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Milwaukee Astronomical Society

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New Members

Our membership list now includes Stig Jonsson, wife May, sons Frederik and Richard of Brookfield; and Rodney Motto, wife Terry, and son Ronny of Milwaukee.

Meteors

Your editor observed a fireball (bolide) at 7 P.M., January 26. The brilliant blue-white object sped across the sky from west to east in a slowly descending arc, finally ending in a shower of reddish sparks. A rare, beautiful sight!

Lyrids - April 21. 10-15 per hour. Peak at 3 A.M. Look south. Radiant point is Lyra, near Vega.

Eta Aquarids - May 4. 10-40 per hour. Peak at 3 A.M. Look southeast.

High Level Talk on High Energy

Out featured guest speaker at the April Program-Meeting will be MAS member Dr. Patrick Slane of the University of Wisconsin-Madison Department of Physics. His talk is briefly described in this note to MAS Program Director Matthew McNeely by Dr. Slane.

The talk is entitled "Very High Energy Gamma-Ray Astronomy - The Atmospheric Cerenkov Technique." Astronomy at energies (or frequencies) higher than the near ultraviolet generally must be studied above the atmosphere of the earth because of absorption. However, the detector size required to study radiation of extremely high energy (above about 1 billion electron volts, or 1 GeV) is just too large for current space projects. In the range of 100 - 100 GeV, however, the atmosphere itself can be used as a detection medium. High energy x-rays entering the atmosphere initiate a cascade of electrons which, because the travel faster than light can travel in air, produce radiation (called Cerenkov radiation) in the visible portion of the spectrum. This radiation is produced in a very fast "flash" (all of the light arrives on the ground within about 2 billionths of a second, or 2 nanoseconds). Our experiment, located on Mt. Haleakala - a dormant 10,000 ft volcano on the island of Maui in Hawaii - is designed to search for the presence of such x-rays. Unfortunately, the background is very large in such experiments and identifying the x-rays in the presence of this background is very difficult. I will describe both how the experiment works and how we attempt to identify the x-rays in the presence of the large background.

The source candidates for production of such very high energy x-rays include neutron stars and black holes. The radiation is indicative of physical processes occurring at energy scales never studied on earth (even in the largest particle accelerators). I have spent considerable time studying the source Hercules X-1. This object is a neutron star in a binary system. I will summarize the results of the studies of this object and speculate on what physical process could be responsible for some of its strange behavior.

We expect a good turnout for this talk. Guests are welcome.

WHEN: Friday, April 15, 8:00 P.M.

WHERE: Child & Adolescent Treatment Center (CATC) auditorium
9501 W. Watertown Plank Road, Wauwatosa, Wisconsin

Site may be reached by the Rt. 71 bus. There is ample well-lit parking nearby.

Calendar of Events

- | | | |
|----------------------------|---|--|
| Wednesday, April 27 | - | May "Focal Point" Deadline. |
| Friday, May 6 | - | Venus at greatest brilliancy. |
| Friday, May 20 | - | May Election Meeting. |
| Saturdays | - | Observatory maintenance and improvements. Help wanted. |
| Saturday Nights | - | Member's night at the observatory. |

Please save the MAS April through October Schedule of Events you received with your March "Focal Point". If you need a copy, please call (414) 933-3052.

Grazing Occultation

Grazing occultation of SAO 98552.
April 24-25 2:03 U.T. (9:03 P.M. CDT)
Sunday night.

This graze will feature a 7.3 - 8.8 double star. The Moon will be 61% sunlit and the graze will occur 16 degrees from the bright cusp. A cable expedition for this favorable graze is planned but the exact position has not been determined. Information will be available on request. Please call 475-9418.

Astronomy Day

Saturday, April 23, will be observed at the observatory from 2-11 P.M. Everyone, including the general public, is invited. There will be programs and viewing. Rain or shine, our facilities will be open.

The observatory is located in New Berlin on Observatory Road about 1 mile west of Calhoun Road (KX). Watch for the entrance sign and attendants. Call 542-9071 if you're lost.

It goes without saying we'll need some volunteer help for parking cars, crowd control, guiding, manning 'scopes, or to spell other workers.

Halley's Comet Update

The recent passage of Halley's comet has left a wealth of information in its wake which will take years to analyze and record.

MAS comet specialist John Geraci recommends "Astronomy and Physics: A European Journal" (Nov. 1987) as a very informative, up-to-date book about data collected on Halley's comet. It contains International Halley's Watch (IHW) worldwide astronomical observations, photos by non-professionals, extensive data, studies, and illustrations.

The exhaustive 933 page work may be found in the U. W. Milwaukee periodical section of the library which is located in the college basement.

Jet Propulsion Laboratory will also be issuing a summary.

For Sale

Celestron Schmidt-Cassegrain 5" f/10 (1250mm) reflector telescope. Offer includes case, mirror star diagonal, visual back, 25mm ocular, and T-mount for a Canon camera. Price: \$ 450.00.

