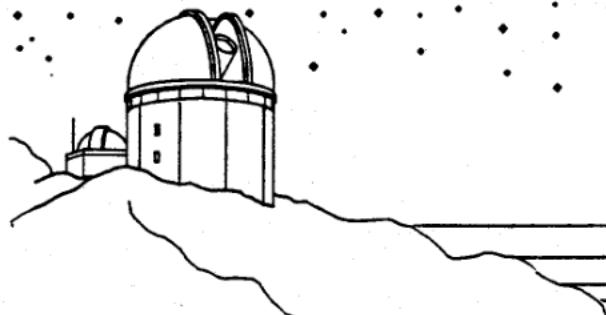


# EPHEMERIS

OF THE SAN JOSE ASTRONOMICAL ASSOCIATION



## FEBRUARY 1989

\* \* \* \* \* FEBRUARY 11TH 8 PM \*

\* JOE WUJAK  
\* "THE VERY LARGE ARRAY" \*

FEBRUARY 4 STAR PARTY AT FREMONT PEAK STATE PARK. SUNSET, 5:32 P.M.; ASTRONOMICAL TWILIGHT, 7:03 P.M.. NEW MOON. MORNING TWILIGHT, 5:34 A.M.; SUNRISE, 7:06 A.M.

FEBRUARY 11 GENERAL MEETING. JOE WUJAK WILL TALK ABOUT ACTIVITIES AT THE VERY LARGE ARRAY, THE NATIONAL RADIO ASTRONOMY OBSERVATORY. RED CROSS BUILDING, LOS GATOS, 8:00 P.M..

FEBRUARY 18 SJAA BOARD MEETING AT THE RED CROSS, 6:30 P.M.. THEN AT 8:00 P.M., THE SECOND SESSION OF THE INTRODUCTORY OBSERVATIONAL ASTRONOMY CLASS LED BY JACK ZEIERS. OPEN TO ALL INTERESTED IN LEARNING WHAT'S UP AND HOW TO FIND IT.

FEBRUARY 25 INDOOR STAR PARTY AT THE RED CROSS. NO SPECIFIC AGENDA; COME DOWN AND DO WHATEVER YOU'D LIKE TO SEE DONE AT A MEETING. OFTEN, NEWLY-OBTAINED PHOTOGRAPHS AND EQUIPMENT.

MARCH 4 STAR PARTY AT HENRY COE STATE PARK. SUNSET AT 5:59 PM. TO REACH HENRY COE PARK TAKE HWY 101 SOUTH TOWARDS GILROY AND TAKE THE EAST DUNNE EXIT. CONTINUE EAST TOWARDS THE HILLS (ROUND AND PAST ANDERSON RESERVOIR) OR ABOUT 12 MILES TO THE PARK. PAST THE PARK ENTRANCE YOU WILL SEE OLD RANCH TYPE BUILDINGS ON YOUR RIGHT AND A HORSE TROUGH. LOOK FOR A GATE ON YOUR LEFT. IT WILL BE LOCKED BUT THE CLUB COMBINATION IS 4565. ALWAYS LOCK THE GATE AFTER YOURSELF. IF ARRIVING AFTER DARK, PLEASE PARK OUTSIDE THE GATE AND HIKE IN FIRST TO FIND AN OBSERVING SITE BEFORE DRIVING IN. JUST A SHORT DISTANCE UP THE HILL BEYOND THE GATE IS WHERE THE SJAA SETS UP TELESCOPES.

MARCH 11 GENERAL MEETING. THE INSTALLATION OF OFFICERS WILL BE CONDUCTED AT THE BEGINNING OF THE MEETING. THEN ON TO THE MAIN COURSE! NORM SPERLING HAS BEEN STUDYING AND COMPARING ASTRONOMY TEXTBOOKS ACROSS THE YEARS, AND WILL TELL US OF HIS FINDINGS. NORM COMES ARMED WITH A GREAT DEAL OF THE HISTORY OF ASTRONOMY, AND THIS IS ANOTHER ASPECT OF OUR GREAT LOVE. RED CROSS BUILDING, LOS GATOS, 8:00 PM.

