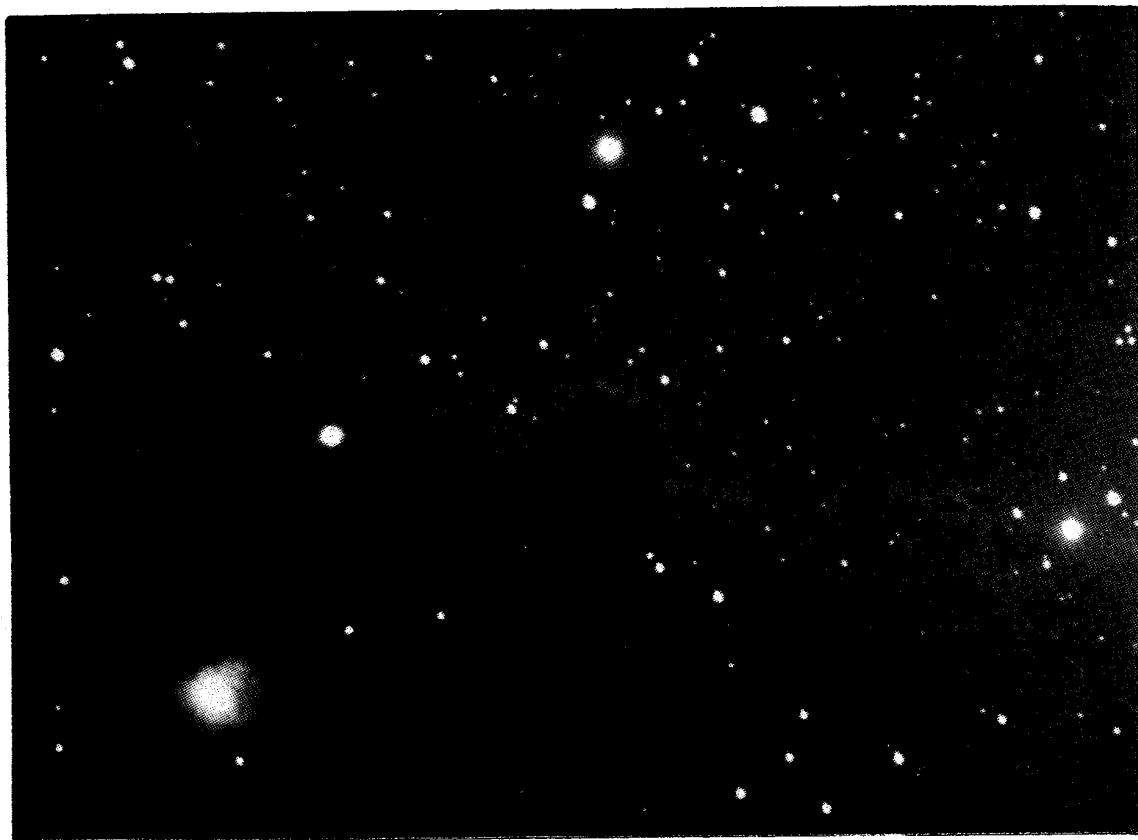


APRIL '84

SJAA

# EPHEMERIS



SJAA EPHEMERIS  
3509 CALICO AVE.  
SAN JOSE, CA. 95124

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SAN JOSE, CA. 95125

TIME VALUE — DATED  
NEWS MATERIAL

- APR. 7 Indoor star party and Auction planning meeting at the Red Cross building in Los Gatos. Everyone welcome.
- APR. 14 4th ANNUAL ASTRONOMICAL AUCTION, to be held at the Red Cross building in Los Gatos. Registration begins at 10 AM. Auction starts at 2 PM. See flyer in this month's Ephemeris.
- APR. 21 Indoor star party at the Los Gatos Red Cross. Doors open at 7:30 PM. Board meeting at 8:00 PM. Everyone welcome.
- APR. 28 Star Party at Henry Coe State Park.
- MAY 5 Astronomy Day. Come join us at the Red Cross building in Los Gatos.
- MAY 12 General Meeting at the University of Santa Clara, Alumni Science Hall, room 202. 8 PM. Guest speaker will be Joel Suty, a Manager at Lockheed. The subject will be "How to prepare, launch and retrieve the Space Shuttle at the Kennedy & Vandenberg Space Centers.
- MAY 19 Indoor star party and Board Meeting at the Los Gatos Red Cross building. Doors open at 7:30 PM, meeting starts at 8 PM.
- MAY 26 Fremont Peak Star Party and Riverside Conference
- JUNE 2 Star party at Grant's Ranch
- JUNE 9 General Meeting w/ Board Member Elections and guest speaker Jack Marling.

