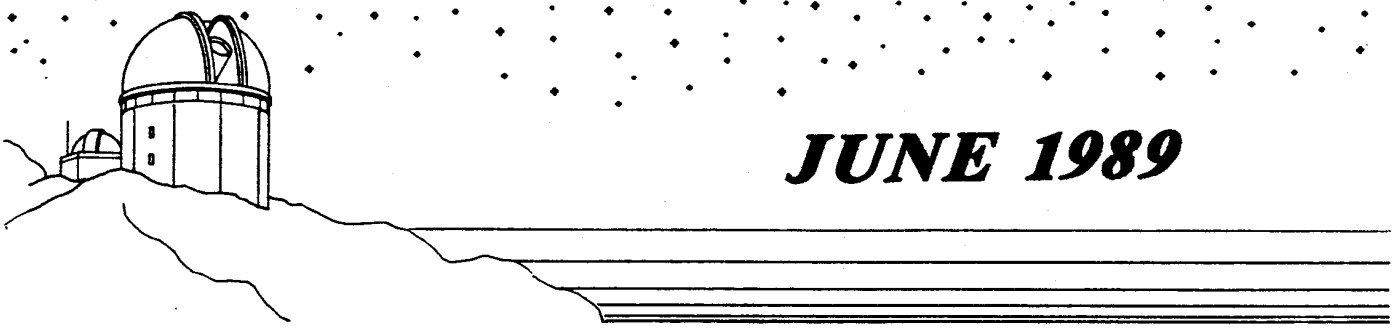
EPHEMERIS

OF THE SAN JOSE ASTRONOMICAL ASSOCIATION.



JUNE 1989

JUNE 10TH 8 PM
NORM SPERLING
HISTORY OF ASTRONOMY

JUNE 3 STAR PARTY AT GRANT RANCH COUNTY PARK. SUNSET, 8:23 PM; ASTRONOMICAL TWILIGHT, 10:14 PM. MORNING TWILIGHT, 3:56 AM; SUNRISE, 5:47 AM. THE SESSION WILL BE HELD IN THE USUAL PARKING LOT, IN CONJUNCTION WITH THE HALLS VALLEY ASTRONIMICAL GROUP. PUBLIC SESSION; INVITE YOUR MIGHT-BE-INTERESTED FRIENDS.

JUNE 10 GENERAL MEETING AT THE RED CROSS BUILDING. NORM SPERLING WILL TRACE THE HISTORY OF ASTRONOMY AS PRESENTED IN TEXTBOOKS DOWN THROUGH THE YEARS.

JUNE 17 SJAA BOARD MEETING AT THE RED CROSS, 6:30 PM. INTRODUCTORY OBSERVATIONAL ASTRONOMY CLASS AT 8 PM.

JUNE 23 - 25 100TH ANNIVERSARY MEETING OF THE ASTTRONOMICAL SOCIETY OF THE PACIFIC. UNIVERSITY OF CALIFORNIA AT BERKELEY. PLEASE SEE ENCLOSED REGISTRATION FORM

JUNE 24 INDOOR STAR PARTY AT THE RED CROSS BUILDING. COME DOWN FOR AN ASTRO-SOCIAL. BRING SOMETHING TO SHARE OR TO EAT. THE 64% MOON RISES AT 12:47 AM, SO WE SHOULD BE ABLE TO DO A LITTLE OBSERVING FROM THE PARKING LOT.

JUNE 30 JULY 1 YOSEMITE STAR PARTY. SEE NOTICE BELOW.

JULY 1 STAR PARTY AT FREMONT PEAK STATE PARK, FOR THE UNFORTUNATES WHO ARE NOT GOING TO YOSEMITE. TIMES FOR THE PEAK: SUNSET, 8:29 PM; ASTRONOMICAL TWILIGHT, 10:20 PM. MORNING TWILIGHT, 4:00 AM; SUNRISE, 5:51 AM. THE 2% MOON IS VERY NEAR THE SUN.

JULY 8 ANNUAL SJAA PICNIC WILL BE HELD IN THE ROSE GARDEN SITE OF GRANT RANCH PARK, STARTING ABOUT NOON. MORE DETAILS NEXT MONTH.

JULY 15 SJAA BOARD MEETING AT THE RED CROSS, 6:30 PM. INTRODUCTORY OBSERVATIONAL ASTRONOMY CLASS AT 8:00 PM.