MARCH 18 SJAA BOARD MEETING AT THE RED CROSS, 6:00 PM. THEN AT 8:00 PM THE INTRODUCTORY ASTRONOMY CLASS.

MARCH 25 INDOOR STAR PARTY AT THE RED CROSS, 6:30 PM. COME DOWN FOR AN INFORMAL GET-TOGETHER AND ASTRO-GAB.

FIELD OF VIEW  
BY: JOHN GLEASON and JIM VAN NULAND  
ELECTIONS, BOARD OF DIRECTORS

Don't forget! Five members will be elected or re-elected to the Board of Directors at the February meeting. Present members whose terms are expiring are: Tom Ahl, Steve Greenberg, Paul Mancuso, Duncan Munro, and Jim Van Nuland. All are standing for re-election. Additional nominees will be taken at the

election. Directors whose term runs for another year are: Gene Cisneros, Connie Fleenor, Jack Peterson, and Brian Zehring.

### **OOPS!!! INTRODUCTORY ASTRONOMY CLASS RESUMES JANUARY 21ST!!!**

I had an interesting telephone call the other day. It seems that Jack Zeiders' Introductory Astronomy Class resumed on January 21st and not February 18th as indicated in the January Ephemeris. Sorry about that Jack! However, this is not to discourage those of you planning to attend the February 18th class. The class is still open to anyone who is interested in learning more about the night sky and astronomy in general. SJAA members are encouraged to invite their families and friends to these "informal" classroom sessions. This highly successful class covers many fascinating subjects. Some of the topics covered are: How to recognize the constellations, how to use your telescope, astrophotography basics and deep-sky observing with binoculars. No pre-requisites are required. You don't need to own a telescope. Jack isn't sure about trips to the West Valley College planetarium. It seems that there is a fee involved with its use. I would like to recommend to the SJAA Board of Directors that they allocate to Jack the cost of using the planetarium for one or two class dates. The planetarium is an ideal tool for teaching beginners. Jack has also lined-up several guest speakers, experts in their fields of amateur astronomy. The class begins at 8 p.m. and continues for the next 10 months.

### **INSTALLATION OF OFFICERS**

The new officers are elected by and from the Board, at the Board meeting following the Election. They take office at the Installation of Officers ceremony, presently in July at the annual picnic.

In 1985, we moved the Board election from June to February, to encourage more participation. The long delay before installation has caused numerous questions regarding voting rights, etc. Therefore, the Board has decided to move the installation up to the March General Meeting. (The By-Laws do not specify a date, so it is not necessary to schedule a vote.) The advantage is that an officer who was not re-elected to the Board will not longer have a long "lame duck" period during which board membership is in doubt.

### **FEBRUARY STARRY NIGHTS BY: RICHARD STANTON**

METEORS - The month of February is the loneliest month of the year for meteor observers. There is only one meteor shower this month, and it's a minor one. The Delta Leonids will achieve maximum of February 26th. Moving along at 23 kms. The shower will run from February 5th through March 19th. If you have ever wondered what exactly constitutes a "fireball", take a look at this month's new entry, "Encyclopedia Galactica", which hopefully will become a regular feature as a courtesy of the Vulcan Science Academy.

GALILEAN SATELLITES - The prime weekend observing nights in February will only show us a few of the many Galilean events that occur during the month. Regardless, Jupiter is always a fascinating observing experience in even the smallest of telescopes. Timing occultation events is both a challenging and rewarding occupation for an amateur astronomer. Also, the data assembled by amateurs are quite helpful to the space sciences community in better understanding the meteorology of Jupiter.

