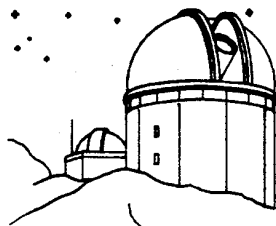


# EPHEMERIS

OF THE SAN JOSE ASTRONOMICAL ASSOCIATION



## FEBRUARY 1986

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 \* FEBRUARY 22TH \*  
 \* DR. JEFF CUZZI (NASA) \*  
 \* VOYAGER AT URANUS \*  
 \* 8 PM \*  
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- FEBRUARY 1 FIELD EXPEDITION FOR ASTRONOMICAL OBSERVATION AT GRANT RANCH COUNTY PARK. DUSK TILL DAWN.
- FEBRUARY 8 FIELD EXPEDITION FOR ASTRONOMICAL OBSERVATION AT HENRY COE STATE PARK. DUSK TILL DAWN.
- FEBRUARY 15 BOARD MEETING OF THE SAN JOSE ASTRONOMICAL ASSOCIATION AT THE LOS GATOS RED CROSS BUILDING. DOORS OPEN AT 8PM.
- FEBRUARY 15 JACK ZEIDERS' INTRODUCTORY ASTRONOMY CLASS AT THE LOS GATOS RED CROSS BUILDING. BEGINS AT 8PM - FRONT ROOM.
- FEBRUARY 22 GENERAL MEETING AT THE LOS GATOS RED CROSS BUILDING. DOORS OPEN AT 8PM. GUEST SPEAKER: DR. JEFF CUZZI OF NASA WILL PRESENT RECENT INFORMATION FROM THE VOYAGER FLYBY OF THE PLANET URANUS. THIS WILL BE A UNIQUE OPPORTUNITY TO GET A FIRST LOOK AT THE DATA AND PHOTOGRAPHS RETURNED FROM URANUS. DON'T MISS IT!
- MARCH 1 FIELD EXPEDITION FOR ASTRONOMICAL OBSERVATION AT GRANT RANCH PARK. STAY UP LATE AND WATCH HALLEY RISE! THIS IS ALSO THE SJAA'S ANNUAL MESSIER MARATHON. IT WILL BE CONDUCTED BY DON MACHHOLZ.
- MARCH 8 FIELD EXPEDITION FOR ASTRONOMICAL OBSERVATION AT GRANT RANCH PARK. IF YOU DIDN'T FIND ALL OF THE "M" OBJECTS ON THE 1ST, THEN TRY AGAIN TONIGHT. DON MACHHOLZ WILL BE YOUR HOST.

FIELD OF VIEW  
 BY: JOHN GLEASON

EOA2 SEMINAR FLIGHT

This is probably a little late for our February bulletin, but Joe Perry is offering a round trip flight to Fullerton airport in Orange County for the one day Electronics Oriented Astronomy Seminar. Joe can take 5 persons. Leaving 6 am Saturday Feb. 8, returning Saturday evening weather permitting. Share flight gas, about 5.0 hrs. total round trip flying time. Joe Perry is a Commercial, IFR and Multi-engine rated pilot. Car to be provided at other end to and from seminar. Call Joe at 408-379-8568 (home) or 408-756-6346 (work) for more information. Joe is also organizing a trip to Tucson, Arizona for comet seeking March 7, 8, 9, and seminar on Instrumentation in Astronomy. (SPIE meeting at Double Tree Inn). Flying time 6 to 8 hrs. round trip. Contact Joe for more information.



WINE, CHEESE AND COMET TAILS

The evening of Jan 5th found Bob Fingerhut, Jack Peterson, Jack Zeiders, Tom Ahl, Frank Dibbell, Dave and Mary Ambrose, Steve White (Orion) and your editor entertaining about 100 Yuppies and Yuppets at the Mirrsou Winery. This evenings program was to promote Mirrsou's special Halley's Comet vintage champagne.

The SJAA and Orion had ten telescopes tracking on the famous comet while my superior C14 provided spectacular video images of Jupiter and its moons. The low light level camera was provided by Videomedia in an attempt to possibly view the comet on the television monitors provided. Unfortunately the camera was not sensitive enough. What we needed was an image intensifier along with the camera. Lick observatory provided the historical perspective on Halley and played a video tape of the comet moving against the star background via a very very low light digital camera and 36-inch telescope. Wow! While the comet was not at its best over the light polluted skies of San Jose, everyone did get a chance to observe the "big fuzzy snowball" through our telescopes. A faint dust tail was visible at low powers.

