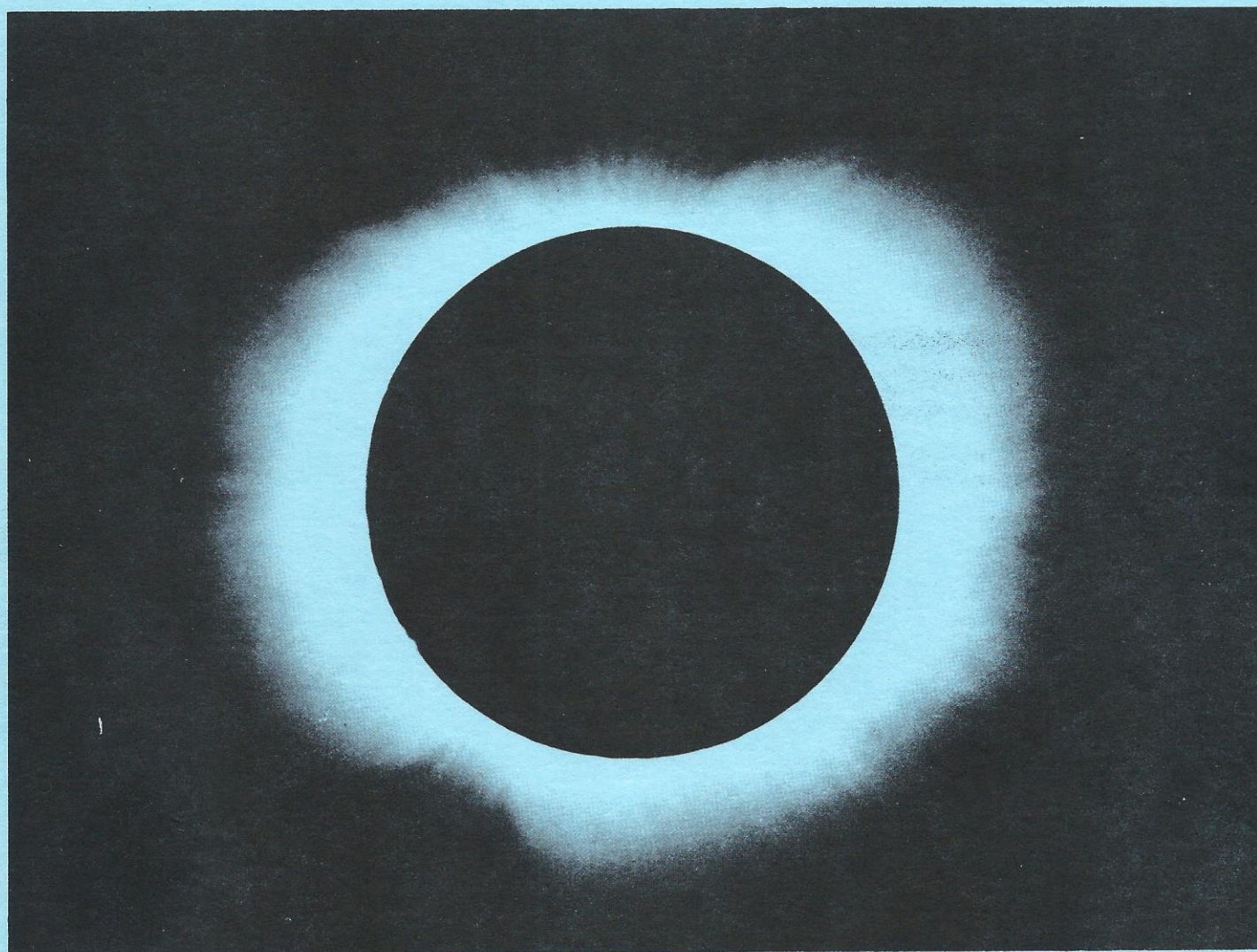




VESPA

THE JOURNAL OF THE WARREN ASTRONOMICAL SOCIETY



VOYAGES TO DARKNESS 1977 SOLAR ECLIPSE CRUISE

OCT. 1977

The Warren Astronomical Society
P.O. Box 474
East Detroit, Michigan 48021

The Warren Astronomical Society (W. A. S.) is a local nonprofit organization of amateur astronomers. Membership is open to all interested persons. Annual dues are as follows; Student- 59.00, College- \$11.00, Senior Citizen- 513.50, Individual- \$16.00, Family- 21.00, the membership fees listed here include a one year subscription to Sky & Telescope, Magazine.