02-04	17:20 hrs Europa	Occ. Disapp.
	19:42 hrs Europa	Occ. Reapp.
	20:00 hrs Europa	Ecl. Disapp.
	22:22 hrs Europa	Ecl. Reapp.
02-05	00:16 hrs Io	Occ. Disapp.
	03:45 hrs Io	Ecl. Reapp.
02-26	01:14 hrs Europa	Occ. Disapp.
	03:39 hrs Europa	Occ. Reapp.
	03:55 hrs Europa	Occ. Disapp.
	06:18 hrs Europa	Ecl. Reapp.

FEBRUARY'S DEEP SKY CHALLENGE - Here's one that everybody has seen, right? Sh2-276 in Orion. This is an Emission Nebula by the name of Barnard's Loop. Is it a Supernova remnant or an Interstellar Bubble? Its address is 0548+01. You will need an aperture of 10 to 15 cm and a low magnification, wide-field eyepiece due to its size, 600x30'. Try a nebula filter and a slow sweep. Send in a photograph or drawing to win one million quidloos.

TOTAL LUNAR ECLIPSE - February the 20th, in the wee hours we will have a lunar eclipse. First contact will occur at 04:31 PST with the moon at altitude 27.8,

azimuth 263. The Moon will set at 06:43 PST so there is plenty of time for you to get in some observing and astrophotography. It might be best to set up your equipment the evening before and cover it. Then it will be ready when you haul your duff out at 0 Dark Thirty to catch the event. This is a rare opportunity to get some spectacular shots of several lunar craters as they enter the umbral shadow. Altitude will be a far more critical factor than dawn.

ENCYCLOPEDIA GALACTICA - The easiest way to describe a "fireball" is to share with you a recent Fireball report from the Smithsonian "SEAN Bulletin." Oregon, USA, 03 October 1988, 18:54 Pacific Daylight Time. At least 25 people reported a fireball that probably entered the atmosphere near Vale, Malheur County (43.97N, 117.33W). The object descended slowly at a 45-30 degree angle from ENE to WSW, lasting 4-5 seconds until dying N of Christmas Valley, Lake County at 43.03N, 120.58W. Most observers reported the fireball as round to teardrop-shaped, with a blue-white color and a short white trail with sparks. The object split into 2 parts early in its path with the smaller portion turning red to orange and falling away, and the larger half breaking into 3-6 fragments. There were 3 reports of crackling, hissing, and swishing sounds and 1 unconfirmed news report of sonic booms. The fireball cast shadows and was brighter than, and 5 times bigger than, the full moon. A Bend, Oregon amateur astronomy group is attempting to recover a specimen. ... That folks, is a Fireball! Good observing until next time!

## THE FACE ON MARS - IS IT OR ISN'T IT BY: DENISE HUTSON



1988 drew to a close with the December General Meeting of the SJAA and a thought provoking presentation by two special guest speakers. Representing the Society for the Study of Native Arts & Sciences in Berkeley, Dr. Randolph Pozos, Executive Director of the Mars Project, was joined by Roger Keeling, Membership Director, for an offering of both the pro's and con's as to the nature of the "face".

How did we ever find it in the first place? During the 1970's, a Viking orbiter mapped the entire planet. The images it sent back of the Cydonia region were then puzzled together, mosaic style, to reveal not only a face but an entire "city" as well!

According to Richard Hoagland, science writer and Mars Project Board of Advisors member, "Either these features on Mars are natural and this investigation is a complete waste of time, or they are artificial and this is one of the most important discoveries of our entire existence on Earth. If they are artificial, it is imperative that we figure them out, because they 'do not belong there.' Their presence may be trying very hard to tell us something extraordinary."

Since 1982 when the group began its research, information has presented itself on both sides. There is no detectable volcanic activity on Mars and there are no plate tectonics such as exist on Earth. The surface is extremely ancient and weather of any kind is minimal. So is it a natural formation? Hi-tech imaging procedures were applied to resolve the Viking photos as best they could and guess what? The face on Mars began to show teeth in its mouth! So is it an artificial formation?