Please call Mr. Herron Eckstein, 8801 W. Layton Ave., Greenfield, Wisconsin. 53228 (425-0473).

Amateur Astronomer's Series Classes

These classes are informal, low keyed classes on basic observing techniques and telescope selection, use and maintenance. They will be held at 7:00 P.M. at the observatory on the Saturdays listed. If you are a beginner to astronomy or an intermediate observer looking for specific info, these classes are right up your alley. You don't even have to take notes, as there will be handouts summarizing salient points. After class, stick around for the hands on workshop, described below.

- Apr 30 - *Reading the Celestial Roadmap*
The Small, Faint & the Diffuse: Finding Celestial Objects
Workshop: Take out Portascopes & find a few Messier objects!
- May 7 - *Neophyte's Guide to Telescopes*
All the Extras - Accessories
Workshop: Those Amazing Nebular Filters!
- May 21 - *What's Your Power?*
Workshop: Finding the field of view of your eyepieces by timing stars.
- May 28 - *Cleaning & Collimation of a Newtonian Telescope*
Workshop: Bring in your dirty telescope mirror for cleaning!

If time permits, there will also be an opportunity for all who attend to be given instructions on the use of the large 12.5" telescope, so you can use this telescope on Saturday Member's nights.

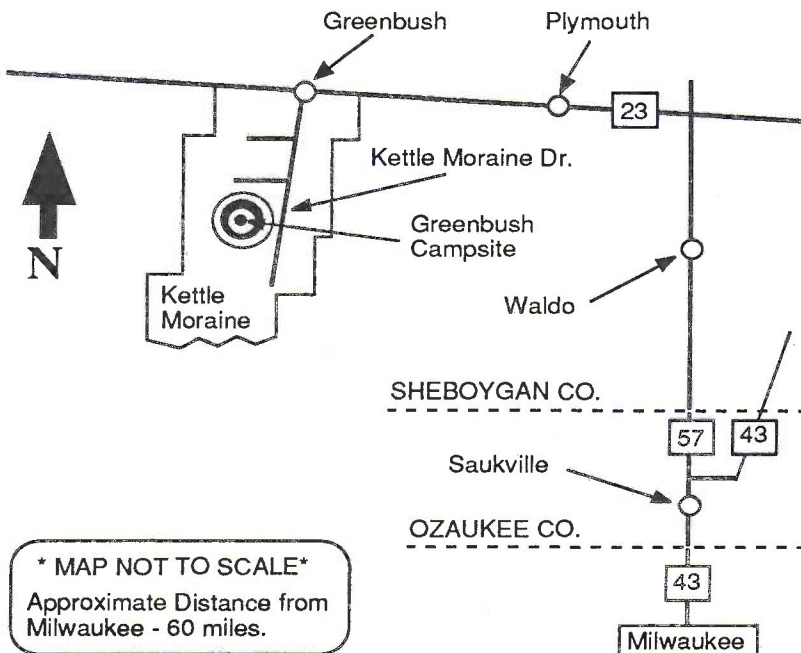
As a reminder to observers, the MAS offers the Messier Club Observer's Handbook if you send a 8.5" x 11" SASE with 66 cents postage to: Lee Keith, Herschel/Messier Club Coordinator, 1239B E. Randolph Ct., Milwaukee, Wisconsin 53212. It contains a wealth of information on observing techniques and hints, as well as detailed maps to find the more elusive Messier objects. Best of all, its FREE!

Greenbush Spring Camp-Out

Once again, anyone who wants to rough it a bit may join the Star-Party camp-out at Greenbush. The moon will be new. A dark, clear sky is a real treat.

Bring your tent, 'scope, warm clothes and firewood to group site #6. The date is Friday through Sunday, April 15-17.

Call John Asztalos at 258-5626 for full details.



Pluto-Charon System by Peter Gwynne

The following article was found in the March 1988 "Research & Development" magazine by James Kube.

Astronomers are taking advantage of a rare viewing opportunity to more closely observe the distant planet Pluto and its moon, Charon. Their observations, reported at the 171st meeting of the American Astronomical Society, indicate that these two objects easily are the strangest in the solar system.

The viewing opportunity, which occurs only twice in Pluto's 248 year orbit around the Sun, is the passage of Charon directly behind and in front of Pluto as viewed from Earth. In addition, Pluto is just 2.8 billion miles away from Earth - its **closest** point during its solar orbit.

"Nature was very kind to us in this case," said Richard Binzel of the Planetary Science Institute, Tucson, Arizona.

The alternating eclipses of Pluto and Charon occur every 3.2 Earth-days, and enabled astronomers to make the most exact measurements to date of the sizes and surfaces of the two objects. For example, astronomers have found that the reddish-hued Pluto has a diameter of 1,400 miles (2,250 km) and Charon, which appears to be a dullish grey, 745 miles.