1



JOIN OUR MEXICAN ANNULAR  
ECLIPSE EXPEDITION  
May 29th to June 2nd, and

- o On May 30th, observe the longest annularity in North America, near Manzanillo, at 10:26 AM local time. (We have good weather prospects. The average cloudiness on Mexico's west coast, near the eclipse path, is three Octas. Our expedition's motorcoach can travel up to 30 miles to avoid clouds, and still remain in the eclipse path.)
- o Observe the dark night sky from 18.5° N: α, β, and ω Centauri, Crux, the Coal Sack, the Scorpius and Sagittarius Star Clouds, and the beautiful southern Milky Way.
- o Attend seminars on the Sun, Solar Terrestrial Relations, The Celestial Mechanics of Eclipses, and Safe Solar Observing and Photography. (Credit from the U. C. Santa Cruz extension program can be arranged.) A series of newsletters, on these and other subjects, will be sent before departure.
- o Enjoy a vacation at Manzanillo's Club Maeva. There are excellent opportunities for sailing, fishing, water skiing, skin diving, and sunbathing. Our price of \$389 per person includes RT airfare from LA (convenient to the Riverside TM Conference), transfers, motorcoach transportation, and a double-occupancy room. (Please add a separate check for \$20 if UCSC extension credit is desired.) There are a limited number of spaces. To join us immediately, please send your payment to our travel representative:  
Unitrex, 1043 E. Green Street, Pasadena, CA 91106.

For further information, please write or call: Steve Edberg, JPL Astronomer, 7631 Memory Lane, Tujunga, CA 91042 (818 354-6085 days, 818 352-2287 evenings) or Steve Greenberg, LLNL Writer/Photographer, P.O. Box 292, Livermore, CA 94550 (415 423-0933 days, 415 443-6638 evenings).

# MEMBERSHIP

Please send renewal form, remittance, and if you want to renew S&T, their white notice card, to: Bob Fingerhut, Treasurer, SJAA, 340 Rio Verde Pl. #4, Milpitas, Ca. 95035. (408) 263-4455. Thanks!

