

the san jose astronomical association

Ephemeris

january 83

- Jan. 7 Board meeting. 8:00 PM, at Jim van Nuland's, 3509 Calico Ave., San Jose. Call (408) 371-1307 for directions. All members and interested others are invited to attend.
- 8 Indoor Star Party at the Los Gatos Red Cross building, 18011 Los Gatos-Saratoga Rd. 7:30 PM on. Informal slide, talk, and telescope making session. New members are urged to attend and meet other SJAA'ers.
- 14 New Moon
- 15 Star Party at Henry Coe State Park, Take Hwy 101 south towards Gilroy and take the East Dunne Ave. exit. Travel about twelve miles east up into the hills (past Anderson Reservoir). 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 the left just before the trough. The gate is locked but the combination is 4565. Please relock it when you enter or leave.
- 22 SJAA General Meeting at our new site, Room 102 of the Alumni Science Center at the University of Santa Clara. (Directions inside). The speaker will Norm Sperling, formerly of Sky & Telescope magazine, and his topic will be "Landsat, Searching Planet Earth." Bring the family!
- 28 Full Moon
- 29 Indoor Star Party at the Los Gatos Red Cross. 7:30 PM on. Bob Fingerhut will conduct a clinic on balancing & aligning your telescope. Everyone welcome.
- 29 Western Amateur Astronomers' Winter Board Meeting at the Ontario Holiday Inn. 1 PM luncheon. G. Bruce Blair Gold Medal voting. For more information call Denni at (415) 654-6796.
- Feb. 5 Star Party at Henry Coe State Park. Lock combination is 4565.
- 12 New Moon Star Party at Fremont Peak State Park, Coulter Camp area. Take Hwy 101 south approx. 30 miles to the Hwy 156 east exit (San Juan Bautista). Go down Hwy 156 for 2 miles to the yellow flashing light and turn right. Go about a quarter mile and take the middle fork where the road splits into three directions. It's about 11 miles to the park and Coulter Camp is alongside the picnic area. You do not need a telescope!
- 19 General Meeting. 8:00 PM. Alumni Science Center, University of Santa Clara, Room 102. This should be a great film night for the family. Scheduled are "The Observatories," a new film by the National Science Foundation, and two NASA films.
- 26 Indoor Star Party at the Los Gatos Red Cross. 7:30 PM on. Don Machholz will talk to all interested observers on how best to attack this year's Messier Marathon, scheduled for the weekends of March 11-13, and March 18-20. This is always enjoyable even for those not interested in doing the Marathon. (Last year Don did it entirely in rhyme.)
- 27 Full Moon



Observations

by Denni Frerichs (temporarily!)

With the new year comes numerous changes for the SJAA. Probably the most important is our new general meeting site at the University of Santa Clara starting in January. The club had been unhappy with the DeAnza College arrangements for many months now and we feel the change is one that should bring more people to the meetings.

Our acquiring a new facility is the result of a lot of foot- and phonework by SJAA'er Frank Dibbell and Dr. John Drahman of the U. of S.C., and many thanks go to the both of them for the cooperative effort. The room, located in the three-story Alumni Science Hall, will seat 70, and has full audio-visual capability. In return for our usage, the U. of S.C. has requested that the SJAA support its astronomy classes with once a month telescope appearances, which is something the club will normally do for schools on request.

Easy directions are on the following page. Please plan to attend the January general meeting at the new locale and help initiate a welcome change for the SJAA.

Our speaker for the evening will be Norm Sperling, formerly with Sky & Telescope magazine, and now a lecturer at San Francisco's Morrison Planetarium. Norm's oratory abilities are well known and he should provide us with a well done presentation on the planet Earth as seen from Landsat, one of the many Earth resources satellites now in orbit. Since its launch, Landsat has provided a fascinating and useful look at our planet from space. Everything from archeology to mining to agriculture to air pollution has been studied using the varied photographs transmitted by the satellite. Norm's talk will be well-illustrated, geared at a general interest level, and should provide an interesting (and educational) evening for the whole family.

Second major change for 1983 is a new bulletin editor and a probable whole new look to our famous(!) newsletter. Steve Greenberg, faithful editor for the past year, has asked, due to personal and career demands on his time, for relief from the sometimes mountainous task of publishing these monthly pages. He regrets he was not able to write a farewell note, but reassures us his articles will be seen in future issues. Many thanks, Steve, for a job well done.

