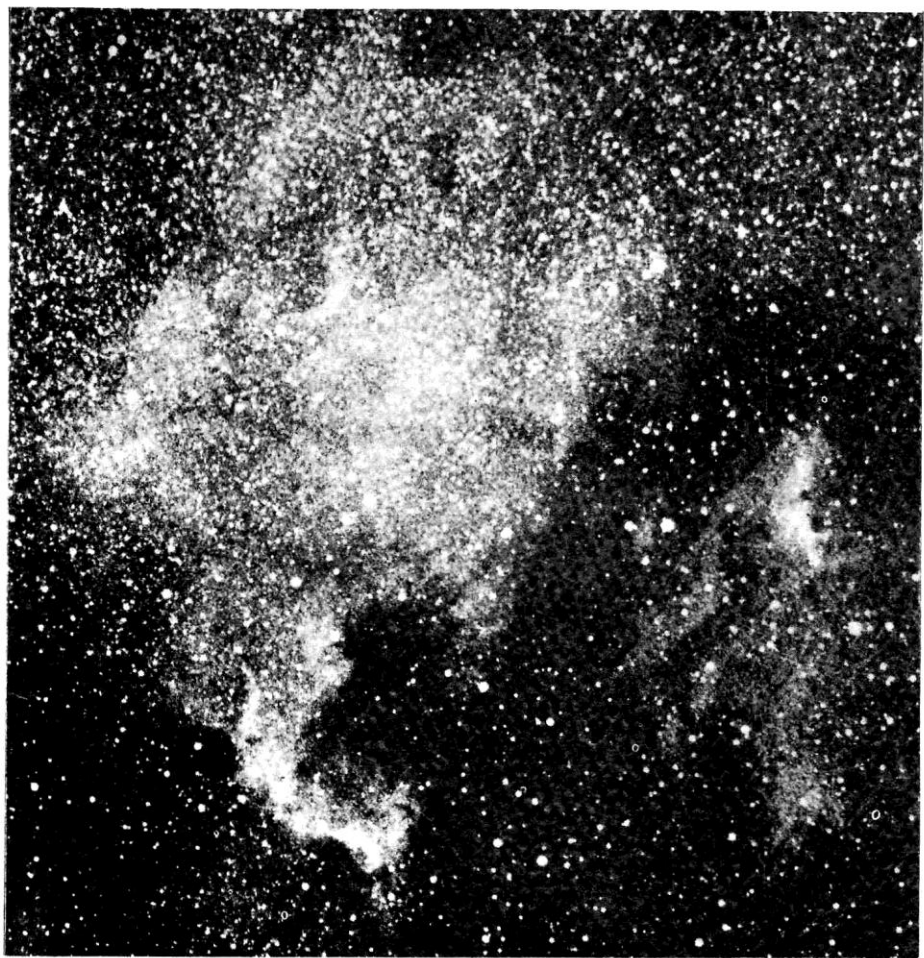


The WASP



The North America nebula and the Pelican nebula



AUGUST 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 13.00, College 15.00, Senior Citizen \$7.50, Individual \$10.00, Family \$15.00. Add \$6.00 for 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.

The 1776th splash bash and star party at Lou Faix house was a complete success. A large crowd of 25 to 30 people showed up and with them at least dozen telescopes of all types. Noted among the outstanding instruments was the Carl Nobel Special, it worked very well, I am told. We all ate our fill of some fine food and then took a while to rest. The night looked like it would be a good one and so it was, my wife and I left at about 12:45, I noticed all those who had scopes still going strong.

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.

MEMO: from Beverly Bock •••• Amateur Nite, swap & talk. Bring your latest (or old) slides to show and tell, all about the techniques you used, etc. and ask advice from fellow amateur astronomers in a homey atmosphere at Bev Bock's house on July 22nd at around 8 pm. Bring things to swap and your scope for viewing if the sky is clear. Cookies and/or Chips, Hawaiian punch, coffee, tea, are there for you. Donations of cookies or what-ever would be appreciated.

Beverly's house is on the way to Stargate, 58780 Romeo Plank Rd. one block south of 27 mile rd. on the east side of the road. Call Bev for more info. at 781-9081.

Minutes of the W.A.S. June 17, 1976

The June general meeting of the W.A.S. was called to order by newly elected president Pete Kwentus. He reported that Roger Civic and Gary Boyd had cleaned up Stargate and that Roger had made a cabinet to hold the atlases and posters.

