



The Newsletter of the Milwaukee Astronomical Society

May/June 1995

### LAST MEMBERSHIP MEETING OF THE SEASON ON MAY 19

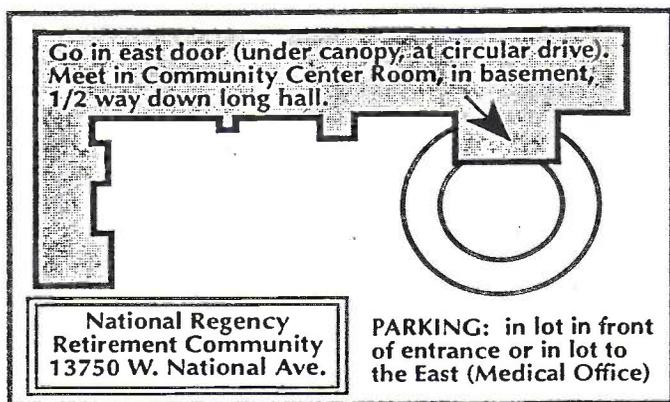
The final Membership Meeting of the 1994/5 year will be held Friday, May 19, beginning at 8:00 p.m. in the Community Meeting Room of the National Regency Retirement Home, 13750 West National Avenue, New Berlin.

Following the election of members to the Board of Directors and the vote on the proposed dues increase for next year, a two-part program will be conducted.

First, M.A.S. Observatory Director Gerry Samolyk and member Chris Hesseltine will present a slide program entitled "Bolivian Eclipse Adventure", detailing their trip to South America to view the November 3, 1994 total solar eclipse on the Bolivian altiplano. Following their talk, a video tape provided by Rudy Poklar will be shown. Rudy visited the Tucson, AZ area during February. A related article about his trip appears elsewhere in this issue. The 20-minute long tape is titled "Wide Eyes - The Making of the World's Largest Telescope Mirrors". It tells the story of the University of Arizona's Steward Observatory spin casting laboratory.

Please join your fellow members for an interesting evening. Your vote in the Board election and on the dues issue is important. And don't forget the post-meeting get-together at an area establishment after 10:00 p.m.!

-★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 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. The programs will begin immediately following the business portion of the meeting, at about 8:25 p.m.

### FROM THE EDITORS' DESK

There's no way they could have known. No way whatsoever.

It was a beginning without parallel. Never in the history of astronomy had such a grand and glorious endeavor been undertaken. Even the astronomers involved could not have foretold the wonders the new telescope would reveal, the doors it would open, or the questions it would raise. On that day anybody who was anybody in astronomy wanted to be a part of it. But only a lucky chosen few – those in the right place at the right time – got the opportunity. The experience would change their lives forever. Many of the greatest names in 20th century astronomy would one day work here: Hale, Struve, Hubble, Sagan, Osterbrock, Morgan, Kuiper, Chandrasekar, Barnard, Burnham, Frost, Adams, Ritchey, Ellerman, Van Biesbroeck. But no one realized this on that great day.

It was a project the likes of which no little town in America had ever seen. After all, it was just a speck on the map, if even that! Lying sleepily on the shores of a pretty lake known for its wealthy summer residents who wintered in the big city some 60 miles southeast, it was the archetypal 19th century rural community. It had its baker, and butcher, its haberdashery, and its carriage shop, and its milliner. There was a doctor in town, and a drug store. A weekly newspaper kept all the residents informed of the comings and goings in the area. Appropriately named "The Observer", it faithfully kept its readers informed every Thursday of the nation's recovery from the financial panic, the election of the new Republican President, William McKinley of Ohio, and of a possible conflict with Spain over Cuba. There was the story about the removal of General Grant's body to a new tomb in New York City, and one about the Diamond Jubilee of Queen Victoria. Its editor was an ardent prohibitionist. But it was the telescope and its building that made the town, and put it on the map. "The Observer" would constantly remind its readership of this fact. From coast to coast and overseas, the little town's name was being repeated daily. But they couldn't have known what lay ahead.

The train stopped there too. In the years to come the Chicago and Northwestern railway would bring not

only the wealthy summer residents who loved to frolic in their steam-powered yachts on the lake, but also eminent scientists and astronomers from around the world to live, work, and study at the new observatory. The steam locomotive would be the life line of the community, and the observatory. They would come from France and Germany, from Russia, England, and the Netherlands. And one day, the great Albert Einstein would visit. But this was all in the future. On this day, they didn't have a clue.

