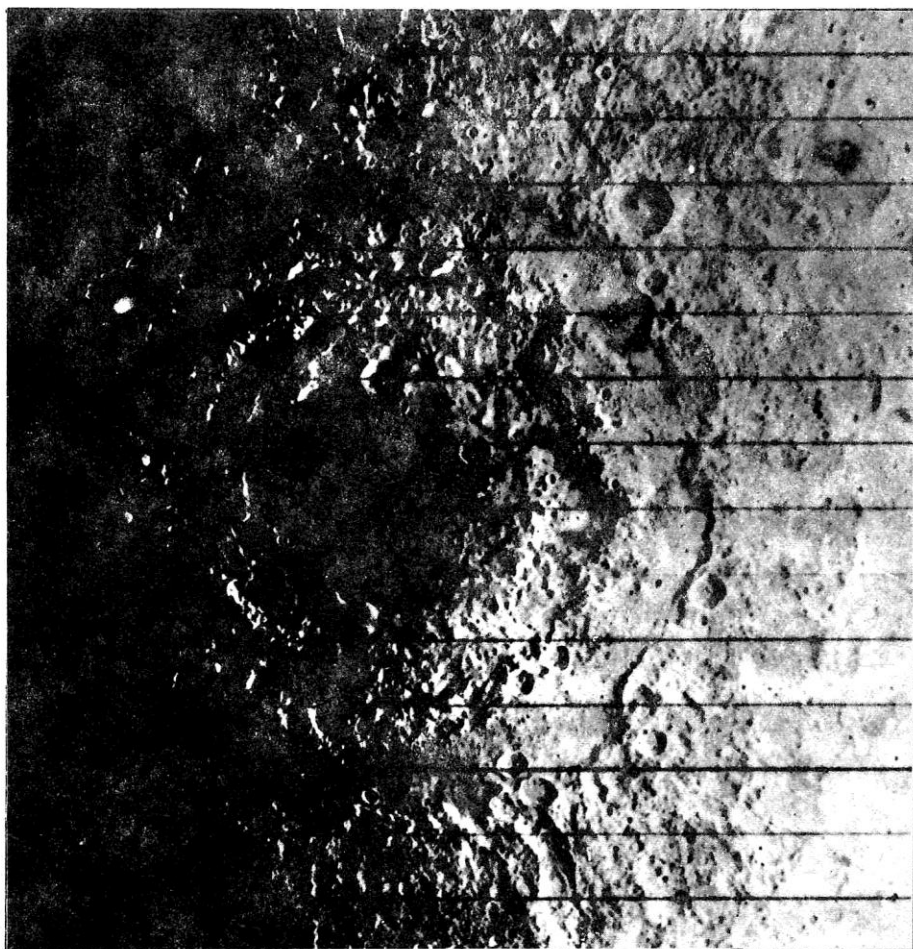


The WASP



The moon's Mare Orientale



SEPTEMBER 1976

THE JOURNAL OF THE WARREN
ASTRONOMICAL SOCIETY



THE WARREN ASTRONOMICAL SOCIETY PAPER (W.A.S.P.)
IS PUBLISHED BY THE W.A.S., MONTHLY AS A PRIVILEGE
OF MEMBERSHIP. THE W.A.S. IS ALSO A CAMPUS CLUB OF
MACOMB COMMUNITY COLLEGE-SOUTH CAMPUS, WARREN MICH.

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, K-12 9.00, College 11.00, Senior Citizen \$13.50, Individual \$16.00, Family \$21.00. The fees listed here include a one year subscription to Sky & Telescope Magazine.

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

Subscriptions and advertisements are free of Charge to all members. Non-member subscriptions and advertisements are available upon arrangement with the Editor of the W.A.S.P. Contributions of any kind are always welcome and should be submitted to the Editor before the second Thursday of the month.

THE EDITOR: Roger A. Civic (775-6634)
26335 Beaconsfield
Roseville, Michigan 48066

The Editor of the W.A.S.P. will exchange copies of this publication for other Astronomy club publications on an even exchange basis.

The Warren Astronomical Society maintains contact, sometimes intermittent, with the following Organizations:

The Adams Astronomical Society
The Astronomical League
The Detroit Astronomical Society
The Detroit Observational and Astrophotographic Assoc.
The Fort Wayne Astronomical Society
The Grand Rapids Amateur Astronomical Society
The Kalamazoo Astronomical Society
The M.S.U. Astronomy Club
The Miami Valley Astronomical Society
The Oglethorpe Astronomical Society
The Orange County Astronomers
The Peoria Astronomical Society
The Saint Joseph County Astronomical Society
The Sunset Astronomical Society

Other Amateur Astronomical Clubs are invited to join this exchange of publications.