The 60 or so club members in attendance seemed to be expecting an answer one way or the other. Neither of the speakers would be so bold as to say, "Yes! It's artificial!" thereby causing a mass exodus of people to the nearest space shuttle launch site to hitch a ride and get a closer look. The facts are plainly there on both sides. And until more information and better photos can be obtained, popular consensus is a "definite maybe!"

If you would like further information about the Mars Project and its research, why not become a member? \$25 per year will entitle you to a subscription to "The Martian Horizon," the projects' quarterly journal as well as discounts on books and photos. You can write to: The Mars Project, 109 Liberty Street, Santa Cruz, CA 95060.

## ASTRO ADS

ASTRO ADS are free to all non-commercial advertisers wishing to sell astronomically related products or services. Please send your ad directly to the Editor, John P. Gleason, 5361 Port Sailwood Dr. Newark, CA 94560 no later than the 15th of each month. Your Astro Ad will run approximately 3-months.

CELESTRON SUPER POLARIS MOUNT with single axis stepper motor drive, tripod, accessory tray, and Polaris finder with illuminator. Ideal for small refractors, or can be used as a camera tracking platform. Mint condition. \$500 or best offer. Call: John Gleason, 415-792-8248 2/89

CELESTRON C80F FLUORITE tube assembly. With star diagonal, 6 x 30 finder, tube rings for mounting onto Super Polaris or other small telescope mounting. A true fluorite refractor of exceptional imaging quality. Blows my Questar away! Excellent condition, \$1400 or best offer. Call: John Gleason, 415-792-8248. 2/89

CELESTRON SUPER C8, eyepieces, accessory case, tripod, drive, and much more. Like new. \$1500 or best offer. Call: 408-338-3503 6:00 pm sharp. 2/89

3-INCH EQUATORIAL REFRACTOR, superb resolution, "Passed" from J.T.I.I (Japan Telescope Inspection Institute); with 12 x 40 finder and star diagonal. \$400 firm. Contact: Edward Hillyer, P.O. Box 6065, Salinas, Ca. 93912 408-424-0460 1/89

CELESTRON C-11 SPECIAL, one of ten made for NASA laser ranging program, special precision optics and focuser. Wedge and tripod included. Best offer over \$4000. Numerous accessories, eyepieces and Anvil cases also available, prices negotiable. Write 110 Sutter Street, Suite 200, San Francisco, CA. 94104 or call 415-492-9169. 1/89

WANTED: 10.1" Coulter Odyssey telescope or 10" Newtonian with Dobsonian mount. Maximum price \$350. Contact Roger Hall at 408-732-2803 or 408-245-1741, 11:00 a.m. to 8:30 p.m. 12/88

MEADE 8-inch f/6 Model 628 Newtonian Reflector with RA and DEC motors, drive corrector with slow motion control joystick, 40mm wide-field eyepiece, 50mm f/12 guide telescope, 6 X 30 finderscope, equatorial mount, accessory tray, transportation cradle for scope. All for \$800 or best offer. Contact: David Ferry, 408-259-2366 after 5:00 p.m. 12/88

MEADE 2080 LX-5, like new, used 4 times. includes: Meade counter weight set, Meade Variable polarizing system, Meade variable focus camera adapter, Meade focus back, Meade super Plossl 20mm eyepiece, Meade dewshield, Meade piggyback camera mount, Orion t-mount & adapter, Orion moon, orange, violet, blue, and yellow/green filters, Orion sky glow filter, Celestron 26mm Plossl & 25mm Kellner, Tel-Rad view finder, Jim's Moto-Focus, Orion dew zapper, Orion accessories case (large), Olympus OM-1 camera with f/1.8 50mm lens, deluxe flexible cable release, misc. extras, and Tele-Vue 9mm Nagler & 55 Plossl (most original boxes available.) Sold as package deal only! \$1750.00 FIRM!! Don Grabski. 408-292-9144 (home), 408-925-9650 (voice pager). 12/88