The project would bring together a most unlikely group of gentlemen. The project organizer -- the brains behind the operation -- was a handsome and wealthy young man of 26. This would be his second observatory project. There would be two more, each of which would dwarf the present one in size and complexity. For him, this was just the opening act in a long and illustrious career in science and astronomy. Then there was the university president; a visionary and scholar who set out to build the finest institution of higher learning in the middle west -- an succeeded wildly. He would persuade the wealthy businessmen of his city, especially one named Rockefeller, to donate millions of dollars to his endeavors. In future years, his university would attract Nobel laureates like no other. In the 1940's, his university would be home to another monumental project named "Manhattan". He would die young. But he would leave a legacy that endured two world wars, countless international conflicts, a great depression, and would flourish into the 21st century. On this day, his 3-year-old institution would start down the road that would lead to ownership of the world's largest telescope. Finally, there was the benefactor and namesake. A more unlikely donor could not have been found. A millionaire, a philanderer, a womanizer; the "traction magnate". He was scorned and despised by many in the city. He boasted that he had once dreamed of owning the world's largest telescope. Whether true or not, he would, in the next two years part with \$450,000 to make it a reality.

No, none of them could have known. Not George Ellery Hale, not William Rainey Harper, and certainly not Charles Tyson Yerkes. Not the townspeople, the businessmen, the brick layers, the iron workers, the millwrights, the carpenters, or the electricians. On that day in May 1895 -- 100 years ago this month -- as they watched the ground-breaking for the 40-inch refractor at Yerkes Observatory in Williams Bay, WI, they didn't realize that they stood at the threshold of a new era in astronomy.

-★Dan Koehler

## NEW ON-LINE ASTRONOMY CLASSIFIEDS SERVICE AVAILABLE

The Pegasus Classifieds is a computer bulletin board service (BBS) dedicated to astronomy equipment. As the name of the service implies, this BBS has a significant on-line astronomy classified section. The Pegasus Classifieds (TPC) also has an unusual file library which has reviews and files of astronomy product information. In many ways this service is similar to The Starry Messenger. TPC is run by Dave Kaufmann of Denver Tax Software, an avid amateur astronomer.

The BBS's classifieds include sections for eyepieces, reflectors, refractors, catadioptrics, accessories, etc. By separating the ads into sections, you can zero in on where to find what you are looking for or where best to place your advertisement. Even though TPC has only been in existence for eight months, it has more telescopes available than most telescope stores or mail order houses have in stock. That is something to consider when it is not unusual to wait many months for a new telescope. In addition to the "normal" ads for astronomy items, there have been some unusual items offered on TPC. A 35-pound meteorite is currently listed, as were several \$50,000 Schmidt cameras. A residence zoned for light restrictions favorable to astronomers -- including restrictions on car lights on evenings near new moon -- was also listed.

The library consists of 25 files of product information with several new files being added each month. You can download any of these files to your computer. Topics include: a telescope buyer's guide, 1994 telescope making resources, documents on purchasing telescopes, reviews of numerous refractors, and many more.

To reach TPC via your computer modem, dial 303-294-0239. If you need communications software, contact Dave Kaufmann (the Sysop) at 800-326-6686. TPC supports off-line readers to save on toll charges. You may read existing ads, or write you own.

The service will be free of charge until July 1995. Limited access will remain free after July, but full access will cost approximately \$20 per year. Placing ads will be free also, but beginning in July a 4% commission will be instituted on all sales or trades.

Contact: The Pegasus Classifieds, P. O. Box 8379, Denver, CO 80201-8379, or call Dave Kaufmann at the 800 number listed above with questions.

*Ed. Note:* The above news release was received recently from Denver Tax Software. I have tried TPC personally and it appears to have good potential as an alternative source of astronomy classifieds to The Starry Messenger. The protocol is a bit cumbersome, and moving about the BBS takes some getting used to, but all in all its a good idea whose time has come. By the way, the meteorite he mentions is a 35-lb. Gibeon from Southwest Africa. The seller wants \$3,100, or about \$88.57 per pound. I know of a source that will sell you the same find for \$61 per pound. Like anything else, it pays to know the market and it also pays to shop around -- especially with astronomically-related goods! TPC is but one of many sources.

-★Dan Koehler

---

## NCRAL BUSINESS

Paul Castle, NCRAL Chairman, recently contacted all NCRAL ALCOR's by letter regarding nominations for Regional offices for 1995. The positions of Chairman, Vice-Chairman, and Secretary-Treasurer will be filled during the Business Meeting at the 49th Regional Convention in Moorhead, MN on Jun24.

Following is a brief description of the duties of each officer. The position of **Regional Representative** will not be open for election until the Regional Council meeting in 1997.