To the rescue of the bulletin comes Jack Zeiders, a person very familiar with the club and a former editor (7 years ago?). An industrial designer by profession, Jack promises a total new format for the SJAA bulletin, so keep an eye out for February's.

So how did I get the bulletin this month? I'm not sure, but I think it had something to do with Steve going on a honeymoon (that's right, folks! There's now a Mrs. Greenberg!)

Anyhow, it's a short newsletter this month because of the material flow into my own mailbox, (address changes, and all those types of problems), but don't forget Jack Zeider's would love articles and news notes for next month. His address is: 2961 Magliocco Dr., #3, San Jose, Ca., 95128 (408) 246-6189. Deadline is January 15th., but give him a call if you need to negotiate more time.

So what's coming up for the club this year? If you're mildly awake you've already noticed that the general meeting in January is near the end of the month instead of at the beginning, as usual. This is because the SJAA general meetings are held

as close to the full moon as possible to avoid observing conflicts. Once a year, we have to schedule a large shift to keep up with the moon, and this time it was conveniently done over the holidays when very little is scheduled for the club anyway.

Future meetings:

Take note that Bob Fingerhut will be giving a clinic on telescope aligning and balancing at the January 29th indoor star party. This is an ideal opportunity for beginners and casual observers to "tune" up their telescope set-up procedure. Bringing a telescope to the meeting would help but is not necessary.

January 29th is also the WAA Winter Board Meeting in Ontario. The winner of the G. Bruce Blair Gold Medal will be chosen and the SJAA board has agreed to nominate Hans Vehrenberg again this year.

February 19th's general meeting will be a film night featuring "The Observatories," a new movie by the National Science Foundation. See page 538 of December's Sky & Telescope "News Notes" section for details. 6 major observatories in both hemispheres are visited, and a general description of contemporary problems in astronomy are dealt with graphics and examples. Also, that evening will be two films (as yet unknown) from NASA.

February 26th's indoor star party will have Don Machholz talking about this year's Messier Marathon, set for two weekends in March. Using star charts and other aids, Don will lead beginner and experienced observers alike through the challenging Spring skies with the goal of viewing all 109 Messier objects in one weekend. This has become a SJAA tradition each Spring -- sort of an opening to Observing Season.

March, of course, will see the Messier Marathon on the weekends of 11-13, and 18-20, at Loma Prieta, Don Machholz's comet hunting site in the Santa Cruz Mountains.

SEE YOU THERE!

Do you remember the column in past bulletins called "Question of the Month?" That's where the editor would ask a question of the membership and conduct a phone or meeting survey during the month, publishing the answers in the next newsletter. Well, I'm reviving the column just for January in order to give the SJAA board some direction in making a decision on a subject that has arisen over the last few months.

Question of the Month

Should the SJAA allow commercial astronomical advertising to be placed in the bulletin?

