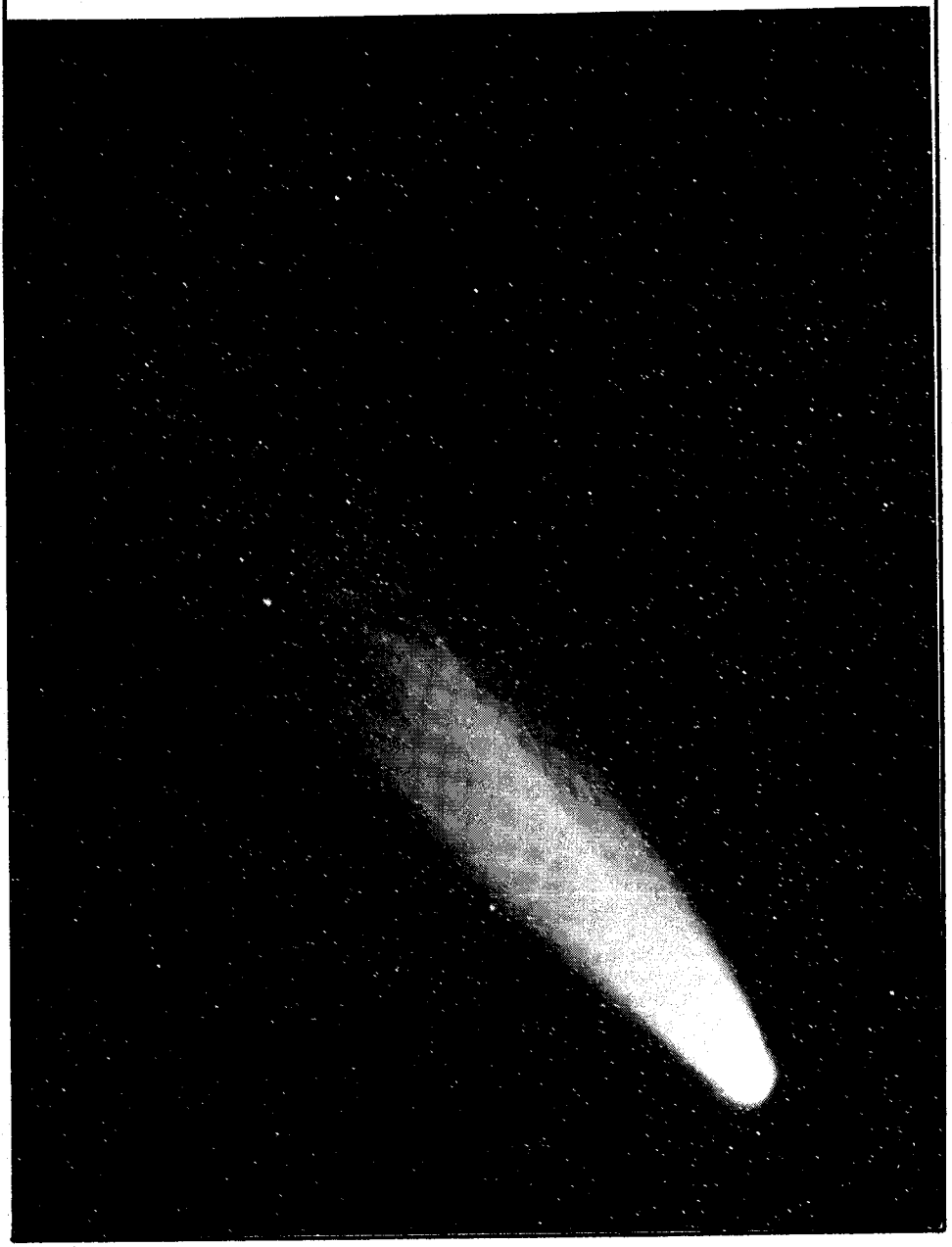
DECEMBER '83

SJAA

EPHEMERIS



Observations

Upcoming Events

For the December General Meeting the SJAA membership will be treated to an encore presentation by Ernie Piini of his "Eclispe over Java" slide show. Ernie will expand on his October talk and give us what should be a beautiful travelogue from his June eclipse experience.

