL POINT

The Newsletter of the Milwaukee Astronomical Society January 1995

JOIN US FOR THE JANUARY MEMBERSHIP MEETING AND PROGRAM!

Hidden away near Dousman, Wisconsin is a National Weather Service forecasting office. Hardly noticed by even its neighbors, the interior of the building looks more like NASA's infamous "Mission Control" than a weather office. The main room is filled with a huge circle of computer monitors, each amazingly displaying -- in real-time -- the current weather situation world wide! The center boasts it's own powerful tower-mounted Doppler radar, capable of reaching over 400 miles to Lake Superior. Our speaker for the meeting on January 20, Mr. Rusty Kapela, works at the Dousman weather center. He will describe the modern weather forecasting tools and techniques now available to meteorologists. The technology used daily right here in southeastern Wisconsin for weather forecasting is truly fantastic! This program should be of interest to anyone affected by the weather! Don't miss it!

-★*Tom Renner*



Use the main entrance on the east end of the building and facing south toward National Avenue. Upon entering the complex, turn right and proceed downstairs to the Community Meeting Room. The meeting room is located about one-half of the way down the long corridor, on the left. Please arrive by 8:00 p.m. (the start of the business meeting) as the exterior doors are locked shortly thereafter for security purposes. Our speaker's presentation will begin immediately following the business portion of the meeting.

FROM THE EDITORS' DESK

The events of Monday evening, October 31, 1994, will live vividly in my memory forever. For a brief instant that night I was 18 again -- at least in a manner of speaking. It had been almost exactly twenty years prior to last Halloween that I was formally introduced to the night sky. Of course I had *seen* the stars in the night sky before then, but I had never really *observed* them and learned to recognize star patterns, constellations, and the motions of the stars and planets the way my high school physics teacher taught me to during the fall of 1974.

So once again, just like twenty years before, I was humbled. Over these past two decades as an amateur astronomer I have taken great pride in knowing the night sky well -- at any time and in any season. But situated as I was, below the equator for the first time in my life and gazing up at the night sky, I had to start all over again -- from scratch. I was lost.

All the stars and constellations I had grown up with in the northern hemisphere with were either too far north to be seen at all, or were turned upside down so as to make them unrecognizable from my usual northern perspective. I stood at the end of a pier jutting out into Lake Titicaca, about an hour north of La Paz, Bolivia, for the longest time, trying to make sense of it all.

Finally, it happened. Someone in my eclipse expedition group, who was counseling another equally confused and frustrated fellow amateur, pointed out that Sagittarius was setting (the familiar teapot was inverted due to our southerly latitude) almost due west and making a near perfect right angle to the horizon. It all made sense after that, or rather, about half the sky made sense after that. I traced the ecliptic from west to east, from Sagittarius (which isn't visible at 9:00 p.m. on October 31 from southern Wisconsin, by the way!) through Capricorn, Aquarius (that bright star I'd been admiring there was quickly recognized as Saturn), Pisces, and finally to Taurus, which was just rising. Much of the sky below this (n fact nearly all of it!) was completely foreign to me.

By the time I began recognizing a few things in the sky, I

was wishing I hadn't left my *Sky Atlas 2000* field charts back home. And no one else in the group had charts either.

As the evening progressed, and with the help of a few veteran and semi-veteran southern sky observers (the Australians on our expedition had gone to bed early!), the rest of us learned some new constellations: Grus (this is my favorite southern constellation as it's made up of a series of double stars) Piscis Austrinus (the brightest star in this constellation is Fomalhaut, which rides our southern horizon in late fall and early winter -- at 16 degrees south latitude its overhead!) Corona Australis, Tucana (home of the Small Magellanic Cloud and 47 Tucanae, a globular cluster so huge and rich it defies verbal description!) Arus, Triangulum Australe, Eridanus (Alpha Eridani is also known as Achernar), Carina (Alpha Carina is known as Canopus and is nearly as bright as Sirius) and Dorado (home of the Large Magellanic Cloud). The SMC and LMC each contain hundreds, if not thousands, of star clusters and nebulae. It would have been easy to spend several nights just exploring the dozens and dozens of easy and bright objects in each. The group's favorite Magellanic object, the Tarantula Nebula, was examined telescopically many times over the course of Monday evening by members of my group.

The list of fascinating southern observing targets available to us that night was infinite -- and the incredibly rich southern Milky Way hadn't even risen by 2:00 a.m., the time I decided to call it quits and turn in!

