

THE WASP

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



Apr. 1979

MOON PHOTO BY RAY BULLOCK

THE WARREN ASTRONOMICAL SOCIETY
PUBLICATION

This Month...

APR 79

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751-1673

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751-8506

SOCIETY INFORMATION

The Warren Astronomical Society (W.A.S.) is a local, nonprofit organization of amateur astronomers. The Society holds meetings on the first and third Thursdays of each month. The two meeting locations are listed below:

1 st Thurs.	Cranbrook Institute Of Science 500 Lone Pine Road Bloomfield Hills, MI	3 rd Thurs.	Macomb County Community College – South Campus K Building 14500 Twelve Mile Road Warren, MI
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Membership is open to those interested in astronomy and its related fields. Dues are as follows and includes a year subscription to Sky & Telescope Magazine:

Student - \$11.00	College - \$13.00	Senior Citizen - \$15.50
Individual - \$18.00	Family - \$23.00	

STARGATE LECTURE SCHEDULE

Chairman- Dennis Jozwik- 754-2037

Lectures are given at Stargate Observatory each weekend. The lecture will be either Friday or Saturday night, depending on the weather and the lecturers' personal schedules. If you cannot lecture on your scheduled weekend, please call the Chairman as early as possible so he may arrange for a replacement. Those wishing to use Stargate must call by 9:00 p.m. on the evening they plan to go out. The lecturers for the coming month are as follows:

Mar 30/31.....	Dennis Jozwik, 754-2037
Apr 6/7	Pete Kwentus, 771-3283
Apr 13/14	Frank McCullough, 725-4736
Apr 20/21	Don Mission, 727-9083
Apr 27/28	John Root, 464-7908

WAS Exchange

FOR SALE...8" f/6 reflector with 2.14" diagonal, mounted in 10" diameter tube – 50" long, no eyepiece focusing mount. Price \$100. Also 4" O.D. - 24" long, black iron stand that is ready to accept 3 legs and equatorial head (Pacific) for \$10; plus, a 22½ lb. counterweight with 1" hole and screw clamp for - \$10. Contact Roger Civic, 776-1673.

FOR SALE...3" refractor in very good condition. Completely equipped with the following: equatorial mounting with setting circles, three eyepieces, star diag., 2X Barlow, 6x30 finder, erecting prism, sun screen projector and accessory tray. Price - \$250. Contact Jeff Stanek. 751-1673.

FOR SALE...6" f/10 telescope. Good condition. Mounted on a lightweight tripod and equipped with clock drive. Price- \$250. Contact Joe Tocco, 573-8547.

WANTED... Complete equatorial mounting for 6 inch reflector. Call Beverly Wicks at 474-7234.

WANTED... 4¼" or 6" reflector in good condition, preferably with mounting. Call Jim Pintkowski, 879-0588

THE FOLLOWING ARE THE MINUTES OF THE FEBRUARY 15, 1979 MEETING OF THE WARREN ASTRONOMICAL SOCIETY:

The meeting opened at 8:17 p.m. with our President's announcement of the evening's program. Featured would be Claude McEldery of the Detroit Astronomical Society who will share his special films of familiar celestial objects. Larry Kalinowski was slated to give the second half of the program after intermission.

Two further announcements concerning the raffle and a timely give-away by Ray bullock wound up the preliminaries. The give-away offered solar eclipse viewers to members who would view the forthcoming eclipse from this locale. Donations of refreshments were solicited. Mrs. Connie Shannon responded and the March goodies will be supplied by her.

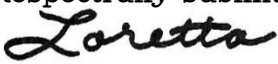
Last minute advice and tips were offered to those travelling to Canada for the Eclipse. Chuck Mayer told that Canadian law required the registration of all cameras. Mr. McEldery cautioned everyone to mark their valuables. Pete Kwentus reminded all to read an article appearing in the Detroit Free Press on the Eclipse. Reservations will be taken for a banquet which will follow Monday evening. The Elks in Canada are offering social events for travelers seeking entertainment.

Jeff Stanek, editor of the Wasp, has compiled a Tenth Anniversary issue of the club newspaper which will sell for \$1. This sale would, of course, augment the sagging treasury. Robin Bock, treasurer, disclosed that our bank balance stood at \$210.84. She requested that all Library materials be returned.