## SJAA MEMBERSHIP APPLICATION/RENEWAL

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CITY \_\_\_\_\_

PHONE \_\_\_\_\_

STATE \_\_\_\_\_

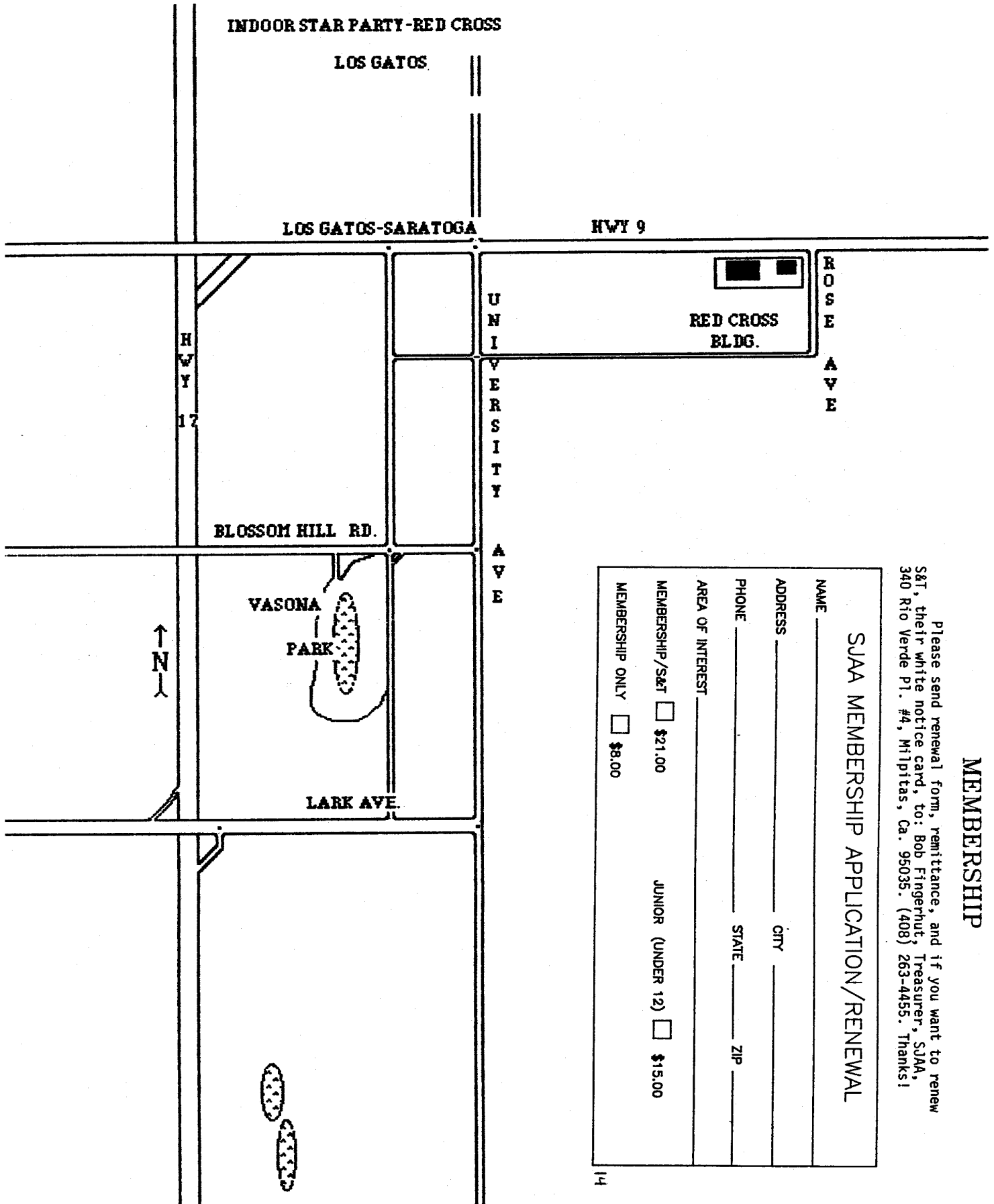
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AREA OF INTEREST \_\_\_\_\_

MEMBERSHIP/S&T ☐ \$21.00

JUNIOR (UNDER 12) ☐ \$15.00

MEMBERSHIP ONLY ☐ \$8.00



DEAR BULLETIN SUBSCRIBERS:

On behalf of myself, I'd like to welcome myself to the EDITORSHIP of this once great masterpiece (it was great, until I took over). I've never done anything like this, so this will be a learning experience for both us. Have patience and we'll all survive this ordeal.

In a moment of weakness on my part I took pity on Denni and now the job is mine. Actually, I think I might have made too many complaints concerning typos and spelling errors, so she decided to get even with me. Anyway, the job is mine, so on with the show.

Anything submitted to this editor will be greatly appreciated because my writing skills leave much to be desired. All of the final work done on the bulletin will be done on various Apple systems (Ile, Lisa, & Macintosh).

A section I would like to run in the bulletin is a "Helpful Hints & Shortcuts" column that is submitted by the readers that deals with either hardware or observational hints and shortcuts that you think someone else might benefit from.

Not only as editor but also as a member of the board for the SJAA I welcome any comments, suggestions, requests or questions that you may have concerning the club and its activities. I don't guarantee that you'll get an answer but I do guarantee that it will be read.

My address:

TOM AHL (408) 997-1383  
1260 BUTTERFLY DR.  
SAN JOSE, CAL. 95120

UNTIL FURTHER NOTICE ENTRY, ENTRY DEADLINE WILL BE THE 15th OF EACH MONTH

On March 10 at our General Meeting at the University of Santa Clara which, in the February Bulletin, was listed as a "to be announced" we had as our guest speaker John Gleason, who is nationally known for his great astrophotographic shots. His talk this time was on Cold Cameras vs. Hypersensitized Film and what was new in the line of astrophotography.