I observed several hours the next night (Tuesday), but we were clouded out Wednesday night (and en route to our eclipse observing site in the south central part of the country). I was able to observe a small portion of the southern Milky Way (and the Southern Cross, the Jewel Box cluster, and the gorgeous Eta Carina Nebula) early on eclipse day, Thursday, before sunrise.

But absolutely nothing will ever compare to that first night under that blanket of "new stars" -- just like twenty years ago.

In his book "Chasing the Shadow", co-author (and M.A.S. member) **Joel Harris** describes viewing a total solar eclipse as the closest thing to visiting another planet that anyone living in the 20th century will ever experience. After seeing three total solar eclipses I can't disagree with this statement, but I can add a corollary to it: observing the southern hemisphere skies for the first time!

Now, if I could just figure out how to turn the clock back twenty years for real . . .

-★Dan Koehler

BY-LAWS ENCLOSED WITH THIS NEWSLETTER

Members are advised that a copy of the Society's revised by-laws (dated November 18, 1994) has been included in the envelope with this issue of the Focal Point. This copy includes all changes approved by the membership at the November 18 meeting, and which became effective on January 1, 1995. Please keep this copy handy for ready reference when necessary.

QUICK REMINDERS AND NOTICES

★★We are still looking for an alternative monthly meeting site to the National Regency Retirement Home community room in New Berlin. Members are asked to submit any ideas to Program Chairman Tom Renner. Tom (and others) will investigate potential sites, which should have near-by freeway access, be available on Friday evenings for several hours, and have adequate parking and security. Ideally, a potential facility should have an auditorium or large meeting room that can accommodate 75 or more people and be available for our use free of charge.

★★The Nominating Committee has formed, consisting of the following members: **Matthew McNeely** (354-5347, evenings), **Brian Ganiere** (961-8745, evenings), and **Ken Waraczynski** (321-0918). Their mission is to assemble a slate of at least four M.A.S. members for election to the Board of Directors, and to find as many interested candidates as possible to run for the offices of President, Vice-President, Secretary, and Treasurer at the May membership meeting. If you would like to be considered for nomination, please call any one of the committee members as soon as possible.

★★The Finance Committee has also recently formed and has held its first meeting. Members are: **Scott Jamieson** (896-0119, evenings), **Marty Brunet** (544-1342, evenings), and **Dan Koehler** (662-2987, evenings). They will be researching and presenting recommendations to the Board of Directors on such issues as the establishment of a family dues rate for Regular and Non-Resident members, increases in dues for the 1995/6 fiscal year, and drawing up a budget plan for the Society. If you're interested in joining the committee contact Scott as soon as possible.

★★We are still in need of a Roster Maintenance Coordinator, to work with the Membership Committee Chairman in maintaining the mailing and telephone list of all M.A.S. members. Potential candidates must have ready access to a personal computer with some sort of database program and the capability to print mailing labels. Additionally, it would be very helpful if this person could take on the minimal duties of the Astronomical League Correspondent (ALCOR). Call Matthew McNeely (354-5347, evenings) if you are interested in this important position

★★Observatory Committee Chairman **Jim Kube** is still interested in hearing from M.A.S. members who would like to learn about the operation of CCD cameras. He hopes to form a class to study the design, construction, and operation of one or more home-built CCD cameras like the one explained in Richard Berry's book, "The CCD Cookbook". Jim can be contacted evenings at 453-8858, or drop him a note at 727 South 92nd Street, West Allis, WI 53214.

★★Board member **Virgil Tangney** is continuing to conduct a physical inventory of all M.A.S. property

stored at the Observatory and in member's homes. If you have any M.A.S. property in your possession (excluding library materials) you are asked to contact Virgil immediately at 414-327-7976, 8034 West Norwich Avenue, Milwaukee, WI 53220.

★★General Membership Meeting dates for the remainder of this year are as follows (all are the third Fridays of the month): January 20, February 17, March 17, April 21, and May 19. The Jan, Feb, and Mar meetings will be held at National Regency, 13750 West National Avenue, New Berlin (on the north side of National just east of the intersection with Sunnyslope). The Apr and May meetings may be held there or at the Observatory as determined at a later date. Elections will be held at the May meeting.

★★First Wednesdays of the month at the Observatory, 18850 West Observatory Road in New Berlin, are set aside for members to discuss observing programs like variable stars, standard and grazing occultations, and other celestial events with the Observatory staff and other M.A.S. members in an informal setting. First Wednesdays offer members a good opportunity to best learn how to use our great facility. The get-togethers begin at 7:30 p.m. on the following dates through June 1995: Feb 01, Mar 01, Apr 05, May 03, and Jun 07.