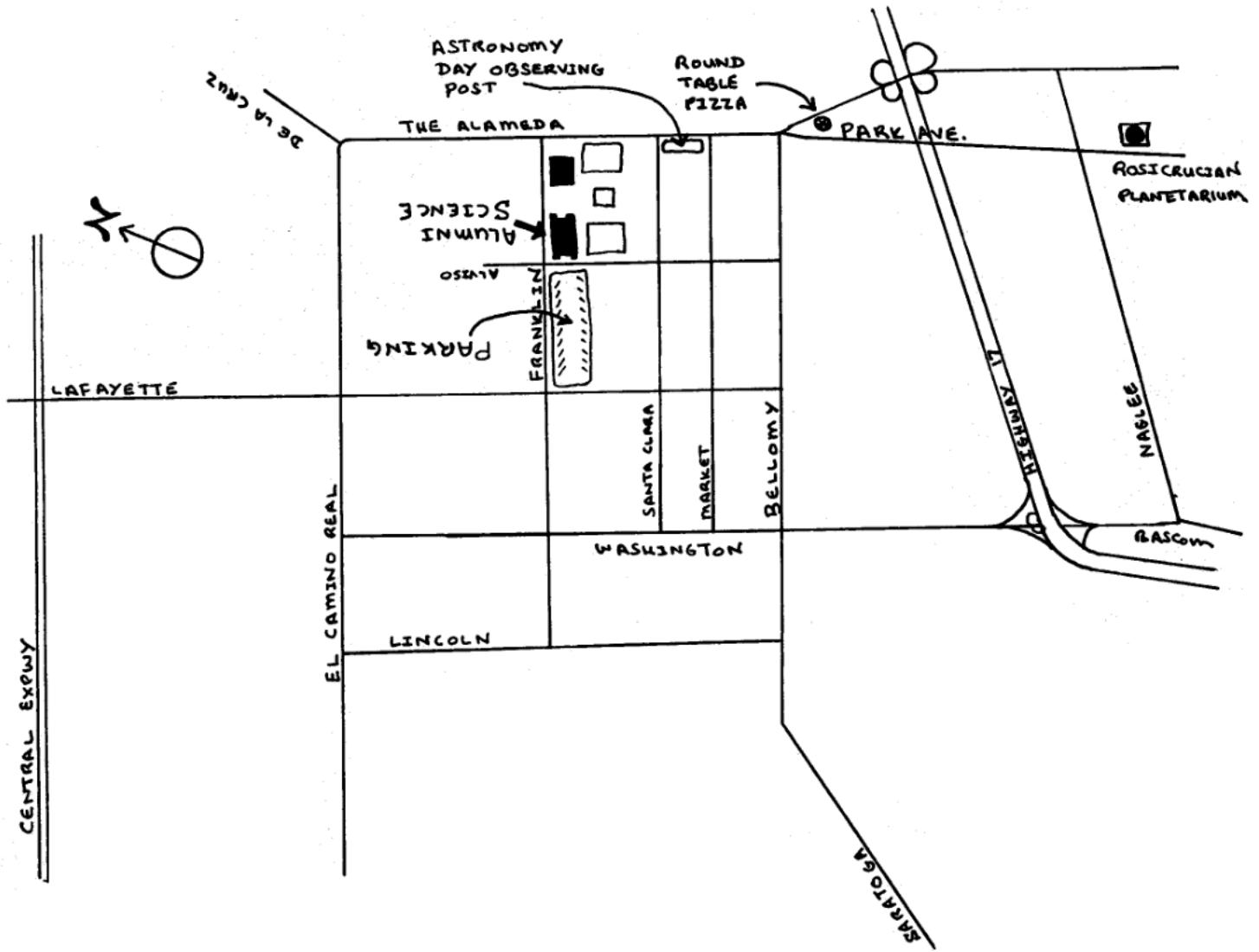
The club has been approached by local merchants dealing in astronomically related goods and services wanting to advertise. The board has always taken a stand against that type of commercialism but would really like to know how the individual membership feels about the subject. There are pros and cons. For example, advertising fees would help cut the costs on the bulletin and would help raise money for the observatory site. But advertising would also take away space that is normally filled with member contributed articles and news notes.

So don't be surprised if you're approached at a meeting or receive a phone call asking your opinion. Give the question some thought.

The SJAA Bulletin is published monthly by the SAN JOSE ASTRONOMICAL ASSOCIATION, 3509 Calico Ave., San Jose, Ca. 95124. The membership year runs from July to June; dues are pro-rated if you join after June. Membership rates: \$18/year for adults, \$12/year for children under 12. Subscriptions to the bulletin for non-members are \$7/year. Make checks payable to the SJAA and send to Bob Fingerhut, 340 Rio Verde, #4, Milpitas, Ca. 95035.

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NEW GENERAL MEETING SITE - SAN JOSE ASTRONOMICAL ASSOCIATION

DIRECTIONS (Basic)

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

Notable landmarks included on the map:

- Rosicrucian Planetarium
- Round Table Pizza
- Astronomy Day Observing Site

We will be meeting in the Alumni Science Hall - a three story building adjacent and in front of the Daly Science Center. We are tentatively set up for room 102; A sign and/or guide will be posted if the room # changes at the last minute. (The room number is not finalized as we go to press). There should be plenty of parking in the lot indicated.

Comet Comments

by Don Machholz

One comet remains visible in our skies as we begin 1983. Not a great number of comets were discovered in 1982. We will review these in greater detail next month. There were no discoveries nor recoveries during the past month.

This month begins a new "tidbit" topic in Comet Comments. During the past 4½ years I have talked about comet "filler facts," -- the comet hunters, past & present, & the comets themselves. Now I will be writing about the comet discoveries themselves.

Each active comet hunter does different things when someone else discovers a comet. I know of one well-known comet hunter who determines the date when he would have first discovered the comet had he not known of its recent discovery. This tells him how far behind the actual discoverer he is in his sweeping schedule and encourages him to revise his own.