Meetings are held on the first Thursday of each month at Cranbrook, and the third Thursday of each month at Macomb County Comm. College, in the student union building.

The EDITOR: Roger A. Civic, 26335 Beaconsfield
Roseville Michigan, 48066- 776-8735

Assistant to
the Editor: Mike Newberry, 623-7284

OBSERVATORY SCHEDULE

Lectures for the coming month are listed below.

Sept...23/24 Ray Bullock 879-9458
Sept...30/1 Roger Civic 776-8735
Oct7/8 Dave Dobrzelewski 778-9715
Oct14/15 Dennis Jozwik 754-2037
Oct21/22 Larry Kalinowski 776-9720

The lecturer may select either the Friday or Saturday, depending on the Weather and their personal schedule.

In the future, some of our younger members will be assisting the senior lecturer. These members are, Bob Dennington, Dave Locke, Doug Holmes and Joe Tocco.

•buy-sell- trade•

The L.F.K. Astrophotographic Guide. Special price to Club members... \$1.00
Contact Larry Kalinowski, 776-9720.

WANTED: A new or used 8n mirror blank or tool to be used as a tool- to grind my mirror with. Call, Chris Edsill at 774-0007 with offer.

FOR SALE: 10" Newtonian telescope. Factory mirror, yoke equatorial mount that is portable. 70 power eyepiece. for only \$300.00, also a 40mm Polaris finder scope- 12X, \$25.00. 18mm Kellner eyepiece, \$18.00. All in good condition. Call Doug Tracy- 882-4499.

The following are the minutes of the August 18, 1977 meeting of the Warren Astronomical Society held at Macomb Community College:

President Lou Faix opened our meeting at 8:20 p.m. The Treasurer's Report by Gary Morin disclosed that there is presently a balance of \$364.69 in our account. Due to some confusion, the Secretary's Report does not appear in the August issue of Vespa. It will be included next month. Ken Jozwik reported that all is going well at Stargate. Index cards will be out shortly. Lou observed that a successful outing was held in conjunction with the Perseid Meteor showers. Seven entries were judged in the Messier Contest. Observations continued until 3:30 a.m. Frank McCullough reported the following awards: 1st Place was won by Lou Faix and Don Mission who received a trophy, albums and bumper stickers. Second Place was won by the Carl Noble group who received stickers, certificates, solar filters and a "Star War" Album. Third place winner Cary White received a certificate, bumper sticker and a roll of film. Mr. McCullough promised that there would be another contest before the weather gets too cold. Lou Faix closed the discussion by thanking Frank and Diane for cooking the food and remarked that "A Good Time Was had By All."

A get-well card for Ted Ollela was passed around and signed by members.

Gary Morin announced that the Astronomical League is in need of a more secure financial basis. He reviewed the National Convention held in Boulder, Colorado in which 600 members attended. As our Regional Chairman, he narrated slides from the Convention. All members were urged to purchase the \$15 Observers Package. Madison, Wisconsin has been chosen as the site of next year's convention.

Gary Ross took the floor to announce the formation of a new organization concerned with observing accultations. The name for the group is IOTA and it will have officers. Pete Kwentus moved that our Society be part of the newly formed IOTA.

A small prize will be awarded to anyone submitting a good new name for The Vespa, our newspaper.

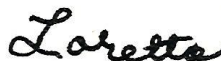
Frank McCullough discussed the forthcoming solar eclipse, the cruise and spoke of local viewing expectations.

For the general meeting in September, Dolores Hill will have the NASA Film on Jupiter, Mike Newberry will talk about the Universe and Messier Objects. The Detroit Astronomical Society displayed film of the Great Lakes Convention in July. It was skillfully narrated by Frank McCullough. After intermission at 10:55 p.m. Doug Bock told of a 20 ft. Radio Disk which is available to us. Presently located in Lansing, he requested help in moving it to this vicinity.