★★The M.A.S. event calendar for 1995 is currently in the works. To be determined are the dates of our Public Open Houses at the Observatory, camping trips, and the family picnic, among a few other events. The calendar will be the subject of an upcoming feature in the *Focal Point.*

DOUBLE CLICKS

An Occasional Column Reviewing Astronomy Software for PC's

This month's featured software is the Buil-Thouvenot CCD Atlas (BT-ATLAS), a unique collection of images representing over 3,060 deep-sky objects. The images were made exclusively with CCD cameras, those digital-imaging marvels that have been in use at most professional observatories for the past ten years or so. "CCD fever" has recently swept the amateur community, as commercial and even home-built cameras have improved, and prices for complete cameras and components have plummeted, making them a viable alternative for the back-yard astrophotographer. The relative ease-of-use that CCD cameras offer the typical amateur astronomer over conventional photography, coupled with the ready availability of inexpensive, "high-powered" personal computers and digital imaging software, helps explain the explosion in popularity of CCD cameras. The result is the BT-ATLAS; a modern-day iteration of the classical photographic atlas that will become as mandatory to any CCD camera user as a good star atlas is to the visual observer.

The BT-ATLAS is a large database covering most types of deep-sky objects with multiple examples. Included are 2,135 individual galaxies, 156 galaxy clusters, 324 open clusters, 105 globular clusters, 117 planetary nebulae, 181 bright diffuse nebulae, and 42 dark nebulae. Many of the objects are unfamiliar to most amateur and professional astronomers. The BT-ALTAS is far removed from the classical Messier catalogue and will open a huge new field of observation to all sky lovers.

Images in the BT-ATLAS are "deep"; the magnitude limit is between 18 and 21, depending on the object. A celestial object that is normally seen as a pale nebulosity in the largest amateur telescope will show full and true form in a CCD image. This aids in clearly depicting the diversity of shapes in our universe. Perusing the BT-ATLAS is tantamount to a cosmic passport!

CCD imaging is exciting. Imagine making a five minute exposure of a *13th-magnitude galaxy* with your telescope, computer, and CCD camera. The camera and 'scope patiently catch the few photons reaching Earth from the far-away object. At the end of the exposure, the computer screen lights up and the image of the galaxy appears. And it can be enhanced with digital imaging software on the spot or in a later session indoors. The moment an image is completed and displayed is always an emotional one. You'll feel this same emotion as you browse through the BT-ATLAS!

The BT-ATLAS software is available through the M.A.S. Software Library as bt_atlas.zip. Call me at 425-2331 for more information. *The M.A.S. Computer Users Group has given this software a rating of three stars* (on a one to five scale, with five being the best).

-★*Lee Keith*

ASK THE ASTRONOMER

As I viewed the evening sky this past fall and early winter, I observed the three stars forming the Summer Triangle in the western sky. Why is this "summer" star pattern still visible in the winter?

--Stuck in a Time Warp

Dear Warp:

We continue to view many "summer" stars well into the winter months. If you look to the west on any clear evening around December 25, you will notice the constellation of Cygnus the Swan (a.k.a. the Northern Cross, a familiar summer constellation) "standing" vertically with respect to the horizon. This Christmas omen from the heavens would be more appropriately displayed in the eastern sky, the direction of "rebirth" from which the Sun, Moon, and stars appear to be "reborn" as they rise each day ("We observed his star at its rising and have come to pay him homage."), but I digress . . .

This situation is caused simply by the fact that the Sun sets earlier each evening during the autumn months. Normally, the stars would appear to be positioned closer to the western horizon by an average of four minutes each night, causing the previous season's constellations to sink in the west and be replaced by new ones rising in the east. In the fall this celestial progression across our skies is partially offset by sunsets that occur four to eight minutes earlier each evening. In this way, we are able to observe stars

before they have made their daily four minute move toward the horizon. It appears to us that these stars remain above our horizon longer during the fall and winter seasons than they should. The opposite situation occurs in the spring and early summer, restoring the celestial balance between the solar motions and our earthly clocks. As sunrises occur earlier each day during this time, the appearances of the summer constellations above the eastern horizon seem to fall behind, and we observe their risings later in the season than what we would normally expect.