Being an accomplished solar eclipse chaser with hours of shadow time recorded, Ernie assembles his own data gathering packages for use during an eclipse. These experiments are varied and range from a portable weather station to a "light box" which emits an audible signal, the strength of which is relative to the amount of light being received by its sensors.

So, come hear Ernie talk about these experiments and show the slides of the beautiful and facsinating lands of Java and Thailand that he travelled through to reach the eclipse path. The general meeting will be Dec. 17, at 8 PM in room 102 of the Alumni Science Hall, University of Santa Clara.

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Another star party will be held December 3 at the Grant Ranch County Park on Mt. Hamiton Road. From all reports the November 5 star party there was a success, with (according to Jim Eiselt) about 20-25 club members attending, many of whom had not been recently seen at Fremont Peak or Coe, and apparently like the closeness of the site. The skies were clear, though later on in the evening the Celestrons had to contend with dewing. That seems to be a common problem this time of year.

If you missed trying our new site last time here's another opportunity. Grant Ranch Park is located on Mt. Hamilton Rd., halfway between San Jose and Lick Observatory. After dark the main gate will be locked but the SJAA combination lock will be on it and can be opened using 4565. Please lock and close after yourself, coming and going.

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Because of other commitments, Wayne Rosing has decided to resign his SJAA board position. At the November board meeting the board voted Jim Eiselt in to fill the remainder of Wayne's two year term. Many thanks to Wayne for his continuing support, and welcome, Jim!

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The SJAA notes with sadness the passing this last November of Mrs. Jean Gregory (Mrs. A. B. Gregory), a long time friend and supportor of the club. Since the death of her husband, Boris, in 1979, she continued his interest and support of SJAA activities, and was a friend to many of us.

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New members:

Elizabeth Ann Schumacher, born November 6, 1983. 6lbs, 6 ozs. Congratulations, Fred and Julie!

Megan Lisa Medlock, born November 14, 1983, 7 lbs, 7ozs. Congratulations, Kevin and Denni!
(Editor's note: many thanks to Shea Pratt for being there giving support to both of us during the birth.)

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Ending Notes:

Many thanks to the contributors this month. All others -- feel free to write about anything astronomical and send it in. Also, I need black and white photos for the cover. I've run out!

Clear skies,

Denni

ADS

For Sale: C-8 with 8 X 50 right angle finder, special coatings, altitude adjusters, Barlow and 25mm eyepiece, tripod, clock drive. Asking $850. Contact Ken Gardner at (408) 266-4616.

****

For Sale: Tube for 6" mirror, 48" focallength - $12.00; Brandon 5 piece ocular set with wood case and 4 filters - $200.00; Meade variable barlow -$30.00; Eeyepieces - 12mm Celestron Ortho - $18.00, 40mm Celestron Kelner $12.00, 25mm Celestron Kelner - $12.00; richest field finder for Celestron- $75.00; Tuthill pole finder - $35.00; C-8 latitude adjuster - $25.00; 32mm Konig eyepiece - $40.00; 8X50 University finder with Celestron bracket -$50; 2X elbow scope with illuminated reticle - $3.00.

Contact Jim Eiselt at (408) 984-8687.

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For Sale: C-90 with star diagonal, porro prism, 4 eyepieces, right angle finder and case. $375.

Celestron 11 X 80 binoculars. List $289, sale for $200.

Contact Paul Hotaling at (408) 287-8827

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For Sale: 12½" RITCHEY-CHRETIEN. Transportable astro-photo telescope. f/8 and f/17 secondaries, 2" focuser, very heavyGerman mount with 2" stainless shafts. Byers 10" clock drive and declination drive and circles. $1800, or $1950 with quartz digital drive corrector.
Contact Jim Baumgardt at (415) 579-3621 days, (415) 347-2267 eves and wkends.

