



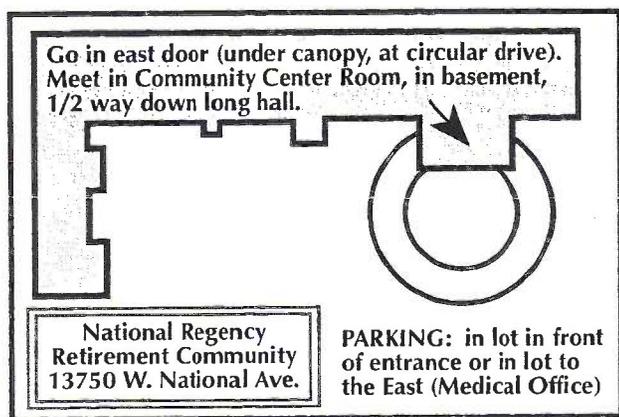
The Newsletter of the Milwaukee Astronomical Society

February 1995

THE NEXT MEMBERSHIP MEETING AND PROGRAM WILL BE HELD ON FEBRUARY 17

Binary stars have held the interest of astronomers from the earliest days of telescopic astronomy. These two-star systems are important because they provide the only direct way to measure the size and mass of stars in general. The great refractors of the 19th century, like the 40-inch at Yerkes in Williams Bay, WI, contributed greatly to our understanding of binary star systems. Today, astronomers have the benefit of new types of instrumentation that can image stars in the infrared and millimeter wavelengths of light, in addition to the visual wavelengths. We can now peer into the centers of dark nebulae where binary stars are being born. **Dr. Robert Mathiew** of the UW-Madison Astronomy Department will share with us the latest theories of binary star birth in a talk entitled "The Formation of Binary Stars".

★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, at about 8:25 p.m.

FROM THE EDITORS' DESK

We'd like to call your attention to three new features of the newsletter, two beginning this month and one next month.

Beginning this month the insert page of the February, April, June, September, October, and December newsletters will consist of a two-sided Milwaukee Astronomical Society Calendar of Events. February's insert is for the months of March and April, and contains the meeting (Membership, Board, First Wednesday) and keyholder schedules, dates of the major lunar phases, and notations of all special events scheduled during these two months like camping trips, off-site observing dates at the Ottawa site, Open Houses, and astronomical conventions. We've left some space to pencil in your own personal events or other notes. We would appreciate feed-back – positive and negative – on the format and content of the calendar and we would especially like to hear if and how you're using the calendars, and how you might like them improved or changed. The meeting and keyholder schedules that have appeared on the back page of past issues will be discontinued, freeing that space for more articles.

Also beginning with this issue we're establishing a column entitled "On the Lighter Side" on the subject of light pollution and how this problem relates to amateur astronomy and the M.A.S. We strongly encourage every member to get involved in halting the encroachment of urban light scatter on the night sky in southeastern Wisconsin (and elsewhere) by joining the effort to combat light pollution in your own neighborhoods and communities. As a start toward this goal, we've included the International Dark-Sky Association (IDA) annual report for 1994 by **Dr. David Crawford**, IDA's Executive Director. The M.A.S. maintains an organizational membership with IDA, but you are encouraged to begin your own individual membership for \$20 annually to support the efforts of this very successful and worthwhile group. A membership application is included with the annual report. In addition to these items, you'll find a survey on the issues of light pollution and how you personally are affected. Send a completed survey to IDA with your dues. Two benefits of IDA membership

individual (not "form") letters to the members of the EREUC, and later, to the Joint Finance Committee. Listings of names and Madison addresses of the committee members will appear in the March newsletter. I think it would be a good idea if members start formulating letters right now so we're all ready at a moment's notice. We may not have much time between the introduction of the bill and the vote by the EREUC, providing one actually takes place.

It may also be best for us to promote the bill on its broad merits of: (1) reducing particulate, CO, SO₂ (the source of acid rain) and CO₂ (greenhouse gas) emissions generated by power plants, (2) creating a safer nighttime environment with less dangerous glare for motorists and shadows that conceal would-be attackers on city streets and alleys (3) saving taxpayer and consumer dollars due to a reduction in energy usage and fixture installations, (4) reducing our dependence on out-of-state energy suppliers since Wisconsin possesses virtually no coal, natural gas, or oil, and (5) dispelling the belief that a lower crime rate can be equated with more outdoor lighting. These arguments are based much more on a taxpayer's or consumer's point of view, rather than those of an amateur astronomer. As amateurs, we are viewed by many state lawmakers as a very narrow special interest group; one that's not large enough, politically, to worry about. As taxpayers and consumers though, we're representatives of a much more influential constituency and our arguments will probably be viewed as more mainstream. Certainly it wouldn't hurt to mention preservation of the night sky for our own and future generations as one of the bill's merits, so long as that's not the only one listed.