JULY 22 INDOOR STAR PARTY AT THE RED CROSS BUILDING, NO SCHEDULED PRESENTATIONS, SO BRING DOWN THOSE LATEST ASTRO-SLIDES AND NEW EYEPIECES TO SHOW OFF. SUNSET, 8:23 PM; NAVIGATIONAL TWILIGHT, 9:29 PM. THERE'S SOME DARK TIME BEFORE THE 76% MOON RISES AT 10:51 PM.

FIELD OF VIEW
BY: JOHN GLEASON & JIM VAN NULAND

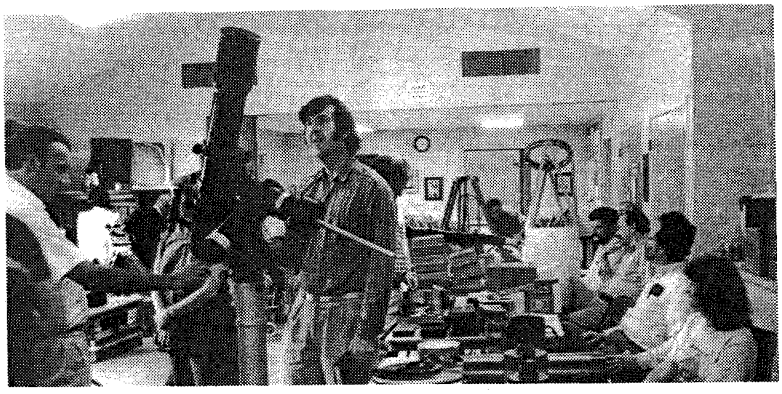
MEMBERSHIP RENEWAL TIME

All members who receive Sky & Telescope as part of their membership dues should have received a renewal card by now. Please mail your $26 membership renewal fee directly to Jack Peterson (use the handy form on the back page). Make

checks payable to "SJAA". Jack has been inputting renewal data into the mailing list which has resulted in a delay of the printing of address labels for the Ephemeris. This is why you have been receiving your bulletin rather late in recent months. Jack has a better handle on things and promises to get the mailing labels to me earlier. Thank you for your patience. To all members, please be reminded that the July Issue of the Ephemeris will be your last issue if you do not renew your membership.

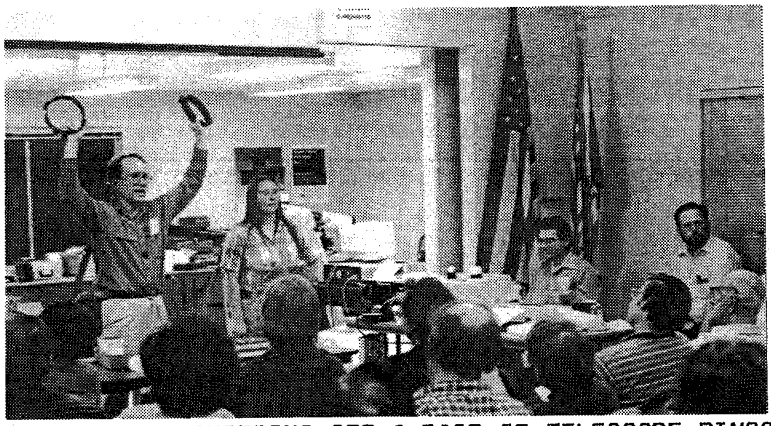
ANNUAL AUCTION AND SWAP MEET

The 9th Annual SJAA/Bay Area Astronomical Auction and Swap Meet was as to be expected, another big success thanks to all of our buyers and sellers. Over 200 hundred bargain hunters wondered through the flea market looking for



KEVIN MEDLOCK ADMIRES A 4-INCH FLUORITE REFRACTOR BROUGHT BY JOE SUNSERI.

that special astro goodie. Telescopes, books, lenses, mirrors, and electronics were just a sampling of the items that were available for sale. Over one hundred people stayed for the astronomical auction which featured a number of complete telescopes as well as specialized telescope making items.



JAY FREEMAN AUCTIONS-OFF A PAIR OF TELESCOPE RINGS.

Special thanks to our fine auctioneers Jay Freeman and Kevin Medlock and all who worked in the front and back rooms. If you have not paid your 10% of Flea Market sales, please send a check to the treasurer, Jack Peterson (see back page for address). SJAA member Bob Keller provided the photographs.