## BOARD ELECTIONS FEBRUARY 22ND

Several SJAA board member terms have expired so it's time to nominate and elect members to fill the vacancies. These will be held during our General Meeting this month before our main speaker. Members whose terms have expired are: Joe Sunseri, Gene Cisneros, Dave Ambrose and Steve Greenberg.

## MORE ON KONICA 1600

Our super-speed film that I have been testing for the last 3 months will soon be available at all Fotomat stores under the Fotomat brand name. Seems that Konica corporation owns the Fotomat franchise. SO-279 is the film that you use to make high-contrast color slides from the resulting color negatives. This film is also processed in C-41 the same as the 1600. I have had a few raised eyebrows at the 1hr processing labs when they see slides come out of their automatic processor instead of the usual negatives. I have found the commercial 1hr processing cheap as compared to an \$18 processing kit from Unicolor. SO-279 has been processed for as low as \$2.15 for a 36 exposure roll. Usually the film can be developed in 30 min. since the labs do not have to print it. Just tell them develop only and do not cut. SO-279 is easily used in any 35mm SLR camera and a slide copier. Exposure times will range from 2 to 15 seconds depending upon the filter pack used and the desired background density that you want. Use a temperature balanced enlarging lamp as the light source for consistent results. Color correction also changes from batch to batch of SO-279. Nope, I am not going to start a copying service. I have already gone through six rolls of 279 to get the correct color balance and exposure times for my particular system. The final results are excellent however!

At this point one may wonder if we are taking steps forwards or backwards with these high-speed, somewhat grainy films. The answer is yes and no. While these high-speed films are extremely grainy as compared to Ektachrome 400 and 200, their ability to gather low light in about half the time makes them ideal for beginners. ISO 1000 films can record the Milky Way in 30 seconds as compared to 10 minutes using ISO 200. Just pop the film in your camera. Set the lens to infinity. Stop the aperture down one f-stop, set up on a good tripod and you are ready to record all the constellations in a evening. Fujichrome 1600D would be ideal for this kind of photography since it is a slide film. It is not yet available in the U.S. however. Konica SR1600 has excellent color balance in long exposures but is still to grainy for small image scale objects. You need a long focal length system so that the object that you are photographing falls on more film grains. Therefore, better resolution.

## ZEIDERS ON ASTRONOMY

Don't forget that Jack Zeiders is conducting introductory astronomy classes at the Los Gatos Red Cross building again this month on the 15th. The class will not interfere with the board meeting, since the board will conduct business in the back room.

## NOTICE TO MEMBERS AND EPHEMERIS CONTRIBUTORS

Due the fact that your editor will be in the southern hemisphere for the entire month of April, there will not be a May Ephemeris. Instead I plan an April/May issue to be published and in the mail by the 26th of March. Plan your submissions accordingly. This issue will include all calendar events into the first week of June. June Issue will be mailed on the 26th of May. THANK YOU!

## FPOA UPDATE

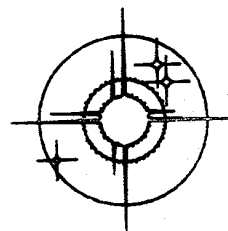
The giant 30-inch telescope has been moved to a new location so that preliminary mechanical assembly can take place. Work on the site will start very soon.

## FREMONT PEAK RECAP

January 10th was a bust at the Peak as many people tried in vain to photograph and observe Halley's Comet. High overcast prevented any observation until the comet was well below the western horizon. Then the skies decided to clear for the remainder of the evening. By then a number of us had packed up and observed the clearing skies at Denny's. We'll be looking for Halley again in the morning sky near the end of this month. (see Comet Comments)

## COMET COMMENTS BY DON MACHHOLZ

A previously faint periodic comet has brightened, it is now within reach of most telescopes. comet Halley reaches its perihelion point this month, then begins its outbound journey from the sun. Comet Hartley-6ood passes opposition from the morning to the evening sky. Comet Thiele is not lost in the sun's glare as it pulls away from both the earth and the sun.