Mr. McEldery then began his presentation to us. Entitled "The Exciting World of Amateur Astronomy", it truly lived up to its promise. Beautiful and rare shots executed by Claude gave an added understanding to familiar objects. A daytime shot of Venus was a tribute to the speaker's patience and great interest in astronomy. After intermission, the raffle was held and produced the following winners: Frank McCullough, camera adapter; Ken Kelley won the "Eyewitness to Space" book and; the Daystar Filter was claimed by Dr. Paul Strong.

Larry Kalinowski then took the floor to give his detailed and learned talk titled, "Solar Eclipse Astronomy". He emphasized the need for A PLAN in taking pictures and capturing the drama of solar eclipse totality. He gave a formula for focal length, discussed prominences, priorities, portability, the diamond ring, Bailey's Beads, multiple exposures, films, filters and do-it yourself props. Larry fielded audience questions on every aspect of solar photography. His top choice for film is Fuji Chrome 100. He closed by again repeating that success depended on good planning.

The meeting was adjourned at about 11:00 p.m. by President Dave Harrington.

Respectfully submitted,

Loretta D. Caulley

MINUTES OF THE JANUARY 17, 1979 MEETING OF THE WARREN ASTRONOMICAL SOCIETY:

The meeting was opened at 8:30 p.m. by President Dave Harrington. The program for the evening was disclosed immediately. Robin Bock, treasurer, announced that we have \$243.10 in the bank. She is putting together a library for the Society and asked that members return two missing Atlases. Frank McCullough will be selling tickets for a raffle. Planned to swell the depleted treasury, the raffle will give away a camera adapter worth \$20., a Daystar Nebula Filter priced at \$50., and a book entitled "Eyewitness to Space". If successful, this raffle would also go towards purchase of an automated slide projector for the club. Bills for our annual Christmas Banquet are still coming in.

Tim Skonieczny gave an updated report for travellers to "Eclipse 1979". A Brandon, Canada civic group are planning social events to include dancing, bingo and sightseeing. The Detroit Science Center will have a series of week-end films.

"Visions of Mars" was the title of the first scheduled talk. Presented by Roger Civic, it featured slides, historical data, pictures by Viking Orbiter 1. Using a detailed Mars globe which Roger himself constructed, members were treated to geographical identification of Martian sites, topography and general information. Since this is his specialized subject, members had the advantage of Roger's years of study and research.

Raffle tickets were sold during the 9:30 p.m. intermission. First speaker on the agenda afterwards was Jeff Stanek, Editor of the WASP, who told of an anniversary issue costing \$1 which his group are putting together. More details will follow next month. Frank McCullough then showed his astronomical short entitled "The Winter Astronomer." The music, slides and commentary were entertaining and brought much mirth.

Doug Bock displayed his shots of the December 26th occultation of Venus and the Moon. He then projected a NASA film, entitled "The Moon, an Emerging Planet". The evolution and history of the moon were highlighted in a striking and memorable style. At 11:00 p.m. our meeting was closed by Mr. Harrington.

Respectfully submitted,



Loretta D. Caulley, Secretary

NIGHT WATCH

If you are one of the brave and venture out on these chilly winter evenings then you will surely want to make it worth your while to do so. Why not take up the challenge of a spectacular cataclysmic variable star? I am talking about one of the most famous variable stars of all... U Geminorum, a star that will be quiescent at about 14th mag. for most of the time and then with no regularity or periodicity it will spring up to 8th or 9th mag. in only a few hours! In one evening, you can see it brighten by as much as four or five magnitudes!