I for one, being a complete novice to all this, found this to be quite interesting. If for nothing else, the slides and photos were (excuse the pun) out of this world. If I had the money I would have been tempted to go right out and buy a cold camera right then and there. Thank goodness, sometimes, for poverty. Needless to say, I'm looking forward to John's next scheduled time with us later this year.

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On behalf of Denni, I would like to extend our apologies to all of you concerning the lateness of the last bulletin. The bulletin was finished by the 2nd of March but due to uncontrollable circumstances it wasn't mailed until almost 2 weeks later. Once again, sorry for the inconvenience.

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Just a short little note concerning membership dues for new members just joining the SJAA. The dues are from July 1st to June 30th, and when new members sign up later during the year their dues will be prorated for the remaining months left. If a new member signs up within 4 months of renewal time Sky & Telescope requires that you also pay for next year's subscription. Any questions on this please contact Bob Fingerhut.

Anytime you want to increase your library of astronomy books, charts, catalogs, pictures, or etc., you might be able to save some money by ordering them through Bob Fingerhut. Come to any of our General or Indoor Star Parties and Bob will show you the latest catalog from Sky Publishing Co.

## DEEP SKY NOTES--APRIL

The constellation of LEO provides ample hunting grounds for novice to experienced galaxy seekers. Burnham's Celestial Handbook offers 71 galaxies down to magnitude 13 within the range of a 8" scope while the Revised New Catalogue (RNGC) list dozens more down to 15th magnitude within LEO's boundaries.

An excellent starting point is NGC 2903, easily located 1 1/2 degrees south of magnitude 4.5 Lambda. It is surprising to me that Messier and Mechain missed this large (13' x 6') galaxy, for at 9th magnitude it is brighter and more easily seen than many in the Messier list. My C8 at 100x reveals a brighter nuclear region elongated along the major axis and having a slightly mottled appearance. In January, I took a careful look in my Odyssey I at Digger Pines and noted a very faint extended knot along the northeast edge of the galaxy. Interestingly, when William Herschel discovered this galaxy he listed it as double (also NGC 2905) and probably he observed this enhancement in the spiral arms. A check in a friend's 16" confirmed this structure and added a second weaker enhancement on the south extension. Perhaps someone can confirm this?

A beautiful trio of galaxies-M65,66, & NGC 3628 can be located by pointing your scope midway between mag. 3.4 Theta and mag.4.0 Iota. At magnitude 9 and dimensions 9.5' x 2.3', M65 reminds me of a smaller, fainter version of M31. It is visible in my 8 x 50 finder and the C8 shows a considerably brighter nucleus. In the 13.1" Odyssey, the eastern edge of magnitude 4.5 93 LEONIS can be found the brightest member NGC 3842 at mag. 13.3. The cluster exhibits a similar redshift as the better known Coma Berenices cluster and studies show may form part of a supercluster. Using the finder chart in the Webb Society Handbook, Vol. 5, I identified 20 galaxies within 40' of NGC 3842 down to blue photographic magnitude 15.2 at Digger Pines on February 25th at 166x. I would like to hear of your results if you attempt this group. The 1950 coordinates are 11h 41.4m 20d13' for NGC 3842 and at least 150x is needed to distinguish the smaller members.

STEVE GOTTLIEB  
155 SAN CARLOS  
EL CERRITO, CA. 94530

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\*\*\*PLUS MANY MORE ACCESSORIES NOT INCLUDED IN THE ABOVE LIST

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PAUL MANCUSO  
946-0738

## COMET COMMENTS

BY

DON MACHHOLZ

Comet Crommelin fades in the evening sky this month while Comet Encke is now too close to the Sun to be visible. Comet Hartley-Iras becomes circumpolar this month, this comet had a 2.5-magnitude outburst in mid-March and became as bright as mag. 8. It is presently back at its "normal" brightness. Meanwhile, a returning comet has been recovered. In our Past Discoveries department, we'll look at the discovery magnitudes and elongations for both morning and evening finds.

Periodic Comet Neujmin 1 (1984C): A. Gilmore and P. Kilmartin of Mount John Observatory in New Zealand have recovered this comet at mag. 18 on Feb. 26. At that time it was basically of stellar appearance and in southern Scorpius. It will brighten to about magnitude 12 late this summer. It's orbital period is 18.2 years.