**CHAIRMAN:** The Chairman conducts the Regional Council and Business meetings once each year at the Regional Convention and deals with correspondence on behalf of the Region and the League during the year. The Chairman visits NCRAL-member organizations during the year, if possible, and promotes the Region and the League. The Chairman is a voting member of the Astronomical League Council, should attend the League's annual Council meeting held during the national convention, and should be available for consultations with the League President, other League officers, and other Council members in emergency situations. Votes may be taken by mail, by phone, or at emergency meetings (the last instance is extremely rare). The Chairman is expected to represent the Region in all matters of concern at the national level.

**VICE-CHAIRMAN:** This position assists the Chairman in matters of business concerning the Region. The Vice-Chairman takes the Chairman's place should the later not be able to carry out his/her duties for any reason. The Vice-Chairman is expected to attend all

Regional Council and Business meetings, stay current with respect to League affairs and business, and attend any League meetings in an official capacity in the absence of the Chairman. The Vice-Chairman is additionally responsible for administering the nomination and voting process for the annual Region Award.

**SECRETARY/TREASURER:** This officer handles all finances for the Region, and keeps the minutes of the Region Council and Business meetings, which he/she is expected to attend.

Nominations should be submitted before **Jun 01** to **Frank Roldan**, Nominating Committee Chairman, N1090 Brookside Drive, La Crosse, WI 54601. Preferably, items for the agenda of either the Council or Business meetings should be submitted to Chairman Castle by **May 25** by letter or phone. Agenda items may be presented prior to or during the meetings as well. You should contact him at 2535 4th Street, Rock Island, IL 61201 (309-786-6119).

**Sharon Stauffer**, NCRAL Vice-Chairman also recently contacted all ALCOR's concerning the NCRAL Region Award. The Region Award is an award of merit given annually at the dinner concluding the NCRAL convention which recognizes individual effort and meritorious service to the Astronomical League, the NCRAL, local astronomical societies, or amateur astronomy in general. The Award is a beautiful engraved bronze plaque on black walnut bearing the insignia of the Astronomical League. Since the inception of the current process for recipient selection in 1989 the Region Award has been given to: 1989 - **Frank Roldan** (Milwaukee Ast. Soc.) and **Berton Stevens** (Chicago Ast. Soc.), 1990 - **Dan Troiani** (Chicago Ast. Soc.), 1991 - **Catherine DuVall** and **William DuVall** (Racine Ast. Soc.), 1992 - **Robert Schmidt** (Minnesota Ast. Soc.) and **Dan Koehler** (Milwaukee Ast. Soc.), 1993 - **Ron Parmentier** (Neville Public Museum Ast. Soc.), and 1994 - **Roland Van Zandt**, (Peoria Ast. Soc.).

Any member in good standing with a member organization of the NCRAL, including Members at Large, is eligible for nomination for the Region Award. Nominations may be made by any person affiliated with a NCRAL member organization, and must be made in writing to **Sharon Stauffer**, NCRAL Vice-Chairman, 1511 North Church Street, Rockford, IL 61103 (815.965.9086). She should receive your nomination by Friday, May 19. Since this notification was received late, you should phone her immediately if you plan to make a nomination. It is preferred that the nomination be made without the

knowledge of the nominee. Include a description of the nominee's achievements: the name of their astronomical society or club, offices held within that organization, the League, or the NCRAL, specific years and duration of terms involved, names and purposes of committees served, astronomically-related public service positions held, special projects headed, observing programs pursued, allied organizations served (IOTA, IAPPP, ALPO, AAVSO, etc.), in addition to other criteria you feel are important with regard to your nominee. Be sure to sign and date your nomination, and include your address and an evening telephone number.

Selection of the Award winner(s) for 1995 will be made by the Special Committee consisting of the NCRAL Chairman, Vice-Chairman, Secretary-Treasurer, and Region Representative. Nominations received by the Vice-Chairman will be sent by mail to the other members of the Committee. Each member will use their own criteria for selection of the best nominee(s) from the recommendations received. Each member of the Committee will rank the nominations in order of their first, second, and third choices. The nominee receiving the most first, second, and third place votes will receive the Award. Voting is conducted by mail and each member of the Committee votes independently of the other members. In the event of a two-way or three-way tie, multiple Awards will be given. Should no one meet the criteria of the members of the Committee this year, the Award will not be given. The decision of the Special Committee will be final. Nominees should be encouraged (discreetly) to attend the annual dinner at the NCRAL Convention in Moorhead, MN on June 24. The names of nominees not selected this year will not be revealed. Nominations are valid for a period of three years, at which time the individual can be renominated should they not be selected for the Award in that period.