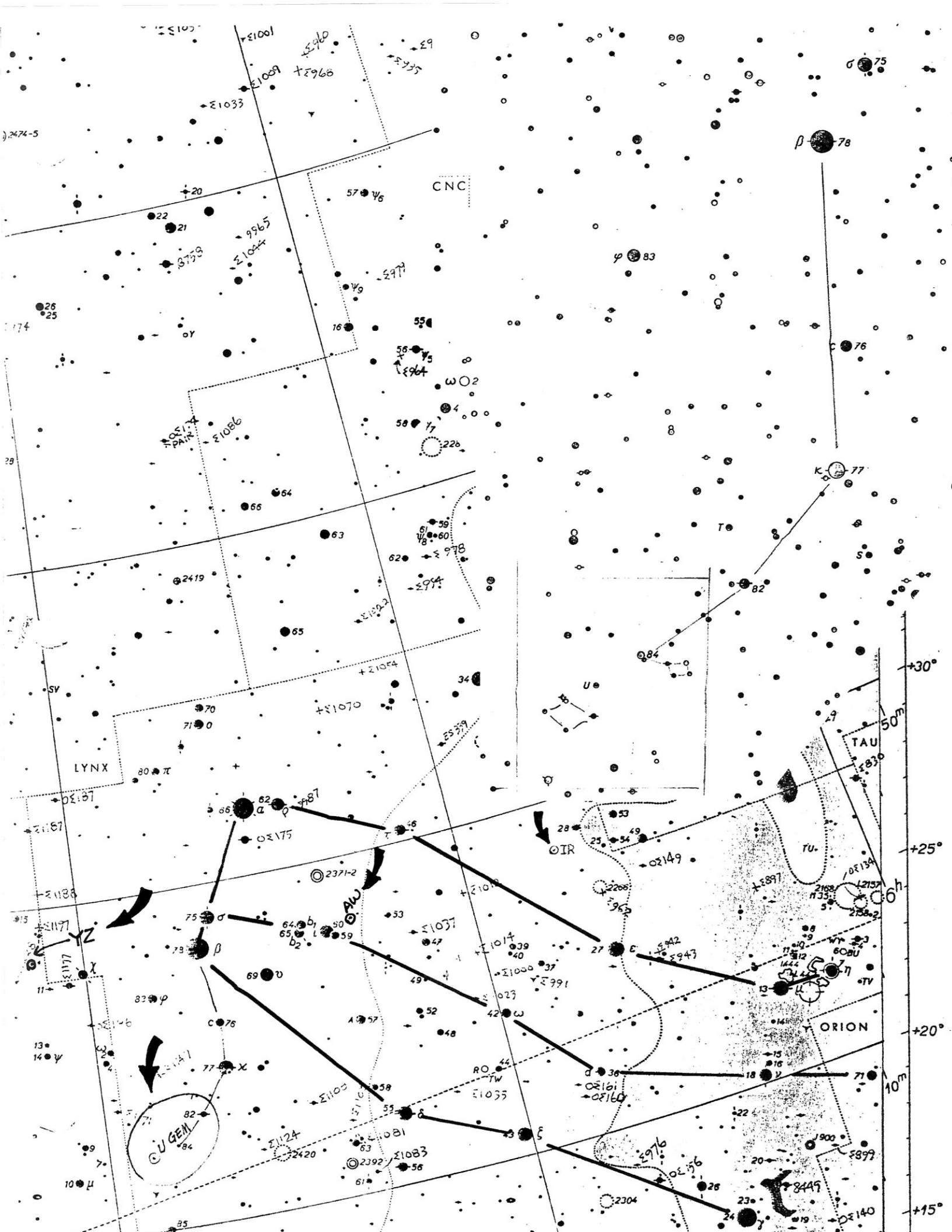
A variable star is not as easy as a deep sky object to find among the stars. When you come upon a sought after galaxy or cluster you can fairly readily distinguish it from the surroundings. Not so with variable stars. Here you must recognize a pattern of stars with a variable among them that may or may not be visible. It would surprise you how much easier it is to find deep sky Objects after you have been looking for variables for a while, also finding the deep sky objects quicker and with greater ease makes it more enjoyable to observe them. There are some variable star observers who got their start as Deep Sky Observers (DSOs) and only observe variables in the fields of deep sky objects. So, there is a lot of compatibility between the two.

U Geminorum is the type star for a class of variables also known as Dwarf Novae because of the spectacular way they burst out, most astronomers are trying to get away from the old habit of naming a class of stars after one prototype like U Gem., so from here on I will refer to them as Dwarf Novae (DN). This star was discovered on Dec. 15 1855 by J.R. Hind while he was searching for asteroids. At first it was thought that this was a nova. Later eruptions proved this hypothesis wrong. Only the diligent work of N. Pogson proved this to be a repetitive variable star. He followed the activities of this, and many other stars, tirelessly.

Not a lot is known about DN even today after many years of study and therefore they are the subject of much interest and scrutiny. The AAVSO has been coordinating the observations of their observers that follow these stars with Mt. Palomar where they are used in coordination with observations by the HEAO satellites.

What has been discovered is that the DN are double stars, one a large yellow star and the other a small blue star. Matter is being shed by the larger and forms a ring about the smaller. It is thought that the infall of this matter causes the burst of light.

Try taking a look at this star on each night you go out. At first it will be difficult finding the field and identifying the star but stick with it because you will find it easier each time. Use the three digit magnitudes next to the stars on the chart for comparisons to U Gem. The last digit in each case is a decimal of the magnitude, the decimal point being omitted to avoid confusion with stars. If you are lucky you will enjoy the sight of a star increasing its light output by 100 times in one night.