The final presentation was made by Gary Ross with a fine slide show entitled "When Man Looks Up". Larry Kalinowski narrated with professional style and, of course, Gary's script was superb.

The meeting was closed at 10:30 p.m. by Mr. Faix.

Devotedly Submitted,



Loretta D. Caulley, Secretary

Minutes of July 21, 1977 Meeting of the Warren Astronomical Society held at Macomb community College.

President Lou Faix opened the July meeting at 8:25 p.m. by asking for the Treasurer's Report. Gary Morin thereupon announced that there is a \$376.49 balance in our treasury. He also offered books for use such as an Index of Astronomy and Telescope Making. Observing Handbook copies are available for \$2.50. Dennis Jozwik reported on the Observatory. He noted that there are new astro-cards and that the mirror is back in operation. Stargate will again be open in August. Lou Faix then spoke at length about security problems at Camp Rotary. In discussing the problem in general with Mr. Bloom, chief custodian, it was pointed out that full time security is provided for us. Since we enjoy a privileged relationship at the Park, Lou read the Code of Conduct which appears in this month's newspaper.

Gary Morin gave an account of the Great Lakes Convention at Oakland University. The Star Bowl was won by the Warren Society with over 85 members in attendance. An eye piece was given to our group as a prize. He then thanked Frank McCullough for his slide show presentation, Rick Hill for his lecture on diffraction and Dave Harrington for his talk on private observatory building with its defeats and triumphs. We were pleased that Gary was elected as regional chairman. Gary outlined his plans for going to the National Convention in Colorado in August. He is open for suggestions. Plans for special benefits to members was then given by the group. Lou Faix wants to open a direct line of communications with all societies in the League. He praised the staff of Vespa and also announced that Frank McCullough would be the editor of the Star.

On August 13, we will feature a Messier Contest in conjunction with viewing the Perseid Meteor Showers. The party will be held at Stargate and prizes will be awarded. Members were asked to bring their own telescopes. Arrival time has been set at 8:00 p. m.

The August meeting to held at Cranbrook will feature a talk by Mike Newberry on Messier Objects. Rick Hill will discuss variable stars. At the general meeting, August 18, slides will be shown of the Great Lakes Convention. All members are welcome.

Frank McCullough gave a brief talk on photographing the Perseid meteors. Diane McCullough then read a communication from Ken Wilson. She disclosed his new address to members who may wish to contact him. His address is Mr. Ken Wilson, 406 Maple Apt 2, Mill Valley, Cal. 94941.

"Solar Eclipses" was the title of a talk given by Dr. Paul Strong. On the staff of Macomb College, Dr. Strong's presentation included the history, research and the physics of the Corona of the Sun.

Ken Jozwik asked Don Mitchell for copies of schematic drawing from U. of M. to be made available to members. Frank, Pete Kwentus and Lou then showed their slides. Lou Faix closed the meeting at 11:22 p.m.

Happily Submitted,



Loretta D. Caulley, Secretary

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THE APPRENTICE ASTRONOMERS NOTEBOOK

LOUIS J. FAIX

There's an old world saying that "good things come in pairs." (ja mein holz) Such is the case of the often overlooked double and multiple star systems. It's been estimated by some professor dudes who sound like they know what they're talking about, that over three quarters of all the stars in our galaxies belong to sets or multiple close groupings. Now to be a true set, it is not sufficient that a star belong to just a globular or galactic cluster. Rather, it must be gravitationally bound to another specific star. That is, the stars must be in orbit about each other. In the case of just two stars, the orbits are fairly easy to predict and where the separation is sufficient, the actual motion can be observed. In multiple groups of three or more, the computations of orbit paths is really hairy, if not impossible.

This month I'd like to introduce you to a few of the prettier visual pairs in our late summer sky. At some later date we'll talk about measurements of separation and motion. For now, let's just concentrate on features like appearance, brilliance and color.