In "**The Federal Government Should Have This Problem**" department, a letter was sent to all NCRAL ALCOR's requesting that they pass on the following information to their fellow members concerning the burgeoning NCRAL treasury. The Region currently has over \$5,000 in the treasury, the result of good proceeds from some very successful national and regional conventions held around the Region over the past 15 years. Since expenses have been low over the same time period the treasury has expanded quite nicely.

A \$1,000 loan to the Astronomical League Trust Fund (ALTF) begun in 1982 was returned to the NCRAL treasury last year at the behest of several Trustees of

the ALTF. Since then, a few suggested uses for some of the money have been put forth by some NCRAL members. The ideas include: loaning money to other regions that need it, make another loan to the ALTF or make smaller annual gifts to the ALTF, donate money to the League to print the Officer Training Manual, make a contribution to the International Dark-Sky Association (this was the most popular idea discussed at last year's NCRAL Business Meeting). Submit your "vote" or alternative idea to **Janet Stevens**, 2112 Kingfisher Lane East, Rolling Meadows, IL 60008, 708.398.0562. She will present her findings at the 1995 NCRAL Business Meeting at Moorhead, MN on June 24.

-★*Dan Koehler*

---

---

## LIBRARY NEWS

Music composed of universal longings and ancient memories breathes from the flute and reaches into the darkness. The campfire sends up its glowing incense to the stars. It is time to gather around and listen with wonder to the stories of long ago; of the maiden and the star husband; of how the fisher saved the moon.

There is wisdom as well as entertainment here if you listen thoughtfully to story teller and producer Lynn Moroney. Legends of the sun, moon, and stars are retold on three audiocassettes. They are boxed together and on the bookshelf under QB 55. These tapes were donated to the library in memory of Ian Michael Keith.

Speaking of ancient memories, it is time again to remind all M.A.S. members that we have a history. For over sixty years officers and general members have contributed photographs, letters, brochures, newspaper clippings, etc. which taken together help to weave the story of our organization. Unless we continue that habit of contribution to the history files, the fabric woven in the '90's might be threadbare and colorless.

Recent purchase: Observing Comets, Asteroids, Meteors, and the Zodiacal Light, Edberg and Levy, 1994.

Recent anonymous donation: The Decade of Discovery in Astronomy and Astrophysics, Nat'l Research Council, 1991.

Missing items as of the April inventory:

Scientific Instruments You Can Make, Davis  
Microcomputers in Astronomy, Genet  
A History of Western Science, Alioto

## Astrophotography II, Martinez

Slide B131, space shuttle with open cargo bay

Scott **Laskowski** has accepted the position of Assistant Librarian, effective in March.

Review of Cosmic Clips: Animations from Astronomers, Astronomical Society of the Pacific, 1993: Professional astronomers use computer models to formulate and test their hypotheses about the universe. "Cosmic Clips", a video tape, includes selected morphological and evolutionary computer animations that postulate solar system to galaxy supercluster formations and interactions.

Pluto-Charon short clips initiate interest for those viewers not familiar with astrometry. Also included are clips of AU Microscopium, eruptive variable stars, the X-ray Sun, and the great supernova of 1054 (that produced the Crab Nebula) to introduce concepts with respect to stellar astrophysics. A short booklet accompanies the tape with brief descriptions and references.

-★ *Sally Waraczynski and Scott Laskowski*

---

## ASK THE ASTRONOMER

Dear Mr. Astronomer:

What is the difference between an "open cluster", a "galactic cluster", and a "globular cluster"? Signed, Claustrophobic.

You have raised a question that Mr. Astronomer has pondered often while gazing at many of the different star clusters you are curious about. Without our modern knowledge of the three dimensional structure of the Milky Way, astronomers in the past had to rely on the relative positions or major visual differences between the cluster types to distinguish them from one another.

Astronomers noticed decades ago that one type of cluster appeared in or very near the Milky Way. They are referred to as galactic clusters and consist of anywhere from about 20 to about 2,000 stars. They are relatively loose and irregular in appearance, and are usually dominated by a small number of very bright stars accompanied by many more dimmer stars.

Astronomers also noticed a type of star cluster that could be found almost anywhere in the sky, but had a tendency to congregate in or near the summer constellations of Sagittarius, Scorpius, and Ophiuchus, among a few others.

These globular clusters contain huge numbers of stars: from about 20,000 to over a 1,000,000 or more! They are spherical in shape, densely packed, and have the appearance of a globe, hence the name. Mr. Astronomer has it on good authority that his good friend, the "Father of Sidereal (Stellar) Astronomy" Sir William Herschel, coined the term globular cluster after observing many of these objects in his large telescopes (he also coined the term "planetary nebula", but I digress).