## Comet Hartley-6ood (1985L)

DATE	R.A. (1950)	DEC	ELONG	MAG.
01-25	15h 37.9m	-01° 58'	73°	8.5
01-30	15h 24.3m	-03° 45'	80°	8.7
02-04	15h 08.4m	-06° 40'	88°	8.8
02-09	14h 49.8m	-09° 48'	96°	9.0
02-14	14h 28.2m	-12° 56'	106°	9.1
02-19	14h 03.4m	-15° 59'	115°	9.3
02-24	13h 35.8m	-18° 47'	125°	9.5
03-01	13h 06.3m	-21° 09'	135°	9.7
03-06	12h 36.2m	-22° 55'	143°	10.0

## Comet Hartley-6ood notes

Spending this time in Libra and Virgo, this comet is closest the earth on its outbound journey in late Feb. at 72 million miles. It will be twice that distance from the sun at that time. Comet 1985L is ten degrees south of M5 as the month begins and ten degrees south of Spica at the end of the month.

# Periodic Comet Boethin (1985n)

01-25	23h 57.8m	+01° 41'	56°	9 ?
01-30	00h 17.6m	+04° 18'	57°	9 ?
02-04	00h 37.7m	+06° 55'	57°	9 ?
02-09	00h 58.2m	+09° 29'	58°	9 ?
02-14	01h 18.9m	+11° 58'	58°	10 ?
02-19	01h 39.9m	+14° 20'	59°	10 ?
02-24	02h 00.9m	+16° 33'	59°	10 ?
03-01	02h 22.0m	+18° 36'	60°	10 ?

## Periodic Comet Boethin notes

Moving at one degree each day, this periodic comet, making its first return since a 1975 discovery, holds a constant elongation in the evening sky. Magnitude is uncertain. It passed three degrees south of Comet Halley in Dec., the fourth comet to visit Halley's in four months.

## WHAT GOES AROUND COMES AROUND - HALLEY'S

On February 9, at 1100 UT (3:00 AM PST) plus a few seconds, Halley's Comet will be closer to the sun than at any time since Nov. 1935 (in 1910 it was a few thousand miles or distant). From this time, when the comet will be 54.60 million miles from the sun and traveling 34 miles a second, it will be slowing down as it leaves the inner solar system. Only in the year 2024 will the comet, then outside of Neptune's orbit, begin its long journey toward the sun for a 2061 return. With the advent of the Space Telescope and earth-based large-aperture instruments, it is possible that the comet will remain in view for its entire orbit.

The inward leg of Halley's Comet showed a surprising surge in brightness during Oct. and Nov. 1985. During Dec. and early Jan. the comet leveled off, holding a near-constant magnitude (4.5 to 5.0 in most instruments) for nearly three weeks, while the tails developed and lengthened. Naked-eye detection of the comet occurred about a month earlier than expected, while a "third magnitude Christmas Comet" never did develop. All in all, it has been an exciting pre-perihelion appearance of Halley's and the best is yet to come!

Here are phone numbers that put you in touch with Halley information: (617) 497-4168: Sky and Telescope Hotline. 3 min. Changes on Fridays. (415) 661-0500: Astronomical Society of the Pacific. 3 min. Changes every 7-10 days. (1-900) 410-8766: U.S. Naval Obs. 4-5 min. (408) 429-3320: Lick Observatory/U.C. Santa Cruz. 5 min.

In late February the comet will emerge into our morning sky, visible in the southeast before morning twilight. The tail, many degrees long by this time, will rise first. The moon will be out of the morning sky until Feb. 22, it will be full on Feb. 24. The moon will be decreasing in brightness, passing six degrees south of the comet on Mar. 7, making a good picture. You may wish to begin watching for this morning twilight comet as early as Feb. 16th.

Joe Marcus, writing in the Comet News Service, has recently discussed four naked-eye daylight sightings of Halley's Comet in 1910. This implies that the comet surges to perhaps zero magnitude for a few days around perihelion. This may be due to that fact that the nucleus, rotating once each 52 hours, has had its south pole turned towards the sun, shortly after Feb. 9 the comet's northern hemisphere begins to be heated, and this sheds new material. This material may cause a temporary surge in brightness. The 1910 proven method of daylight naked-eye sightings involves hiding the sun behind a distant object, and viewing the comet without filters (comet filters were not available then, but they may be tried this time). The best times for such sightings would be every clear day, beginning the second week of February. You may also wish to use a small telescope to binoculars to sight the comet in the daytime, taking care not to point the instrument at the sun.