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Need artistic astronomer to make cartoon type line drawings of astronomical and human subjects. These will be used to illustrate an article for "Astronomy" magazine. I will split the proceeds 50/50 and will, of course, credit the artist in the article. I have been published before and have a good rapport with the editor.
Contact Jim Baumgardt at (415) 579-3621 days, or (415) 347-2267 eves and wkends.

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Found at the Nov. 5 star party at Grant Park: Dust plug for polaris sighting hole in a Celestron German equatorial mount supporting C-8. I forgot owner's name. Please call Bill Dillenges at (415)792-9206 to claim.

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Concerning want ads: Any SJAA member or friend may place an astronomically related ad in the Ephemeris. Ads will run for two months unless the editor is requested otherwise. To place an ad, call Denni at (415) 654-5796 anytime, or send to 15022 Broadway Terrace, Oakland, Ca. 94611.

The Astronomical Society of the Pacific has just published its 1984 Selectory, a catalog including slides, prints, maps, posters, books, tapes, sky observing aids, T-shirts, and bumper stickers. For a free copy of the illustrated catalog please send two first class stamps with your name and address to: Catalog, A.S.P., 1290 24th Ave., San Francisco, Ca. 94122

SJAA Board Meeting Agenda -- December 10, 1983, Indoor star Party

Old Business:

1. Calendar
2. Treasurer's Report
3. January Meeting
4. Legal Status Report
5. Replacement for Denni Frerichs as Bulletin Editor

New Business:

1. Club Brochures
2. Kevin's Observatory Pledge Proposal
3. Preliminary Planning for Auction

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The SJAA Board meetings are open to everyone with an interest in the club. The meetings were recently moved to the indoor star parties from board member's homes so that members would have easier access to them. This, along with publishing the board meeting agenda in the Ephemeris, is intended to inform the membership of the subjects being talked about and decided on. Input from the membership is needed and always welcomed. Please plan to attend a board meeting in the future.

PRESIDENT'S SOAPBOX

The holidays are once again upon us. Orion can be seen during civilized hours. Mothballs get shaken from mittens as fingers begin freezing up. Astronomy catalogs with circled items begin appearing on the coffee table as we try to aviod yet another green tie. Such are the joys of the winter solstice.

The end of the year seems like a good time to pause and reflect on where we are, and where we are going.

Our application for tax exempt status is progressing well. With this status, any contributions will be deductible from personal income tax. Already we are getting offers of donations.If all goes well, we should have our application approved before June.

The board has been devoting a great deal of attention to our standing with the IRS. However, this is just the first step towards the larger goal of a permanent observing and meeting site. This project has been in the works for a long time abd we are beginning to see substantial progress.

Our membership renewal rate is above 95 percent. In addition, as the year progresses, we keep adding new members. I have to believe that we are doing something right. Maybe it's our bulletin. Perhaps the meetings? To be honest, I don't know what it is. I hope that you, the members, let us know what you do like and what you don't.

This club is definity getting large. I'm sorry to say that I don't know all of you. One of the problems with an organization like ours is keeping in touch. I'd like to hear about you and your interests. We tend to be a talkative bunch. But persevere and you shall be rewarded by open ears and minds.

Before I close, I would like to wish you all a very happy holiday season and a prosperous new year.

Clear Skies,

Dave Ambrose

NOTICE TO THE MEMBERSHIP OF PROPOSED
CHANGES IN THE ARTICLES OF INCORPORATION

On November 19, 1983, the Board of Directors approved new articles of incorporation. Text of our new articles is printed below. These changes are required if we are to obtain tax exempt status from the IRS. The new articles are substantially the same as our current articles except they cite the appropriate sections of the Tax Code. They should cause few, if any, changes to our activities or operations.