074922

(c)

S

Scale 40" = 1 mm

U Geminorum

(1950) 7^h 52^m.1

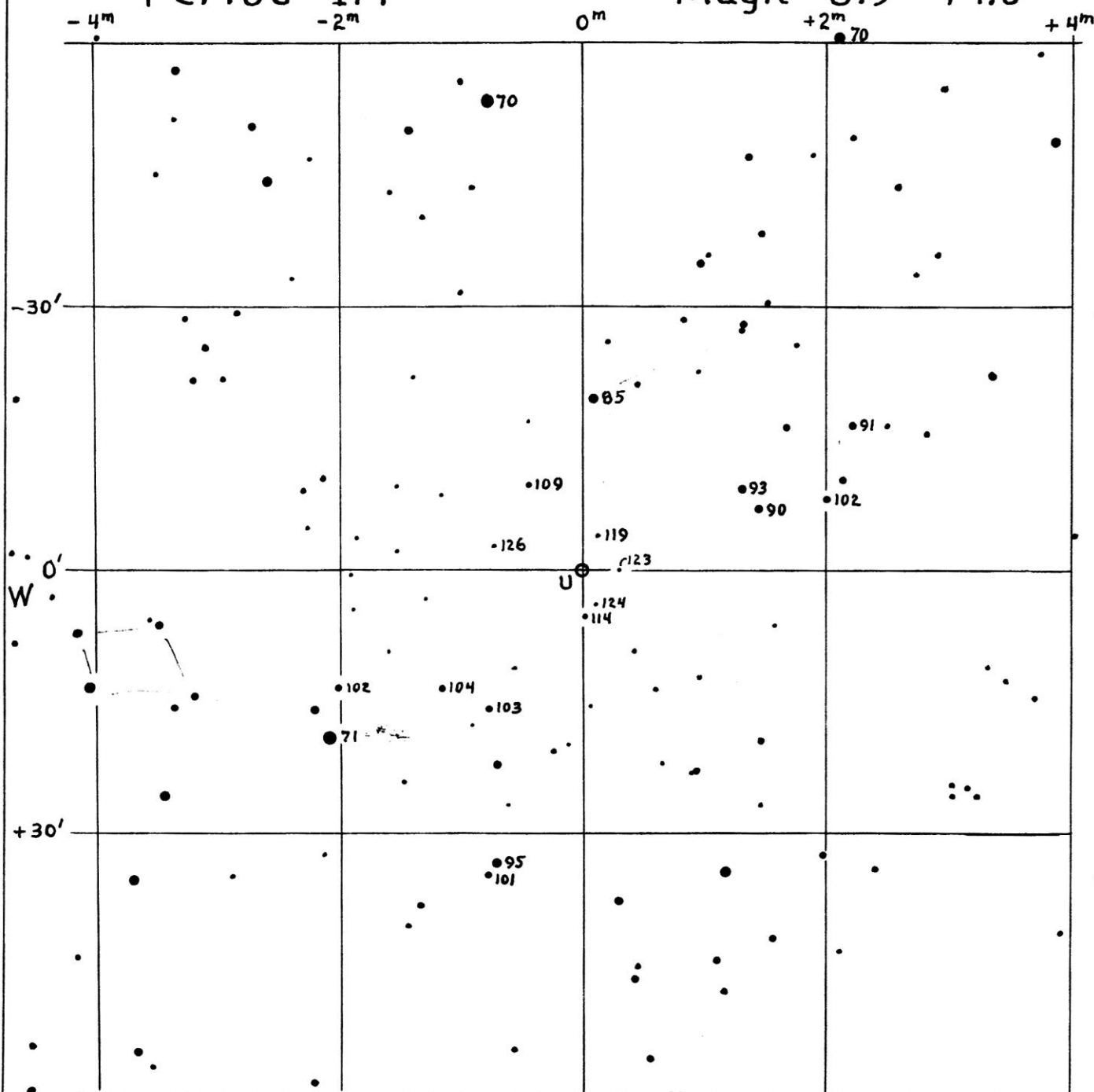
+ 22° 8'

(2000) 7^h 55^m.1

+ 22° 1'

Period Irr

Magn 8.9 - 14.0



AAVSO Chart (c)

N

Traced by DFB
 From Walton chart
 Approved HCO 1942
 Retraced by RNM 1-65

WHEN DARKNESS FELL

As the day of importance drew near a group left Friday, Feb. 23, 1979 from Windsor airport bound for Winnipeg, and Brandon, Manitoba. They were there to check out weather conditions in advance so that the following groups would have a good indication of what to expect when they arrived. Another group left Sunday, Feb. 25, 1979 from Windsor airport also and arrived in Brandon that evening. Another group arrived late that night which concluded all arrivals of our groups. There were film crews following our club's activities throughout the trip.