WANTED: Issues 17 and 24 of Telescope Making magazine. I have extras of number 26, and 27 to swap, or will pay reasonable price. Also desire numbers 10 to 15, and 1 to 5, in descending order. Contact: Jim Van Nuland, (408) 371-1307, 10 am to 11 pm. 11/88

4" BRASS REFRACTOR for sale. Unitron lens with a solid brass tube and 8X50 brass finder. Super Polaris mount with stepper motor drive. Tripod is hand rubbed mahogany. Also includes a drive corrector and portable power supply. Excellent optics and a real looker. \$950. Call Jim Baumgardt at: (415) 692-5337 after office hours. 11/88

MEADE 2080 GEM 8". It comes with 3 eyepieces; Meade Series 4000 super Plossl 26mm, 9.7mm, Celestron 2X Barlow lens, all 1 1/4". \$700 Contact: Julie Ide 708 Columbia St. Santa Cruz, CA. 95060 (408) 423-6495. 11/88

CELESTRON SUPER C8 with wedge, Meade heavy duty tripod, Meade drive corrector, 6.5 Amp/hr battery with charger, Celestron 45mm Plossl eyepiece, Celestron 7mm Ortho. \$750. Don Irving 978-6114 evenings before 9 pm. 11/88

CELESTRON COMET CATCHER with beautiful vernier Dobsonian mount. Telrad finder, Televue 26mm Plossl. \$350 Don Irving 978-6114 evenings before 9 pm. 11/88

### THE GREAT RED SPOT OF JUPITER BY: JIM VAN NULAND

After many months of smooth slow motion in longitude, Jupiter's Great Red Spot suddenly jumped! Though the amount is small, about 5 degrees, it is much more than usually seen over just a week or so. Though confirmed by another timing, the Spot just as suddenly was back nearly in its old place again. When it again jumped, I studied it carefully in the moments of best seeing. The darker belt material, in which the Spot is nestled, seems to have welled up following the Spot, and may be pushing at it. The Red Spot Hollow, which has been

consistently about 2 degrees preceding the Spot, is now symmetrically arrayed around it.

Historically, large and/or sudden changes in the Spot's position have occurred as other large features came close by. So, there may be another spot or large oval (Or large, black rectangular object), not distinct enough to see. Let me know if you have seen something nearby. Meanwhile, don't be surprised to find these predictions even more early than usual.

The predictions are corrected for the changing aspect, phase, and light-time. At the given times, the Spot will be facing directly toward Earth, and thus will appear central on the apparent disk of the planet. Observations may be made for over an hour before and after that time.

#### Great Red Spot on Meridian PST

da	mo	d	h	m	da	mo	d	h	m	da	mo	d	h	m
Tu	1	31	10	55 pm	Su	2	12	10	46 pm	Sa	2	25	6	43 pm
W	2	1	6	44 pm	M	2	13	6	38 pm	M	2	27	8	20 pm
F	2	3	0	33 am	W	2	15	8	21 pm	W	3	1	10	1 pm
F	2	3	8	24 pm	F	2	17	9	56 pm	Sa	3	4	7	28 pm
Su	2	5	10	5 pm	Sa	2	18	5	53 pm	M	3	6	9	8 pm
M	2	6	5	52 pm	Su	2	19	11	39 pm	W	3	8	10	47 pm
Tu	2	7	11	37 pm	M	2	20	7	28 pm	Th	3	9	6	40 pm
W	2	8	7	35 pm	W	2	22	9	10 pm	Sa	3	11	8	12 pm
F	2	10	9	13 pm	F	2	24	10	52 pm	M	3	13	9	58 pm

#### SPACE PROGRAM UPDATE BY: BOB FINGERHUT

##### DISCOVERY LAUNCH DATE SLIPS TO FEBRUARY 23RD

The five day launch slip was caused by minor processing delays. Discovery's major payload is a TDRS data relay satellite.