As the years passed, other astronomers discovered why the galactic clusters huddled near the plane of the Milky Way. Their formation was the result of recent star formation from giant clouds of molecular hydrogen in the disk of the galaxy. These molecular hydrogen clouds hang like black storm clouds blocking our earthly view of the stars that hide behind them. We are able to view only those stars in our immediate neighborhood. Today we refer to galactic clusters as open clusters in reference to their loose appearance in the telescope. Some examples are: the Pleiades (M45) and the Hyades in Taurus, the Praesepe (M44 or the Beehive) in Cancer, and the Big Dipper, the closest Open Cluster to us at only 68 light years away!

In contrast, globular clusters are so packed with stars that if you were standing on a planet circling a star inside a globular cluster there would be so many bright stars in your sky it would never become dark! Just imagine a place where there are thousands of stars brighter than the planet Venus, and hundreds as bright or brighter than the full Moon! The mighty globular clusters are concentrated in the summer constellations like a swarm of bees near a hive because they orbit the center of the Milky Way galaxy, between Sagittarius and Scorpius. They appear to congregate in this one part of our sky because Earth is situated at one edge of the Milky Way, and we are looking back at the galactic center and the swarm of globulars it contains. This is much like looking at downtown Milwaukee from a hill in the suburbs, where all the city lights appear to be concentrated in a small area.

Globular clusters contain very old stars from the formation of the galaxy, some 12 to 15 billion years ago. Some examples include the Great Globular in Hercules (M13), Omega Centari, M22 in Sagittarius, M15 in Pegasus, and 47 Tucanae, among many other fine examples. And while there are 400 or so cataloged open clusters only 131 globulars are known.

## EYE ON THE SKY FOR JUNE AND JULY

Solar system observers won't have a great deal to cheer about during the first two months of summer. Aside from the normal course of seasonal events, none of the planets will offer many unusual "must see" features until later this year. There are a few unique viewing opportunities to try during the summer months, however, mainly involving the outer "gas giant" planets.

The Sun reaches its northernmost declination for the year on **Jun 21** at 3:36 p.m. CDT marking the summer solstice for the northern hemisphere. The earliest sunrise occurs on **Jun 15** (about 5:12 a.m. in Milwaukee) while the latest sunset happens on **Jun 28** (about 8:42 p.m. in Milwaukee). At this time of year we can look forward to about 15-1/2 hours of sunshine per day.

Mercury is coming off its best evening apparition of 1995. Having passed greatest eastern elongation on **May 12**, it reaches inferior conjunction with the Sun on **Jun 05**, passes into the morning sky, and attains greatest western elongation (22 degrees) on **Jun 29**. This is a relatively unfavorable apparition. You may spot it naked eye, low on the east-northeast horizon, about 45 minutes to 1 hour before sunrise at the end of June. Venus, which is fading from view this month and which will disappear entirely in the Sun's glare in early July, will help locate Mercury on **Jun 19**. The two inner planets will be separated by 4 degrees that morning. On **Jun 25**, the pair will be joined by the waning crescent moon, Aldebaran, and the Pleiades to form a beautiful dawn grouping, all near the horizon. This is yet another photo opportunity for astrophotographers to attempt capturing. Neither planet will warrant a look telescopically. Mercury is occulted by the Moon on the morning of **Jun 26** for observers from Alaska to northern Asia. We will see the two celestial bodies less than 1 degree apart in our morning sky that day, with Venus about 3 degrees north of the Moon at the same time. Mercury is at superior conjunction on **Jul 27**.

Mars, in Leo throughout most of June, moves noticeably eastward from Regulus during the month. By July it will reside in Virgo. On the magnitude scale Mars drops in brightness slightly from +0.9 to +1.3 from the beginning of June to near the end of July. Again, it's not worth looking at in a 'scope.

Jupiter, in Scorpius and near Antares at about magnitude -2.5, reaches opposition on the evening of **Jun 01**. This is about as good as Jovian viewing

will get for 1995. Of special interest will be the dark belt that remains in Jupiter's far southern hemisphere from last summer's encounter with Comet Shoemaker-Levy 9. The planet sets shortly before sunrise during the summer months (and earlier as the season progresses), so viewing should be conducted from about 10:00 p.m. to 2:00 a.m. for optimum results during June and July. Jupiter is 2 degrees south of the Moon on the morning of **Jun 12** and the morning of **Jul 09**.

