

# sjaa ephemeris

nov'81

- Nov. 7 General Meeting. Our speaker for the evening will be Martin Hasha, Senior Research Engineer at Lockheed, and his subject will be the Space Telescope, now close to completion. The general meetings are held in room S-34, across the courtyard from the planetarium at DeAnza Community College in Cupertino. 8:00 pm.
- Nov. 11 Full Moon
- Nov. 13 Board meeting at Steve and Patty's, 1272 Mills St., Menlo Park. 326-8614. 8:00 pm. Any interested members or associates are invited to attend.
- Nov. 14 Grazing lunar occultation near Greenfield, More information inside in the Occulting Zone.
- Nov. 14 And for those who don't wish to go on a graze, there's an indoor star party at the Los Gatos Red Cross building, 7:30 pm on. 18011 Los Gatos-Saratoga Rd., Los Gatos.
- Nov. 21 SJAA star party at Fremont Peak State Park. Take Hwy 101 south, then Hwy 156 east to San Juan Bautista. Just before town turn right at the flashing yellow light and follow the road 11 miles to the park. (Beware, just after that right turn the road 'S's and forks. Take the middle fork). The club sets up at Coulter Camp overflow area.
- Nov. 26 New Moon
- Nov. 28 SJAA star party at Fremont Peak State Park.
- Dec. 4 Dr. Sherel of Lockheed will lead the SJAA on a special tour of the Space Telescope mock-up located at Lockheed's facilities in Sunnyvale. (The final match-up of the telescope will be done there.) There will be no formal talk but a lot of chances for questions and answers. Meet at Lockheed building #562, across from 3 large silver propane tanks. It's off Mathilda on the east side, by the corner of Java and Carribean. No reservations needed. For more information call Steve Greenberg at 326-8614.
- Dec. 5 SJAA general meeting at DeAnza College. Al Meyer, staff astronomer on the Kuiper Astrophysical Observatory, will talk to us about what's new with the K.A.O. 8:00 pm. Everyone welcome.
- Dec. 12 Indoor star party at the Los Gatos Red Cross building. 7:30 pm
- Dec. 18 Board meeting at Bob Fingerhut's, 340 Rio Verde Place, #4, Milpitas. 263-4455. 8:00 pm. Everyone welcome to attend.
- Dec. 19 Nothin' happenin'
- Dec. 26 Merry Christmas. Watch out for red variables with high proper motion!
- Jan. 2 Indoor star party, Los Gatos Red Cross building. 7:30 pm on.

# Observations

Whew! What a month November's going to be! Don't miss the general meeting with Martin Hasha speaking on the Space Telescope as a prelude to the SJAA tour of the Lockheed mock-up in December.

And if after you finish reading the great Oct. grazing occultation reports contained this month in the Ephemeris and still want to stay home for the November expedition we'll just have to classify you as an armchair astronomer! Beware: graze fever is catching....

At least you'll get a chance to redeem yourself astronomically by showing up with a telescope at the Fremont Peak star party scheduled near the end of the month.

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## SJAA Officer Changes

Who said this club wasn't dynamic? As of the October board meeting Kevin Medlock indicated his desire to resign both his position as president and board member. In this situation the SJAA board has the power to appoint replacements to carry out the end of the resigning person's term. The board position got two nominees: Jack Zeiders and Gary Rice. After a very close vote Jack was announced the winner. And the new president? Yours truly. However, since being bulletin editor makes it very difficult to congratulate myself efficiently I now offer congratulations to Jack Zeiders on his new board position. The meetings could use your cynicism at times to keep us under control.

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## A Back-Up For Refreshments Duty Needed

For many years now Rita Miram has been doing a wonderful (and silent) job of providing coffee and delicious cookies at the general meetings. She would like to continue doing this until at least the first of the year but is now asking if anyone would be interested in being her back-up for the few times she misses. The responsibilities are light: just fill the coffee pot with water, bring coffee, etc., and bring some type of munchy (home-made not required.) The SJAA reimburses all expenses. Interested? Please give Rita a call at 797-9916.