Here are positions, elongations and magnitude estimates for Comet Halley. Also included is the comet's position in relation to the sun, this will be helpful for daylight attempts. The final set of figures give the time difference between either "comet set" (in the western evening sky) or "comet rise" (eastern morning sky) and the time of astronomical twilight. This is done for latitudes of 30° north and 40° north. The comet starts by setting just after evening astronomical twilight, by mid-Feb. It is rising roughly one-half hour after morning astronomical twilight. It then becomes better placed in the morning sky with each succeeding day.

## Periodic Comet Halley (1982i)

Date	RA (1950)	Dec	El.	Mag.	Off-set From Sun	30° A/T vs.HC 40°
01-25	21h 28.8m	-07° 13'	19°	3.5	13° E., 12° N.	Set 05m aft. 07m aft.
01-30	21h 20.0m	-08° 12'	13°	3.2	07° E., 09° N.	Set 29m bef. 30m bef.
02-04	21h 10.8m	-09° 17'	07°	2.7*	.2° E., 07° N.	Rise 71m aft. 73m aft.
02-09	21h 01.6m	-10° 27'	08°	1.7*	07° W., 04° N.	Rise 47m aft. 53m aft.
02-14	20h 52.8m	-11° 43'	13°	1.7*	13° W., 01° N.	Rise 25m aft. 35m aft.
02-19	20h 43.9m	-13° 06'	20°	2.7*	19° W., 02° S.	Rise 04m aft. 16m aft.
02-24	20h 35.2m	-14° 38'	27°	2.7*	26° W., 05° S.	Rise 16m bef. 00m bef.
03-01	20h 26.6m	-16° 18'	35°	3.4	32° W., 09° S.	Rise 35m bef. 15m bef.
03-06	20h 17.7m	-18° 12'	42°	3.5	39° W., 12° S.	Rise 54m bef. 28m bef.

\* Magnitude estimates are based on daylight naked-eye observations in 1910.

## HALLEY'S COMMENT HOW MANY ANSWERS DO YOU KNOW?

This will give you something to do as you watch the clouds foil your attempts to photograph Halley's during this passage.

The correct answers will be in next months Ephemeris.

1. In 1910, scientists' reports of a certain kind of poisonous gas in the tail of Comet Halley led some people to fear that the world would end when the comet's tail swept the earth. What kind of gas were they worried about?

2. True or false: Comets, like meteors, quickly flash across the sky and are visible for only a few seconds.

3. During its 1985-86 visit to our skies, Comet Halley will pass near the earth twice. On what day will it make its closest approach to earth?

4. How far away from the earth will the comet be on the closest pass of this visit?

5. Comet Halley passes near the earth approximately every 76 years, but gravitational effects from the planets sometimes make the period shorter or longer. What was the longest recorded interval between successive visits of the comet?

6. What do scientists believe comets are made of?

7. How many tails does a comet have?

8. With each trip around the sun, a comet loses material from the surface of its nucleus (core). By how much is its diameter (in linear feet) reduced during each trip?

9. How many trips around the sun does an average comet live to complete?

10. Why was the comet named after Edmond Halley? (25 words or less)

11. In what year did Comet Halley begin its current journey toward the sun?

12. What is the name for the point in a comet's orbit when it is farthest away from the sun?

13. In addition to lending his name to a comet, what was another of Edmond Halley's scientific achievements? (20 words or less)

14. Name one space mission expected to encounter Halley's Comet in march.

15. How long ago do scientists believe comets were formed?

16. How many appearances of Halley's Comet have been recorded by people on earth (including this year's appearance)?

17. True or false: Comet Halley moves around the sun in the same direction as the earth does.

18. With what historical event did Comet Halley's 1066 A.D. appearance coincide?

19. For whom is the European Space Agency's space mission named, and why? (30 words or less)

20. Scientists believe a vast cloud of comets exists billions of miles from the sun. What is the name of this cloud?

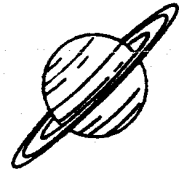
## ASTRO ADS

FOR SALE: 4-inch Unitron refractor, model 152 with motor drive, good condition, \$800. Contact: Bill Dellings, (415) 792-9206