Rik Hill discussed the institution of serious observing programs- the first of which being the Sky Patrol for novae, comets, asteroids, etc. He also asked for help from persons knowledgeable of planetary and lunar observing in order to begin a program in that area. Members interested in such programs were asked to contact Rik.

Pete proposed the formation of "Telescope Use and Maintenance" class to be held two nights a week. An indoor lecture and field class would be held per week with instructions on the use of Stargate to be given. Each member of the class would receive a certificate upon completion,

It was announced that Louis Faix had been appointed Program Chairman for the Macomb College general meeting. He planned to change the format to include more planning and talks of higher quality. He asked those interested in giving talks or presentations to submit a written abstract six weeks in advance. Spontaneous slide showings will be held at the end of the program if time allowed or after the adjournment of the general meeting.

Dolores Hill announced the formation of the WAS library. Anyone wishing to check materials out should contact her at a meeting or call (517)-835-5548. Donations have been made by several persons and will continue to be accepted.

Roger Civic reported on the WASP and asked that members planning to write articles use a sample page as a guide (available from Roger or Dolores). He solicited any articles and news notes.

Gary White agreed to teach a telescope making class providing there is enough interest. Dolores Hill distributed a survey of club interests and desires. Those who have not received a copy of the survey should contact her.

The main event of the evening was a Star Bowl between WAS and the Sunset Astronomical Society (of Midland,

Mich.). Gary Ross and Gary Morin of DOAA prepared questions for the Bowl that saw a "victory" for the SAS (-17 to 0 score).

Roger Civic gave an update on the Martian Viking Mission which was followed by the NASA film "Mars- the Search Begins".

The meeting was adjourned at 11 P.M.

Minutes respectfully submitted by,

Dolores H. Hill, Secretary

Program for August 19, 1976- Lou Faix 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 moonlike 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.

NEPTUNE

By Claude McEldery



The planets of the Solar system provide fascinating observing for most amateur astronomers. All types of phenomenon can be observed, from the phases seen when observing Venus and Mercury, to watching the Galilean Satellites of Jupiter and the rings of Saturn. There seems to be a never ending supply of changes to look at.

I would like to draw your attention to one of the last planets belonging to the Sun's family. The planet Neptune is exceeded in distance from the Sun by only one other planet, Pluto. Observing Neptune will require some expertise on your part because of its faintness and remote distance from Earth.

Neptune, third largest planet in the Solar system is so far from the Sun, that it takes the Sun's light 4 hours and 10 minutes to reach it. Having a mean distance from the Sun of 30.06 A.U., it takes Neptune almost 165 years to make one complete trip around the Sun. Naturally it receives a very small amount of the Sun's radiation and has the unbelievably cold temperature of -328°F . Spectroscopic analysis of Neptune's atmosphere reveals gases that would be deadly to humans, namely large amounts of Methane, Hydrogen and Helium. Neptune can be regarded as a twin to Uranus because of similarities in size, composition and density.

Unlike Uranus, which was discovered by accident, the discovery of Neptune can be regarded as a great triumph in the field of mathematical astronomy. Since Uranus was discovered in 1781, astronomers had been unable to account for strange inconsistencies in its motions through the heavens. A French mathematician named Jean Leverrier, decided there must be some unknown planet exerting an influence on Uranus which periodically pulled

it off course. He calculated where such a planet would have to be to account for the gravitational effects it had on Uranus. In 1846, the same year Leverrier made his predictions, Neptune was first observed at the Berlin Observatory by Galle and d'Arrest. It was within one degree of where Leverrier had predicted it would be! This great work was regarded as the crowning achievement and proof of Newton's theory of universal gravitation.

Less than three weeks after Neptune's discovery it was found to possess a large satellite. Discovered by the British astronomer Lassell, we now know its diameter to be 2,485 miles. This makes it one of the largest satellites in the Solar system. It is very close to its parent, being only 220,000 miles away. Its period has been fixed at 5 days and 21 hours. Someday its decaying orbit may even send it plunging into Neptune, but not for several million years.

Another satellite was discovered in 1949 by G. Kuiper. It was named Nereid, and is quite small with a diameter of only 373(?) miles. It takes it the unusually long time of 359 days 10 hours to make one trip around Neptune. The large inner satellite Triton can be seen shining at 13.6 Mv while Nereid is faint at only 18.7 Mv. It was suggested back in the 1950's, that Pluto may have once been a satellite of Neptune that had escaped. It remains to be seen if that is so.