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## Club Telescopes Up For Loan

Both the SJAA's 6-inch and 12.5-inch telescopes are now available for a two month loan period. If you are interest in borrowing one of them please contact George Deiwart (for the 6") at 257-6658 or Wolf Hanisch (for the 12.5") at 998-0861. Wolf and George, you can retain the scopes until someone wants them.

Speaking of club telescopes, Ron Probst has volunteered to work on the SJAA's 14 $\frac{1}{2}$ ". Maybe we'll see that at the star parties next summer.

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## Astronomy Magazine

Shea Pratt reports that now is the time to renew your Astronomy Magazine subscription if you have it through the SJAA, or want to subscribe at discount rates. The cost is \$12 a year and must be in to her by Nov. 15 at the latest. Shea Pratt, 494 Safari Dr., San Jose, 95123

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## Membership Renewals

The following is a list of people who did not renew their SJAA membership or bulletin subscription in June. If you do not this November bulletin will be your last. SJAA membership (including Sky

& Telescope) is \$18 yr. Junior membership (under 12 yrs old) is \$12, and a bulletin subscription for non-members is \$7 a year. Send to Shea Pratt, 494 Safari Dr., S.J., 95123

Pete Arebelo, Matthew Bennett, Daniel Blasinski, Wayne Bloechl, Charles Chew, Tony Cirone, Chris Colvin, Ron Cunha, Les Delong, Steve Evans, Joe Faust, San Fotopoulos, Richard Glasspool, Tony Grillo, Phil Hermsmeyer, Andrew Heller, Lee Hoglan, Richard Larson, Louis Lassabatere, James Link, Jeff Lo, J. Malecki, Ron Martin, David Mathis, Allan Meyer, Carlton Parry, Daniel Pipkin, John Ridgely, Carl Roach, Walt Schoendorf, Robert Scott, Richard Segel, Virginia Stark, Win Stiles, Bruce Swayze, Paul Vanderbilt, Ed Voss, Mike Welch, Eva Yablonski, John Bally, Bill Cherrington, Sandra Cichoski, John Clement, Herman Fast, Manuel Fojo, Paul Mancuso, Pete Manly, George Scotten, Bob Schalck, and Charles Turner.

How come a good deal of you are the most active?

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## Sanborn Canyon S.P.

Jay Freeman reports the Sanborn Canyon star party on Oct. 24 was attended by Jack Zeiders, Paul Barton and his friend Jason, Bill Ramstad, Ed Schell (with Penny Pinschmidt's dog), and himself. Some unwanted visitors were high cirrus and fog and everyone left for Sambo's in Los Gatos around eight o' clock. We'll try again later this winter.

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## SAO & Revised NGC Charts

Steve Greenberg wants to inform interested members that computer prints of the Smithsonian Astrophysical Observatory Charts & Catalog will soon be available through him and if enough people are interested he may be able to get RNGC Charts also. Interested? Call Steve at 326-8614

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Well, I have now gotten to a point I managed to avoid for two years and seven months, and that is to say goodbye as the bulletin editor of the SJAA Ephemeris. I took the opportunity a few weeks ago to read back through those two years plus of newsletters and was amazed at the quality of articles the SJAA membership consistently submitted under all sorts of conditions and outrageous deadlines. As editor I've gotten to know many of you well as people and as observers. The steady, strong growth of the club is very much reflected in the Ephemeris and I hope it continues to do so. The new editors, Steve Greenberg and Patty Winter, are expert writers and will no doubt change the face of this newsletter. Support it like you did every one of mine and you'll see the SJAA retain its position as one the top clubs in the US. (Just listen to this pep talk from your new president!)