Halley's Comet on Apr.15,1984: RA: 05hr. 44.6m; DEC: +12deg 54.1'. Distance from Sun: 7.44AU. Distance from Earth: 7.81AU. Mag: 20.7.

## EPHEMERIDES

DATE	R.A.	DEC.	Elong.	Mag.	NOTES
<u>Periodic Comet Crommelin (1983n)</u>					
03-31	05h 06.8m	-16d16'	70d	10.4	Now moving away from both the Sun and Earth, this object decreases in brightness. This is your last time to see Comet Crommelin for about 27 years.
04-05	05h 38.9m	-17d32'	74d	10.7	
04-10	06h 10.0m	-18d27'	78d	11.0	
04-15	06h 39.7m	-19d03'	81d	11.4	
04-20	07h 07.6m	-19d22'	84d	11.7	
04-25	07h 33.6m	-19d29'	86d	12.0	
04-30	07h 57.6m	-19d27'	88d	12.4	
05-05	08h 19.8m	-19d18'	89d	12.7	
05-10	08h 40.2m	-19d06'	90d	13.0	

<u>Periodic Comet Hartley-IRAS (1983v)</u>					
03-31	20h 17.0m	+62d38'	75d	11.1	Following an outburst in March, it's a good idea to check this comet regularly. It is moving at about 0.8 deg./day, being in the Little Dipper and near the North Star in late April.
04-05	20h 00.4m	+66d56'	78d	11.2	
04-10	19h 34.1m	+71d07'	81d	11.3	
04-15	18h 51.2m	+74d56'	83d	11.5	
04-20	17h 41.7m	+77d48'	85d	11.6	
04-25	16h 05.2m	+78d54'	87d	11.7	
04-30	14h 30.7m	+77d46'	88d	11.9	
05-05	13h 24.4m	+75d01'	88d	12.0	
05-10	12h 43.9m	+71d31'	88d	12.2	

## PAST DISCOVERIES

Looking at the 17 comets found in the morning sky by amateur astronomers between 1975 and 1983, we find the average magnitude was 8.40 (+/- 2.03). For the same group of comets we learn that the average elongation (the number of degrees from the Sun as seen from the Earth) was 58.0d (+/- 29.0d).

Evening comet are not only fainter when discovered, but are also at greater elongation when discovered. For the 11 amateur discoveries made in this time period, the average magnitude was 10.07 (+/- 0.76) and the average elongation was 65.3d (+/- 27.8d).

## COMET COMMENTS

### Past Discoveries (cont'd)

Listed below is the breakdown of the magnitudes and elongations of the 28 comets discovered by amateurs between 1975-1983.

ELONG. RANGE	# COMETS	AVE. MAG.	STD. DIV.	MAG. RANGE
MORNING COMETS				
000-060	10	7.66	+/-1.82	5.0-10.0
061-120	6	9.82	+/-1.87	6.4-12.0
121-180	1	7.30	-----	7.3
ALL	17	8.40	+/-2.03	5.0-12.0
EVENING COMETS				
000-060	4	9.53	+/-0.50	9.0-10.0
061-120	6	10.45	+/-0.78	9.5-12.0
121-180	1	10.00	-----	10.0
ALL	11	10.07	+/-0.76	9.0-12.0

Don Machholz (408) 448-7077

---

### THREE DAYS, FORTY-FIVE MINUTES AND FIVE SECONDS

There are three things I've learned in all my years of comet hunting, and they can be easily remembered by memorizing the silly title to this article. So first memorize it and then read on.

**THREE DAYS:** Did you know that for three days after a heavy rain, the summit of Loma Prieta, in the Santa Cruz Mtns., in California, remain cloudy with night-time fog and low clouds. I didn't. Then one night someone stopped by to look through the telescope and mentioned this to me. Ever since that night I have noticed this to be true for this particular peak, and I suppose it also holds true for high mountains all over the country. One way to avoid it is to observe from the flatlands or from the downslope side of the mountain during these nights.

**FORTY-FIVE MINUTES:** Let's imagine you are observing from your favorite site, and clouds start moving in. How long do you wait until you pack it up and call it a night? Five minutes? Two hours? Ten seconds? Well, I've found that if it doesn't clear up in forty-five minutes, you can pretty much bet that it isn't going to clear up at all and you might as well go home and brush up on your sleep. And this seems to apply to high clouds as well as low clouds. So what are you waiting for? Go home! And besides, there are dangers to staying at the observing site in cloudy weather—a rain storm could wash out the roads, a snow storm could snow you in, or a well-placed lightning bolt could melt your telescope!