5 MONTHS OLD: Celestron Super C8 telescope with Star Bright coatings and 2 eyepieces. \$1400 Call Rich at: 408-739-8007

## THE CELESTIAL TOURIST SPEAKS BY: JAY REYNOLDS FREEMAN

I have more to say about binoculars. People occasionally have trouble holding one steady enough for astronomical observation. The difficulty is that there are two sources of unsteadiness in hand-holding a binocular, and their respective solutions are somewhat contradictory. To begin with, it is desirable to have solid contact between the binocular and your skull, so that the field of view will not jiggle with respect to the eyes. Furthermore, it is important to support the binocular evenly about its center of gravity, so that your wrist muscles won't continually be straining to keep it from tipping one way or the other. The problem is finding a way to do both at once.



With a small or lightweight binocular, the first consideration is paramount: Grip it as far back toward the eyepiece end as possible, supporting the body of the instrument between the heels of the hands and the third and fourth fingers. This position puts your hands in the position you would probably use to peer through a brightly-lit window at night. As you bring the binocular to your face, curl your thumbs toward your palms and press the inner thumb joints tightly against your cheekbones. Use your index and middle fingers to fill the gap between eyepieces and eyebrows. An instrument so supported will feel like a rigid extension of your face, and will provide quite steady views. Your thumbs and first two fingers will also do a good job of blocking stray light.

Depending on how strong you are and how long an observing session you plan, that grip will work for binoculars up to about a 7X50. For bigger instruments, the weight of the objective lenses will begin to put enough strain on your wrist muscles that they will jitter excessively in trying to hold the instrument straight. Another grip is necessary. Most people will move both hands out further from the face, instinctively seeking to hold the instrument close to its center of gravity, but giving up the benefits of rigid contact between the binocular and the headbones.

I recommend a different solution. Keep one hand in the eyepiece-end grip just described, and move the other way out to the objective end of its barrel. This position will keep the instrument in balance and will still leave some solid contact between it and your face. Often the hand at the far end seems to be supporting most of the weight of the binocular, and gets tired -- when that happened, switch hands. This particular grip makes a world of difference for me in using my 11X80; but most people seem not to think of it, perhaps because it is so unsymmetrical.

The 1985 Christmas Season was a good time to buy binoculars. I did some shopping myself, mostly just to look at high-tech toys, though I did end up buying another one. Many of the big stores seemed to have overstocked, perhaps in anticipation of demand produced by Comet Halley. In the last few weeks before Christmas, some places were discounting heavily. Perhaps good bargains remain even now, so I will mention what I found.

The range of quality was enormous. Most of the major importers, like Tasco, Bushnell and Swift, put their labels on a wide variety of lines, ranging from inexpensive and not too well-made at the bottom to quite good at the top. It is not unusual to find four or five different models of the same size and magnification -- 7X50 -- all with the same importer's name on the label, yet varying substantially in quality and covering a price range of five to one.

Most of the low-end binoculars had too many optical and mechanical compromises for my taste. I saw several 7X50's on sale at about \$50, but I would rather have spent another twenty or thirty dollars and gotten a much better instrument, than put up with the inadequacies of the cheaper models. Yet I am sure they fill a need for occasional users with uncritical applications, so I will not speak too harshly of them.

I encountered Bushnell's "Sportview" line in several places. The 7X50 was selling at as low as seventy dollars. This unit is probably adequate for most astronomical purposes, even though it is not as durable as solid as some more expensive models, and even though it does not use the increasingly common high-refractive-index prisms, that provide slightly greater light transmission for rays entering the periphery of the objective.