YOSEMITE STAR PARTY RESERVATIONS

In an attempt to provide equitable access for all, reservations for the June 30 - July 1 Yosemite Star Party will be taken starting at 10:00 am on May 13, a Saturday. Some priority will be given to those who did not make last year's list. As Before, there is a limit of only 30 persons (not 30 cars).

Each night will provide 5 1/2 hours of darkness. No moon. Friday evening is optional, but all will be expected to set up for the public on Saturday evening. At this writing, it is not known whether we'll be able to drive into the setup area. Jim Van Nuland will be out of town May 30 to June 21. If you have questions about the Yosemite Star Party, please call Tom Ahl 408-268-3927. In particular, if you have reservations and find that you can't make it, call him immediately so that he can add someone from the waiting list.

DR. A.B. GREGORY AWARD

Nominations are being solicited for the Dr. A. B. Gregory award. Send nominations to chairman Brian Zehring or Tom Ahl. The award is given to any individual only once. The late A. B. Gregory was long a member of the SJAA, and active as an amateur astronomer as far back as anyone can recall. He was especially noted for the many hours spent helping newcomers learn the ins and outs of astronomy and telescopes, co-ordinate systems, procedures, etc. The award honors the recipient "for outstanding contributions of time and effort to others in astronomy". This is not an award for helping the SJAA or the science of astronomy, but rather for helping individuals -- people helping people. The award will be presented at the annual picnic in July.

GRANT RANCH SAVED FROM AIRPORT

Through the efforts of many local people, including members of the SJAA, the County Board of Supervisors was persuaded to reject a proposal for a glider port within Grant Ranch County Park. Though gliders are silent, the tow planes are anything but, and the megawatts of "security" lighting would have destroyed the southern sky from both of the observing sites. "Thank you" to all who wrote letters or phoned the Board.

COURSE: HISTORY OF LICK OBSERVATORY

De Anza College's California History Center is offering a course titled "James Lick and his Observatory". Dates: June 7, 14, 21, at 7:00 to 9:40 PM, plus a field trip to Mt. Hamilton on June 17, 10 am to 1 pm. The course will cover Lick's early travels, his life in the Bay Area, and the building of the observatory. It will also discuss the 100 years of contributions made by Lick Observatory. Instructor: Jerry Ifft. Fee: $16.50. One Credit. De Anza students and everyone over 60, $3.50. High School students will need a note from their Counselor's Office. Register at De Anza Admissions office: MTTh 8 am to 9 pm; W 8-1, 5-9; Fri 8-12:30. Friday is least busy.

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.

FOR SALE: Celestron C8 with wedge, tripod, dual axis drive corrector, plus everything additional you need to begin both observing and astrophotography except a camera body. Equiupment list includes: electric Motofocus, 8X50 finder, counterweight bar assembly, off-axis guider plus 12.5 mm Orthoscopic illuminated reticle eyepiece, 10 mm Plossl and 25 mm Orthoscopic eyepieces, 2x Barlow, The Amateur Astronomer's Handbook, Webb Society Deep-Sky Observer's Handbook (Vols. 1 to 5), The Canbridge Astronomy Guide, Astrophotography II, plus much more. $1000 or best offer. Contact Ron at (415) 278-3335. Evenings, before 9:30 PM, please. 5/89

6-INCH REFRACTOR, f/14 on Altazimuth mount, made by Tinsley Lab around 1946-1949. Good condition and beautiful performance. Will take best offer above $1900. Edward Hillyer, P.O. Box 6065, Salinas, CA 93912. (408) 424-0460 evenings. 5/89

FOR SALE: 70mm/2" homemade eyepiece with rubber eyecup. Symmetrical design - works well with f/10 SCT - no vignetting or black spot, but field of view is just a little over 1 degree, is about the same as a 50mm Plossl, but brighter - $25. Orion 2" star diagonal, new, $60 - or, both diagonal and eyepiece for $75. W.M. Welch Scientific Co. Spectroscope with filter holder and 1/4-20 threads for tripod. Great for comparing bandwidths and relative effectiveness of light pollution filters. Make offer. Call Mike at: 408-946-8395 5/89

CELESTRON 8 with special coatings, tripod, telescope carrying case, equatorial wedge, star diagonal, 40mm ocular, 25mm ocular, illuminated reticle ocular assembly, off-axis guider body, tele-extender and camera adapters, home-made counter weights, astrophotography basics guide. Price $1050 (Sorry, but no personal checks) Contact: Steven M. Cohn (415) 272-7464, 655-6807 5/89