Neptune is one of the four giant planets of the Solar system with a diameter of 31,600 miles. It is so far away from Earth, however, that we never see much detail, if any, on its surface. At opposition June 2nd, its disc measured only 2.5 seconds of arc. It will take a fairly large telescope to resolve Neptune's small disc. Shinning at 7.7 Mv at opposition, it is still at 8th magnitude or brighter this month.

In order to find Neptune, we will have to familiarize ourselves with our star charts. Neptune's position on July 23rd is 16h 40m 28.2s, -20° 37' 18" (1976 Coordinates). Looking at the "S&T" monthly star chart it is hard to find anything nearby. I think the best guide star will probably be Beta Scorpio. Its position is 16h 4m 2.3s, -19° 44' 28" (1976), and is shining at 2.9 Mv. You should have little

trouble finding Scorpius in the southern sky; it is one of the best known constellations in that area. In a short time you should be able to find Beta Scorpio right at the top of the constellation.

Now that you're in the neighborhood you will need a telescope, even a small one will do, to find the rest of the way to Neptune. Point your telescope at Beta Scorpio and be sure it is in your field of view. Next I suggest you use your lowest power eyepiece and move 9/10 of a degree south. Estimate this as best you can. If you don't know the field of view of your eyepiece I suggest you take a few minutes to find out. Point your telescope at a star near the celestial equator like Zeta Vergo and let it drift across your field of view. Time its passage across the field of view with a watch, if it takes 4 minutes, you're lucky and your field of view is exactly one degree. If it only takes 2 minutes your field of view is $\frac{1}{2}$ degree, 1 minute and your field of view is $\frac{1}{4}$ degree. This won't take long and you'd be surprised how often this information will come in handy. Jot it down on a piece of paper and keep it for future reference. While you're at it, you might check all your eyepieces.

Now get back to Beta Scorpio once again. Move south 9/10 of a degree, there is a 4.1Mv star just to the lower left of Beta that is perfect for this. This star is called Omega Scorpio, and is visible to the naked eye from my residence in Dearborn. There is a pair of stars there, so don't get confused, use the highest one. Center this star in your field of view and lock down your scope so it won't move. Now mark down the time and go inside for a glass of ice tea or something else refreshing and relax. In 35 minutes, 4.2 seconds go back outside and Neptune should be almost exactly in the center of your field of view. If you use this method the time is crucial, so be as accurate as possible. Use a stop watch if one is available.

If you have setting circles, just move your telescope 35 minutes east and you won't have to wait. If you want to star hop using your charts, try it. You may find the Neptune finder chart on page 44 of the January issue of "S&T" helpful. You will probably end up using the 35

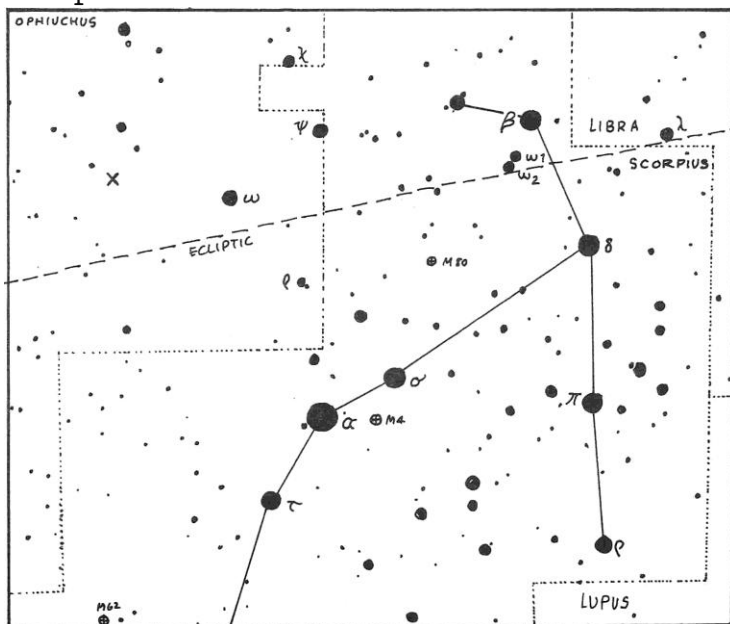
minute drift method in your searching anyway, unless you're exceptional at this sort of thing.

