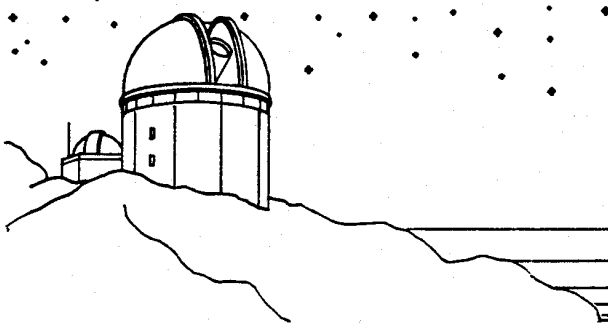
EPHEMERIS

OF THE SAN JOSE ASTRONOMICAL ASSOCIATION.



DECEMBER 1987

DECEMBER 5TH 8PM
NASA FILM NIGHT
APOLLO 16 AND MERCURY

DECEMBER 5 GENERAL MEETING 8 PM LOS GATOS RED CROSS BUILDING. NASA FILMS NIGHT!

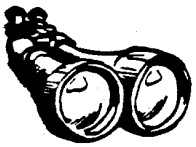
DECEMBER 12 BOARD MEETING AT 8 PM, LOS GATOS RED CROSS BUILDING.

DECEMBER 19 FIELD EXPEDITION FOR ASTRONOMICAL OBSERVATION TO FREMONT PEAK STATE PARK. DUSK TILL DAWN

DECEMBER 26 NO ACTIVITY SCHEDULED. HAPPY HOLIDAYS!!!

JANUARY 9 GENERAL MEETING 8 PM LOS GATOS RED CROSS BUILDING. "RETURN TO AYERS ROCK" PRESENTED BY ERNIE PIINI.

FIELD OF VIEW
BY: JOHN GLEASON



DECEMBER 5TH GENERAL MEETING

Bob Fingerhut has rounded up two NASA films for this evenings program. The two films will feature the flights of Apollo 16 and the Mercury planetary flyby missions.

EPHEMERIS CONTRIBUTORS STILL NEEDED

Your Editor is continuing his search for interesting articles to run in the Ephemeris. If I don't receive anything new, you will all be subject to more lengthy articles about the virtues of the Superior C14, Konica 3200 as polishing material for finishing furniture and finally, a wonderful deep sky observing spot I have found at the corner of Steven's Creek Blvd. and Saratoga Avenue. Yes, it too could become one of your favorite observing sites! This month I am happy to include a celestial calendar under the title: December Starry Nights by Richard Stanton of the Santa Cruz Astronomy Club. I am certain that everyone will find this a most welcome addition to our newsletter. Thank you for the help Richard!

SJAA SPACE TELESCOPE TOUR

On November 6th and 9th, a total of 60 SJAA members and friends visited the Space Telescope at Lockheed in Sunnyvale. A short video tape about the telescope was viewed and then the tour went up to see the telescope. A talk about the telescope was given while members looked through a large picture window into the clean room and at the telescope. On November 9th, astronaut Bruce McCandless was checking the telescope's astronaut interfaces (hand grips, doors, etc.), while the tour members watched. Bruce was the first astronaut to fly the manned maneuvering unit and is scheduled to fly on the shuttle flight that deploys the telescope. That flight is scheduled for June 1, 1989, the sixth flight when the shuttle resumes flying. Everyone had a good time and got to see a unique site that was not to be missed. Our thanks go to Steve Pehanisch for arranging the tours, and to Lockheed for having us.

OBSERVING AT FREMONT PEAK

No one can deny that things have changed at Fremont Peak since the public observatory began operation last Spring. In particular the area behind the Park Ranger's home is experiencing an abundance of visitors and astronomers, all of who are engaged in serious astrophotography or the evenings public program. Most recently an unfortunate incident occurred at the October 17th Public Observing Night, a repeat of which could jeopardize all that amateur astronomers have done to promote public education in astronomy. Please keep in mind that the privilege to set up behind the Ranger's house is by invitation; you must have the prior approval of Rick Morales before doing so. Furthermore, if it is a "Public Night", your presence there is an implicit invitation to the visiting public to ask you questions about your scope, etc. It is also an opportunity for you, as an experienced observer, to assist the public in proper Star Party etiquette in a polite manner. Name-calling, slurs, or other epithets directed towards invited guests will not be tolerated by the State Park Service. Such behavior will result in loss of the privilege to set up behind the Ranger's house. (Your editor suggests using a night other than Saturday for serious photography.)