CELESTRON 8, complete with various eyepieces, Barlow lens, wedge, tripod, DOAA drive corrector, and carrying case. For more information call: Ralph Jacobson, 1-415-454-1185. Leave message if not at home. 4/89

MEADE QUARTZ MOTOR DRIVE SYSTEM for GEM, 6600, and 8800 reflectors and model 320 refractor. $100. Dennis Mueller (408) 447-0690. 4/89

FOR SALE: Mint condition Celestron Super C8 plus with Starbrite. Optical tube made in late '88, illuminated 8 x 50 right angle finder, camera bracket, dew zapper, Jim's Mobile Motofocus, multicoated right angle prism, Byers drive, Meade Tripod, new style Samnsonite type carrying case. $1,190. Edward Hillyer, P.O. Box 6065, Salinas, CA. 93912. (408) 424-0460 3/89

8-INCH f/12 3-ELEMENT APOCHROMATIC REFRACTOR! A once in a lifetime opportunity to own a true "observatory quality" telescope. Complete with massive Astro Works German equatorial mounting and pier. Optical performance is superb. This is the same telescope that thrilled hundreds of observers during the Fremont Peak Observatory Assn's. Mars watch program. $12,000. For additional information Contact: Kevin Medlock (415) 654-6796 or (415) 784-0391 3/89

SKY SENSOR COMPUTER CONTROL for Super Polaris mount - works perfectly. Includes instructions, charts, and is in original box. $175. Celestron photographic LPR filter (fits T-threads, off-axis guider). New condition, $35. Contact: Jim Molinari (408) 298-7557 (W), (408) 255-7030 (H) 3/89

WANTED: Used Astroscan. Call Don or Laura (408) 448-7077 3/89

MOVING SALE: Back issues of Sky and Telescope, Mercury, and Scientific American. For S&T: April 1971, April-July 1973, July-June 1974, Nov.-Dec. 1975, All of 1976 (except Nov. and Dec.), Jan. 1977, Jan.-June 1979, April-Dec. 1980, All copies 1981-1987. For Mercury: All copies from 1979-1988, excepting Jan/Feb 1979, Sept/Oct and Nov/Dec 1983, and the first 3 of the 4 1984 issues. For Scientific American: June, July 1968, Aug.-Dec. 1979, all of 1980-1987 with these exceptions - Sept. '83, March '84, Aug. '86. Offers sought on all or part. I may be able to deliver locally. Contact: Dave Goodwin, (408) 247-9163. 3/89

COMET COMMENTS
BY: DON MACHHOLZ

No comets have been discovered or recovered recently, and, unless a new bright comet is soon found, Northern Hemisphere observers will have nothing to observe until Periodic Comet Brorsen-Metcalf appears in July.

SEEKING COMETS

How bright is the average comet at discovery? Here we look at those found visually in both the morning and in the evening sky from 1975 through 1988.

For the morning sky the discovery magnitude varied between 5.0 and 11.6. The average, after first subtracting the highest and lowest, is 8.8. For the evening sky the range was 6.9 to 11.8 with an average of 9.7. One reason for the difference is that comets brighten faster in the morning sky than in the evening sky, and are therefore brighter upon discovery. Another reason may be that of less coverage in the morning sky, especially in the beginning of this time period.

Here are the figures in graph form, the magnitudes are listed along the bottom, with each comet indicated by an "X".

```
          MORNING DISCOVERIES

5                              X      5
4                              X      4
3                       X      X      3
2 X                 XX  X X  X X      2
1 X   XX X  X  X X XXX  X XX X X   X  1
0-+----+----+----+----+----+----+----+0
  5    6    7    8    9   10   11   12
         Discovery Magnitude
```

```
          EVENING DISCOVERIES

5                                     5
4                                     4
3                       X             3
2                       XXX  X      X 2
1           X      XXX  XXXXXX  X   X 1
0-+----+----+----+----+----+----+----+0
  5    6    7    8    9   10   11   12
         Discovery Magnitude
```

Initially it would appear that every comet would have been visible in a six-inch telescope upon discovery. However, several factors tend to "dim" these comets, to make them appear fainter than indicated here, and therefore put some beyond reach of many amateur scopes. We'll look briefly at each of these factors.