The most well-known and popular double in the summer sky is probably the colorful pair called Albireo at the head of the swan constellation, Cygnus. Properly called Beta Cygni, it is positioned at 19hr 29m RA and +27.80 Dec. With a separation of 34.6 seconds of arc the rich colors of this 3.0 and 5.3 magnitude duo are conspicuous in even a two-inch telescope. Norton and Inglis' atlas calls the colors yellow and blue with "grand contrast", while Mullaney and McCall see them as orange and blue. Variations in color are commonly found between references and may be attributed to optics and aperture size as well as the observers and their liberal use of poetic license. This apprentice astronomer favors the yellow and blue.

A few comments about color rendition seem in order. Stars really radiate all colors of light in a continuous spectrum. However, one color may predominate and vary with the surface temperature of star. The reader is invited to bone up on the Hertzsprung/Russell (HR) diagram to see how main sequence (key trick words) relate massiveness to color. The human eye has a few quirks worth understanding also. At very low light levels it sees only in shades of grey. Try telling the colors in a dark room some night after your eyes are dark adapted enough to see forms and objects. Very bright, concentrated light sources however are seen as pure white. Our sun looks white, but is really orangish. Only in between the extremes of intensity does the eye accurately denote color. Consequently, telescopes can be too large or too small for good color detection. Reflectors in the 6"-8" range are probably ideal. Refractors are also good but suffer from a small amount of chromatic aberration (colors focus differently). Preferred eyepieces would be achromatics. Ramsden and

Huygen designs should be avoided. If the stars are a bit too bright to see the colors clearing, adjust a low power eyepiece slightly outside of focus. This will spread the light, lower the apparent intensity and increase the color contrasts.

A pair resembling a miniature Alberio is Gamma Delphini. Located at 20hrs 44min RA and +15.9° Dec. This yellow and blue-green pair are separated by only 10 arc seconds. Norton calls their magnitudes 4.0 and 5.0 while other texts see them each a half magnitude dimmer. Poetic license abounds with the blue-green star being variously described as "emerald," "turquoise," "lilac" and "flushed grey" (?)

Two interesting pairs are found in the constellation Hercules. Alpha, at 17hr 12m RA and +14.5° Dec are a bright (3.1) orange and fainter (6.1 mag) green set. The primary star is an irregular variable which dips down to 3.9 magnitude. The separation of this pair is a scant 4.4 arc seconds and will require at least 100 power to split clearly.

Delta Herculis is a fine example of a high contrast double. Nevertheless, a fairly wide separation of eleven arc seconds makes this 3.0 and 7.5 magnitude pair easy to identify. The brighter primary is clear white, while the companion has a faint purple tint.

Of course, no summer evening observing session would be complete without glimpsing the famous "Double-Double" in Lyra. Epsilon Lyrae (15hr 43m RA, +39.60 Dec), just a degree north and two degrees east of Vega, is really a foursome. The two primary groups are widely spread at 20S arc seconds with each group itself being a doublet. E1 is a 4.6 and 6.3 magnitude pair parted by 2.9 arc seconds, while E2 are more nearly equal brilliance (4.9 and 5.2 mag) slightly closer at 2.3 arc seconds. The splinting of each doublet should require about 200X.

Now, for you real hot shots with your refractors, go ahead and split Antares. It's tough and a real test of your observing skills. Red and green, this vividly colored, high contrast pair (1.2 and 6.5 mags) is separated by only 3 arc seconds. Good Luck! Next month we'll talk about a homemade \$1400 device to double the resolution of your telescope.

Recent Findings on Saturn

WARSAW, Poland-(TASSKI)-The 12th-magnitude star, Kedd 350-A, at right ascension 6h 14m 08s, declination -43°33'10" (epoch 1860) is presently under intensive investigation by scientists at the Warsaw Astrophysical Observatory in Sweden. Due to an intrinsic absolute magnitude, ($M=2.78$) In relation to its spectral class (M4-type), some theorists here have ventured to suggest that this star is presently a red dwarf. This fact, however, as inferred by Dr. Skwyczyk, is irrelevant.

Dr. Bruno Skwyczyk, head custodian, and assistant correspondent to the astrophysical researchers here has recently been working at the W.A.O.'s southern observatory on Mount Ketamay in New Zealand for further studies of this strange star in Puppis. Derived from recent computer programs, however, on May 3, 1945, Dr. Skwyczyk found that that the planet Saturn will take a slight deviation from the ecliptic, and occult a 14th-mag. star CD 45r007S+?ew2!\$3j, on the night of November 31, of that year. This star lies approx. one degree north of Kedd350-A. His attention was diverted to the upcoming event, and upon returning to Ketamay in October, He began taking photometric readings at different wavelengths with the 4-inch Helfitz Hublmeyer reflector.