**FIVE SECONDS:** This one is easy. When I'm out observing and I take off my gloves, my hands will begin stinging in (you've guessed it) five seconds IF the temperature is below 32 degrees AND the wind is blowing. Do you find that this happens to you too? I bet it does but you have just never noticed it before. But now that you have read this, next time it will stick out like a sore thumb.

Don Machholz (408) 448-7077

SPACE PROGRAM UPDATE  
BY  
BOB FINGERHUT

LANDSAT 5 LAUNCHED - The Landsat 5 spacecraft was launched March 1st from Vandenberg on a Delta 3920 launch vehicle. The Earth resources satellite has since deployed its antenna for communicating with the tracking and data relay satellite system (TDRSS).

INTELSAT 5 F8 LAUNCHED ON ARIANE 8 - The third consecutive successful launch of Europe's Ariane has placed the Intelsat 5 F8 communication satellite into a geostationary transfer orbit. The launch on March 4 was from Kourou, French Guiana. This was the last test/promotional launch. The Ariane has now been cleared for commercial operations. The first commercial launch is scheduled for early May and will carry the Spacenet 1 communications satellite.

ARIANE 3 AND 4 DEVELOPMENT PROGRESSING - The growth versions of Europe's Ariane launch vehicle are progressing through development. The Ariane 3 is a stretched version of the Ariane 1 and uses two solid strap-ons to increase its payload lift capacity. Its first flight is scheduled for July. The first flight of the Ariane 4 heavy-lift launcher is scheduled for March 1986. Arianespace, the commercial marketing and management organization for Ariane, has now scheduled 30 missions for Ariane through 1987. They have planned four more launches in 1984, eight in 1985, seven in 1986, and ten in 1987. A manned Ariane 5 configuration is a future possibility.

EUROPE CONSIDERING FUTURE LAUNCHER AND SPACE STATION PLANS - The member nations of the European Space Agency will be considering, during the next few months, their plans for a follow on to the Ariane launcher family and development of space station elements to be used with the U.S. space station.

They are considering the development of a large cryogenic engine with a thrust of 198,000 - 220,400 lbs. with the new engine, the new Ariane would be capable of placing 26,500 - 33,000 lbs. into low Earth orbit. The new Ariane would be capable of launching a small manned shuttle vehicle called Hermes which the Europeans have been studying. The new vehicle would be ready in the mid-1990's.

Europe is keeping open the option of participating in the U.S. space station program or undertaking an all-European approach. West Germany and Italy have prepared a space station proposal for a program called Columbus, which would use technology from Spacelab, ESA's Eureka and the West German SPAS free-flying platforms.

NEXT SHUTTLE FLIGHT SCHEDULED FOR APRIL 6 - The mission of Challenger to repair the Solar Maximum satellite and deploy the Long Duration Exposure Facility is now planned for April 6.

COMET KOPFF TARGETED FOR NASA RENDEZVOUS SPACECRAFT - NASA's comet rendezvous science working group has recommended that a Mariner MK. 2 spacecraft be sent to rendezvous with comet Kopff. The spacecraft would be launched from the space shuttle in July 1990. Comet Kopff orbits the sun every 6.5 years. The spacecraft would fly with the comet for several years and come within 10 km of it. The mission could also provide a flyby of the asteroids Namagua and Lucia.



## SPACE UPDATE(cont'd)

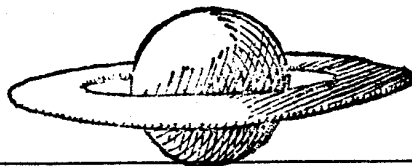
JPL SET TO INTEGRATE THE GALILEO JUPITER PROBE WITH THE ORBITER - The probe has recently passed a series of tests to verify system performance including: vibration testing, thermal vacuum chamber tests, deceleration tests, and temperature and pressure simulations.

The Galileo spacecraft is scheduled to be launched from the space shuttle on a Centaur modified upper stage in May 1986. It will encounter Jupiter in August 1988, and remain in orbit above Jupiter for 20 months.