1). If stars of these magnitudes were placed out-of-focus and made as large as the comet, then the comet would be as bright as the out-of-focus star; this is the "total integrated magnitude". A six-inch telescope, under ideal conditions, will yield stars as faint as magnitude 13.0. But when stars of

this magnitude are de-focused, they disappear. Depending upon contrast, which is determined by the telescope, the observer's eyes and the skies, stars fainter than magnitude eleven will probably disappear through the six-inch as the defocused star reaches three arcminutes in size. That is why the limiting magnitude for extended objects such as galaxies, nebulae, and comets is different than for point sources such as stars. For example, a large galaxy such as M 33, with a total integrated magnitude of six, is invisible in large scopes under certain conditions of poor sky transparency. Surface brightness is sometimes more important than magnitude.

This effect is apparently greater with larger apertures. Does that mean that a smaller scope is better for comet hunting? No, generally not, because, if all else remained equal, you'll still gain "light grasp" for extended objects, but not as much as you do for stars.

2). The stated "magnitudes" of many extended objects you see in catalogs are fainter than what the objects actually are. I have found that all the Messier Objects are brighter than magnitude 10.0, when estimated in the same way as comets. Yet most catalogs list a dozen of the 110 Messier Objects as being fainter than magnitude 10.0. "Photographic" magnitudes are especially suspect. Occasionally I'll sweep up galaxies listed at magnitude 13.5 or 14.0, when in reality they are only as bright as a twelfth magnitude comet.

3). Sweeping up an unsuspected object is not as easy as seeing a known one. As Dr. Everhart once said he "found it easier to see a 13.0 mag. galaxy known to be in the center of the field of view than it is to notice an unexpected 12.0 mag. galaxy which crosses the field in 2 seconds as the telescope is swept". This effect can decrease the limiting discovery magnitude of your telescope by one to two magnitudes, depending on how fast you sweep and what part of the field it passes through.

4). Another factor complicating discovery is that comets are often diffuse, with no bright center to help "catch the eye" as it crosses the field. While most globular clusters and many galaxies have bright centers and dim outer portions, diffuse comets have a constant illuminations all the way from one side to the other, blending them into the background.

5). Finally, the average comet is found about 20 degrees from the horizon. The effects of absorption and reduced contrast due to haze and light pollution make the comet even more difficult to see.

So under average conditions a six-inch telescope will yield unsuspected comets as faint as magnitude 10.0. But a comet hunter with trained eyes, good skies, and a telescope giving high contrast can pick up a fainter comet if it is small, condensed, high in the sky, and slowly crosses the center of the field of view when someone yells "comet!".

SPACE PROGRAM UPDATE
BY: BOB FINGERHUT

MAGELLAN IS HEADED TOWARD VENUS

The first U.S. planetary spacecraft to be launched in 11 years was deployed from the shuttle Atlantis on May 4th. The journey to Venus will take 15 months. Magellan will map the cloud shrouded planet with radar to provide the most detailed map ever made of Venus' surface.

SHUTTLE PROGRAM BACK ON TRACK

Atlantis was launched with the Magellan Satellite on May 4th. After release of the satellite, the astronauts used a low light level camera to photograph lighting on Earth and operated a materials processing experiment to produce indium and selenium crystals. The Atlantis landed at Edwards AFB on May 8th. The next shuttle flight (STS-28) will be Columbia in early August with a classified Department of Defense payload. Another DOD mission (STS-33) has been postponed. After STS-28, Atlantis will carry the Galileo orbiter for launch to Jupiter in October. The Long Duration Exposure Facility, launched in 1984, must be retrieved in November or early December. If not, it will burn up in Earth's atmosphere in late December. With the rescheduling of STS-33, the launch of the space telescope may slip from December to early next year.

SOVIET SPACE PROGRAM SUFFERS SETBACKS

In spite of the loss of the remaining Phobos satellite on March 27, the Soviets will focus on Mars for the rest of this century. They have plans for a Mars orbiter/lander in 1994 and a rover/sample return mission four years later. Their target for a manned mission is 2025. The three soviet cosmonauts on MIR

returned to Earth on April 27, ending two years of continuous operations. The MIR will remain unmanned until August when a repair mission will be launched. Serious electrical power problems, either a short or degradation of the solar arrays has begun to severely limit the power available on the station. The first manned flight of the soviet shuttle has been delayed until 1992. The delay is needed to install and test the advanced and redundant systems necessary for safe manned operations. The Buran space shuttle has deficiencies in the number of backup systems and failure monitoring capability. The Soviets have also not yet formulated a coordinated orbital flight test program.