In addition, Pluto turns out to be twice as dense as water, suggesting a rocky component. That make Pluto quite different from other outer planets of the solar system, which are less dense than water. "None of us would have guessed this," Binzel said. In fact, the discovery of potential rockiness reaffirms Pluto's stature as a planet (R&D August, p 49).

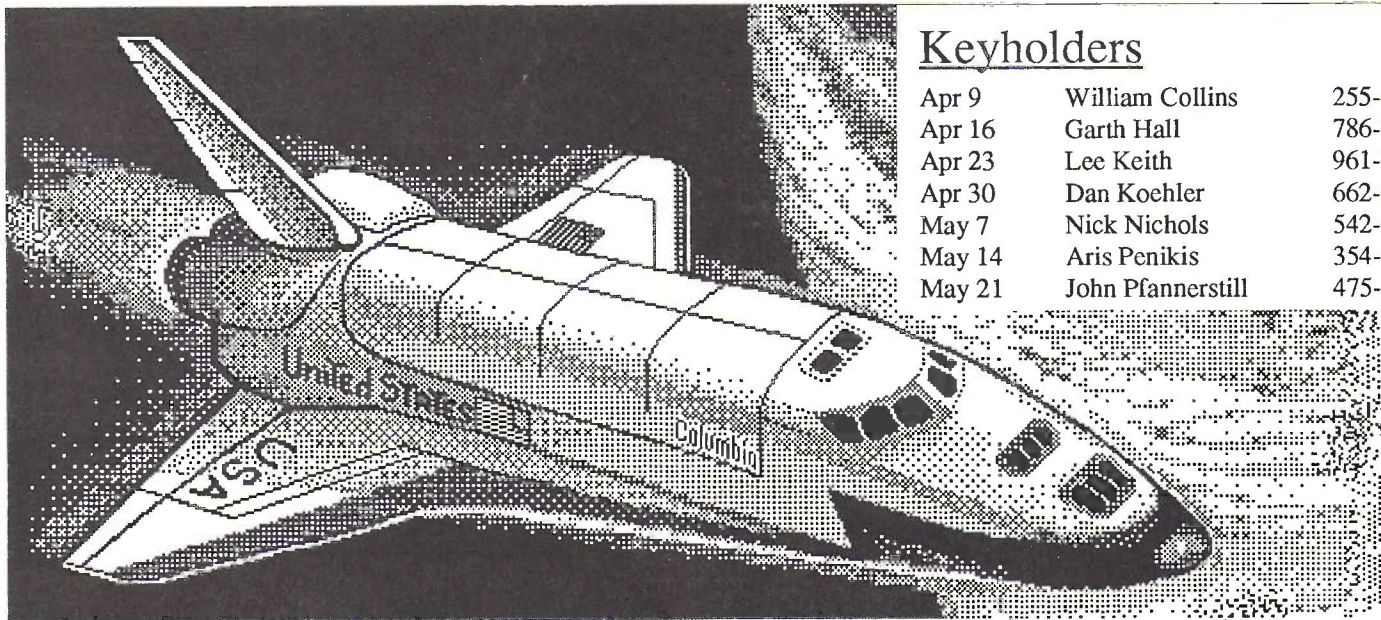
The most surprising find, however, concerns Pluto's atmosphere. Analyses of data indicate that the planet's methane atmosphere extends out 12,000 miles (19,000 km) to Charon, reaching the moon at supersonic speeds, said Laurence Trafton, University of Texas-Austin.

While most of the methane molecules escape out into space, according to Trafton, some form a gaseous cloud around Charon.

"These results are considered to be significant," he reported, "because the Pluto-Charon system appears to be the only example in the solar system of a double planet with [one] atmosphere interacting with both bodies."

In fact, the Pluto system may contain more than meets the eye. Trafton and Alan Stern, of University of Colorado-Boulder, announced plans to search for smaller satellites of Pluto.

"If small satellites are detected in the Pluto-Charon system, we will be able to refine estimates of the mass of the system," Stern said. "If these small satellites exist, their orbits probably will teach us something about the origin of Pluto and Charon," he added.



Keyholders

Apr 9	William Collins	255-4169
Apr 16	Garth Hall	786-8579
Apr 23	Lee Keith	961-8752
Apr 30	Dan Koehler	662-2987
May 7	Nick Nichols	542-2055
May 14	Aris Penikis	354-9708
May 21	John Pfannerstill	475-6494

Field Trip Recap

83 people boarded 2 Wisconsin Coach Lines busses which left and arrived on time. 64 tourists were MAS members, 12 from Wehr AS, 4 from Green Bay AS and 3 from Northern Cross AS.

The Planetarium Sky Show "A Star is Born" was well presented, and everyone who later visited the Shedd Aquarium, Field Museum, or the Museum of Science and Industry certainly found much fascination. And they must have walked 100 miles through aisles and corridors!

As usual, President Dan Koehler did a fine, minutely detailed job of organization. Everything went according to plan.

Directory

President	Dan Koehler	662-2987
Vice President	Dr. Richard Wiesen	781-4757
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