CLUB NEWS

The W.A.S. now has a permanent address. A post office box in East Detroit, for all out of state mail and local delivery. The new address is on the back cover of your new WASP.

The W.A.S. has a new membership card design, (we ran out of the old ones) for you new members and old ones who have lost yours or don't as yet have one please contact Don Misson, our new Treasurer, he will be more than happy to fix you up with a fancy new one.

I have been informed by our president Pete Kwentus, that Mr. Bill Whitney has accepted the post of program chairman at the Cranbrook meetings, which are held each first Thursday of each month. Please contact him by phone or in person if you wish to present something at those meetings.

The reasons for the short version of the W.A.S.P. this month are as follows: there a great many club members are on vacation in the month of August. The Editor has been on vacation and is leaving shortly for the AstroCon 76 Astronomical League convention. All the club officers of the Warren Astronomical Society will also be attending the convention in Kutztown, Pennsylvania, so, to also save the club some money the Editor has decided to put together this short version of the W.A.S.P. Next month the old W.A.S.P. will be back to its normal size and content.

The observatory at Camp Rotary has a new lecturer. Would you believe a real volunteer? Mr. Dennis Jozwik is the new member of that gallant group of men who every Friday give of their time and talent. I personally thank Dennis for his brave move; furthermore, I will be at his side when he makes his first appearance before the Scouts at Camp Rotary. I also wish to thank Mr. Jozwik for his donation of a new eyepiece for the 12½" telescope; it is a welcome addition to the optical equipment at Stargate.

Minutes of the W.A.S., July 15, 1976

The general meeting was called to order by Pete Kwentus. He discussed the telescope maintenance and use class and provided registration forms for interested members. The indoor classes will be held at St. Paul's United Church of Christ at 31654 Mound Road, Warren. The outdoor (field) classes will be held at Stargate.

Don Misson presented the Treasurer's Report.

Bill Whitney (newly appointed program chairman for Cranbrook) announced the showing of the "Jupiter Odyssey" (NASA film) and a talk by Dave Harrington on his trip to Kitt Peak and Lowell Observatories. The Messier-Astrophotography club meeting will be held at Cranbrook Institute of Science at 8 P.M., August 5.

Rik Hill proposed having a club picnic at Stargate sometime Labor Day weekend.

Lou' Faix discussed the program for the September general meeting. It will be set aside for presentations on the Astronomical League convention. He asked that anyone planning on taking photographs contact him. He would like to assign a specific area of interest to each so as to cover the convention accurately and avoid duplication.

Members decided to hold the August general meeting as scheduled. It was also decided to post-pone the business till the Cranbrook meeting. Carl Noble volunteered to chair the meeting.

Roger Civic reported on the observatory. He informed members that the new floor has been installed with a time plaque hidden underneath. Many thanks to Claude McEldery and Ray Bullock for their donation of materials. Roger also mentioned the need for painting. Also, new locks will be installed to replace the old ones. Questions regarding procedures for viewing at Stargate can be answered by Roger or Pete.

Rik Hill discussed information he received from Carmen Borzelli (chairman AAVSO nova search). He explained that the assigned sectors would be approximately $10^{\circ} \times 10^{\circ}$. The AAVSO also has programs for naked eye observations (dome scan). Anyone interested in the nova searches should contact Rik.

The W.A.S. was honored to have Mr. Dick Lloyd of the Detroit Astronomical Society speak on Ancient Observatories.

Roger Civic gave an update on the Mars Viking Mission. He showed slides of the planned Landing area.

The meeting was adjourned by Pete Kwentus.

Minutes respectfully submitted,

Dolores H. Hill, Secretary

Program for August 19, 1976- LouFaix Program Dir.

Does anybody look at the Moon anymore?

THE MOON NEXT DOOR

Inter-planetary probes and recent professional studies have directed great attention to the satellites of the outer planets. The surfaces of Mercury, Venus and Mars have proven to be more moon like than earthly. In all this excitement, it has become easy to overlook Earth's nearest neighbor and first space base - the Moon. The WAS August meeting will re-focus attention on our twin planet with movies, a talk and members pictures.