On the night of the occultation, Dr. Skwyczyk and three other astronomers prepared all four telescopes on Ketamay, ready to retake the photometry, conducted earlier on the Hublmeyer reflector alone. What they later analyzed in the results shook the astrophysical world with its implications. Skwyczyk found a symmetrical magnitude deviation on either side of Saturn. In a press conference later, he announced that he had discovered Saturn to be accompanied by a set of circular rings, around the planet. Immediately, observatories around the world set their equipment on Saturn to confirm Skwyczyk's results.

It took four years, and seventeen occultations to finally convince the world of his incredible hypothesis. In 1950, Dr. Skwyczyk won the Nobel Prize of 1948 for his accomplishment. Later asked about his research, he replied, "Never again...and I'm sure glad such a discovery won't occur again. We're all thoroughly convinced of Saturn's uniqueness in the universe."

Dave Dobrzelewski

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6. NASA Education Publications (Catalog)
Center for Public Information
Center Education Offices
Government Printing Office
Washington D.C. 20402
7. 1975 Photo Index

NASA Headquarters Photo Office
Washington D.C. 20546
8. Mars Viking Photographs
Bara Photographics
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Bladenburg,Md. 20710

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Tank prism.

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All the above items are for sale or trade.

Bob Knoll can be reached by phone after 6P.M. at 647-6698.

magnitude Mu Geminiorum, the heel of Cascor. By Oct 24 Jupiter is 1 1/4° ENE of that star. Jupiter will pass 1/2° N of Mu
 Jux Oct 11. See Oct 21. By October 31 Mars moves to within 5° west of Beehive Cluster. *Jupiter* on Oct 1 is 1/2° from 3.2
 grade. *Venus* goes from Leo into Virgo; see Oct 31. *Mars* passes 0.8° N of 3.5 mag Delta Geminiorum Oct 2, and 6° S of Pol-
Motions during October (all eastward): Venus 38°, Mars 15°, Saturn 2.8°, Jupiter 0.8° until Oct 24, when it begins retro-
 grade. Venus -3.4; Jupiter -1.9 to -2.1; Mercury -1.0; Mars +0.8 to +0.4; Saturn +0.8