At 8th magnitude, Neptune will show up very nice in a 4 inch, I know because I first observed it in a 4 inch reflector. In most-scopes it will probably appear star-like, but experienced observers may be able to detect its small disc when examined under high power, say 250X or higher. I recommend that you plan on observing Neptune for several nights until you have identified it by its motion against the background stars.

Neptune will be within $\frac{1}{2}$ degree of this position for the rest of the summer. Plot the stars you see through your scope on a piece of paper. You will find your little star chart extremely helpful on following nights when you look to see if one of your stars has moved. This is real detective work and you will find a great feeling of satisfaction when your work pays off and you know that you are watching Neptune, last of the giant planets.








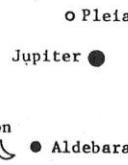
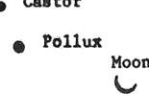
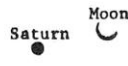



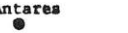

Congratulations, you have just graduated to the rank of advanced amateur.

The finder chart below might help in your search for this distant planet. Ed.



SKY CALENDAR AUGUST 1976

Information for helping teachers and students observe the sky

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<p>1</p> <p>INFORMATION ON PLANETS: SEE BLOCKS AFTER AUGUST 31.</p> <p>Spica near moon to-night. See July 31.</p>	<p>2</p> <p></p> <p>First Quarter (half moon in evening sky). Around this date is best for seeing detail on moon with binoculars and telescopes. Note 3rd magnitude star near moon.</p>	<p>3</p> <p>One hour after sunset: Face SSW.</p> <p></p> <p>Antares ● Moon</p>	<p>4</p> <p>One hour after sunset:</p> <p></p> <p>Moon ● Antares ●</p>	<p>5</p> <p>One hour after sunset:</p> <p></p> <p>Moon ● Antares ●</p>	<p>6</p> <p>Locate Vega and Arcturus, two brightest stars in evening sky. Arcturus is 37 light years away and 110 times as bright as sun. Vega is 27 light years away and 60 times as bright as sun.</p>	<p>7</p> <p>Although orange Arcturus is not as hot as bluish Vega, its actual luminosity is double because it is much larger. Vega's diameter is 3 times the sun's. Arcturus' is about 25 times sun's.</p>
<p>8</p> <p>Happy Birthday Leo! Although astrologers state the sun is in the sign of Leo today, it is still within the constellation Cancer. Sun enters Leo around August 10 each year.</p>	<p>9</p> <p></p> <p>Tonight's Full Moon is above horizon all night, from sunset to sunrise. Moon, halfway around zodiac from sun, is near Capricornus and Aquarius, making it difficult to see those constellations.</p>	<p>10</p> <p>Tonight and next two nights the Perseid meteors are most numerous, but the shower this year is greatly spoiled by bright moonlight.</p>	<p>11</p> <p>Meteors from the Perseid shower may appear anywhere in the sky, but their paths extended backward show they diverge from the Perseus-Cassiopeia region in northeast sky.</p>	<p>12</p> <p>This month's map shows evening sky about 1 1/2 hrs after sunset. Take map outside then and identify the 6 stars of first magnitude or brighter (see list on map).</p>	<p>13</p> <p>Tonight moon rises about as evening twilight ends. Moon rises later each night; so beginning tomorrow sky will get quite dark before moon rises.</p>	<p>14</p> <p>When sky gets dark tonight, Milky Way passes just east of overhead. Follow its course thru Cassiopeia, the Summer Triangle, Sagittarius, and Scorpius.</p>