##### USA COMMERCIAL LAUNCH SCHEDULE FOR 1989

In the December 1988 Ephemeris the shuttle schedule for 1989 was listed. Listed here are the commercial launches scheduled for expendable boosters in 1989. March - Insat 1-D, Indian communication satellite. July - Glomar military satellite and NASA gas release study. AUGUST - British BSBR-1 television satellite, British defense ministry Skynet and a Japanese JCSat communications satellite. September - U.S. Navy FltSatCom. October - International Telecommunications Satellite Organization Intelsat 6. December - International Maritime Satellite Organization Inmarsat-2. There will also be launches by the U.S. Department of Defense that are not pre-announced. Navstar global positioning satellites will be launched on the first Delta-2 flights in early 1989 and the first Titan-4 should also be launched in 1989.

##### CHINA TO LAUNCH INTERNATIONAL COMMUNICATION SATELLITES

An agreement clears the way for up to 9 U.S. and international communications satellites to be launched on Chinese Long March Boosters through 1994. China agreed to not undercut the U.S. commercial launch industry by overly subsidizing its launch services.

##### SOVIETS RETURN AFTER 1 YEAR IN SPACE

Two cosmonauts returned to Earth on Dec. 21, 1988 after a full year on board the MIR space station. Both are rapidly adapting to earth's lg environment. The two cosmonauts, Titov and Nauarov, returned with French cosmonaut Jean-Loup Chretien who had visited MIR with two other Soviet cosmonauts that remained on MIR. The long duration mission led one Soviet program manager to say "Were one step closer to Mars." The current crew on MIR, 3 cosmonauts, are expected to remain on board through April or May.

##### COSMONAUT ASSAULTS FRENCH EXPERIMENT ON MIR SPACE STATION

Cosmonaut Volkov successfully deployed a stuck French space structure during a 6 hour space walk on December 9, 1988. Volkov freed the experiment by repeatedly kicking it with the toe of his boot while MIR was out of radio contact with ground controllers.

## DOUBLE, TRIPLE AND MULTIPLE STARS BY: PATRICK DONNELLY

Last night I was out with the telescope (12/26/88), and before the clouds and the moon ruined my viewing I managed to observe quite a few double and triple stars in Aries. I was somewhat surprised by the quantity and the quality of the double stars. I was often able to star hop from one double to the next using the finder scope. In about 2 hours I was able to observe fourteen different doubles and triples.

Aries has four fine triples to observe. The best triple is Pi-Arietis. It consists of mag. 5 primary and magnitude 8.5 and 11.5 companions. The mag. 8.5 secondary is approximately 3" from the primary and the mag. 11.5 is 25" from the primary. There is almost no difference in the position angles. Therefore, look for the three in pretty much a straight line. Near Pi-Arietis is Sigma-291, consisting of three stars of mag. 7.5, 8, and 9.5. The mag. 8 is 3.3" from the primary and the mag. 9.5 is 66" from the primary. The angle between the components with primary at the vertex is 120 degrees. About 10 degrees due north of Pi-Arietis is 41-Arietis. This triple star, although only optical, consists of mag. 4 primary and two mag. 11 companions about 25" from the primary. The angle between the components is 64 degrees so a nice triangle is formed by the components. The last triple is near Alpha Arietis. It is 14-Arietis. It consists of a mag. 5 primary surrounded by mag. 7.5, 8.5, and 10 companions. Like 41-Arietis this is an optical configuration, but nevertheless a very pretty configuration. The companions are all over 90" from the primary and spaced at about 120 degree intervals around the primary. It looks very much like the configuration in the Zeta Aquarius region.