For a few weeks before Christmas, Macy's was selling Nikon's standard 7X50 at ninety dollars. This instrument seemed fine optically, and had no externally blatant mechanical faults. Had I needed another 7X50, I might have bought one. It was also very much a lightweight, making me curious about its construction: Low mass is a substantial virtue in binoculars and telescopes, particularly in hand-held instruments, PROVIDED that other mechanical virtues have not been compromised to attain it. If anybody has one of these Nikons, please smash it so I can see the pieces. (I too checked out the Nikon 7X50 standard at Macy's and found it to be excellent, only I missed the sale. It was priced at \$130 -- ED)

Tasco had an 8X56 -- an uncommon size, but in principle well-suited for astronomy, by virtue of substantial aperture and 7-mm exit pupil. It too was relatively light -- it seemed to have plastic lens barrels screwed into a metal body -- and unusual in that it was NOT prominently stamped "coated optics". An uncoated binocular in this day and age?

I looked closely. All the surfaces that I could see were coated, there seemed to be no unusual internal reflections, and the transmission looked right for coated optics. how mysterious. Capwell's had this one on sale at sixty-four dollars for a few days before Christmas.

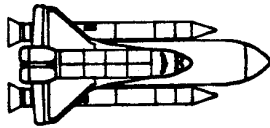
I also looked again at Orion's 10X70, that I recommended in a previous column. I had been using my own 11X80 recently, and in comparison, the 10X70 was indeed much easier to hold steadily. It listed at \$189, which is twice as much as a respectable 7X50, but it has twice the light grasp. Anyone wanting a binocular for astronomy should consider this one.

But I was not looking for an astronomical binocular -- I wanted a unit for daylight use, small enough to keep in the car and cheap enough not to worry about. I saw a depressing number of junky miniature binoculars. For fun, I even looked at several fancy roof-prism units priced near two hundred dollars. (To be fair, not that these were list prices in small-volume retail camera shops -- some sale prices at large department stores were below half of list price.) None was optically excellent, though all were very compact and seemed well-executed mechanically.

I ended up buying a Tasco Model 169, an 8X21 that uses the somewhat bulkier Porro prisms. Its optical quality was comparable to its expensive competitors, and it cost forty dollars on sale in Capwell's. A close runner-up was a Bushnell 7X25 that Consumers Distributing listed at a slightly lower price. A common figure of merit for engineering excellence is results divided by cost: For my purposes, by that criterion, these inexpensive units are far superior to models that offer at most marginal improvements at five times the price.

(A very nice compact binocular is Nikon's 9X24. I found it to have excellent optics with a nice magnification. \$99 at Macy's, but the same can be purchased out of New York for about \$40! via the gray market. -- ED)

**SPACE PROGRAM UPDATE  
BY: BOB FINGERHUT**



**SHUTTLE ORBITER COLUMBIA LAUNCHED JAN 12TH**

Columbia began its first mission in 1 1/2 years after numerous delays. The orbiters systems were upgraded to be like newer orbiters and initial test instrumentation was removed. On the initial day in orbit, an RCA communication satellite was launched. Included in the remainder of the mission will be studies of Halley's Comet. The landing is scheduled to be the first at the Kennedy Space Center in a year. Columbia's next mission, which is scheduled for march, is timed to observe Halley's Comet simultaneously with the Soviet Vega 2 and European Giotto. It will carry 3 large ultraviolet telescopes and 2 special film camera systems in a spacelab igloo with two pallets. Instruments will be mounted on the instrument pointing system which was first flown on Spacelab 2.

**CHALLENGER SCHEDULED FOR LAUNCH ON JAN 24TH**

The launch of Challenger on mission 51-L will be the first from pad 39B. It contains a mini-observatory to observe Halley's Comet.

**VOYAGER IMAGES RINGS AT URANUS**

It was feared that the thin dark rings would not be observable on the inbound trajectory but two groups of rings inward from the epsilon ring were observed. It is also believed that the first pattern in the atmosphere of the planet was observed the first week in January.

**SPACE TELESCOPE LAUNCH DELAYED**

The launch of the telescope has been delayed from August to October.

**SPACE STATION DELAYED**

The Office of Management and Budget recommended a three year delay in the initial operating date for the space station to (1997), but the Reagan administration reduced it to 12-18 months. OMB's purpose was to reduce the budget deficit. NASA appealed on the grounds that a delay would cause U.S. contractors to abandon their own independent work and might cause the loss of Europe, Japan and Canada's participation.

**COSMONAUTS RETURN EARLY DUE TO ILLNESS**

The 3 cosmonauts on board Salyut 7 returned to Earth on 21 Nov. when the commander, Vladimir Vasyutin, became ill and had to be hospitalized.