<p>15</p> <p>Locate the Teapot, formed by 8 stars in the constellation Sagittarius, the Archer. Note how the Milky Way looks like clouds of steam rising from the spout of the Teapot.</p>	<p>16</p> <p>If sky is very clear low in south, look for 2 hazy patches in Milky Way (positions marked Nb and OCl on map). OCl is M7 in Scorpius, a star cluster 750 light years away. Binoculars resolve it into stars.</p>	<p>17</p> <p></p> <p>Last Quarter moon rises in ENE about 4 hrs after sunset. Moon high in S shortly after sunrise tomorrow and sets in WNW after midday.</p>	<p>18</p> <p>One hour before sunrise: Look high in SE.</p> <p></p> <p>● Pleiades ● Jupiter ● Aldebaran</p>	<p>19</p> <p>One hour before sunrise:</p> <p></p> <p>● Pleiades ● Jupiter ● Aldebaran</p>	<p>20</p> <p>On clear dark summer nights, look for the Great Rift, the dark lane of dust clouds dividing the Milky Way into two branches from Cygnus southward.</p>	<p>21</p> <p>See another galaxy, 2 million light years away, and even larger than our Milky Way. It is M31 in Andromeda. See Aug 26, 29, and this month's map for its location.</p>
<p>22</p> <p>One hour before sunrise: Moon 20° up in east.</p> <p></p> <p>● Castor ● Pollux ● Moon</p>	<p>23</p> <p>One hour before sunrise: Saturn low in ENE.</p> <p></p> <p>● Saturn ● Moon</p>	<p>24</p> <p>1/2 hour after sunset: Use binoculars for Mercury and Mars. (very difficult)</p> <p></p> <p>● Mars ● Mercury ● Venus</p>	<p>25</p> <p></p> <p>New Moon, rises and sets with sun. Dark side of moon is toward earth. Moon easily visible in evening sky 2 nights from now.</p>	<p>26</p> <p>Note W-shaped Cassiopeia in northeast. A line from Polaris through the brighter end star of the W leads to the head of Andromeda, at one corner of the Great Square. See Aug 29.</p>	<p>27</p> <p>45 min after sunset: Look for moon a little south of due west. Note Spica. See Aug 28.</p> <p></p> <p>● Spica ● Moon ● Mars</p>	<p>28</p> <p>For much of eastern U.S. and Canada, moon covers Spica at sunset. Using naked eye, binoculars, or telescope, keep watch for the emergence of Spica. See August Sky and Telescope. From central Florida moon's lower edge grazes Spica.</p>
<p>29</p> <p>In Andromeda, note the 3 bright 2nd-magnitude stars forming a slightly curved line. Aim binoculars at the middle star, and look 6° above it for a hazy patch, marked "Glx" on map.</p>	<p>30</p> <p>One hour after sunset: Moon in southwest.</p> <p></p> <p>● Antares ● Moon</p>	<p>31</p> <p>Moon at First Quarter (see August 2 for remarks on this phase of the moon). One hour after sunset:</p> <p></p> <p>● Moon ● Antares</p>	<p>Evening Planets: Venus is the only planet now easily visible to naked eye in evening skies. You must look early to see it. On Aug 1 it sets in WNW 40 min after sun. By Aug 31 it sets in W about 50 min after sun.</p>	<p>Faint red Mars sets before twilight ends but can be found with binoculars to upper left of Venus. Look just before Venus sets. Aug 1: Mars 24° upper left of Venus; Aug 16, 15°; Aug 31, 6°.</p>	<p>Mercury is very difficult. Use binoculars. On Aug 1 look 5° upper left of Venus. By Aug 11 it is 9° upper left of Venus. Fading and getting lower, Mercury is 9° left of Venus Aug 26.</p>	<p>Morning Planets: Jupiter, 5° S of Pleiades "7 Sisters" star cluster at mid-month, is brightest morning object. Saturn emerges from sun's glare last half of month. Look low ENE about 18° below Pollux. See Aug 22-23.</p>

Magnitudes of the planets: Venus -3.4 to -3.3; Jupiter -1.9 to -2.1; Saturn late August, +0.6; Mars +1.9. Mercury fades from -0.4 to +0.6 during Aug 1-27. Binoculars needed to see it in bright twilight. Planets against star background: Jupiter this month creeps 3.2° eastward in Taurus. It is closest to Pleiades (5° south of it) around August 19. The Beehive in Cancer can be seen in binoculars 4° above Saturn at month's end.

East Lansing Sunrise: August 1 6:29 a.m.; August 16 6:45 a.m.; August 31 7:02 a.m. EDT
Sunset: August 1 8:58 p.m.; August 16 8:38 p.m.; August 31 8:15 p.m. EDT

V.S.O.

By Rik Hill

Described by Webb as "one of the most remarkable variables in the heavens," R Corona Borealis is the head of an unusual and small class of 'reverse' or 'backward novae.' Discovered by E. Pigott in 1795; R CrB is located near a star of mag. 7.3 and forms a neat isosceles triangle with Delta and Gamma CrB.