ASTRO ADS

CELESTTRON RPC5 5-inch Newtonion reflector on regular Polaris mounting. With single-axis drive corrector, built in polar alignment scope, 80 mm finder scope, 26 mm Plossl, 16 mm Erfle. $400 Contact: Jim 408-374-5491

MEADE 8-inch f/6 reflector in good condition. Accessories include: Motor drive, eyepieces; 40mm, 25mm, 12mm (illuminated w/variable intensity power supply), 9mm. Moon filter, Barlow-2X, Eyepiece extender. Recently culminated, so optical alignment is excellent. $675 Contact: Jesse Blount (408) 336-5770.

UNIQUE OPPORTUNITY! Long Focus (f=101") 6" f/17 achromatic lens mounted in a machined collumating cell. The lens was made in the 1950's by Witherspood, and is said to be equal or out perform the refractors at Chabot Observatory. The tube is 7.0" aluminum fitted with anti-reflection diaphrams and has a cork lined dew cap. The focuser is 2" chrome and brass rack and pinion. Also included is a sturdy machined aluminum saddle , finder rings, and very solid (free from play) equatorial mount with ball-bearings on both axes. Tube weight w/o saddle is 60 lbs incl. objective. Only a stand or pier is needed for the equatorial mount to be ready for viewing. $1900 The refractor is housed at LUMICON. Contact: Jack Marling, 415-447-9570 (day), or 415-443-7579 (evenings), P.O. 495 Livermore, CA. 94550

FOR SALE: 4" Meade Telescope Model 2040A including: Schmidt-Cassegrain assembly, fork mount with motor drive and 6' power cord, manual slow-motion controls, eyepiece holder for 1.25" OD accessories, 5X24mm viewfinder, table tripod of astronomical observing and photography. Also includes the following accessories: Porro prism, T-adapter, Erecting prism, (2) polarizing lenses, Tele extender, T-ring for Olympus 35mm camera, Eyepieces (research grade Erfle) 40mm, 20mm, 10mm and 7mm, Foam lined carrying case, Instructional manual. Sale price: $900. Contact: George, (415) 941-2681

NEW: Celestron C-90 spotting scope with accessories. Finderscope - 9mm, 6mm and 5mm eyepieces in original boxes - never used. Also Velbon VE3 tripod. $495. Contact: Marvin Altschuler, (408) 247-2392

TELESCOPE: 8" Tinsley Cassagrain with 2" diagonal, 2" focuser, 2" straight through adapter. $500. Call Bob Maraschin Wkdays: 415-960-0964, Eves: 408-253-5477

FOR SALE: 6" f/4 reflector, "RFT". Coulter mirror, equatorial mount, tripod, finder, $250. Also, 2.4" refractor, eyepiece, alt-azimuth mount, no tripod, $45. Contact: Robert Sheaffer, 408-354-5637.

TELESCOPE WINDOWS - optical windows. Add an optical window to your present or future scope for less than the cost of a good eyepiece. Selling out former Sky Research Co. optical windows - hundreds supplied, highest quality - keeps out dirt, dust, insects, drafts, temperature effects. WHILE THEY LAST:

6"	- $ 29.50	14.25"	- $69.50
8"	- 39.50	16"	- 89.50
10"	- 49.50	17.5"	- 124.50
12.5"	- 54.50	18"	- 131.50
13.1"	- 59.50	20"	- 143.50

Some custom sizes available. Window diameter is 3/4" larger than mirror size listed - fits all tubes. Adds a professional finished look to your scope.

Send check or money order to: Rolin Gebelein, 291 Martin Rd., Santa Cruz, CA. 95060. Price includes shipping by UPS (continental USA ONLY), handling, and insurance. Please allow 3-4 weeks for check to clear and delivery.

FOR SALE: MEADE 2" focuser with 1.25 adapter, unused, $50.00. Televue 32mm 1.25", $75.00, like new. Contact: Rick Decker, (415) 956-7070 or 383-6339.

FOR SALE: 5-INCH F/14 REFRACTOR on Super Polaris mounting. With Duel Axis drive corrector. $1200 complete. Contact: Paul Mancuso (408) 946-0738.

REWARD: $200 for information leading to the recovery of ultra-thin (1" thick) 18.75 f/5.6 mirror stolen from my house in Mill Valley on June 23, 1987. Easily identifiable. Contact: Rick Decker, (415) 956-7070 or 383-6339.