FIRE AT THE SHUTTLE SOLID ROCKET MOTOR FACILITY - A fire at the Thiccol plant has caused considerable damage to the space shuttle solid rocket motor casting facility. It will not affect the shuttle program because the plant was scheduled to be shut down for a year for modernization. A substitute casting facility will be available in 30 - 60 days and there are six pairs of shuttle solid rocket motors in storage.

747 SHUTTLE CARRIER REFUELING TESTS SUSPENDED - Simulated inflight refueling tests of the NASA 747 shuttle carrier were suspended due to hairline cracks discovered on the 747's tail structure following the first two test flights. The cracks were probably the result of intense turbulence encountered in the vortices of the KC-10 and KC-135 tankers.

AIR FORCE WANTS A NEW EXPENDABLE BOOSTER - The Air Force wants to build an unmanned expendable booster to backup the space shuttle. They plan two flights a year in addition to 8-10 shuttle launches a year. The new vehicle would have to be capable of placing 10,000 lbs. into geosynchronous orbit. They are considering new versions of the Titan Centaur and Atlas Centaur. The Titan Centaur would have a stretched Titan core, 7 seven-segment solid rocket motors instead of the T-34D's 5.5, and a hybrid of the Centaur G/G-prime which are now being developed. It could accomodate a payload 40 feet long and 145 feet in diameter.



EPHEMERIS is published monthly by the San Jose Astronomical Association, 3905 Calico Ave., San Jose, Ca, 95124

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Commercial ads are priced according to size and may be placed by contacting:  
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Helix Nebula NGC 753 in Aquarius. This faint nebula is seen best visually with a LUMICON UHC Filter. Photo by Dr. J. Marling using a LUMICON DEEP-SKY Filter and hypered 2415 film prepared in a LUMICON Model 300 HYPER-KIT. 40 min exp on an 8" 1/4.5 telescope using a LUMICON Newtonian EASY-GUIDER.

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## of the universe

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via an extraordinary collection of slides featuring the latest color photographs from space probes and the world's largest telescopes! Sit back and relax while our host Andrew Fraknoi takes us through our solar neighborhood and beyond - to the edge of the known universe!

Andrew Fraknoi is the Executive Officer of the Astronomical Society of the Pacific, editor of *MERCURY*, part time professor of astronomy and physics at San Francisco State University, author of two books and numerous articles on astronomy education, recipient of the Astronomical Association of Northern California's Award of Merit, and host of KGO's radio talk show "Exploring the Universe".

Educated at Harvard and the University of California at Berkeley, Mr. Fraknoi brings wit and charm to his lucid explanations of modern astronomy which will focus on the place of mankind in the vastness of the universe.

Sunday  
May 6, 1984

Elk's Lodge, 4249 El Camino Real, Palo Alto

- 5:30pm to 6:00pm - No Host Cocktails and Telescope Display ★
- 6:00pm to 7:00pm - "Galileo Pasta" Buffet Dinner
- 7:00pm to 7:15pm - Drawing for Door Prize !!Binoculars!!
- 7:15pm to 8:15pm - "A Grand Tour of the Universe" with Andrew Fraknoi
- 8:15pm to ???pm - Star Party (hands-on viewing through the telescopes)

★ The telescope display and door prize are courtesy of Peninsula Scientific of Palo Alto.

YES! I would like to attend! Please send me \_\_\_\_\_ adult reservations at \$17.50 for a total of \_\_\_\_\_  
and \_\_\_\_\_ student reservations at \$15.00 for a total of \_\_\_\_\_  
Total amount enclosed \_\_\_\_\_

Name \_\_\_\_\_ address \_\_\_\_\_  
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Please make checks payable to The Children's Health Council Auxiliary, and mail to:

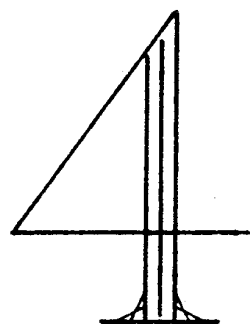
Joan Dutton  
The Children's Health Council  
700 Willow Road  
Palo Alto, 94304

Your reservations will be held at the door. No refunds or reservations will be made after May 1st.