LIBRARY NEWS

Peter Smitka has donated a set of slides of the Barringer Meteor Crater near Winslow, Arizona from a recent trip he made to the area, and instructions for building a human gnomon sundial. Anyone interested in pursuing this unusual timekeeping project will find the plans in the vertical file: SUNDIALS. Peter suggested this could be a worthwhile addition to the Observatory grounds, especially during the sunlit portions of our public Open House programs. The Meteor Crater slides have been added to the Society's main collection stored in the A/V closet at the Observatory.

-★Sally Waraczynski

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

A November 17 *Sheboygan Press* article brings us up-to-date on M.A.S. member **Harald Schenk**, a city of Sheboygan engineer and one of a select group of amateur astronomers chosen some years ago to perform research projects on the Hubble Space Telescope. He recently concluded his third session with the HST.

Harald's project involved using the HST's spectroscopic equipment to study the light reflected by asteroids to determine their chemical nature and discern if any might be extinct comets. His theory was intriguing to the HST scientists who chose his project because if it proved true, those asteroids might contain water, oxygen, and other organic compounds that future manned space missions to the outer reaches of our solar system could utilize.

The asteroids he chose to study, five in all, had been previously observed with comet-like tails. These observations have helped fuel Harald's theory that some old comets are now masquerading as rocky bodies in the asteroid belt. So far, the HST has not proved him to be correct, however some astronomers believe there may still be merit in this theory.

Harald utilized the expertise of a science adviser, a technical adviser, and a data analyst in conducting his research project. In addition to the HST team, he had the help of a network of 80 amateur astronomers in 20 countries and 25 states. The amateurs observed the same asteroids Harald was studying, looking for those elusive comet-like tails. Some did see what appeared like tails, but Harald speculates what was seen were really dust clouds created when these small bodies collide with one another, rather than a true cometary tail.

With the asteroid project now concluded, Harald is hoping to eventually use the HST for another of his proposals. One of his projects involving the magnetic field displacement in fast moving pulsars just missed being accepted.

Congratulations Harald, and good luck with your future HST pursuits!

Peter Smitka has passed on a bit of news from long-time member **John Asztalos** (a former Board Member, Assistant Observatory Director, and recipient of the Society's Service Award in 1990) who now resides in Evergreen, Colorado. John mentioned in his Christmas card to Peter that he and his wife Alexandra (Alex) are the proud parents of a baby girl born December 3. Zoe weighed in at 6 lbs. 9 oz. and was 19-inches long.

Congratulations Alex and John!

EYE ON THE SKY FOR FEBRUARY

For planetary observers, early February offers the last chance to favorably view Saturn in the evening sky. It will be lost in the Sun's glare from the latter part of February until late April. As I mentioned in this column last month, Earth will pass through Saturn's ring plane on **May 22** and **Aug 10** this year, giving us an edge-on view of the planet's ring system, the first since 1980. Saturn will be appreciably dimmer at these times than when the rings are presented to earthly viewers in the "open" format.

Along with Saturn, we will lose our view of Mercury in the evening sky when it passes through inferior conjunction (between Earth and the Sun) on **Feb 03** at about 5:00 p.m. CST. It will pop out of the solar glare in the morning sky beginning about **Feb 23** or so. This will not be a favorable apparition for mid-northern viewers however, as the planet will appear too far south due to the low angle the ecliptic makes with horizon at this time of year. You might be able to glimpse it in binoculars very late in the month or early in March (greatest western elongation occurs on **Mar 01**) from a high point looking down at the southeastern horizon. The best *western* elongations of Mercury for mid-northern viewers occur in the fall. Consequently, the best one of 1995 will occur on **Oct 20**. The best *eastern* elongations from mid-northern latitudes occur in spring, and this year's will happen on **May 12**. Mercury will be 5 degrees south of the waning crescent Moon on the morning of **Feb 27**, which may help in finding this elusive planet.

Mars will dominate the planetary viewing schedule in February. Its closest approach to Earth (62.8 million miles) occurs on **Feb 11** (Saturday) at about 8:00 a.m. CST, and opposition occurs that evening about 9:00 p.m. CST. Mars will present a fully illuminated disk of 13.9 arc seconds in diameter, about the smallest it ever appears to us at closest approach, and the planet will shine at magnitude -1.2, brighter than any other celestial object in the evening sky except Sirius at