Normally, if that word can be used on this star, R CrB is about 6th mag. but at very irregular intervals it will dip by one to nine mags, staying at minimum for any length of time from one day to ten years. It 'is called 'reverse nova' because of the shape of its light curve. Normal novae rise steeply to a maximum mag. and then experience a slower decay to a lesser mag. But these R CrB stars drop steeply to a minimum mag. and then slowly rise back to a higher mag. In the most general terms it can be said that R CrB stars and normal novae change at the same rate but in opposite directions or intensities.

This star is also called 'the ideal irregular variable' due to its total unpredictability. Because of this amateur and professional astronomical organizations urge constant monitoring of its light variations, especially at minimum where mag. estimates are sketchy. Even if you turn in negative estimates like "fainter than mag. 11.1" these are valuable. Sometimes that may be the only estimate available for a given day. The usual mag. range of this star is from 'mag. 6 to 12, With an occasional dip to 15. But in any case it can be adequately followed in almost any amateur instrument provided you have good charts.

Because of the unusual behavior of this star it is difficult to be certain if its distance from us. Most authorities agree on a general distance of 4,000 to 5,000 l.y., which at the angular distance R CrB is from the galactic plane puts it in the outer halo well, outside our Milky Way. It is in this region that we find the 'old' stars and globular clusters. That plus spectroscopic information makes it reasonable to assume that R is a latter type star. I have found R CrB listed as no less than five different spectral classes in five different sources! But presently accepted data reveals dark absorption or 'Swan' bands of carbon in the spectrum of R.

Deciphered this means that R CrB is composed of 67% carbon with a mixture of hydrogen and other elements making up the other 33%. Therein lies the reason for variability. There are two schools of thought on the mechanisms responsible for the variations in R.

One school believes that the star ejects clouds of its material at irregular intervals. Once away from the mother star this material expands as a shell and loses energy thereby cooling. When cooled beyond a certain point the carbon can form molecules which make very efficient light absorbers.

The more popular explanation uses similar processes. It involves the expansion of the outer layers of the star due to the high energy output of its helium-burning core. When these layers expand the temperature drops a little once again causing the molecules to form and absorption occurs. In this theory there is no appreciable loss of matter.

Visually R CrB is described by most to be yellow or slightly orange. Though seen in good skies with the naked eye, you should use slight magnification when observing this star at maximum. A good rule of thumb is to use optical equipment with a limiting mag., which is two mags. fainter than the star you are observing. Any good catalog, such as the Skalnate Pleso Catalog, will list enough stars and their mags. nearby to make comparison possible. But the best charts for the job can be obtained from the AAVSO for a small fee. In the same field of view is TT CrB. This star is normally at mag. 12.3 but has been seen to drop below mag. 13. You definitely should have a good set of the AAVSO charts before attempting this one, but R CrB being so close does make it easy to find. -R.H.

Editors Page

Dateline: J.P.L. Pasadena, Calif., Viking Information center
•••• July 13, 1976 •• It was announced at noon today that Viking I will land on the western slope of the Chryse basin of the planet Mars, at 5:12 am pacific time, Tuesday July 20, 1976.--- Pre-separation checkout of the lander will start on Sunday, July 18, 1976.

The Chryse basin is a broad plain, 35°W of Sinus Meridan, a well known feature on the equator. The approximate position of touchdown is 45°W Lat., 10° north of the equator.

Viking II is about 2 3/4 million miles from Mars and is running smoothly. It will go into orbit around Mars on August 7, 1976.

Lou Faix needs some volunteers to photograph the events that will occur at the Astronomical League Bi-Centennial Convention. Please call Lou if you are interested. 781-3338.

Future articles to appear in the W.A.S.P.

Science and the Parascience Cults.

A 6 page article by Kendrick Frazier, compiled by Lou Faix. It is about how the public can separate fact from myth in the flood of occultism and pseudoscientific theories on the scene today.

An article about nearby Stars and their suspected dark companions. A chart will show how these stars travel in space and why they are suspect. A list of these near stars is also to appear.

An eyepiece fact sheet. This article will detail the different kinds of eyepieces and their use. Which eyepiece should you use with your telescope? Find the answer in this piece.

How to tune up your telescope! This article, in two parts, will show step by step how to align the optical path of your scope so it works just like it was supposed to.

your Editor,
Robert A. Civile

OBSERVATORY SCHEDULE

Lectures for the coming month are listed below.