While I have found it helpful to do this too, I have spent some time looking at the comet's positions and magnitude estimates for the time prior to discovery. Where was the comet and why was it not discovered earlier? The Smithsonian Astrophysical Observatory has been instrumental in supplying pre-discovery data. I have plotted it, graphed it, and reduced it to hard facts I can write about each month. These discoveries all took place between 1975 and 1982, and all these comets were discovered by amateurs.

PERIODIC COMET CHURYUMOV-GERASIMENKO (1982f)

Date (00h UT)	R.A.	Dec.	Mag.	
12-27-82	07:11.3	+39 21	10.5	Just north of Gemini and nearly
01-06-83	07:10.3	+40 02	11.0	overhead at midnight, this very
01-16-83	07:09.0	+39 56	11.4	small comet has shown a short
01-26-83	07:09.7	+39 12	11.7	tail recently. The comet is now
02-05-82	07:13.3	+39 05	12.1	rapidly moving away from us and
02-15-83	07:19.7	+36 44	12.4	slowly pulling away from the Sun.

Past Discoveries: Comet Boethin (1975a): Discovered on the evening of January 4, 1975, by the Rev. Leo Boethin of Abra, the Philippines, his word to the Smithsonian was delayed for 12 days. This was his first confirmed discovery. In January 1973, Boethin observed a comet which he was not able to get confirmed before it faded. For Comet 1975a, he was using an 8-inch reflector to discover the 10.7 magnitude comet at RA: 22h 59.8m, Dec: -05° 20'. The comet was closest the sun on January 5th at 1.09 AU. It has a low inclination and a period of eleven years, It was discovered on the last quarter-moon day.

Before discovery, this comet was moving roughly parallel to the ecliptic and slightly faster than the Sun, meaning it was slowly climbing away from the western horizon until it was discovered 51° from the Sun. One month before discovery it was near M 75 and magnitude 12.0. During these last two months it was moving northward, away from the Sun, and getting brighter -- all aiding its discovery. There were no other discoveries reported of this comet, so if Boethin had not seen it, it might well have remained undiscovered.

I've recently learned that John Bortle of New York swept over it in early December, 1974, about a month before discovery. If it had been a magnitude brighter, or if he had been able to sweep a magnitude fainter, he would have discovered it.

Comet Boethin is a short-period comet, with an orbital period of under 200 years. Only three of the 25 comets we will be studying are short-period comets.

Don Machholz
(408) 448-7077

TALES OF THE WORKSHOP, #147

In telescope making, as in most endeavors both personal and professional, Murphy's Law of Probability reigns supreme. If a mirror was supposed to be a f/5 in order to work with the diagonal your wife bought you for Christmas, it's bound to finish to a f/4.5. If you're praying for a warm day to pour the pitch lap, the mirror will be ready for it in the middle of winter -- and your basement's 45°. All this every experienced mirror maker knows and respects. They are the rules of the game.

But how do the traditions get started, -- you know, the one's similar to tossing salt over your shoulder for luck? (Try doing that at the Telescope Makers' Workshop with #80 grit and see how far your luck goes!)

Bob Fingerhut and I may have a tradition going. I say may, because in making a telescope mirror, close only counts in horseshoes and hydrogen bombs. So far, the following cannot be defined to be anything but interesting.

Here's the background:

Somewhere back in 1979-80 Bob went to work on an eight-inch mirror, often doing the grinding during the indoor star parties at the Red Cross. About the same time, I put my 14" blank to a tool and also spent numerous evenings in Los Gatos proceeding through the grits. When it became time to polish, the both of us moved our operations to Chabot Observatory to have access to Paul Zurakowski and his Foucault tester at the workshop. Working across the polishing table from each other, we both fought zones, made jokes, talked star parties and telescopes, and came closer and closer to finishing, we thought. There's also a saying in telescope making that close can mean anything from six minutes to six months. In our case it was six months.

But finally the night arrived when Bob put up the Everett scale for the last time and the final readings were done. A sixth-wave mirror was the results. Not bad.

My 14" was up next. I had been battling an edge zone for months and had just gone to a 4" subdiameter lap. It worked. An eighth-wave mirror! Bob and I congratulated ourselves, and then with the rest of the workshop crew afterwards, sitting in Denny's Restaurant (another workshop tradition), bought each other Dr. Pepper floats.