Of course, as we learned last year with AB 344, there are no guarantees that a light pollution bill will be passed by the Legislature and signed by Governor Thompson. But like the members of the Wisconsin amateur astronomical community, Rep. Baumgart is committed to supporting legislation to curb the excessive use and waste of outdoor lighting. His primary reason for support, which tilts more toward the

economics of the issues, differs slightly from ours, but the ultimate goal is the same. Once again, we have a rare, golden opportunity to do something substantial about light pollution in Wisconsin. Let's seize upon that opportunity, and support this bill when it is ready for introduction in Madison. Any bill that results in a reduction of light pollution is in the best interests of all amateur astronomers. It will take a concerted effort by amateurs and non-amateurs alike to succeed in gaining passage of this legislation. I hope all M.A.S. members will join me in this effort.

-★ Dan Koehler

LIBRARY NEWS

Astrophotography with a microscope! If you were intrigued by the article in the May 1994 "Reflector", you can read more about it in "A Guide to Astromicroscopy" by Samuel Bisette. The complimentary copy sent to the M.A.S. will be found in the vertical file: ASTRONOMICAL PHOTOGRAPHY. You may sign it out as a book.

At Universe '92, Donald Goldsmith spoke of the need for vigilance against meteoroids whose orbits might place them on a collision course with Earth. A copy of "The Spaceguard Survey: Report of the NASA International Near-Earth-Object Detection Workshop, January, 1992" is now in the vertical file: PLANETS, MINOR. David Morrison chaired the committee formed in response to Congressional direction to prepare a report on the study, detection, and possible prevention of these potential threats to the planet.

-★ Sally Waraczynski

EYE ON THE SKY FOR MARCH

The month that "comes in like a lion and goes out like a lamb" will be a pretty dull one for solar system observers this year.

Mercury is at greatest western elongation on **Mar 01** at 5:00 a.m.

CST, standing 27 degrees from the Sun. As explained last month, this will be a favorable elongation for *southern* observers, but not for their northern counterparts because the ecliptic makes such a low angle with the eastern horizon at this time of year for mid-northern latitude observers. Mercury passes through aphelion at about .47 A.U. (or 43.7 million miles), its farthest point from the Sun, on **Mar 10** and this is why Mercury appears high in Earth's sky this month. This will be the best apparition for southerners in 1995. Mercury also will be about one-half of one degree south of Saturn on the morning of **Mar 26**, and the pair will be about 18 degrees west of the Sun. This will probably be a very tough conjunction to view, but if the sky is clear and your horizon is unobstructed, the event should make the effort worthwhile.

Saturn will not be visible most of the month. It is in conjunction with the Sun about 9:00 p.m. on **Mar 06**, and thereafter passes into the morning sky. It will become barely visible very low on the east-southeast horizon late in the month. It may be best to wait until April to try viewing it again. On **Apr 13** it has a close conjunction (.6 degrees separation) with Venus.

Venus remains a bright beacon in the morning sky before sunrise. Did you catch its gorgeous conjunction with the Moon on Friday morning, **Jan 27**? The next close appearance of these two bodies will occur on morning of **May 27** at .8 degrees separation. On **Mar 02**, Venus and Uranus are about 1.5 degrees apart in the eastern sky. Neptune will lie just a few degrees west of the pair at this time.

Jupiter becomes an increasingly obvious observing target this month. Rising earlier each evening, it stands near the meridian most of the month at sunrise. It is at western quadrature about 1:00 a.m. on **Mar 05**, and about 2 degrees south of the Moon on the morning of **Mar 22**. Unfortunately its appearance in our sky will be at a low altitude all year, so "what you see is what you get" with the king of the planets in 1995. Jupiter's maximum angular diameter will be just over 45 arc seconds

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around the time of opposition on **Jun 01**.

Mars begins a quick shrinking act this month after having been a relatively decent telescopic object in February. During March its angular diameter drops from 13.2 arc seconds to 10.5, and its magnitude drops from -.9 to -.2. It ceases retrograde (westward) motion on **Mar 25** in Cancer. At about 10:00 p.m. on the 25th the red planet will stand 6.3 degrees east of the center of the Beehive cluster (M-44). It will then begin direct (or prograde) motion back into Leo. Mars is at aphelion (about 1.67 A.U. or 155 million miles from the Sun) on **Mar 14**.

The vernal equinox (the moment the Sun reaches the imaginary point at which the equator and the ecliptic intersect, marking the beginning of Spring in the northern hemisphere) and fall in the southern, occurs on **Mar 20** at 8:17 p.m.