Anyway, thanks to the many regulars: Bob Fingerhut, Jay Freeman, Jim Van Nuland, and Don Machholz, who after two years, seven months of steady Comet Comments missed the bulletin this month! Many thanks to Bob Fingerhut and Dave Ambrose for arm-saving address labels, and to the many who help at the stamping-stapling parties. And thanks for giving this editor generous opportunity to prove that engineers can't spell (or type, or staple). You've been great. Keep it up, and enjoy this bulletin!

Denni

SJAA

# occulting zone

## GRAZE INFORMATION

Date: Nov. 14-15, 1981, Saturday-Sunday (late Sat. evening). All times are PST.

Circumstances: Splendid! Undulating profile should yield multiple events for many observers. Cusp is far from bright star. The dark limb will not be visible. Moon will be well up for this one.

Location: Northwest of Greenfield, Salinas valley. Down Hy. 101 thru Salinas and Soledad. Exit onto Cypress Ave; proceed 1.5 miles, passing 12th and 13th Sts., to 14th. Watch for SJAA paper plates. This could change! Best to call Florence. From San Jose, about 85 miles.

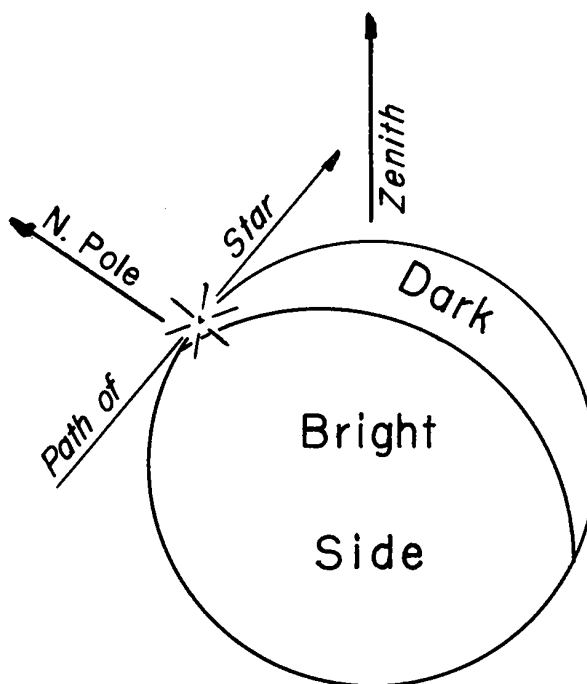
Site/Weather update: I will call Florence during the day, again just before 7:00 PM, and also later if there are any late updates. Call her, (408) 371-1307 after 7, but not later than 11:00, to get the weather forecast. Call her before 6:45 to pass information to me, especially that you can or cannot come.

CB: Channel 14. The group handle is "Graze Chasers". My own handle is "Sunspot". Bring channel 14 Handy-Talkies; they can talk to a car from half a mile or so.

Time: Start continuous record at 12:51 AM. Central graze time is 1:01 AM. End record at 1:06 or 3 minutes after latest event. Be ready by 12:30. Allow time for finding station, setting up, testing equipment, finding star, trying eyepieces, etc.

Graze Position Angle: 354 deg  
 Vertex Angle: 50 (left)  
 Cusp Angle: +12N  
 Watts Angle: 348  
 Limit: Northern  
 Sun Elevation: -66 deg  
 Moon Elevation: 57 deg  
 Azimuth: 107  
 Waning, -11 days -83%  
 Moon RA(1981) Midnt: 6h45.9m  
 Declination: +21.8 deg  
 Star: 36 Geminorium ZC1047  
 Magnitude: 5.2  
 Spectrum: White, A0  
 RA (1950): 6h 48.6m  
 Declination: +21.8 deg  
 Sunset: 4:57 PM  
 Civil Twilight: 5:25 PM  
 Astro. Twilight: 6:27 PM  
 Moonrise: 7:57 PM  
 Sunrise: 6:42 AM  
 Site Longitude: 121 16'  
 Latitude: 36 19'  
 Elevation: 310 ft.