Years pass:

Aperture fever catches on and Bob acquires a 16" blank (cut off the same Pyrex slab that hatched the Zeider's 20" and the Medlock 30"). About the same time I acquire "stick foot in mouth" disease and volunteer to redo an 18-5/8" mirror for Rick Shaffer of JPL. The mirror is plate glass, thin, tempered, and has a bad astigmatism problem. Everyone who sees it tells me not to bother and to send it back. Great support!

Through the winter of 1981-82 each mirror went through the grinding stages un-introduced. Bob worked at home between job and Stanford classes; I worked on mine in the evenings, my portable dishwasher a decent substitute for a 55 gallon drum. I started from scratch (excuse the pun), and gradually worked up through the grit sizes. By late Spring of '82 both Bob and I began polishing, and both mirrors had racked up quite a list of adventures by that time. The 18" had survived a car fire (my VW Squareback, R.I.P.), sliding off of its lap on the dishwasher (caught in midair!), and a hammer badly aimed at a blocking nail nearby. Bob's 16" was centrally cored all the way through for its Cassgrain configuration, and then could not get the core to match up during plastering back in place for completion. At one point, a gritty fingered little kid touched the pitch lap, and Bob, unaware of this, worked a few hours with it, scratching and sleeking the mirror surface beyond repair. After a few minutes of despair for us all, Bob made the hard decision to go back to grinding to clean up the surface. He wasn't about to spend that much time and energy and not have a 'perfect' mirror. (Mirror making is 20% skill and 80% patience).

Once, we both separately got our mirrors stuck to the pitch laps -- not a laughing matter with that much surface area involved. What does one do? Soak it overnight in a bathtub full of suds, of course! I still have pitch on the bathroom tiles.

We both had trouble with the pitch laps. Besides the sticking problem, my full-size lap would never press out in the middle, creating a beautiful, but unwanted hill in the mirror's center. Bob's, on the other hand, pressed out nicely, so nicely that he had to re-groove the channels almost every thirty minutes. By late summer we were ready to finish. The mirrors weren't, but we were.

Somewhere during September, we both began to figure, that final, critical step of putting the needed parabola into the surface. Like everything else, that didn't come easy. Bob had edge problems, I had a center that looked like it belonged to another focal length mirror. But patience does tend to win - even with Murphy's Law. By October we were testing the zones, making numerous modifications in our polishing strokes to tune in the figure. If a method seemed to work we would continue it. Even so, the 18" bounced around and there was some fear that the plate glass just wasn't going to hold a figure. The 16" itself was not working well enough to get the critical numbers that were needed off of the readings.

Just about this time Bob and I realized what was happening. Of course, that was it! If tradition held true, neither one of us could finish until the other had! We laughed a little, promised to buy each other Dr. Pepper floats if we finished, rolled up the sleeves and regrouped. We knew we were "close," but in our cases "close" took another four weeks.

By the Friday after Thanksgiving, the 16" was progressing slowly towards the perfect parabola, but still had a distance to go. The 18" kept moving around being a half wave accurate, but no closer. In an act of total trust of Kevin's advice, Bob changed parabolizing strokes to a modified "W" for a few minutes, and then went in to have Paul test. Leaps and bounds of progress had been made, and Bob, recharged, went back to it for a few more minutes. The 18" had actually been getting worse during this time and I was beginning to see a few more months of work ahead. Bob went into the back room for the final test and within minutes a whoop was heard. The 16" was finished, and a one-sixteenth wave accurate, at that! Congratulations from me, a sigh of despair, and then a flash of insight from both of us. What the 18" really needed was some time with a full-size lap, but mine was still not pressed out in the center. It would do more harm than good. But Bob's 16" lap was only a half-inch shorter in radius of curvature than mine. Maybe if I used his....(Besides, he didn't need it anymore.)

Fifteen minutes with the 16" lap and then we were into the back room for a very tense Everett scale reading. I was afraid I had done some damage. Then Paul Zurakowski read out the numbers while I plotted them in disbelief! The worse zone was one-quarter wave. The 18" had made it! It was finished!

We laughed a lot this time, both from relief and from that sense of *deja vu* that had been plaguing us for the last few weeks. Jack Zeiders did the honor of buying us Dr. Pepper floats later at Denny's Restaurant. Maybe that's not as elegant as the bottle of Chianti that is present at each nuclear reactor dedication, but it carries the same meaning with us.

But now Bob's got me worried. He's talking about doing a 22". Does that mean I have to do the 30" for both of us to finish?

Denni Frerichs