NASA REQUESTING COMMERCIAL LAUNCH SERVICE PROPOSALS

The three spacecraft to be launched; Wind, Geotail, and Polar, are part of the International Solar Terrestrial Physics project. The program calls for 5 spacecraft flying in a polar orbit and 10 in equatorial inclination.

JUNE STARRY NIGHTS
BY; RICHARD STANTON

METEORS - There are no major meteor showers during June and most almanacs list only one minor shower, the Tau Herculids. However, as you will note in the summary below there are actually several events. In the past, the Draconids have put on some major shows but is now thought to be an extinct stream by many astronomers. You'll probably never know if you don't get out and see for yourself. Bear in mind that you can see meteors every night of the year and you must trace a meteor back to it's radiant to determine family membership. Meteor observations is about the epitome of communing with the starry night. Give it a try and let us know your results.

METEOR SHOWER SUMMARY

JUNE 03 - TAU HERCULIDS	- 15+39	- MINOR
JUNE 08 - EPSILON ARIETIDS	- 03+21	- RADIO
JUNE 08 - ZETA PERSIDS	- 04+21	- RADIO
JUNE 20 - OPHIUCHIDS	- 17-21	- MINOR
JUNE 27 - BETA TAURIDS	- 05+17	- RADIO
JUNE 29 - DRACONIDS	- 15+54	- EXTINCT?

SUMMER SOLSTICE - In Inca tradition this is the month of Cusqui Quilla, "the Moon of the Hard Month." It is time for the Inti Raymi, "the Feast of the Sun." Three days before the solstice we must begin our fast, consuming only water and pinches of uncooked corn. We must withdraw our presence from the opposite sex. Before dawn on the morning of the solstice we must rise and with bare feet face the East and wait for the sunrise. At first peek above the horizon we must fall to our knees and blow respectful kisses to the golden disk as it rises finally above the horizon. The Sapa Inca will drink the ceremonial beer, chicha, to celebrate a new season and to prepare for the sacrifice of the virgins. Prepare! ... it comes on Wednesday, June 21st. Hmmmmm, and I only wanted a Bud Lite.

MINOR PLANETS - Perhaps most of you have read by now that a new asteroid discovered this year, 1989F, has just completed a near approach to Earth. A mere 400,000 miles; less than the width of a hair on the cosmic scale of measurements. I have not seen it's orbital data yet but it probably will prove to be an Apollo or Aten orbit. If this is true, it will come calling again. Did you feel the wind?

(15) EUNOMIA - Mag +9.9		(10) HYGIEA - Mag +9.0		(4) VESTA - Mag +5.8	
03 JUN	R.A. 22:18 Dec. -06:09	10 JUN	R.A. 16:49 DEC. -25:16	03 JUN	R.A. 18:37 Dec. -19:2
13 JUN	22:25 -04:33	20 JUN	16:41 -24:47	13 JUN	18:29 -20:08
23 JUN	22:29 -03:02	30 JUN	16:34 -24:17	23 JUN	18:20 -20:55

DEEP SKY CHALLENGE - This month's challenge brings us home to our own Solar System. On June 24th in Sagittarius, Saturn will pass within 18 arc minutes of Neptune. Even though Neptune is reasonably bright at magnitude +7.9 this month, it is still a difficult target to identify. It's proximity to Saturn on the night of the 24th should give everyone a good chance to catch it. That data for Saturn on the 24th is 18h48m-22:20, magnitude +0.06 and for Neptune is 18h51m-21:58, magnitude +7.7. The moon will be near Last Quarter and will not rise until shortly after 11:00 PM PDT. If you spot our Voyager space craft, be sure and let us know.

AN INVITATION

Special Guest of Honor:

DR. CARL SAGAN

giving a public lecture
Sunday evening,
June 25

TO PARTICIPATE IN

THE 100TH ANNIVERSARY MEETING OF THE
ASTRONOMICAL SOCIETY OF THE PACIFIC
JUNE 23 - 25, 1989
UNIVERSITY OF CALIFORNIA AT BERKELEY

The Astronomical Society of the Pacific cordially invites you to join in the celebration of their Centennial in Berkeley this June. Three days of popular lectures and seminars on modern astronomy and astronomical history have been planned for participants.