The program will feature two NASA movies:

"Nothing So Hidden" a documentary of the Apollo 16 exploration of the lunar highlands near the crater Descartes.

"The Moon - An Emerging Planet" a review of what has been learned of the Moon's structure, accretion, volcanism and bombardment.

Mr. Larry Kalinowski will discuss methods and techniques of amateur lunar photography. All WAS members are encouraged to bring their own pictures and slides of the Moon.

SKY CALENDAR SEPTEMBER 1976

Information for helping teachers and students observe the sky

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<p>Visible most of night, Jupiter on Sept 1 rises in ENE 3 1/2 hrs after sunset and is high in S just before sunrise. By Sept 30 it rises 2 1/2 hrs after sunset and passes S 2 1/2 hrs before sunrise. Jupiter will rise at sunset in Nov.</p> <p>Mars has already disappeared for naked eye skywatchers. In late November it will be behind sun (conjunction). Mars can be recovered in morning sky in early spring 1977. See Sept 7.</p> <p>Moon now rises after evening twilight ends. This allows the sky to darken enough for good Milky Way viewing. See star map. Look for the "deep sky" objects plotted on the map, including the galaxy in Andromeda.</p> <p>At this time of year, changes in length of daylight are very noticeable. Also watch southward shift of sunrise and sunset points. Autumn begins Sept 22.</p> <p>Although we are 4 days past equinox, there are now 12 hours of daylight from sunrise to sunset, as seen from latitude 40° N. Causes of apparent contradiction are atmospheric refraction and size of sun's disk.</p>	<p>Evening Planets: Venus is bright object very low in western sky during evening twilight. See Sept 2, 17. Mars can be seen with binoculars first part of month. See Sept 3, 5, 6, 7, 10. Mars will be on far side of sun in Nov.</p> <p>Mars 2 1/2° left of Venus; Spica 17° upper left of Venus. Use binoculars 35 min after sunset.</p> <p>3 1/2 hrs after sunset: Face ENE.</p> <p>One hour before sunrise: Face east.</p> <p>One hour after sunset: Face SW.</p>	<p>Morning Planets: Jupiter, in Taurus 5° from Pleiades, is brightest morning "star". See left for location thru night. Saturn rises in ENE 2 1/2 to 4 1/2 hrs before sun. Saturn is only bright "star" in Cancer.</p> <p>Sequence of events for planets outside earth's orbit (Mars, Jupiter, Saturn): Low in E at dawn. Rises during night. Opposition, up all night. Sets during night. Low in W at dusk. Conjunction with sun.</p> <p>One hour before sunrise:</p> <p>One hour before sunrise:</p> <p>One hour before sunrise:</p> <p>One hour after sunset:</p>	<p>One hour after sunset: Face SSW.</p> <p>Antares</p> <p>Full Moon rises around sunset tonight. Harvest Moon effect: Next few evenings moon rises only about 1/2 hr later each night, much less than the average.</p> <p>One hour before sunrise:</p> <p>One hour before sunrise:</p> <p>Regulus (last chance to see old moon)</p> <p>If you are far away from city lights, early fall is a good time of year to look for zodiacal light. Look for faint, nearly vertical cone of light in east 1 1/2 hrs before sunrise.</p>	<p>Venus now sets nearly due west less than 1 hr before sunset. At month's end it will set in WSW. Watch Venus' setting place shift farther and farther south until mid-Nov.</p> <p>Mornings now through Sept 22, watch moon's orbital motion carry it through zodiac: Pisces, Aries, Taurus, Gemini, Cancer and Leo. Moon passes Jupiter, Aldebaran, Castor, and Pollux, Saturn, and Regulus in turn.</p> <p>Why is the Last Quarter moon so high at sunrise this morning? For answer see Sept 24. Watch moon set after midday today.</p> <p>New Moon, not visible. Cusps of old crescent last few mornings pointed only slightly to right of vertical. Cusps of new crescent next few evenings will tilt considerably to left.*</p> <p>Why is the First Quarter moon so low at sunset tonight? Why is zodiacal light best in morning? For answer see Sept 24.</p>	<p>35 min after sunset: Use binoculars to see Mars 4° upper left of Venus; Spica 21° from Venus. Look W to WSW.</p> <p>Spica</p> <p>Venus closest to Mars tonight. 35 minutes after sunset, use binoculars to see Mars 0.4° lower left of Venus, and Spica 12° upper left of Venus.</p> <p>Venus now sets about one hour after sunset. By mid-November this will increase to 2 hrs, and by mid-December, 3 hrs. Venus will thus become a spectacular "evening star" this year.</p> <p>*Explanation: Because of tilt of earth's axis, zodiac at dawn makes steep angle with horizon (Gemini high in south). At dusk, zodiac makes small angle with horizon (Sagittarius low in south).</p> <p>If you had difficulty in seeing the Milky Way or the zodiacal light, read article by Barry Lopez, "The Passing of the Night" in July 1975 issue of AUDUBON.</p>	<p>Tonight from most of U.S., moon covers 3rd magnitude Beta Capricorni. Use binoculars or telescope. Disappearance occurs near 10 pm PDT in California, 11:30 pm MDT in Denver, and near 2 am EDT in Northeastern states.</p> <p>Moon remains visible in daytime sky for about 3 hrs after sunrise this morning. Look for moon in daytime at same time each morning. On what date will you last see it?</p> <p>One hour before sunrise:</p> <p>Castor</p> <p>Pollux</p> <p>Moon this morning</p> <p>Moon tomorrow morning</p> <p>40 min after sunset: Face WSW.</p> <p>Moon tomorrow night</p> <p>Moon tonight</p> <p>Venus</p> <p>This month's map shows sky about 2 hrs after sunset as autumn begins. Note Arcturus in west, Summer Triangle overhead, and Square of Pegasus in east.</p>