After observing the triples next observe the premier double in Aries, Gamma Arietis. Gamma consists of two mag. 4.5 white stars separated by 8". This is a fine sight for all but the smallest of telescopes. Gamma is an apparent physical system about 160 light years from earth. Near Gamma are two other doubles. Just north of Beta is 1-Arietis. This is a gold and blue pair with mag. 6.2 and 7.6 separated by 2.7". It is a fine pair for a telescope's high power. 1-Arietis is a true binary system of uncertain period. Just east of 1-Arietis is Lambda-Arietis, a wide double with mag. 4.8 and 7.6 companions separated by about 38". This is an easy pair with some color contrast. To me the colors are white and gray. Lambda also appears to be a true binary system. Finally, for those with large scopes and fine seeing try 10-Arietis next to 14-Arietis. It consists of mag. 5.9 and 7.4 components separated by only 0.6". I have never resolved this star but I have seen some elongation. Let me know if you resolve it. 10-Arietis is a true binary with a period of approximately 390 years.

Near the triangle of stars formed by Nos. 35, 39, and 41-Arietis are three (3) more doubles to examine. No. 33 is next to 35-Arietis and is a true binary system. It consists of mag. 5.3 and 9.5 components separated by about 29". This double should be visible in almost any telescope. However, the dimmest component is mag. 12 and quite difficult to see even on very dark, clear nights in Morgan Hill. The other components are magnitude 6.5 and 11 separated by 3". The mag. 12 component is about 50" from the primary. This star would make an excellent object in a telescope over 20 inches at a dark sky site. Moving down the line the next star nearby is 30-Arietis. This star, like Lambda, is a wide double. The components are mag. 6.5 and 7.3 separated by 39". This would make an excellent object for a small scope. Near 30-Arietis is Sigma-271. This double consists of a mag. 6.5 primary and mag. 11 secondary at 12.5" from the primary. If you enjoy a challenge, this is your star. The secondary star was visible only with averted vision.

The last double to observe is a true binary system. Epsilon-Arietis consists of components with mag. 5.2 and 5.5 separated by a stingy 1.4-1.5". Use high power on this star because of the separation. This object is surprisingly easy to resolve, but this is probably a result of the almost equal magnitudes.

## COMET COMMENTS BY: DON MACHHOLZ

Four new comets have been found in the past few weeks, three of them by amateurs. At this writing I have only preliminary orbits for two of them and it doesn't look like they will be getting brighter. For updated information on positions and brightness of each, call me or the Sky and Telescope Hotline, (617) 497-4168. Other than these new discoveries, comet activity remains low.

Comet SSM 6 (1988p): The Solar Max Satellite detected this comet on Nov. 18. It was seen in three images before disappearing into a streamer. This comet was fainter than past comets found by the satellite, at about mag. 1. The orbit was difficult to determine, but it may have been another Sungrazer. It was not seen leaving the solar vicinity.

Comet Yanaka (1988r): Tetsuo Yanka of Japan found this, his first named comet, with 25X150mm binoculars on Dec. 29. It was then in the morning sky at mag. 9, about 35 degrees from the sun. We believe it was closest the sun on Dec. 11 at 0.43 AU and will dim as it moves south. Yanaka was an independent discoverer of Comet 1988j, two days after it was initially found.

Comet Yanaka (1989a): Yanaka found this, his second comet, five days after finding his first. It was mag. 11 and also in the morning sky. It is expected to slowly dim as it pulls away from the sun, which it was closest to in mid-November at 1.9 AU.

Comet Heline-Roman-Crockett (1989b): These professional astronomers found this 16th magnitude comet from Mt. Palomar using the 18" Schmidt. It is now pulling away from both the earth and sun, not expected to get any brighter.

Comet Bradfield (1989c): William Bradfield found this, his fourteenth comet, on Jan. 6. It was then deep in the evening southern sky at mag. 12. At this writing I have no orbit for it.