THE POPULAR LECTURE PROGRAM:

On **Friday, June 23rd,** the A.S.P. History Committee will present a special day of invited and contributed talks about the history of astronomy during the last century. Speakers will include:

Dr. Woodruff Sullivan (U. of Washington): The History of Radio and Infrared Astronomy

Dr. Wallace Tucker (Ctr. for Astrophys.): The History of High Energy Astronomy

Dr. Gibson Reaves (U.S.C.): The Discovery of Pluto

On **Saturday and Sunday, June 24 & 25,** noted astronomers from around the U.S. and Canada will offer nontechnical lectures and seminars on new developments in astronomy and space science. The speakers and topics include:

Dr. Bruce Campbell (U. of Victoria): Are There Planets Orbiting Other Stars? [The 1989 Muhlmann Prize Lecture]

Dr. Eric Chaisson (Space Telescope Science Institute): The Promise of the Space Telescope

Dr. David Crawford (Kitt Peak National Observatory): Light Pollution, Radio Noise, and Space Debris: Astronomy and the Environment

Dr. Dale Cruikshank (NASA Ames Research Center): Neptune, Triton, and the 1989 Voyager Flyby

Dr. Karl Henize (NASA Johnson SFC): An Astronomer in Space: The Spacelab 2 Mission

Dr. William Kaufmann (University of Illinois Supercomputer Center): Black Holes and Violence in Galaxies

Dr. Simon Mitton (Cambridge U. Press): The Very Early Universe

Dr. Jerry Nelson (UC Berkeley): The Progress of the Keck Observatory: Building the World's Largest Telescope

Dr. Ronald Oriti (Santa Rosa Junior College): Meteorites — Messengers from Space

Dr. Cary Sneider (Lawrence Hall of Science): Earth, Moon and Stars: A Seminar for Teachers

Dr. Michael Werner (NASA Ames Research Center): In the Heat of the Night — Infrared Astronomy from Space

John Westfall, Bill Sorrels, Don Machholz, and other noted amateurs: Astronomy Projects for Amateur Astronomers

THE LECTURE BY DR. SAGAN

On **Sunday evening, June 25,** there will be a major public lecture by Dr. Carl Sagan in Zellerbach Auditorium on the Berkeley campus. There is a separate admission fee for this lecture; the proceeds will benefit the educational programs of the Astronomical Society of the Pacific.

Participants who would like to give extra support to these programs are invited to purchase benefactor tickets to this lecture. Benefactors will be seated in a special reserved section near the front of the hall and will be acknowledged in the program. ($85 of the benefactor ticket price can be considered a donation for tax purposes.)

continued over ☞

The Exhibits

Throughout the meeting, there will be a major exhibit of astronomical instruments, books, software, observing aids, and resource materials. Companies interested in exhibiting should contact Maria Kellett at 415-337-1100 as soon as possible.

In addition to the sessions described above, the meeting also includes three simultaneous technical symposia for research astronomers, tours of astronomical facilities, and a Centennial Banquet. Dormitories and discounts on hotels and travel have been arranged for participants coming from out of town. To receive more information about these activities, *please request a full registration packet by checking the box on the coupon below.*

Registration Form

Name:_____

Affiliation (for your badge):_____

Address:_____

_____
Zip

Telephone (day):_____ **(evening):**_____

Popular Lectures program, June 24 - 25

(Does not include Sagan Lecture)

(Letter codes for office use only)

◆ **A.S.P.** or **Planetary Society** member	$ 50	$_____	NM
◆ Nonmember	$ 55	$_____	NN

History Session, June 23

There is no charge to Popular Lectures program registrants, but **please check box if you plan to attend.** ❑ H

Carl Sagan lecture, Sunday evening, June 25:

◆ Regular tickets	$10 each x (# of people)____ =	$_____	CS
◆ Benefactor tickets (reserved seats) ($85 per ticket is considered a donation for tax purposes)	$100 each x ____ =	$_____	CSB

After May 30, 1989, late fee required $10	$_____	LF

❑ Please send me the full registration brochure for the meeting with information about the technical symposia, tours, and housing.