July 16/17 •• Diane McCullough • 791-8752

July 23/24 •• Kim Dyer •••••••• 835-0993

July 30/31 •• Dave Harrington •• 879-6765

Aug. 6/7 •• Pete Kwentus •••••• 771-3283

Aug. 13/14 •• Don Misson •••••• 776-0424

Aug. 20/21 •• Larry Kalinowski •• 776-9720

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 floor that was proposed for Stargate Observatory has been installed.

On July 3, 1976, with building materials donated by Claude McEldery, members of the Warren Astronomical Society, namely, Pete Kwentus, Lou Faix, Don Misson, Ray Bullock, Kim Dyer, Ken Wilson and Roger Civic, built a wall to wall wooden floor that will help keep the observers feet warmer on those super cold winter nights that the viewing is so good. The floor will be covered by a rug that was donated Ray Bullock.

The observatory building itself needs a fresh coat. The dome, the ceiling, and the doors are in poor shape. If anyone out there cares, please call your observatory chairman and volunteer to help in some way. We need some paint and some willing hands.

After much discussion among the officers of the W.A.S., it was decided that the old door locks will be changed. They are in poor condition and could fail at any time.

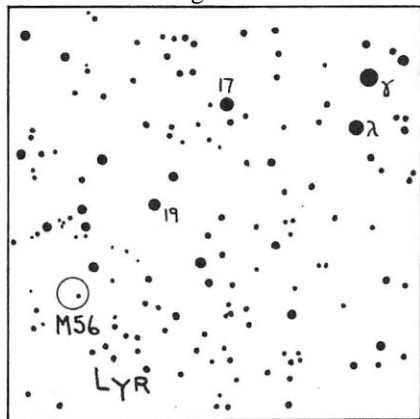
Messier Objects~



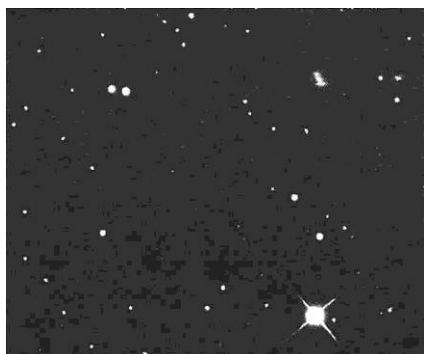
M56 NGC 6779 $19^{\text{h}}14^{\text{m}}.6 +30^{\circ}05'$
Globular cluster in Lyra

Basic data. Located between Gamma Lyrae and Beta Cygni (Albireo), M56 is a compact 8th-magnitude globular star cluster 5' in diameter, about 25' southeast of a 6th-magnitude star. It is distant about 40,000 light-years, and is approaching the sun at a speed of 154 kilometers per second. This cluster was first seen by Messier on January 23, 1779. In his small instrument, it must have looked much like a faint comet.

NGC description. Globular cluster, bright, large, irregularly round, gradually very much compressed toward the middle, well resolved, stars of 11th to 14th magnitudes.

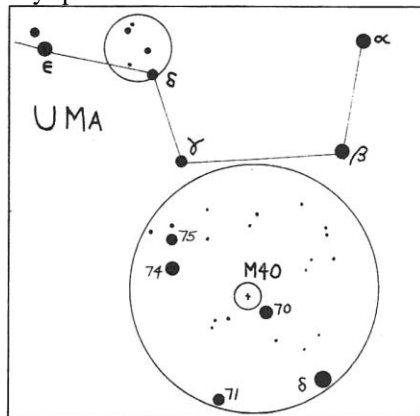


Visual appearance. An impressive object. In a 4-inch refractor, M56 is a bright, nearly circular glow, in which a few individual stars are seen. Unlike most other globulars, this one has no bright core. It lies in a grand low-power Milky Way field.



M40 Winneke 4 $12^{\text{h}}20^{\text{m}}.0 +58^{\circ}22'$

Double star in Ursa Major
Basic data. In searching for a nebula said by the 17th-century observer Hevelius to exist in this vicinity, Messier could find only a pair of faint stars, to which he nevertheless assigned a number in his catalogue. M 40 is the wide double star Winnecke 4, discovered at Pulkovo Observatory in 1863. The two components are magnitudes 9.0 and 9.3, and their separation is 49".
Visual appearance. The double is easily split with a 6-inch .



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