## SEEKING COMETS

This month we continue our discussion concerning the fact that the majority of comets first become discoverable in the morning sky. Dr. Everhart pointed this out in 1967. In my study of 33 comets, ten percent of Dr. Everhart's sample, I found similar, but not identical, results.

This effect occurs because an observer on the earth, in orbit around the sun, is facing in the forward direction the morning. We are more likely to be approaching comets in the morning sky than in the evening sky. Incidentally, this is the same reason we see more meteors in our morning sky than in our evening sky.

Shortly after I began comet hunting in 1975, I started sweeping more and more of the morning sky. Now the majority of my comet hunting is done after midnight. This amounts to 71.8% of 4165 hours since 1975. In fact, for a year-and-a-half after I got married, I completely ceased all evening comet hunting so that I could spend nights home with my wife.

I have found that I see better, that is, pick up fainter objects, after midnight than before midnight. There are some reasons for this:

1). Less luminescence of air molecules: This airglow is more active early in the night than later in the night. This effect is caused by upper-level molecules re-emitting light after being bathed in sunlight all day.

2). A settling of the particles in the atmosphere: This allows fewer airborne particles for scatter. This effect is more pronounced in congested areas where air pollution is tossed into the air during the day, than in remote areas. It is also weather-related, involving wind and inversion layers.

3). Fewer manmade light pollution sources: parking lots, advertising signs, and in some areas, security and street lights are turned off near midnight.

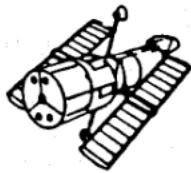
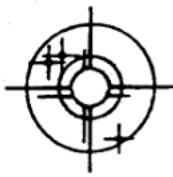
If I have time to sleep before a morning sweeping session, two more factors help me to see better:

4). A rested and alert mind: a) the mind is also used for sight and b) for examining every object for fuzziness as it crosses the eyepiece field. If I had to use one word to describe a comet hunting session, it is "busy". There is little time for play or wonderment while I'm comet hunting, instead my mind is processing visual signals as the telescope or binoculars sweep each strip of sky.

5). Better dark adaptation : The eye can become better dark-adapted when it has been resting in sleep for a few hours than it can after a full day in lighted conditions. This is probably more due to the better manufacture of "visual purple" (a chemical that helps you to see in the dark), than any further expansion of the pupil.

On the other hand, there are at least two factors that make observing more difficult after midnight. One is sleepiness which resulted in a lack of alertness. The other is dewing of optical surfaces and the heavier humidity often seen during dawn.

OFFICERS	
*	PRESIDENT: Tom Ahl.....
*	VICE-PRES: Paul Mancuso.....
*	SECRETARY: Jim Van Nuland.....
*	TREASURER: Jack Peterson.....
*	EDITOR: John P. Gleason.....



### SAN JOSE ASTRONOMICAL ASSOCIATION MEMBERSHIP APPLICATION

MEMBERSHIP ONLY: \$10    MEMBERSHIP/S&T: \$26    JUNIOR (UNDER 18): \$18

Name: \_\_\_\_\_

Please bring this form to any SJAA meeting, or send to:

Address: \_\_\_\_\_

Jack Peterson, Treasurer  
San Jose Astronomical Association  
1840 Yosemite Dr.  
Milpitas, CA. 95035

Telephone (\_\_\_\_) \_\_\_\_\_

Telephone: (408) 262-1457

MAKE CHECKS PAYABLE TO "SJAA"

Please check type of membership and if New or Renewal

Membership only  Membership/S&T  Junior (Under 18)  New  Renewal

SJAA EPHemeris  
1840 YOSEMITE DR.  
MILPITAS, CA 95035

NON-PROFIT ORGANIZATION

U.S. POSTAGE PAID

PERMIT NO. 5381

SAN JOSE, CALIFORNIA

TIME VALUE - DATED

NEWS MATERIAL