According to our By-laws, all changes to corporate documents must be ratified by the membership. We will be voting on these changes at the January general meeting. If you have any questions of comments, please feel free to contact myself or any board member.

Respectfully submitted,
David L. Ambrose

CERTIFICATE OF AMENDMENT

OF

ARTICLES OF INCORPORATION

DAVID AMBROSE AND JAMES VAN NULAND certify that:

1. They are the president and the secretary, respectively, of SAN JOSE ASTRONOMICAL ASSOCIATION, a California Corporation.

2. The Articles of Incorporation of this corporation are amended in full to read as follows:

I

The name of this corporation is SAN JOSE ASTRONOMICAL ASSOCIATION.

II

A. This corporation is a nonprofit public benefit corporation and is not organized for the private gain of any person. It is organized under the Nonprofit Public Benefit Corporation Law for public purposes.

B. The specific purpose of this corporation is to further public knowledge and to engage in scientific research in the field of Astronomy.

III

This Corporation elects to be governed by all of the provision of the Nonprofit Corporation Law not otherwise applicable to it under Part 5 thereof.

IV

A. This corporation is organized and operated exclusively for public purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code.

B. Notwithstanding any other provision of these articles, the corporation shall not carry on any other activities not

permitted to be carried on (a) by a corporation exempt from federal income tax under Section 501(c) (3) of the Internal Revenue Code or (b) by a corporation contributions to which are deductible under Section 170(c)(2) of the Internal Revenue Code.

C. No substantial part of the activities of this corporation shall consist of carrying on propaganda, or otherwise attempting to influence legislation, and the corporation shall not participate or intervene in any political campaign (including the publishing or distribution of statements) on behalf of any candidate for public office.

V

The property of this corporation is irrevocaably dedicated to public purposes and no part of the net income or assets of this corporation shall ever inure to the benefit of any director, officer or member thereof or to the benefit of any private person. Upon the dissolution or winding up of the corporation, its assets remaining after payment, or provision for payment, of all debts and liabilities of this corporation shall be distributed to a nonprofit fund, foundation or corporation which is organized and operated exclusively for public purposes and which has established its tax exempt status under Section 501(c)(3) of the Internal Revenue Code.

3. The foregoing amendment of articles of incorporation has been duly approved by the board of directors.

4. The foregoing amendment of articles of incorporation has been duly approved by the required vote of members.

_____
DAVID AMBROSE

_____
JAMES VAN NULAND

The undersigned declare under penalty of perjury that the matters set forth in the foregoing certificate are true of their own knowledge.

Executed at _____ on _____

_____
DAVID AMBROSE

_____
JAMES VAN NULAND

Commercial ads are priced according to size and may be placed by contacting: Gene Cisneros at (408) 923-6800.

CALENDAR

Dec. 3 Star Party at the Grant Ranch County Park on Mt. Hamilton Road. If you didn't get a chance to try out this new site in November, try it now! If the main gate is locked, the SJAA combination lock will be on it. Use 4565 to unlock. Always close and lock gate after you.

Dec. 10 Indoor star party at the Los Gatos Red Cross Building. 7:30 PM. Informal conversations, slides, food, and a parking lot star party if it's clear. The SJAA Board Meeting will take place at 8 PM. Everyone welcome to attend both events.

Dec. 12 Grazing occultation of the star 30 Piscium at 10:24 PM PST. Magnitude 4.7 against a 56% sunlit first quarter Moon at altitude 23°. The path crosses Chabot Observatory and an organized graze team will be setting up there. If you are interested in joining please call Mark Gingrich at 351-6828.

Dec. 17 SJAA General Meeting at the University of Santa Clara, room 102 of the Alumni Science Hall. 8:00 PM. Our speaker will be Ernie Piini with an expanded encore presentation of "Eclispe Over Java".

THERE WILL BE NO PLANNED SJAA ACTIVITIES OVER THE HOLIDAYS! HAVE A JOYFUL AND SAFE NEW YEAR'S!