The latest weather reports predicted clouds for Brandon the next morning. It was clear Sunday night and we saw some aurora. But the clear night seemed like an omen. Would the skies stay that way come morning? At midnight, a final report stated that the eclipse path over Brandon would probably be clear in the morning. So, after much talk and tension we went to sleep with great expectations but with some pessimism. The next morning as twilight started it was clear but soon a high haze crept over the rising sun and disaster was in our hearts. A final check with the weather bureau revealed high haze coming our way. But if we head east we may stay ahead of it. So off to the races we went. People running all over the place to get their equipment together and loaded on the bus. Finally, we are on our way.

There were two bus loads and a couple of rent-a-cars racing down Canada Highway 1 looking for clear skies. Somehow the group got split into three groups. The rent-a-cars went north to an airport, one bus went all the way to Portage, 68 miles east of Brandon, and the other bus was about halfway between Brandon and Portage. Bus drivers were in fear of their lives as mutinous astronomers wanted to stop soon. After an hour and 15 minutes we stop on the side of the highway and set up. The partial phases had already started and the sun was covered about 10 percent of the way. Tri-pods and compact telescopes and cameras climbed up out of the snow everywhere. The eclipse flag placed on the front window of the bus stood motionless as totality approached.

One could feel the excitement in the air as everyone was preparing for the last eclipse this century to be seen from the north american continent. Small talk increased during the partial phases as people tried to keep their nerves together. Ice crystals started dropping out of the sky as the partials approached 80 percent. 95 percent and the surrounding area got dimmer. Last minute checks were being made as others clicked off shots of the partial phases. "10:40 it's starting to look weird." Such a profound statement.? "I can hardly see it through my camera." "It's about 97 percent now, I can barely see the remaining crescent". "Here come the shadow bands from the west very fast." Totality was approaching very quickly. Tape recorders were going and the temperature was dropping very quickly. "Get ready, get

ready. We're almost there." "Here it comes, Diamond ring. Diamond ring. Get it". There it was beautiful. "Wow, fantastic". Click, click, whirr, there goes the movie cameras, shutters clicking, oohs and ahs as totality progressed. "Look at the prominences. Wow, fantastic." Then a hush of voices and cameras clicking away. Cameras start freezing up. focusing mounts on a few scopes froze up. Movie cameras froze up. Frustration set in for a lot of viewers.

Yet the eclipse went on and those who had problems with equipment had to watch. They probably had a better view visually than those looking through equipment. There was tremendous corona and prominence activity.

Seemingly seconds later third contact brought the second diamond ring unexpectedly. "Oh oh, catch it quick". Totality was over and jubilation commenced. "It was fantastic. Great. Great. Loved every second of it. Tremendous solar activity." As the great solar disk reappeared slowly the forest of tripods came down as did the emotions of everyone there. Relief that all had seen what a year's worth of work and a good sum of money had promised.

The bus ride back was rather quiet due to the fatigue the past few days had produced. Recollection of the great event was past back and forth from person to person. As the sun set that night minds were at peace. A worthwhile experience was finally realized.

What next. Kenya.