magnitude -1.5. While Mars will appear rather small telescopically, one advantage we'll have this year (and probably the *only* advantage of this apparition!) is that the planet will be riding high on the ecliptic, at declination +18 degrees, and will therefore be quite high in the sky every evening. It should be easier to see the elusive surface details each night since we'll be looking through less of Earth's obscuring atmosphere than is normal with Mars. Binocular observers can enjoy tracking Mars' movement with respect to the background stars every evening, and watch the planet brighten dramatically as it draws ever closer to us during the first two weeks of the month. To me, the sudden brightening of the planet near closest approach is one of the most interesting features to observe during a Martian apparition. Mars' brightness varies over the broadest range of magnitudes of all the planets. Mars is easy to spot right now in the sickle of Leo, and will exhibit westward or "retrograde" motion through the second half of February and first three weeks of March as Earth passes it in its speedier orbit about the Sun. If you're going to observe Mars through a telescope, you should consult the observing guides published in the December *Sky and Telescope* (pp. 72 - 75) and the January *Astronomy* (pp. 72 - 75 also!) for surface detail maps and to figure out what part of Mars you're seeing at any particular time. Much of the allure of Martian observing is in the attempt to see the very fine surface details present at close approaches. These guides will also acquaint you with Martian nomenclature (a science in itself!) and observing techniques.

Jupiter becomes more prominent in the early morning sky this month at magnitude -2.0. It is near the meridian at sunrise in the constellation of Ophiuchus (and therefore somewhat "off" the ecliptic) just north of Antares, where it will remain most of the year. 1995 will not be a great observing year for Jupiter watchers as the planet's declination will range from -20 to -23 degrees. Pluto, also in Ophiuchus, is farther north and somewhat west of Jupiter. Venus, at magnitude -4.2, increases its distance from us as it swings eastward through Ophiuchus, Sagittarius, and on toward Capricorn in February. Once again, the small angle the ecliptic makes with the southeastern horizon works against mid-northern latitude observers, causing Venus to appear fairly low this month. It will remain this way through June, at which time it will drop into the Sun's glare and will be lost to us until November, when it begins a series of spectacular groupings each evening with Mars and Jupiter (a deja vu assembly of those we saw in June 1991!). Venus passes just 0.7 degree north of 8th-magnitude Neptune at 4:00 a.m. on **Feb 26**, and about 1.5 degrees north of 6th-magnitude Uranus on the morning of **Mar 05**.

February's Lunar Events

Feb 07 -- First Quarter Moon at 6:54 a.m. CST.
Feb 15 -- Full Moon at 6:15 a.m. CST. This is known as the "Snow", "Hunger", or "Wolf" Moon.
Feb 19 -- The Moon passes 0.9 degrees north of first magnitude Alpha Virginis (Spica) at about 11:00 a.m. CST. The northern Pacific rim, including Hawaii, will see an occultation similar to the one we saw on **Jan 23**.
Feb 22 -- Third Quarter Moon at 7:04 a.m. CST. The Moon also passes 2 degrees north of Jupiter at 11:00 p.m. CST.
Feb 26 -- The Moon is about 4 degrees south of Neptune and Venus, and about 6 degrees south of Uranus this morning.
Feb 27 -- The Moon is 5 degrees north of Mercury at 5:00 a.m.
Note: There is no New Moon this month! The next New Moon will occur at 5:48 a.m. on **Mar 01**.

This is the "last hurrah" for Comet Borrelly. It leaves the inner realm of our solar system during February, and dims from magnitude 10.7 to 12.2 during the month. At the end of January P/Borrelly was near the twin galaxies of M81 and M82. At the beginning of February it is still just 2 degrees from them but will begin to show a gradual southward motion against the background stars on its journey to the outer reaches of our solar system. It remains in the northern portion of Ursa Major all month, about 15 degrees from the Big Dipper. There is a finder chart on page 64 of the February *Astronomy*.

There are two minor meteor showers this month. The Alpha Aurigids (radiant near Capella) peak between **Feb 06 - 09** at a Zenithal Hourly Rate (ZHR) of 12. The Delta Leonids peak the evening of **Feb 26** at a ZHR of 3. These meteors may originate from an asteroid, rather than a comet as most showers do.

-★DLK

ALCON '95 DETAILS ANNOUNCED

The San Antonio (Texas) Astronomical Association will host the Astronomical League's 49th National Convention (ALCON '95) July 20 through July 22, 1995 at St. Mary's University in San Antonio.

The League's annual conference will include programs by professional astronomers, an amateur paper session, demonstrations and workshops, vendor and amateur displays, observing sessions, and the camaraderie of hundreds of fellow amateur astronomers. The following guest speakers have been secured to this point:

Dr. Frank Bash, Director of McDonald Observatory in west Texas, owned and operated by the University of Texas at Austin.