Jan. 7 Indoor star party at the Los Gatos Red Cross Building. 7:30 on. There will be a star party in the parking lot with all those Christmas goodies provided the weather cooperates!

Jan. 14 SJAA General Meeting at the University of Santa Clara. Speaker and subject to be announced in the January Ephemeris.

Jan. 21 Indoor star party at the Los Gatos Red Cross Building. 7:30 PM on. SJAA Board meeting 8:00 PM. Everyone welcome to attend.

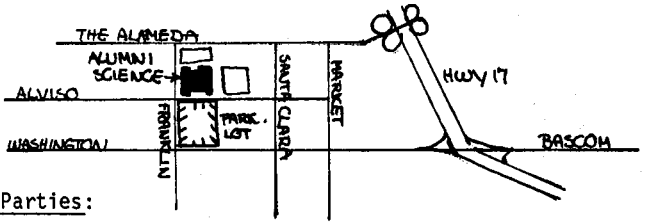
Jan. 28 Star party, site to be announced.

DIRECTIONS AND MAPS TO ALL REGULAR SJAA ACTIVITIES ARE LOCATED ON BACK

DIRECTIONS & MAPS TO ALL SJAA REGULAR EVENTS

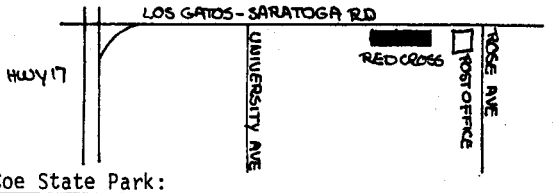
General meetings:

University of Santa Clara, Alumni Science Hall, room 102
Heading north on Hwy 17, exit at Bascum/Washington Ave (north), proceed to Franklin, then turn right.
Heading south on Hwy 17, exit at the Alameda (north), proceed to Franklin, then turn left.
Go two blocks and turn left into parking lot. Alumni Science Hall is the 3 story building that borders the east end of the lot. Room 102 is on the ground floor and is best gotten to by entering the first door on the right side of the building when walking in from the parking lot.



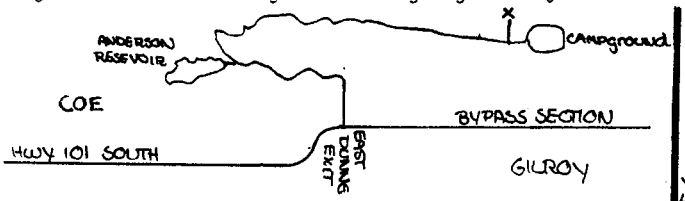
Indoor Star Parties:

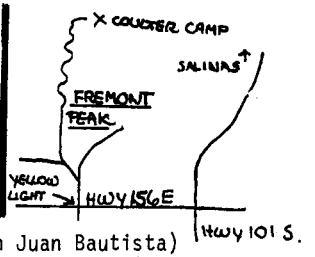
Los Gatos Red Cross Building, 18011 Los Gatos-Saratoga Rd., Los Gatos
From Hwy 17 south take the Hwy 9 (Saratoga) exit and continue up Los Gatos-Saratoga Rd. for about 1.5 miles. Turn right at Rose Ave., and turn right immediately into the parking lot of the Red Cross Building.



Henry Coe State Park:

Take Hwy 101 south towards Gilroy and take the East Dunne exit. Continue east towards the hills (past Anderson Reservior) for about twelve miles to the park. Past the park entrance you will see old ranch buildings on the right and a horse trough on the left. The gate to the SJAA site is on a dirt road just before the trough. The gate is locked but the club combination is 4565. Always lock the gate after yourself. If arriving after dark, please park outside 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. Take Hwy 156 East (San Juan Bautista) for two miles to a yellow flashing light. Turn right and go about ¼ mile to were road curves slightly to left and splits. Stay left for about 50 yards and then bear right when road splits again. Follow road for about 11 miles into park. SJAA sets up at Coulter Camp overflow area - it's visible as you drive up into main area of camp. Parking lights after dark, please.