Douglas H. Bock

SKY CALENDAR APRIL 1979

Information for helping teachers and students observe the sky

Magnitudes of the Planets: Venus -3.5 to -3.4; Jupiter -1.9 to -1.7; Saturn +0.6 to +0.8; Difficult in bright twilight are Mercury +1.1 to +0.3 (Apr 10-30); Mars +1.4. **Motions during April:** Venus goes 36° eastward in 30 days; it crosses from Aquarius into Pisces Apr 18, and through a corner of Cetus Apr 28-May 2. However Venus is in morning twilight 37° to 31° W of sun, and background stars won't be visible. Jupiter goes 1.9° east in Cancer, ending month 6° W of Beehive and 10° SE of Pollux. Saturn retrogrades (goes west) 1.2° in Leo, approaching to within 2.1° NE of 4th-mag Rho and 8° E of Regulus.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Evening: 1 MSW to W. See Apr 6. Moon Aldebaran Pleiades	Evening: 2 SW to MSW Moon Betelgeuse Aldebaran	3 About half an hour before sunset, look for moon high in south. The moon is in Gemini, 85° (slightly less than 1/2 circle) from the sun. The moon has therefore not quite reached the First Quarter phase. Note moon's shape is not quite half full.	Evening: 4 High south Castor Pollux Jupiter Moon D (just past First Quarter)	Evening: 5 High south Castor Pollux Jupiter O Moon	Diagrams labeled 6 Morning or Evening show sky during mid-twilight, about 45 minutes before sunrise or 45 minutes after sunset, respectively, from latitude 40° N. Diagrams for Apr 10, 15, 20, 23, 24 are for another time, as noted in Apr 17.	Evening: 7 SE Regulus Saturn
Evening: 8 SE Regulus Saturn O Moon Saturn and Regulus now 8 1/2° apart.	Evening: 9 SE Regulus Saturn O Moon	10 East, 1/2 hour before sunup: Mercury 11° lower left of Venus. See box for Apr 17, below. Venus Mercury	Evening: 11 ESE O Moon Spica	Evening: 12 ESE Full Moon Spica (see Apr 13)	13 Spica at opposition, 180° from sun. Each year around this date, Earth passes between Spica and the sun, and Spica is visible all night. Earth to Spica	14 Moon rises about 40 min after end of astronomical twilight tonight, and about an hour later each night. Early evening skies are dark for rest of month. Locate the Beehive cluster, a hazy patch 7° east of Jupiter.
Morning: 15 SSW Moon Antares East, 1/2 hr before sunup: Venus Mercury Mars	Morning: 16 SSW O Moon Antares	18 Diagrams for Apr 10, 15, 20, 23, 24 labeled 1/2 hr before sunup show sky at beginning of civil twilight, when sun is 6° below horizon. Sky is bright, so don't be discouraged if you can't see Mercury and Mars. Binoculars help; southern states better.	19 Sun enters the constellation Aries this evening, nearly 29 days after it entered the astrological sign of Aries. Do you know in which constellation the sun stands on your birthday? Don't refer to the astrologers' list of signs!	20 Last Quarter Moon, in Sagittarius in low part of zodiac, is low in S within 1 hr after sunup. Moon is just over 90° from sun and is therefore very close to half full. New Moon	21 East, 1/2 hour before sunup: Mercury 6° lower left of Venus. Venus Mercury Mars	22 Today Mercury is farther from sun (27°) than at any other time this year. Yet it is not in very good view from northern U.S. This is because it is far to right of sun, rather than above it.
Rest of April: Look for Mercury 5° lower left of Venus. Use binoculars. This week: 700 lunar occultations, Mercury on Tuesday morning, and Aldebaran Sat evening.	23 East, 1/2 hr before sunup: Moon Venus	24 East, 1/2 hr before sunup: Where is Mercury this morning? See box below. Venus	25 The diagram at right shows the western sky about 3/4 hr after sunset Friday. Each evening, look for all the stars named on that diagram. Try to determine the last date you can see each star. Keep records of your observations.	26 New Moon	27 Sat Apr 28, evening: Moon occults Aldebaran in all of U.S. except Northeast. D = disappearance of star behind moon's earthlit upper limb; R = reappearance from behind moon's sunlit lower limb. From Eastern Great Lakes and Southeast, D is just before moonset. Central U.S. from Texas to Western Great Lakes has excellent view of D about 1 hr after sunset. From southern Ariz to N Dak, D is around sunset, R about an hour later. From cent Calif to W Mont, D is about 1 hr before sunset, R around sunset.	28 Sat Apr 28, evening: Moon occults Aldebaran in all of U.S. except Northeast. D = disappearance of star behind moon's earthlit upper limb; R = reappearance from behind moon's sunlit lower limb. From Eastern Great Lakes and Southeast, D is just before moonset. Central U.S. from Texas to Western Great Lakes has excellent view of D about 1 hr after sunset. From southern Ariz to N Dak, D is around sunset, R about an hour later. From cent Calif to W Mont, D is about 1 hr before sunset, R around sunset.
Sunday, April 29: Evening. Can you still see Rigel? It gets nearly 1° lower each evening. Betelgeuse Moon	Can you still see Rigel? It gets nearly 1° lower each evening. Moon	29 Mars Venus	30 Mars Moon	31 SW	32 MSW W Moon Apr 27 WNW	33 WNW
MSW W WNW	W WNW					