DECEMBER STARRY NIGHTS
BY: RICHARD STANTON

APPULSES & OCCULTATIONS - On December 8th at 04:43 PST the asteroid 324 Bamberga, magnitude 10.5, will have a close approach (appulse) or possibly occult the 9.8 magnitude star, AG+40 0783, at R.A. 06:37:18, Dec. +40 09'21". This event will generally be visible from most of Northwestern USA.

On December 3-4 we have a Lunar occultation of Eta Tauris, magnitude 3.6. The moon will occult this star at 23:50 PST the evening of Dec. 3rd. The star will disappear behind the Lunar Dark Limb at position angle 104 . The star will reappear on the Lunar Bright Limb at position angle 219 at 01:03 PST the morning of Dec. 4th. The entire event only lasts about one hour and thirteen minutes, so don't be fooled by the date change. The observation conditions will be an almost full moon, so it's time to put all those filters you bought to work.

On December 25th at 19:34 PST the near Last Quarter moon will occult Phi Aquarius. The star will disappear behind the Lunar Dark Limb at position angle 13 . The evening of Christmas Day ... what an opportunity to try out your brand-new astronomical gift!! Remember, whether these events are an appulse or an occultation depends upon your specific observing location.

METEORS - If you thought it was time to store away the lawn chair, the essential observing instrument of meteor observers, you were wrong. During December we have two major meteor showers and one minor shower. On Dec. 14th the Geminids will reach maximum. The radiant co-ordinates are 07:32+32 . The single observer hourly count rates have run as high as 50. On Dec. 23rd the Ursids reach maximum from a radiant of 14:28+76 . The count rate on the Ursids runs about 15 per hour. The Coma Berenicids, a minor shower, occurs from Dec. 12th through Jan. 23rd. I have not found a predicted hourly count for this shower but it will not reach maximum until the first few days of January 1988.

LUNAR OBSERVATIONS - This month the Lunar Sunrise Terminator will be on the Straight Wall on December 28th at 03 PST and on the crater Plato at 11 hours PST. The Sunset Terminator will be on the Straight Wall on the 13th at 11 hours PST and will fall on Plato at 09 hours PST of that same day.

GALILEAN SATELLITES - For those who enjoy watching the moons of Jupiter, here are two December events that will occur during our dark hours on Saturday the 19th and Saturday the 26th, both prime observing nights.

Dec. 19 ...	17:34 PST	Io - Transit Ingress
	18:49 "	Io - Shadow Ingress
	19:45 "	Io - Transit Egress
	20:59 "	Io - Shadow Egress
Dec. 26 ...	19:27 PST	Io - Transit Ingress
	20:45 "	Io - Shadow Ingress
	21:33 "	Io - Transit Egress
	22:55 "	Io - Shadow Egress

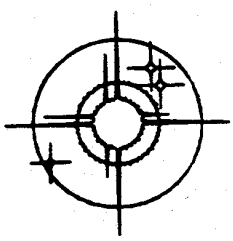
LUNAR PHASES

		RISE	TRANS	SET
FULL MOON	12/5	16:53	00:27	08:00
FIRST QTR.	12/13	00:09	06:17	12:23
NEW MOON	12/20	07:31	12:00	16:26
LAST QTR	12/27	12:03	18:17	00:34

TWILIGHT

		BEG	END
MONDAY	12/7	05:23	18:18
THURSDAY	17/17	05:30	18:21
SUNDAY	12/27	05:35	18:25

Even though it's cold, December offers a lot of observing opportunities for those who can find a few moments during the hectic Christmas Season. Happy Holidays and Good Observing!



COMET COMMENTS
BY: DON MACHHOLZ

Four new comets have been discovered recently. One will be visible to us late this year. Bright Comet Bradfield blazes at naked eye visibility in our evening sky. Comet Borrelly moves northward while Comet Wilson fades from view.

Comet Levey (1987y): David Levey of Tucson, Ariz., discovered this, his second comet of the year, on Oct. 11. The comet was in the evening sky, a few degrees southeast of Arcturus. It was moving eastward at more than a degree a day. This is David's third comet find, 107.6 search hours after his previous discovery last Jan. He was using an 8-inch, f/7 reflector from the roof of his house.

At discovery the comet was at mag. 9.4 and 4' in diameter. It is on a parabolic orbit and was closest the sun on Sept. 9 at 0.52 AU. It is presently dimming rapidly as it pulls away from both the earth and sun.