**ARIANE LAUNCHES RESUME IN JANUARY**

The first flight since the Sept. 12 failure is scheduled for 11 Jan. It will carry the French Spot Earth resources satellite and the Swedish Viking scientific space craft.

**3M AND McDONNELL DOUGLAS TEAM TO PRODUCE  
DRUG IN SPACE**

The drug called erythropoietin stimulated red blood cell production. It will be given to human test patients soon and could be available for sale in 1988.

**30-INCH STATUS REPORT  
BY: DENNI MEDLOCK**

The 30-inch telescope is facing its last stages of assembly, much to the relief of everyone associated with it. This one ton beauty has reached a point where it can no longer be worked on in the Medlock garage!



Jack Peterson has generously donated a 12' x 12' x 14' area at his place of business, where the telescope will undergo final assembly and remain until the observatory building is complete.

Movement of the sub-assemblies to the warehouse, located in Milpitas, took place on Sunday, January 12th. Jack Peterson, Jack Zeiders, Bob Fingerhut, Dave and Mary Ambrose, Randy Smith, Howard Medlock, and Kevin and myself spent five hours transporting the components to the warehouse. Upon completion of the move, Jack Zeiders was heard to comment, "Kevin, next time you move the 60-inch or 80-inch, don't call me, call BIGGE!".

The move was not without some levity; Kevin had asked Jack Zeiders to get the secondary diagonal from the van (the secondary diagonal for the 30-inch is fully as big as a standard 8-inch mirror!), which was wrapped in a towel. Jack got another towel, walked back into the warehouse, and eight feet from Kevin said, "Here!" while tossing the bundled-up empty towel to him. I understand Kevin's life flashed before his eyes as he saw the airborne towel approach! (These guys are sick! sick! sick!).

The telescope now sits in the warehouse, on wooden piers, with all major sub-assemblies put together. Kevin reports that it will take about 20 pounds more of weight to balance it properly, and it will still need to be fine tuned for movement. The painting of the tube assembly and the polar housing will take place here (instrument white and midnight blue).

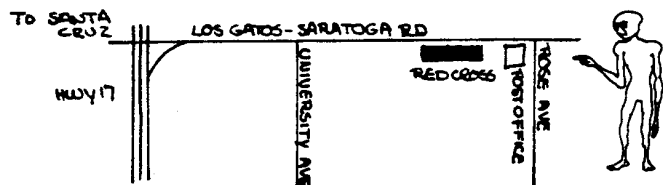
Recently completed on the telescope was the declination assembly, which included the cutting and welding of the cradle assembly and its matching pieces on the tube. The declination gear is in place, and the clutches have been made for both the R. A. and the declination gears. The worms for these gears are the only major components left to machine.

The secondary holder is an indexing piece; that is, the diagonal may be rotated to either side of the tube to facilitate viewing objects that otherwise would require the viewer to lean far over the tube. That would be a very precarious position from the top of a 12-foot ladder!

In Kevin's words, the telescope is 85% complete. What is left is mainly heavy work. Those with muscles who wish to help move the assemblies around are invited to call Kevin or I at 415-654-6796. Tours of the partially assembled scope can also be arranged by calling Kevin or I. This is a very impressive instrument: it is well worth the trip out to Milpitas to see it.

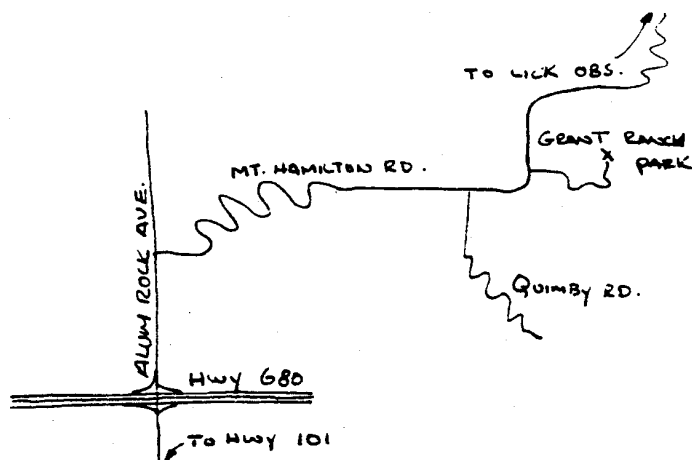
### GENERAL MEETINGS:

General Meetings are held once a month at the Los Gatos Red Cross building, Los Gatos California. This is also the location for the SJAA's "Indoor Star Parties". The building is located at 18011 Los Gatos-Saratoga Rd. From Hwy. 17 south, take the Hwy 9 (Saratoga) exit and continue up Los Gatos-Saratoga road for about 1.5 miles. Turn right at Rose Ave. Then turn right immediately into the parking lot of the Red Cross building. MEETINGS BEGIN AT 8 PM.