Total : $_____

Please return with your check to:
A.S.P., Dept. M-B, 390 Ashton Ave., San Francisco, CA 94112 USA.
Please make checks payable to: "A.S.P." • Phone inquiries should be made to: (415) 255-1297

SJAA MEETING AND STAR PARTY LOCATIONS

GENERAL MEETINGS

Once a month the SJAA holds a General Meeting at the Red Cross building in Los Gatos California. Guest speakers are invited to give talks on a wide range of astronomical topics which have included equipment and slide presentations. This is also the location for the SJAA's "Indoor Star Parties", informal sessions where members gather to share their astronomical interests. Whatever your interest, astrophotography, deep sky observation, telescope making, or just arm chair observing, you'll find a friendly atmosphere at all of our meetings.

The Red Cross building is located at 18011 Los Gatos-Saratoga Rd. From Hwy 17 take the Hwy 9 (Saratoga) exit and continue west up the Los Gatos-Saratoga road for about 0.6 miles. Turn right at Rose Ave. Then turn right immediately into the parking lot of the Post Office and Red Cross building. Doors open at 7:45 PM, with General meetings beginning at 8 PM. General Meetings are currently held on the 1st Saturday of each month.

INDOOR STAR PARTIES

Occasionally there are a few Saturday evenings set aside for informal gatherings of amateur astronomers to share their common interest in astronomy, to "talk shop", or to simply enjoy the company of friends. Members are encouraged to bring in telescopes and accessories to share with the group. Typically there will be several telescopes operating in the parking lot or there will be a slide show of recent astrophotography and star party events in progress in the meeting hall. The SJAA also holds it board meetings during this time as well as an introductory astronomy workshop that is conducted once a month.

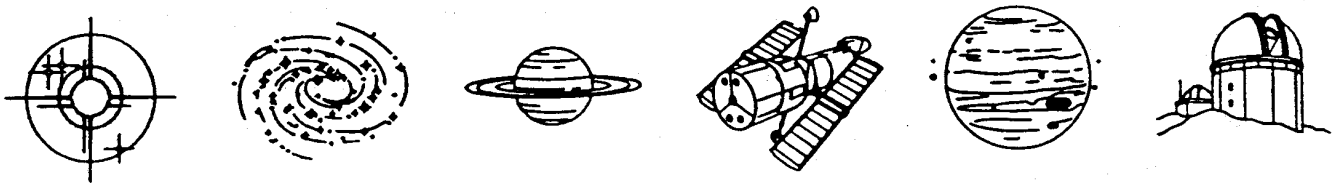
FIELD EXPEDITIONS

On the Saturdays closest to the New Moon, the SJAA will conduct a "Star Party" for astronomical observation at a designated location. Several times a year these star parties are held close to San Jose while others are held as far away as Yosemite national Park. Watch the EPHEMERIS for star party locations.

FREMONT PEAK STATE PARK

The most popular of locations for bay area amateur astronomers is Fremont Peak State Park. Located 70 miles south of San Jose near the town of San Juan Bautista, Fremont Peak rises nearly 3000 ft. above the valley floor. For two decades amateurs have gathered at the "Peak" during New Moon weekends for serious deep sky observing and astrophotography. To get to Fremont Peak for San Jose, take Hwy 101 south towards Salinas. Then take Hwy 156 east (San Juan Bautista exit) for 3 miles to a yellow flashing light. Turn right and go about 1/4 mile to where the road reaches a "Y". Veer left for about 25 yards and then go right. (Watch closely for the Fremont Peak sign) Follow the Canyon Road for about 11 miles up into the park. The SJAA sets up in Coulter Camp. It's visible on your right as you first drive onto the main area of the park. Expect to find a lot of astronomical activity here every clear New Moon weekend. Arrive early if you are setting up equipment. 50 to 100 telescopes are not uncommon at Fremont Peak during the summer months.

EPHEMERIS is published monthly by the San Jose Astronomical Association, 3509 Calico Ave., San Jose California 95124. Members are encouraged to submit articles for publication. These should be typed and submitted no later than the 12th of the previous month. All submissions should be sent directly to the editor, John Gleason, 5361 Port Sailwood Dr. Newark, CA. 94560.



SAN JOSE ASTRONOMICAL ASSOCIATION MEMBERSHIP APPLICATION

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

Name:_____

Address:_____

_____

Telephone (____)_____

MAKE CHECKS PAYABLE TO **"SJAA"**

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

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

Telephone: (408) 262-1457

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