THE VISIBILIY OF DEEP-SKY OBJECTS
by Fred Klein

(A book review by Don Machholz)

When Fred Klein produced "A New List of 450 Deep-Sky Objects for Amateur Telescopes" in 1981 he introduced a clever and useful method of rating deep-sky objects by "visibility" -- a one digit number indicating how easy or difficult an object is to see. In his most recent release: "The Visibility of Deep-Sky Objects," Dr. Klein carries this idea to an additional 20000 objects.

"The Visibility of Deep-Sky Objects" comes in five volumes, for a total of 283 pages. Volume 1 lists 564 objects, 42% of them being multiple star systems and red stars, the remainder being clusters, nebulae of all types, and galaxies. For each listing, Klein presents the object's number and/or name, type, constellation, position for both years 1950 and 2000, magnitude, size (or seperation), the chart number for the "Atlas of the Heavens" and for "Tirion's Sky Atlas 2000", a short description, a reference for further information, the visibility of the objects, and finally, the author's rating with an 8", f/10 telescope at 100X. These last two categories are of particular interest. For extended objects the visibility is a function of the object's size and magnitude -- an indication of surface brightness. For multiple star systems this number is related to star brightness and seperation, plus inequality of the stars involved. These ratings will give you some idea of what to expect. The author's personal rating gives you an idea of what you can expect to see using a similar scope. Klein correctly points out in the introduction that scopes of different aperture and focal ratio may have more trouble with one type of object of a certain rating than with another type object of the same rating.

While Volume 1 covers the brightest and the best, Volumes 2 and 3 handle a total of 2497 objects. Included in these are the 564 objects of Volume 1, with Volume 3 carrying only galaxies (an ample 1270 pf them) and Volume 2 carrying the other types of objects. Once again, the same data are given for these nearly-2500 objects as in the first volume.

Volumes 4 and 5 list these 2497 objects by chart of the "Tirion Sky Atlas 2000", with Volume 4 taking the first 14 charts and Volume 5 taking the remaining13 charts. The data listed are the same as in the second and third volume.

Observers in the Southern Hemisphere will find plenty of objects in their skies listed here. The beginner can quickly learn which objects are easiest to observe and begin with these. The advanced amateur will find an inexhaustible list of the more difficult and lesser-known challenging objects.

The booklets come in paperback form, easily lay flat, and are useful at both the desk and the telescope. The total package costs $28.95 and is available from:

Klein Publications
12225 Magdalena
Los Altos, California
94022

This is a series which will be useful for many years to come.

Don Machholz
(408) 448-7077

(Editor's note: This set sounds like the ideal Christmas present for the amateur astronomer in the house!)

COMET COMMENTS

BY DON MACHHOLZ

No new comets have been recovered or discovered recently, but one comet remains in our evening sky in the southern sky. In our Past Discovery section we look at three comets discovered in past Decembers, two being by Bradfield and one by an English amateur.

PAST DISCOVERIES

Comet Bradfield (1979L); William Bradfield of Australia discovered this comet on Monday morning, December 24, 1979 with his 6", f/5.5 refractor. This was his tenth comet discovery - he has since found one more. It was found 67 search hours since his previous discovery. The moon was five days past new phases. The Comet was magnitude 5 and 27 degrees from the sun. Its position was at 16hr, 19.0m, -35° 20'.

This comet, if its prediscovery light curve was normal, could have been discovered in the Northern Hemisphere sky in the evening. On August 5, 1979, more than four months before discovery, this object was at magnitude 12.0 and located in Pegasus, 10 degrees north of M 15. A month later it had brightened to magnitude 10.7 and had moved to 19hr, 40m, +13°. By this time it should have been discoverable in most scopes. A month later it had brightened to 9.9 magnitude and moved to an area near M 11. This comet brightened and remained undiscovered while it brightened to magnitude 8.8 on November 3rd, when it was located near M 9. From this time onward the comet neared the Sun and remained in its glare until it emerged into the sourthern, morning sky. It seems as though this comet was discoverable but undetected for more than four months in the evening, northern sky. Why wasn't it discovered earlier?