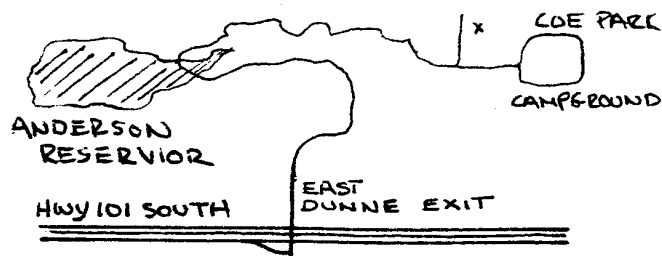
### GRANT RANCH COUNTY PARK:

This site is becoming a popular one for the SJAA so come and try it out. Located on Mt. Hamilton Road, take Hwy 101 (either direction) to Alum Rock Rd. Go east up Alum Rock Rd. and turn right onto Mt. Hamilton road and follow it. Grant Ranch is just past the Quimby road intersection. After sunset the park's front gate will be locked with the SJAA's combination lock. Use the sequence 4565 to open, but be sure to lock the gate behind you, coming or going. There are two gates, the lock may be on the exit gate, if so, enter the park from this gate. There is also an observing area further up the Mt. Hamilton road that is also part of the county park. Contact the SJAA for directions.



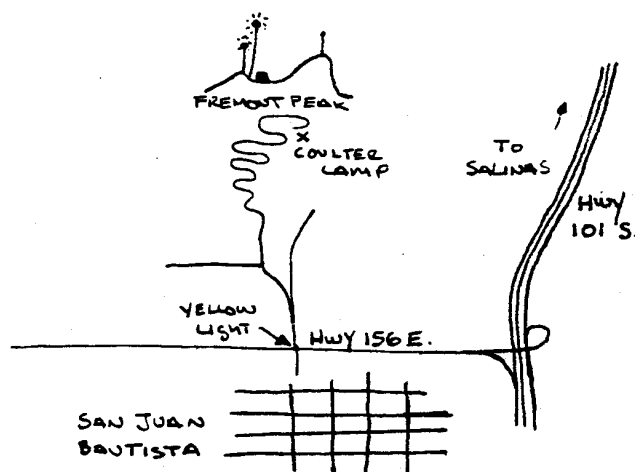
### HENRY COE STATE PARK:

Take Hwy 101 south towards Gilroy and take the East Dunne exit. continue east towards the hills (past Anderson Reservoir) for about 12 miles to the park. Past the park entrance you will see old ranch type buildings on the right and a horse trough. The gate (on the left) is 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. Parking lights only after dark, please.



### FREMONT PEAK STATE PARK:

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 curves slightly to the left and splits. Stay left for about 25 yards and then bear right. (watch for the Fremont Peak sign). Follow the road for about 11 miles up into the park. SJAA sets up at Coulter Camp. It's visible on your right as you drive up into the main area of the park. Parking lights only after dark, PLEASE!



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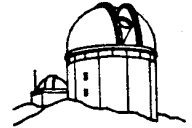
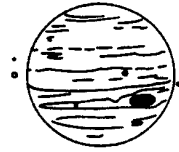
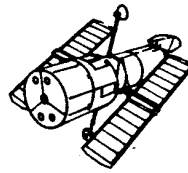
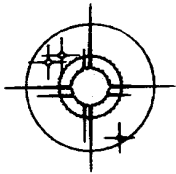
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Please bring this form to any SJAA meeting, or send to:

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

[ Phone: (408) 262-1457 ]

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What are your astronomical interests (e.g. astro-  
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\_\_\_\_\_

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\_\_\_\_\_

Is there any specific area of astronomy that you feel  
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