Don Parker, well-known amateur astronomer, planetary observer, and CCD imaging specialist.

Dr. David Hough, Professor of Physics at Trinity University.

Deborah Byrd, narrator of the "Earth and Sky" radio program, (and the original narrator of "Star Date", produced by the McDonald Observatory) and frequent contributor to *Astronomy* magazine.

Bill Wren, assistant with McDonald Observatory's supernova search program.

Meetings, meals, and vendor displays will be located in St. Mary's University Center. Attendees may

stay in newly constructed dorm rooms on campus (with private baths) for $26.00 per night for single rooms and $34.00 per night for double rooms. A list of hotels and motels located in and around the San Antonio metropolitan area is included in the registration materials that will be made available to members attending the January M.A.S. membership meeting at National Regency.

Attendees can also register for all meals from breakfast on Thursday, July 20 through lunch on Saturday, July 22 on campus for $36.00 per person. The convention committee is currently planning a formal Saturday evening dinner (cost about $20 per person) with a special guest speaker at a large ballroom near St. Mary's University.

Registration fees are $35.00 for the first individual in your family and $30.00 for each additional person **BEFORE** June 15, 1995. After this date, the rates rise to $50.00 and $45.00 respectively.

If you would like to receive the registration information but can't make it to the January meeting, send a self-addressed, stamped envelope to me at W248 S7040 Sugar Maple Drive, Waukesha, WI 53186, and I'll mail the information to you.

San Antonio boasts many wonderful local attractions for amateur astronomers and their families to enjoy. These include: The Alamo and Riverwalk, Fiesta Texas Theme Park, The San Antonio Zoo, The San Antonio College and Planetarium, The Rivercenter Mall and Imax Theater, Sea World of Texas, The San Antonio Botanical Gardens, The Tower of the Americas, The Missions National Historic Park, and the Natural Bridge Caverns.

I hope to have information about the **49th annual convention of the North Central Region of the Astronomical League** very soon. This conference is scheduled for mid-June 1995 and will be sponsored by the Fargo-Moorhead (ND-MN) Astronomy Club.

Another amateur astronomy conference that may interest at least some M.A.S. members is the **Astronomical Society of the Pacific's Universe '95 meeting**, co-sponsored by *Astronomy* magazine. This will be the ASP's 107th annual meeting, and in keeping with their efforts to move the convention to different venues around the U.S. each year, they'll be setting up shop in College Park, Maryland June 24-25, right next door to Washington D.C. These two dates are the "amateur" portion of the meeting. Universe '95 is actually a week-long conference conducted in parts specifically for astronomy teachers, amateurs, and professional astronomers. Again, I hope to have information very soon about this meeting, or you can write to the ASP at 390 Ashton Avenue, San Francisco, CA 94112 (415.337. 5205 FAX).

-★Dan Koehler

KEYHOLDER SCHEDULE FOR MID-JANUARY THROUGH MARCH 1995

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
MAR 04	PAUL BORCHARDT 781-0169
MAR 11	MARTY BRUNET 544-1342
MAR 18	TIM BURRUS 783-6572
MAR 25	GREG CIESLAK 5290-0548

M.A.S. EVENT SCHEDULE FOR MID-JANUARY THROUGH MARCH 1995

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.
MAR 01	FIRST WEDNESDAY AT THE OBSERVATORY 7:30 P.M.
MAR 13	BOARD MEETING LOCATION TO BE DETERMINED 7:30 P.M.
MAR 17	GENERAL MEMBERSHIP MEETING AT NATIONAL REGENCY 8:00 P.M.

The Focal Point is the newsletter of The Milwaukee Astronomical Society a non-profit corporation founded in 1932 and dedicated to conducting research and educational programs for its members and the general public in the science of astronomy.

Article and photo submissions are encouraged. Deadlines are the 20th of the month preceding the month of publication. The editors reserve the right to alter all submissions in style, length, and content for final publication. Where practical, submissions may be held until suitable space is available in a future issue. Submissions of lengthy articles are appreciated in digital format. Please call for instructions.

Address all materials for publication, comments, and questions to The Focal Point, W248 S7040 Sugar Maple Drive, Waukesha, WI 53186 (414-662-2987) or FAX to the attention of D. L. Koehler at 414-636-1818. Any portion of *The Focal Point* may be reproduced and distributed with proper credit given to the publication and The Milwaukee Astronomical Society.