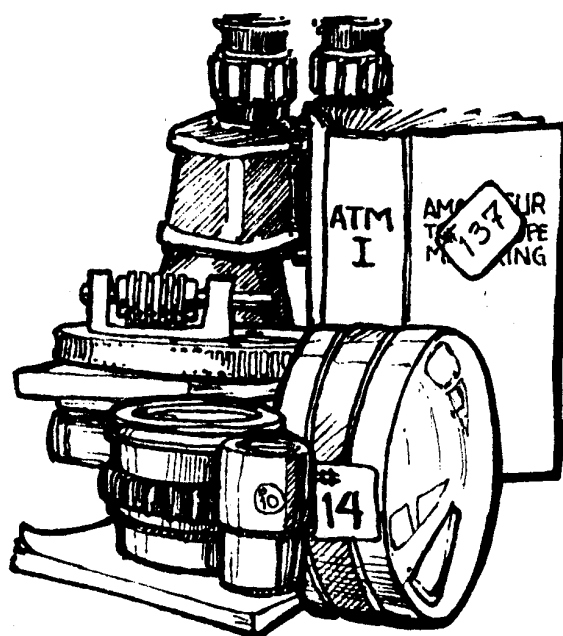
The Children's Health Council and the Astronomical Society of the Pacific are non-profit organizations benefiting your community. \$10.00 of an adult reservation and \$7.50 of a student reservation is a tax deductible contribution.

★ For further information call (415) 326-5530 ex.257 ★

THE



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# ANNUAL ASTRONOMICAL AUCTION

**PRESENTED BY  
THE SAN JOSE ASTRONOMICAL ASSOCIATION**

APRIL 14, 1984

Los Gatos Red Cross building  
18011 Los Gatos-Saratoga Rd.

Registration 10 AM - 2 PM  
Auction begins at 2 PM

IT'S BACK AND THIS YEAR IT'S BIGGER THAN EVER! TELESCOPES, BOOKS, CAMERA EQUIPMENT, EYEPIECES, TRIPODS, STAR CHARTS, PHOTOGRAPHS, MOUNTINGS, MIRRORS, LENSES, CELLS, CLOCK DRIVES, SPACE ART, FINDERS, TUBES, DIAGONALS..... you name it - it's likely to be there. So check your garage and closets for anything astronomical you would like to sell. Complete pre-registration information and form are on back. Anyone can buy and sell! It's fun and it's easy!

SEE YOU THERE!

## PRE-REGISTRATION INFORMATION

Auction approaching! Soon it's April 14. Start looking around for things not earning their space, or brought back from Riverside, or whatever is astronomical or telescope making related.

Remeber the registration delays last year, late start, and all? No more!  
The answer is: PRE-REGISTRATION.

Fill out the form or a copy of it. List each different item you have. If you have several identical items, use a single line and put in the quantity. Give a minimum price, even if you are willing to let it go really cheap. Indicate the percentage to go to the SJAA, minimum 10%. If you didn't pay much for it, anyway, you may wish to make it an outright donation, Thank You.

Next and MOST important: mail the form, with a SASE, to Jim at 3509 Calico Ave., San Jose, CA. 94124. You might keep a copy of it, too. Jim will assign your bidder/seller and item numbers, and will get the form back to you, quickly. (That's a promise).

You will then have the numbers to label everything before the day of the auction. Use stickers to indicate the item number, at least. If you have large labels, include the minimum bid, too.

If you find another box of things, just send in another form. Include the bidder number from the first one. If you find more of something you'd already registered, give the number from the first, indicate the number to be added, and give the same description.

If you don't include the SASE, Jim will assign the numbers and hold the form. You can pick it up when you arrive at the auction and get busy labeling your goodies then.

In any case, Jim will have all the stuff hammered into the computer before auction day, so there will be no backlog and, for those who pre-register, no delays. Priority on auction day will be given to assigning bidder numbers -- item registration will be done as time permits. So get the forms to Jim -- don't wait until the last week.

Directions to the auction:

Take Highway 17 south towards Santa Cruz. Take the Highway 9 (Los-Gatos Saratoga Rd) exit and continue onto Los Gatos-Saratoga Rd. Travel about a mile to Rose Avenue and turn right. Turn right immediately into the Red Cross building's parking lot. Plenty of parking and easy loading and unloading access!

There will be a \$1 bidder/seller registration fee at the door.

[illegible]