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<p>Planets This Month: Late Evening: Bright Jupiter rises 30° N of E within 5 hrs after sunset Oct 1, and within 3 1/2 hrs after sunset Oct 31. Red Mars traces Jupiter's path across sky 1-2 hrs later.</p> <p>40 min before sunrise: Look for Mercury 13° lower left of Venus. Face east.</p> <p>* Mercury</p>	<p>Morning Planets: Venus, most brilliant planet, rises in E. just over 2 hrs before sun Oct 1, and just over 1 1/2 hrs before sun Oct 31. First few days of Oct, use Venus as guide to Mercury. See Oct 2. Look for 5 planets Oct 1-4.</p> <p>One hour before sunrise: Moon</p> <p>* Venus</p>	<p>Jupiter, next in brightness after Venus, is very high due south shortly before sunrise in early Oct. By end of month it is due south 2 1/2 hrs before sunrise. For details on positions of planets against stars, see left margin.</p> <p>One hour before sunrise: * Jupiter</p> <p>* Venus</p>	<p>An hour before sunup, Venus and Jupiter are two brightest "stars" in sky. On a line connecting them, look for Mars (1/5 of way from Jupiter to Venus Oct 1, and 1/4 of the way toward Venus by Oct 31). Close to Mars are Pollux and Castor.</p> <p>One hour before sunrise: * Castor</p> <p>* Pollux</p> <p>* Mars</p>	<p>Also on the line from Jupiter to Venus, look for yellowish Saturn, 4/5 of the way toward Venus on Oct 1. By Oct 31 Saturn is midway between Venus and Jupiter. Near Saturn is fainter bluish Regulus. See Oct 7-10, 18, 25.</p> <p>One hour before sunrise: * Castor</p> <p>* Pollux</p> <p>* Mars</p> <p>Moon</p>	<p>SAVE METHOD of observing Oct 12 PARTIAL SOLAR ECLIPSE. Make a 1/16" pinhole in index card, and with your back to the sun, view PROTECTED IMAGE on 2nd card, held 2-3 feet away in shadow of first card.</p> <p>One month from today, on November 7, Saturn will pass only 3/4 degree north of Regulus. Next three days, use moon as guide to Saturn and Regulus as shown on diagrams.</p> <p>One hour after sunset: Look for reddish twinkling Antares in SW.</p> <p>* Antares</p>	<p>One hour before sunrise: Aldebaran</p> <p>* Moon</p> <p>Pleiades tomorrow morning</p> <p>Moon</p> <p>this morning.</p>
<p>One hour before sunrise: * Saturn 9 before * Regulus</p> <p>Moon</p>	<p>One hour before sunrise: * Saturn 10 before * Regulus</p> <p>* Venus</p>	<p>One hour before sunrise: Look 5° south of due east.</p> <p>* Venus</p>	<p>New Moon. Partial eclipse of sun visible in 50 states. Greatest eclipse occurs near 1 p.m. PDT on West Coast, and just after 5 p.m. EDT in East. CAUTION: See above.</p> <p>One hour before sunrise: * Castor</p> <p>* Pollux</p> <p>* Mars</p> <p>Jupiter</p>	<p>One hour after sunset: Look for reddish twinkling Antares in SW.</p> <p>* Antares</p>	<p>One hour after sunset: Look for reddish twinkling Antares in SW.</p> <p>* Antares</p>	<p>One hour after sunset: On what date will you last see Antares?</p> <p>Moon</p>
<p>Venus</p> <p>One hour after sunset: Moon</p>	<p>* Venus</p> <p>Moon</p>	<p>One hour before sunrise: Look about 40° up in ESE.</p> <p>(1.7° apart)</p> <p>* Saturn</p> <p>* Regulus</p>	<p>First Quarter, (evening half moon), with binoculars, look for 3rd magnitude Beta Capricorn nearby. It is occulted by dark side of moon around 11 p.m. EDT for East Coast, around 9:45 p.m. CDT for Mias. River.</p> <p>One hour before sunrise: * Mars</p> <p>Jupiter</p>	<p>One hour before sunrise: * Castor</p> <p>* Pollux</p> <p>* Mars</p> <p>Jupiter</p>	<p>Mars has just entered Cancer. This morning a line from Castor to Pollux (4.5° long) extended 7.3° points to Mars. Watch Mars approach Beehive Cluster next 24 days.</p> <p>One hour after sunset: Pleiades</p> <p>Aldebaran</p>	<p>One hour after sunset: Pleiades</p> <p>Aldebaran</p>
<p>Oct 30, 4 hrs after sunset: * Antares</p> <p>Jupiter</p> <p>* Moon tomorrow</p>	<p>Oct 31, 45 min before sunrise: * Venus</p> <p>* Spica</p>	<p>Oct 25, 45° up in ESE.</p> <p>Saturn * Regulus (1.2° apart)</p>	<p>Tonight, watch full moon rise within a few minutes after sunset, in opposite direction. As sky darkens, look for 2nd magnitude Hamal in Aries 12° upper left of moon. Next month's full moon will appear in Taurus.</p> <p>One hour before sunrise: * Mars</p> <p>Jupiter</p>	<p>One hour before sunrise: * Castor</p> <p>* Pollux</p> <p>* Mars</p> <p>Jupiter</p>	<p>One hour after sunset: Look for reddish twinkling Antares in SW.</p> <p>* Antares</p>	<p>One hour after sunset: On what date will you last see Antares?</p> <p>Moon</p>

Michigan State University, East Lansing, Michigan. 48824

Sunrise/Sunset East Lansing: Oct 1 7:35 a.m./7:19 p.m.; Oct 15 7:51 a.m./6:56 p.m.; Oct 29 8:08 a.m./6:35 p.m. EDT;
Oct 31 7:11 a.m./5:32 p.m. EST