Periodic Comet Shoemaker-Holt (1987z): Carolyn and Eugene Shoemaker and Henry Holt of Palomar found this comet on films exposed through the 18" Schmidt. The object was then at mag. 14.5 and not far from the position of Jupiter in the sky. We now know that it has a 9.0 year orbital period, and will be closest the sun, at a distant 3.14 AU, next march. IT is not expected to get much brighter.

Comet Mueller (1987a1): Compared to the previous comet, this one was found 88 minutes earlier, from a location a few yards away, and about five degrees away in the sky. What better way to tie the last comet of the old designation and the first of the new! Jean Mueller found this 17 mag. object on plates exposed for a the second Palomar Sky Survey.

Comet McNaught (1987b1): Rob McNaught of Siding Spring Observatory in Australia discovered this comet on photographs exposed Oct. 18. He then found prediscovery images of the object on five photos he exposed beginning Oct. 9. At that time the comet was mag. 9.0 and far south of the sun in the evening sky, invisible to Northern Hemisphere observers. It is now rapidly moving north and it should be visible to us until March of 1988. This is the year's seventh amateur-found comet, tying the records of 1975 and 1978.

McNaught, employed in satellite tracking, has often, on his own, photographed the southern sky with 50 mm and 85 mm lenses, searching for novae and comets. He also searches for new comets with 20 x 120 binoculars and determines exact positions for known comets. For much of this year he has been actively involved with Supernova 1987A. He was one of the first to observe it and the first to determine an exact position. Then, in addition to making numerous magnitude estimates, he has communicated data from other observers in the area.

EPHEMERIDES

DATE	R.A. (1950)	DEC	ELONG	MAG.	NOTES
		Comet McNaught (1987b$_1$):			
12-21	17h 32.9m	-07° 31'	17°	7.0	With a highly-inclined orbit, this
12-26	17h 43.8m	-03° 17'	21°	7.1	comet moves from the southern evening
12-31	17h 55.0m	+01° 06'	26°	7.2	to the northern morning sky. It is
01-05	18h 06.9m	+05° 39'	31°	7.3	closest the sun (0.84 AU) on Dec. 12.
		Comet Bradfield (1987s)			
11-21	18h 55.3m	+09° 50'	56°	5.4	This comet has been brighter than ex-
11-26	19h 22.1m	+12° 38'	59°	5.5	pected, reaching naked-eye visibility
12-01	19h 51.4m	+15° 25'	63°	5.6	by early Nov. With a condensed cen-
12-06	20h 22.9m	+18° 06'	67°	5.7	ter and a dust tail it reminded me
12-11	20h 57.2m	+20° 33'	71°	5.9	of a small Comet Bennett. If you
12-16	21h 33.2m	+22° 39'	75°	6.1	missed the great show it put on as it
12-21	22h 10.0m	+24° 16'	79°	6.3	developed each night, watch it now as
12-26	22h 46.3m	+25° 23'	82°	6.6	it fades over these weeks. Orbital
12-31	23h 21.0m	+26° 00'	85°	6.9	period is 2,514 yrs. It was closest
01-05	23h 53.3m	+26° 14'	87°	7.3	the sun on Nov. 7 at 81 million miles.

Periodic Comet Borrelly (1987p)

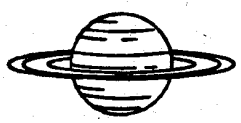
11-21	02h 52.8m	-25° 29'	133°	9.4	So far this has been a rather lack-
11-26	02h 44.9m	-21° 01'	134°	9.2	luster comet: its been far south,
12-01	02h 37.8m	-15° 53'	134°	9.0	fainter than expected, and in a
12-06	02h 31.8m	-10° 15'	134°	8.8	barren part of the sky. All this
12-11	02h 27.1m	-04° A7'	132°	8.6	changes now as the comet brightens
12-16	02h 23.9m	+01° 46'	130°	8.5	and moves through our northern even-
12-21	02h 22.2m	+07° 42'	128°	8.3	ing sky. It will appear rather large
12-26	02h 22.2m	+13° 22'	125°	8.4	and diffuse, and should contrast well
12-31	02h 23.7m	+18° 37'	121°	8.5	with Comet Bradfield.
01-05	02h 26.8m	+23° 25'	118°	8.7	

SEEKING COMETS

There seems to be only one certain group of long-period comets-this is the Kreutz Sungrazing Group. These comets, less than 2% of all comets, seem to originate from the same place in space and rush inward, rounding the sun at a distance of less than a million miles. Several sources discuss this group, perhaps the best is David Seargent's book "Comet-Vagabonds of Space". A few points should be made here.