On the evening of November 9 I swept this area, picking up M 9 and Gc 6356, but not seeing the comet, one degree south and at (supposedly) magnitude 8.4 and 35° from the Sun. This area was only a few degrees off the horizon - the comet would have been difficult but probably visible if it were the same magnitude as predicted. It seems likely that this comet brightened rapidly before discovery.

Following the discovery, the comet raced southward and brightened to magnitude 3. It then moved northward and was a faint naked-eye object in our evening sky in January, 1980. With an orbital period of 293 years, it should return in the year 2272.

Comet Bradfield (1980t); William Bradfield discovered his eleventh comet on Wednesday morning, December 17, 1980, using a pair of 7X35 binoculars. He has found no comets since that day. The moon was three days past first quarter and the comet was at 16hr 20.0m, -36° 16', only about one degree from the position of his previous discovery position. The comet was magnitude 6.0 and only 22 degrees from the Sun.

This fast-moving comet raced through the southern sky before discovery, from the evening to the morning sky, passing 16 degrees due south of the Sun on November 19. At magnitude 10.7 it was an impossible object to see. Prior to this date it was also a difficult object. Moving now into the morning sky, it brightened and pulled away from the Sun. On its discovery date it was at its first easily discoverable position. William Bradfield writes that this discovery was "a combination of method and luck." The first available (moon-free) date for sweeping was December 6, but clouds prevented observation until December 17. On that morning, after 1½ hours of sweeping he turned from his six-inch scope to his 7X35 binoculars. Suddenly he spotted this object, near the threshold of visibility. He swung his telescope to the area and saw a sixth magnitude comet with a tail.

The comet moved back towards the Sun, then into our evening sky where

it was visible with a 3° tail low in the western sky. My wife and I both viewed this in a six-inch reflector and she stated this was the first comet she had ever seen which really looked like a comet. This comet seemed to flare during this time, brightening by one magnitude in a matter of hours.

Comet Panther (1980u); Roy Panther discovered this comet on Thursday evening, December 25, 19880, using a 8", f/4 reflector at 35X. Roy had begun sweeping for comets on July 22, 1947, and swept 601½ hours in 699 nights before finding this, his first comet. It was magnitude 10.0 and 63 degrees from the Sun at 18hr, 46.7m, +38°, 54', only a few degrees from the star Vega. The Moon was four days after full.

Assuming this comet followed a normal brightness curve, the comet could have been discovered for nearly four months before it was actually seen, when it traveled through Cygnus towards Lyra. It would have been brighter than magnitude 11.7 and brightening steadily. Why wasn't it seen sooner?

The answer seens to be found in two reports which appeared in Sky and Telescope magazine in the months following the discovery. They reort that the comet was photographed before discovery, showing it at magnitude 12.5 on October 28 and magnitude 10.3 on November 26. So the comet brightened very rapidly during November, not being easily discoverable until late November through late-December/ Poor weather and its far distance from the Sun (greater than 60 degrees, an area where comet hunters usually do not sweep) prevented discovery earlier.

Comet Ephemeris

Comet Cernis (1983L)

Date (UT)	R.A.	Dec.	Est. Mag.	
11-22	23:57.7	-29°19'	10.9	This comet is more than 3 AU
12-02	23:47.9	-30 10	11.1	from both Earth & Sun, as it's
12-12	23:41.2	-30 39	11.3	in the constellation Sculptor.
12-22	23:37.2	-30 38	11.5	Positions from IAU Circular
01-01	23:35.4	-30 57	11.6	3869

Don Machholz
(408) 448-7077

SPACE PROGRAM UPDATE

BY BOB FINGERHUT

Shuttle STS-9/Spacelab Rescheduled for Nov. 28.