Magnitudes of the Planets: Venus -3.3 to -3.4; Jupiter -2.1 to -2.2; Saturn +0.6; Mars +1.9. Planets against star background: Jupiter, near the Pleiades in Taurus, goes 1/2° east Sept 1-19, then begins slow retrograde (westward) motion. In the next 4 months until mid-January 1977 Jupiter will go 10° west. Saturn moves 3.2° going from 4° to 7° east of the Beehive in Cancer.

East Lansing Sunrise: September 1 7:03 a.m.; September 16 7:19 a.m.; September 30 7:34 a.m. EDT
Sunset: September 1 8:13 p.m.; September 16 7:45 p.m.; September 30 7:21 p.m. EDT

V.S.O.

By Rik Hill.

When most people think of variable stars in Lyra, they think of the famous Beta Lyr., but there is another naked eye variable in Lyra, R Lyrae. It is located $6\frac{1}{2}^{\circ}$ due north of Delta Lyr, and is usually shown as magnitude 4.5. Different sources list this star as anything, from semi regular to irregular. Yet all list a period which is commonly 46 to 50 days. Its spectral type is M5 (one source lists it as M6, the difference is too fine to be certain) which means that this is a red or cool star. Also R is a giant probably at a distance of 500 to 700 l.y. It is a terribly neglected star yet one which shows change in only a week. Just through casual observing you can keep track of R's changes and after a few cycles, graph its curve. If you do this remember that this is an irregular or semi regular at best and do not try to fit one cycle on top of another for you will find that they are not coincident, unlike Cepheid or long period variables. Good comparison stars to use are; theta and eta Lyrae each 4.5 magnitude and about $1\frac{1}{2}^{\circ}$ apart. They may not look like the same brightness but this is due in part to a difference in color and the position of one from the other with respect to your eyes orientation. Also good for comparison are the stars; mu Lyr at mag. 5.1 and theta Her. at 4.0 mag.

Attention, Members

September General Meeting. Lou Faix Program Dir.

The program for the September general meeting will review the entire Astronomical League convention, being held in Kutztown, Pa. August, 19 to August, 22, for the benefit of those WAS members who are not able to attend. There will be one and only one slide show covering all the events of interest.

OBSERVATORY SCHEDULE

Lectures for the coming month are listed below.

Aug •••27/28 •• Frank McCullough•• 791-8752
Sept •• 3/4 •• Diane McCullough •• 791-8752
Sept •• 10/11 •• Dennis Jozwik ••••• 754-2037
Sept •• 17/18 •• Kim Dyer •••••••• 835-2037
Sept •• 24/25 •• Ray Bullock ••••••• 879-9458

The lecturer may select either the Friday or Saturday depending on the weather and their personal schedule. W.A.S. members wishing to be instructed on the operation of observatory and telescope controls should contact the lecturers directly. Additional lecturers and assistants are needed to lessen the load on these faithful old time members. Thank you.

Observatory Report: Roger Civic, Observatory Chairman.