March's Lunar Events

Mar 01 -- New Moon at 5:49 a.m. CST.

Mar 09 -- First Quarter Moon at 4:12 a.m. CST.

Mar 17 -- Full Moon at 7:26 p.m. CST. This month's Full Moon is known as the Sap, Crow, or the Lenten Moon.

Mar 19 -- The waning gibbous Moon will be .95 degrees north-northeast of Spica (Alpha Virginis) at 6:00 p.m. CST. An occultation will be visible from much of Europe, the north Atlantic, central Russia, and the Middle East.

Mar 23 -- Third Quarter Moon at 2:10 p.m. CST.

Mar 31 -- New Moon (the second of the month!) at 8:10 p.m. CST.

★ *DLX*

QUICK REMINDERS AND NOTICES

★★**The M.A.S. off-site observing program** (the "Canis Major Observing Club") is gearing up for its first several sessions at the Ottawa Dog Training Grounds in the Kettle Moraine State Forest, just east of Hwy 67 and south of Waukesha Cty

Hwys C and CI. To participate you'll need a 1995 Wisconsin State Parks sticker (\$15) and you'll need to complete a dog training application (\$5, good for two years). Apply at the Forest Headquarters office on Hwy 59 near Palmyra. Once approved (this will happen at the time you apply and pay the fee) you'll receive the combination to the gate lock at the site. Organized observing sessions are scheduled for Friday, **Mar 03**, and Tuesday, **Apr 04**. Call **Wanda Berner** at 691-2360 with questions. You may use the site anytime you wish, however.

★★**Updated Membership Rosters** (dated Jan 01, 1995), **ALCON '95** and **NCRAL '95 registration materials** will be available at the February membership meeting. If you would like one or more of these items but can't make it to the meeting send a self-addressed stamped envelope (with 55 cents postage for any two or more items, or the roster alone) to Dan Koehler at W248 S7040 Sugar Maple Drive, Waukesha, WI 53186.

★★**Wanda Berner, Tom Renner**, and a local travel agency are organizing a week long cruise on a Windjammer Barefoot Cruise sailing ship during the week of February 26, 1998, for the purpose of viewing the next total solar eclipse in the western hemisphere. The eclipse will cross the south Caribbean Sea in the neighborhood of Antiqua Island. Windjammer will deliver cruise participants and their observing equipment to an island near the center line to observe the eclipse. Details will be available at the February 17 membership meeting at National Regency. All M.A.S. members are eligible to participate in this exciting vacation culminated by a spectacular total eclipse!

NCRAL '95 CONVENTION DETAILS ANNOUNCED

The Fargo-Moorhead Astronomy Club and the Moorhead State University (MSU) Regional Science Center will host the 49th annual convention of the North Central Region of the Astronomical League on June 23/4. The convention will

take place at MSU's Comstock Memorial Union.

The convention committee has reserved a block of 80 rooms at the Fargo Holiday Inn (800-465-4329; be sure to mention the Astronomical League rooms) for \$66/night for up to four persons. The hotel features a pool, excellent restaurant, and other amenities. Convention participants can also stay in MSU student housing for \$10/night (call 218-236-2118 for more information) or camp at Buffalo River State Park, adjacent to the MSU Regional Science Center (MSU RSC). Call the Fargo-Moorhead Convention and Visitors Bureau at 800-235-7654 for further information on other attractions and accommodations in the area.

Convention registration fees will be \$17/person before May 20, and \$22/person thereafter. Children under 12 are free. Lunch (\$6) and dinner (\$9.50) on Saturday may be reserved when you pre-register. The meals will be served at MSU.

An observing session with the club's 16-inch computer controlled Cassegrain reflector at the MSU RSC's Paul Feder Observatory will take place on Friday evening. The Observatory is 16 miles east of Moorhead on U.S. Hwy. 10.

Two speakers have been invited to give presentations during the convention. **Dr. Russ Colson**, Assistant Professor of Geology at MSU, will speak on "Lunar Pioneers and Prospectors", a discussion concerning science on the Moon, living on the Moon, and lunar resources we'll be using in the next century. Dr. Colson has worked at the Johnson Space Center dealing with resources on the Moon and lunar geology. **Dr. Walter Worman**, also of MSU, will detail the asteroid research conducted with the 16-inch telescope and CCD cameras at the Feder Observatory.

The convention will also include 5 or 6 amateur papers, astro-trivia and astro-photo contests, and vendor displays. Complete information and registration forms will be available at the February meeting, or send a SASE to me as per the instructions under Quick Reminders and Notices.

★ *DLX*