The rocket segment containing the faulty nozzle insulation, which caused the delay of the first Spacelab mission, has been replaced. The shuttle vehicle has been restacked and rolled out to the launch pad. A decision was made to launch on November 28 even though 7 of the 38 experiments on board will have reduced scientific data gathering capability due to orbit lighting conditions in late November. Five of the seven instruments affected will be reflown on the Spacelab Environmental Observation Mission, which will be moved up from December, 1986 to June 25, 1985.

Venusian Surface Scanned by Radar

Both the United States and the Soviets have been imaging the surface of Venus with radar. Two Soviet spacecraft in orbit around Venus, Venera 15 and 16, are obtaining 1-2 Km resolution with a 28 foot long antenna. They have not released any imagery yet but have reported the discovery of deep chasms and Himalayan-type mountains. U.S. observers, using the Arecibo Radio Observatory in Puerto Rico, have achieved an effective radar resolution of 1.5-2 Km. In images published in Aviation Week and Space Technology they show large volcanoes, terrain resembling the Appalachian Mountians, and a canyon larger than the Grand Canyon.

Soviets Improve and Resupply Salyut 7

The Progress 18 tanker brought a new load of maneuvering propellant to Salyut 7 on Oct. 22. It will refill the tank capacity which remains after the Sept. 9 rupture of a main oxidizer line and augment the station's reduced maneuvering capability. The two cosmonauts have also gone outside the space station twice to install two additional solar arrays to provide more electrical power. The solar arrays had been brought to Salyut 7 earlier in the Cosmos 1443 station tug. The two EVA's, conducted Nov. 1 and 3, were each for about three hours. The Salyut 7 cosmonauts are expected to return to Earth near the end of November. The next crew is expected to be sent up in early 1984.

Soviet to Launch Launch Saturn 5 Class Booster

The first Soviet Saturn 5 class booster, capable of launching 300,000 lbs. into orbit is on the launch pad at Tyuratam. It is to be used to launch a 12 man space station into orbit later this decade.

NASA and Department of Defense Want New Booster

Interest is growing in a new unmanned heavy launch vehicle to supplement the shuttle. The Department of Defense is concerned about depending on a shuttle system with so few orbiters. A vehicle based on the shuttle solids is a possibility.

Ariane 8 Launch Delayed Until January

The next launch of the Ariane booster, carrying the Intelsat 5 F 8 communication satellite, has been delayed one month to allow evaluation of the last launch in October, which placed the Intelsat 5 F 7 into orbit.

Landsat D Prime to be Launched in February

The Landsat D Prime will be launched in Feb., 1984 to replace the Landsat 4 spacecraft which will fail soon. The Landsat D Prime satellite has been modified so that the problems which crippled Landsat 4 will not be repeated.

Shuttle Transport Vehicle Contract Awarded

At Vandenburg, the shuttle will be mated to the stack on the launch pad. After landing, the shuttle will be transported the 17 miles to the pad in a horizontal position by the transporter.

NASA Celebrates 25th Birthday

NASA's 25th birthday was celebrated at the NAtional Air and Space Museum October 19th. President Regan spoke and challenged NASA to develop more visionary long-term space program goals.

Shuttle SPAS to Compete with Landsat

The successful flight of SPAS on Shuttle MIssion 7 has resulted in the formation of a US/European consortium that will compete in the commercial remote-sensing business with the US Landsat and French Spot Earth imaging systems. The Sparx Corperation aims to create a fleet of shuttle-launchable and retrievable SPAS pallet remote-sensing satellites.

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

NAME _____

ADDRESS _____ CITY _____

PHONE _____ STATE _____ ZIP _____

AREA OF INTEREST _____

MEMBERSHIP/S&T ☐ $21.00 JUNIOR (UNDER 12) ☐ $15.00

MEMBERSHIP ONLY ☐ $8.00

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