Aquarius hosts Saturn this summer, the solar system's star performer. Our passage through Saturn's ring plane on **May 22** will be followed by another on **Aug 10**. In the mean time, we'll be observing the ring system, ever so slightly, from the "south" side. In small instruments with low power, Saturn will appear essentially ringless, with a black band across its center. Higher powers and longer focal lengths should reveal a hint of the rings, and show their shadow more prominently on the sphere of the planet.

Neptune and Uranus continue residing on the Capricorn - Sagittarius border this summer. They reach opposition, respectively, on **Jul 17** and **Jul 21**. Using binoculars in a clear, dark sky, Uranus will likely be the easier of the two to identify with its pale green disk just above the globular cluster M75. A mere 40 arc minutes straight west you will find Neptune, fainter, smaller, and bluer than its outer solar system twin. It is the most distant planet from us presently, at 4 light hours away. The two planets will not appear this close to each other again in our sky until 2165, so the pairing is worth a look at least once this summer.

#### LUNAR EVENTS FOR JUNE AND JULY (all times are CDT)

**Jun 06** -- First Quarter Moon at 5:25 a.m.

**Jun 12** -- Full Moon at 11:03 p.m. June's Full Moon is known as either the Rose, Flower, or Strawberry Moon and rides the lowest point on the ecliptic of any Full Moon of the year.

**Jun 19** -- Last Quarter Moon at 5:00 p.m.

**Jun 27** -- New Moon at 7:50 p.m.

**Jul 05** -- First Quarter Moon at 3:02 p.m.

**Jul 12** -- Full Moon at 5:49 a.m. July's Full Moon is known as either the Thunder or Hay Moon.

**Jul 19** -- Last Quarter Moon at 6:01 a.m.  
**Jun 27** -- New Moon at 10:13 a.m.

The final lunar occultation of Spica this year will occur on the morning of **Jun 09**, about 1:55 a.m. CDT for Milwaukee observers. This occultation will take

place through the southern hemisphere of the Moon, similar to the circumstances of the **Apr 15** event that occurred at Full Moon (and during the partial lunar eclipse). And like that one, we'll see the disappearance but not the reappearance with the Moon less than 10 degrees high at the time the event begins. The lunar phase will be waxing gibbous that night, thus the disappearance will occur on a dark limb.

Here's the list of the best placed M Objects observable in June and July during the early evening hours as determined by M.A.S. Observing Clubs Coordinator Lee Keith:

#### June

**M-3**, Globular Cluster in Canes Venatici,

R. A. 13 h 42.2 m Dec. +28 d 23 m

**M-49**, Elliptical Galaxy in Virgo,

R. A. 12 h 29.8 m Dec. +8 d 00 m

**M-51**, Spiral Galaxy in Canes Venatici,

R. A. 13 h 29.9 m Dec. +47 d 12 m

**M-53**, Glob. Cluster in Coma Berenices,

R. A. 13 h 12.9 m Dec. +18 d 10 m

**M-58**, Spiral Galaxy in Virgo,

R. A. 12 h 37.7 m Dec. 11 d 49 m

**M-59**, Elliptical Galaxy in Virgo,

R. A. 12 h 42.0 m Dec. +11 d 39 m

**M-60**, Elliptical Galaxy in Virgo,

R. A. 12 h 43.7 m Dec. +11 d 33 m

**M-61**, Spiral Galaxy in Virgo,

R. A. 12 h 21.9 m Dec. +04 d 28 m

**M-63**, Spiral Galaxy in Canes Venatici,

R. A. 13 h 15.8 m Dec. +42 d 02 m

**M-64**, Spiral Galaxy in Coma Berenices,

R. A. 12 h 56.7 m Dec. +21 d 41 m

**M-84**, Elliptical Galaxy in Virgo,

R. A. 12 h 25.1 m Dec. +12 d 53 m

**M-85**, Spiral Galaxy in Coma Berenices,

R. A. 12 h 25.4 m Dec. +18 d 11 m

**M-86**, Elliptical Galaxy in Virgo,

R. A. 12 h 26.2 m Dec. +12 d 57 m

**M-87**, Elliptical Galaxy in Virgo,

R. A. 12 h 30.8 m Dec. +12 d 23 m

**M-88**, Spiral Galaxy in Coma Berenices,

R. A. 12 h 32.0 m Dec. +14 d 25 m

**M-89**, Elliptical Galaxy in Virgo,

R. A. 12 h 35.7 m Dec. +12 d 33 m

**M-90**, Spiral Galaxy in Virgo,

R. A. 12 h 36.8 m Dec. +13 d 10 m

**M-94**, Spiral Galaxy in Canes Venatici,

R. A. 12 h 50.9 m Dec. +41 d 07 m

**M-98**, Spiral Galaxy in Coma Berenices,

R. A. 12 h 13.8 m Dec. +14 d 54 m

**M-99**, Spiral Galaxy in Coma Berenices,

R. A. 12 h 18.8 m Dec. +14 d 25 m

**M-100**, Spiral Galaxy in Coma Berenices,

R. A. 12 h 22.9 m Dec. +15 d 49 m

**M-101**, Spiral Galaxy in Ursa Major,

R. A. 14 h 03.2 m Dec. +54 d 21 m

**M-106**, Spiral Galaxy in Canes Venatici,

R. A. 12 h 19.0 m Dec. +47 d 18 m

#### July

**M-5**, Globular Cluster in Serpens,

R. A. 15 h 18.5 m Dec. +02 d 05 m

**M-102**, Spiral Galaxy in Draco,

R. A. 15 h 06.5 m Dec. +55 d 45 m

To receive the M.A.S. Messier Observing Club Handbook (with tips on reading star charts and finding these objects), send one 8-1/2 x 11-inch SASE with \$1.01 postage attached to Lee at 8150 South Legend Drive, Franklin, WI 53132. By following his prescribed observing program listed here each month, you can obtain your Messier Certificate and lapel pin in one year's time!

-★DLK

#### QUICK REMINDERS AND NOTICES

The July/August issue of *The Focal Point* will be mailed to members around **Jul 1**. The deadline for submissions is **Jun 20**. The September issue, containing the dues renewal form, will be mailed the last week of August. The deadline for submissions is **Aug 20**.

After the **May 19** meeting, the next General Membership meeting will be held at the Observatory on **Friday, Sep 29, 8:00 p.m.**

The **May 19** meeting is the "Annual Meeting" at which elections for the Board of Directors take place. Candidates for the four vacancies on the Board were introduced in the article on page two of last month's newsletter. They are: **Scott Laskowski**, **Rudy Poklar**, **Scott Jamieson**, and **Jim Mayer**. Additional nominations may be made at the meeting. Members will also be asked to vote on the issue of increasing the M.A.S. dues rates for the coming year. Refer to the article on page one of last month's newsletter for details. A final discussion on the dues issue will be conducted before the vote is taken at the **May 19** meeting.

Dark-sky camping trips are scheduled for Brush Creek (western Wisconsin, near La Crosse, see article in the July/August newsletter) **Aug 24-27**, Greenbush (Northern Kettle Moraine State Forest, article to appear in the September newsletter) **Sep 22-24**, and Pinewoods (Southern Kettle Moraine State Forest, article scheduled for the October newsletter) **Oct 20-21**. Contact **Wanda Berner** at 414.691.2360 or 414.646.8229 for further information.

Group outings at the **Ottawa Dog Trial Grounds** just off Hwy 67 south of Dousman are scheduled for **May 21, Jun 01, and Jul 15**. Permit holders may use the area on any date, however. Requirements are a valid use permit (\$5) and an annual Wisconsin State Forest sticker (\$15), both of which can be obtained at the Forest Headquarters between Eagle and Palmyra on Hwy 59.

seven days a week. Hours of site use are the same as for the Kettle Moraine in general, meaning it "officially" closes at 11:00 p.m. Call Wanda Berner (phone numbers listed above) for details.

The annual M.A.S. Family Picnic will be held Saturday, Jul 15, from 2:00 p.m. on, at the Observatory. Traditionally, beer, soda, and at least one BBQ grill have been provided for attendees. You should bring your own food and utensils. An article will be included in the next newsletter with further information about the entire event. It would be very nice to see a large turnout (for a change) since this is the only major membership event planned for the entire summer! A lot of members have been making themselves scarce at membership functions over the past year. Where are you and what's your excuse?? C'mon! Join the rest of us for an enjoyable afternoon and evening of games, food, and conversation at the picnic! Mark your calendar now and plan to be there!

"First Wednesday-of-the-month meetings at the Observatory are a great way to meet and learn from fellow members, find out what's going on in the sky and in the Society, and learn to use the equipment at our fine facility. The first Wednesdays of the summer months are: Jun 07, Jul 05, Aug 02, and Sep 06. Meetings are informal and begin at 7:30 p.m. with no set ending time.

An Observatory "clean-up" session is scheduled for Monday evening, Jul 17, and Tuesday evening, Jul 18, after the picnic and before the summer portion of the Open House schedule begins. We'll start about 6:30 p.m. and work several hours until all the buildings have been swept, mopped, and spruced-up. This is a call for all members (especially Keyholders) to help out! "Many hands make light labor" as the saying goes. If enough people (12 - 15) show up on Monday night, we may be able to finish the whole job that night. We'll need brooms, mops, rags, and general cleaning supplies. Call Dan Koehler at 662-2987, to volunteer.