1) Orbital periods are in the order of several hundred years.
2) They may exist in two subgroups: a) Those of 1843, 1880, and 1963, and perhaps a few more; b) those in 1882 (Sept.), 1945, 1965 and 1970, plus a few more probable candidates.
3) From 1979 through 1984, six sungrazing comets, apparently from this group, crashed into the sun. They were observed by an earth-orbiting satellite but were not observed from earth, probably due to their faintness.
4) These comets may have originated from one or two "supercomets" which split some time in the past 2000 years.
5) We never know when the next Sungrazer will come along. Amateurs often sweep the intended path, best placed for Northern Hemisphere observers in the autumn morning sky. Usually, however, this path is south of the ecliptic, while during the summer it is hidden by the sun itself.

THE CELESTIAL TOURIST SPEAKS
BY: JAY REYNOLDS FREEMAN



Sometimes small, inexpensive gadgets and accessories can make a world of difference to the amateur astronomer. We all have red flashlights, but there are other things of that level of simplicity that are almost equally useful, and I thought I would mention a few.

To begin with, and speaking of red flashlights, there is an inexpensive high-tech solution to the most common problem with these devices, namely that they are almost always too bright. At a recent general meeting, Jim Van Nuland had a plastic flashlight body that contained not a bulb but a red light-emitting diode with an appropriate resistor. The dim red light was much fainter than that provided by the typical nail polish and cellophane equipped conventional flashlight that most of us use. Jim's item was a commercial product, but the parts to make a similar modification in your regular flashlight cost only a few cents at an electronics store.

Another equally elementary device can do a lot to preserve your night vision in the presence of stray light: an eyepatch. I have one that I bought for a few dollars at a drug store. I suspect that anyone who sews could improvise one for less, but a simple flat piece of material probably won't do, a curved surface of a very flat cone does a much better job of covering the eye.

Do your fingers get cold when you take off your gloves to fiddle with eyepieces on these wintry evenings? Perhaps you need some mittens like mine, that have a slit in the palm near the knuckles, that seals with velcro. One flip of the fingers opens the slit, so you can get your fingertips out to do delicate work. Once they are inside again, just flex your hand to reseal the opening. These mittens are marketed for hunters and fishers, who have similar problems with cold while fussing with their own equipment. I bought mine mail-order from L.L. Bean of Freeport, Maine.

Those of us who need tools to put our telescopes together are forever losing them, leaving them at home or not having quite the right one in the first place. There are a few general purpose tools that will help solve this

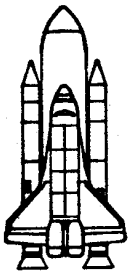
problem. First, don't forget the venerable Swiss Army knife. You probably don't need a fancy one - telescope makers rarely need to scale fish at a star party - but the simpler ones have several useful blades. Mines includes two regular screw drivers, one Phillips screw driver, scissors and a tweezer. Most sporting goods stores and cutlery shops have a wide stock of such knives.

A recent invention of similar utility to the Swiss Army knife is the trademarked "Leatherman" tool, which folds up like a jack knife but opens out into a pretty good general-purpose plier (needle-nose with teeth on parts of the jaws, and with a place to cut wire), with other tools that fold into the handles. The other blades include several screwdrivers and a file. Many sporting goods stores carry the "Leatherman".

And if you need any Allen wrenches to set up your equipment, be aware that these too come in jack-knife-like fold-up sets, which are not only more convenient than individual wrenches, but also far less likely to disappear forever when dropped. Try a large hardware store, like Orchard Supply.

Glasses-wearers like myself are forever wondering what to do with their glasses when they take them off to observe. I have made a simple hook out of coathanger wire that hangs off the star diagonal of my C-14. It keeps my glasses handy, and makes it less likely that they will be dropped and scratched or broken.

SPACE PROGRAM UPDATE
BY: BOB FINGERHUT



SHUTTLE RECOVERY EFFORT PROCEEDING

A subscale test of the redesigned solid booster joint was conducted on Nov. 9th. The test article contained deliberately induced flaws. There were no anomalies visible during the test. The second of six full scale tests is scheduled for late Nov. A post-firing examination of one of the shuttle main engines has found a small leak in a heat exchanger. The engine will be replaced with the replacement will have to go through acceptance testing, making the planned June 2, 1988 launch schedule very tight. The allowable shuttle payload weight has been increased by about 129,000 lb starting at mission 29. The allowable shuttle abort weight will be increased from 211,00 lb to 230,000 lb.