The new wood floor in the observatory at Camp Rotary has been covered by the rug that was donated by Ray Bullock.

The old door locks that were going to be replaced were removed by Kim Dyer and they were cleaned and oiled by Mr. Evans a locksmith, the father of Glenn Evans one of our younger members. The locks are now in good working order, thanks to Mr. Evans and the efforts of Kim Dyer.

There have been some problems lately with the fuse on the clock-drive, but that has been corrected by Don Misson and is now in perfect working order. There is a new handle on the slit cover, it is not in front anymore, the old handle has been removed and a larger one has been placed on the top rear of the slit, it is now much easier to open and close.

There has been an addition to the optical equipment at Stargate; a new 18mm Orthoscopic eyepiece, the eyepiece was donated by Mr. Dennis Jozwik.

Messier Objects~

Reprinted from Sky & Telescope.



M16 NGC 6611 18h 16m.0 -13° 48'
Cluster and nebula in Serpens

Basic data. The nebula is caused to shine by the cluster of hot blue and white stars. It is $\frac{1}{2}^\circ$ in diameter and at a distance of 7,000 light-years from us.

According to M. F. Walker the cluster is only two million years old. Its brightest members, such as the conspicuous double star, are concentrated toward the northwest and are approximately 8th magnitude.

The M16 star cluster was discovered by P. L. de Cheseaux in 1746, the same year he found M17. The surrounding nebosity, however, seems to have been first noted by Charles Messier two decades later.

NGC description. Cluster, at least 100 bright and faint stars.

Visual appearance. Messier 16 is one of the most unusual objects in the heavens and a fine sight at low power.

M 17 NGC 6618 18^h 18^m.0 -16° 12'
Cluster and nebula in Sagittarius

Basic data. This object takes its familiar name of Omega or Horseshoe nebula from its appearance in small telescopes. As in M16, hot stars excite the gas to shine. The main source of this excitation may be in a



small cluster of faint stars which lies near the bright core of the nebula, according to the late Colin S. Gum.

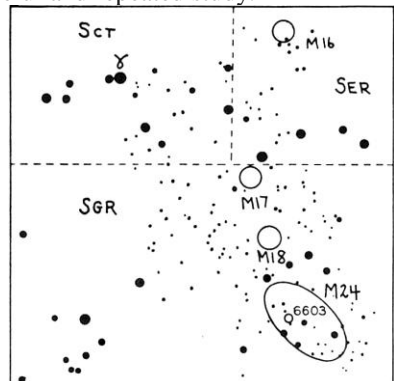
Associated with the nebosity is a cluster of about 35 stars scattered over an area 0.4° across. This loose grouping is quite inconspicuous, however, and in a small telescope appears similar to a rich Milky Way field.

NGC description. Magnificent, bright, extremely large, extremely irregular shape, hooked like a "2."

Visual appearance. The Omega nebula dominates the field of the 4-inch, and only a few stars were noted in its vicinity.

The most conspicuous portion of the nebula is the straight bar, which appeared vividly white. The sky inside the hook seemed particularly dark, which is perhaps a contrast effect.

Messier 17 will challenge visual observers. Like the Orion nebula it repays careful and repeated study.



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For your own FREE ad to buy, sell, or trade anything astronomical, contact the Editors of the W.A.S.P.

6" R.F.T. Reflector Telescope, tube only. Coulter mirror, Parks fiberglass tube, diagonal holder by Novak, spiral focus eye-piece holder. Only \$100.00 FIRM. Contact: Bill Whitney 588-1073.

For sale; 1 1/4" Criterion S-4 Solar filter, Barlow type will accept any 1 1/4" eyepiece. Silvered mirror turns away 99.99% of the Sun's heat and light, absolutely safe, not a cheap N.D. filter. Only \$15.00, contact Ken Wilson - 268-9337.

The L.F.K. Astrophotographic guide. Special price to all club members, \$1.00. Other guides not as complete are priced at \$4.00 & \$6.00. Contact: Larry Kalinowski, 776-9720.

For Sale: Tasco 2.4" f13 refractor. Alt-Azimuth head 3 eye pieces, erector lens star prism, wooden case. Metal 3 leg tripod, Good condition. Only \$65.00. Call Mike Grellman, 264-0745.

For sale: Beautifully sculptured full relief models of the Moons central section, 30" square. Full color plaster castings- 4"x4"x1/2" thick. Great for framing.

Special price for all club members, \$6.00, Contact: Roger Civic, 775-6634.

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