The first two Public Open House nights at the Observatory were successful. Over 100 guests attended the "Mars" presentation on Apr 14, including two Cub Scout dens and many students from a Marquette University astronomy class. There were 87 attendees for the discussion on "Amateur Astronomy" on May 05, which turned out to be the clearest evening we've had for an Open House (or anything else for that matter) in some time. We continue to be in need of members to help park cars, direct guests, make the slide presentations, and man telescopes.

Ideally, we should have at least 15 to 20 members at every Open House, regardless of the weather. These first two events were held with less than 10 members each night! Five Open House dates remain: Jul 21, "The Great Comet Crash of 1994" (speaker needed), Aug 04, "The Perseid Meteor Shower" (speaker needed), Aug 18, "The Milky Way", Sep 08, "The Northern Lights", and Oct 06, "Where are Saturn's Rings?" (speaker needed).

Program volunteers should call Lee Keith at 425-2331. Please consider donating a few hours of your time to at least one Open House this summer. Your help is needed and greatly appreciated by your fellow members and the public alike.

**FOR SALE: Omega-100 black and white photographic condenser enlarger with 50-mm lens. Like new. Great for astrophotography. \$125 firm. Call Lee Keith, 425.2331.**

**WANTED: Back issues of Astronomy or Sky and Telescope** to give away to Open House visitors at the Observatory. Clean out your attic, basement, or bathroom and share those old magazines with others just developing an interest in astronomy. Our young guests just love 'em! You may drop your donations by the Observatory before an Open House, bring them to the May 19 Membership Meeting, or call Lee Keith, 425.2331, to arrange a time to deliver them to his home in Franklin.

**FREE:** A 6-inch reflecting telescope to a young person (under 18) who will give it a good home and use it faithfully to learn about the wonders of the universe. Need not be a M.A.S. member, but should be someone who could not otherwise afford a telescope. Call Jerry Bialozynski at 895.7461.

---

### A VISIT TO THE T.A.A.A.

M.A.S. member Rudy Poklar visited the Tucson, AZ area in February and March. He filed this report with *The Focal Point* after his return:

"I attended a T.A.A.A. (Tucson Amateur Astronomical Association) regular meeting on a Friday night. Their meetings are held in a Steward Observatory lecture hall on the University of Arizona campus. The meeting was 4+ hours, which is not atypical from what I hear. It was loaded with all kinds of interesting presentations:

\*\*A beginners "pre-meeting" describing techniques for observing and sketching Mars.

\*\*A pitch by a University staff member working on the terrain optical system for the Mars Pathfinder lander scheduled for launch in December 1996. The talk described the basic mission and lasted about one hour.

\*\*A tour of the "Mars garden", a "real world" acre of rock and dirt simulation of the Martian surface. The Pathfinder crawler is tested in the garden which is located on the U of A campus near Steward Observatory. This presentation lasted about 40 minutes.

\*\*A real time projected video of a 10th(?) magnitude asteroid occulting a 9th magnitude star, complete with Universal time (WWV) on each video frame. This was really a nice way to acquaint us neophytes with what an occultation like this looks like.

\*\*The T.A.A.A. President, Dean Ketelsen, showed color slides of a large variety of deep sky objects photographed at a star party the previous week.

\*\*Also shown were slides of computer driven tooling being used to grind a 6.5-meter mirror at the U of A mirror lab. The mirror was spun cast using new technology. Dean Ketelsen is one of the opticians doing this work.

\*\*Two astronomy graduate students reported on their studies of galactic structure using a 50-inch telescope on Kitt Peak.

\*\*The club's chief observer, accompanied by computer generated star charts at the meeting as well as projected photos, highlighted upcoming astronomical events for February and March. He also helps run a very dynamic campus planetarium.

This marathon session began with about 200 people and ended with about 70 diehards. Some of the original 200 were parents with kids in a parallel tutorial session. All of the presentations were interesting and well done. The University's electronic projection system integrated slides, computer inputs, video and photos, and projected them onto a very large screen. This was a super way to be immersed in astronomy!

Dean Ketelsen extended an invitation for me to tour the University Mirror Lab. My wife and I saw the grinding of the 6.5-meter mirror in progress and their oven used to spin cast very large mirrors -- both were very impressive!

Incidentally, the tour guide at Kitt Peak said they had 311 useable evenings there last year! The local amateurs come close to the same!"