ROUGH GOING FOR SPACE STATION

NASA has delayed the award of $600 million in space station hardware contracts, planned for early Nov., due to uncertainties about federal budget cuts. The White House Budget Director has announced that if automatic budget constraints imposed by Gramm-Rudman-Hollings become permanent next month, NASA will loose $531 million and the space station will have to be postponed. A 6-12 month delay will increase station costs by about $1 billion. The talks with the international partners, Oct. 13-16 concluded with the production of a document that few, if any of the four partners are expected to deem acceptable enough to sign. No further negotiating sessions are currently scheduled. Elsewhere, NASA analysts have projected the station to have a 30 year orbital lifetime. Also, a four person crew mix has been identified. There will be one station commander (responsible for safety and crew coordination), two career astronauts (a station scientist and a station operator) and one non-career astronaut.

TITAN 3 LAUNCHES RESUME

On Oct. 26th a Titan 34D was launched carrying an Air Force payload. It was the first launch in 18 months for the most powerful of the expendable boosters. Another is being readied for launch on Pad 40 at Cape Canaveral.

GYROS INSTALLED ON MIR SPACE STATION

Six single axis gyros have been installed in the Kvant astrophysics module that is docked to Mir. The gyros will reduce MIR's reliance on thrusters, which consume fuel and could contaminate the space environment in the stations vicinity while experiments or observations are being carried out.

NO NEW STARTS FOR NASA IN FY 1989

The Office of Management and Budget has informed NASA that it will not approve any new starts in NASA's FY 1989 budget. NASA had planned to start the Comet Rendezvous Asteroid Flyby and Advanced X-Ray astrophysics facility.

SJAA MEETING AND STAR PARTY LOCATIONS

GENERAL MEETINGS

Once a month the SJAA holds a General Meeting at the Los Gatos Red Cross building in Los Gatos California. 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 famous "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 1.5 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 usually beginning at 8 PM.

INDOOR STAR PARTIES

Each month there are several 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 its Board Meetings during this time as well as an Introductory Astronomy workshop that is conducted once a month.

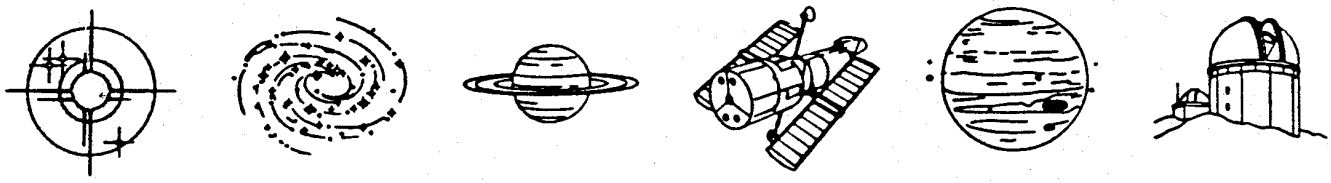
FIELD EXPEDITIONS

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 directions to these locations.

FREMONT PEAK STATE PARK

The most popular of locations for bay area amateur astronomers is Fremont Peak State Park. Located 70 miles south near the town of San Juan Bautista, Fremont Peak rises nearly 3000 ft. above the valley. For two decades amateurs have gathered at the "Peak" during New Moon weekends for serious deep sky observing and astrophotography. Fremont Peak is now the home of the Fremont Peak Observatory Association's 30-inch telescope that is open to the public on selected weekends. To get to Fremont Peak from San Jose, take Hwy. 101 South towards Salinas. Then take Hwy. 156 East (San Juan Bautista exit) for two miles to a yellow flashing light. Turn right and go about 1/4 mile to where the road reaches a "Y". Stay 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 and into the park. The SJAA sets up in the Coulter Camp area. It's visible on your right as you first drive into 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. Contributors are welcome to submit articles for publication. These should be typed and submitted no later than the 12th day of the 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: $ 24.00 JUNIOR (UNDER 18): $ 17.00

Name _____

Address _____

_____

Telephone (____) _____

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

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

[Phone: (408) 262-1457]

Please check type of membership and if new or renewal.

Membership Only____ Membership/S&T____

Junior (Under 18)____

New____ Renewal____

Questionnaire (optional)

What are your astronomical interests (e.g. astro-photography, deep-sky observation, telescope making, etc.)? _____

_____

_____

_____

Do you own a telescope? _____ If so, what kind?

_____

Is there any specific area of astronomy that you feel qualified to help others with? _____

_____

_____

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