Jim Van Nuland, (408) 371-1307  
 3509 Calico Ave., San Jose 95124



East... 107° ...SE.

## GRAZE REPORT -- Los Banos, Oct. 18

The graze expedition to Los Banos on Oct. 18/19 was a big success! Observing began at noon atop Pacheco Pass, as I watched my speedometer roll over to 00000.0 miles!! I opened a bottle of RC and toasted my bus as it began its second time around. But onward!

I laid out stations amid the traffic and the cotton fields, then parked in the only available shade, next to a barn (!), to rest and check my survey. Soon I was attended by dozens of cows and zillions of flies, followed by much-welcome early-arriving astronomers.

Braving the cows, flies, and mosquitoes were Paul Barton, Rick Baldridge, Brian White, Bobby Fingerhut, Jack Peterson, Gerry Rattley, Mark and Rolf Strohm. Bill Cooke, Bruce Swayze, Jan Smith, and Jim Burrous, plus a non-astronomer who'd come along "just for the ride" and was treated to a splendid show when handed a 4" rft which showed the graze well!

As the sunset glow faded, we were presented with an excellent sky, much darker than any of our usual sites; and with three hours before moonrise, observers were quickly dispatched to their stations to enjoy the celestial splendors.

Moonrise began as The Star popped up in a cloudless horizon, followed by a pumpkin-colored moon which silhouetted the distant hill as it gradually crept into view.

Moonlight soon dragged the observers from the galaxies and clusters to begin their work. Watching the moon creep toward the star was a sight in itself. Soon the lighted cusp had passed, and to the music of WWV we watched, the star moving away from the moon?? -- then the tension broke abruptly as the night was filled with shouts of OUT and IN and FLASH and WOW!!

The CB gave the first report: Gerry had gotten EIGHT events!! Nearly all observed multiple events. Nine stations obtained data; there were mechanical problems, etc. that pop up sometimes. Dr. Dunham had indicated a probable northward shift; as your reports are received we'll be able to conform or reject that. I'll plot our results and hopefully get it into next month's Bulletin.

I'd like to add my thanks to these dedicated observers -- an excellent turnout, especially late on a Sunday! In addition, those who were not able to make it had notified me beforehand; no no-shows. With a group such as this, conducting a graze expedition becomes a pleasure. My thanks to all!

Mark your calendars: Nov. 14, next graze; details elsewhere in this Bulletin.

Jim Van Nuland

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## JUST TOUCHED

by Janice Smith

Now when someone asks me what I did over the weekend, I refrain from bursting out at the seams as I launch into an excited account of the October 19th Graze expedition. I got tired of seeing their eyes glaze over while making grotesque faces in trying to stifle a yawn.

I don't know what's the matter with me, just touched I guess, but it's sure that I had a terrific time at the graze. I brought a friend along, a fellow physics student, and for

all our preparation we proved the validity of Murphy's Law — over and over again. First, he forgot his counter-weight. So we dug into my tool-box looking for solutions. We finally decided on a pair of vice-grips and a suitcase full of camera equipment — it looked silly but only the cows and us knew. Next, we decided which star was the one to watch — we were wrong, which eventually caused him to miss the graze and nearly (but for the grace of good fortune) caused me to miss it as well.

By the time I got to my own station, solved my own problems, tested equipment and set it where I wanted it, I was ready for a few quiet minutes before the graze. It was a lovely night really, (saving for the mosquitoes who resembled B-52's and bit like citizens of Transylvania). There was a strong smell of alfalfa in the air, and occasionally you could hear a cow bellow in the distance. I watched the red moon lighten and pale as it ascended above the horizon. I recall thinking about how comfortable I was, and how well I liked being there, liking everything about it, the planning, the trip, setting-up, solving problems, sitting alone with a sharp anticipation of something I can't even describe.

The graze was like that, exciting and ind~~is~~cribable. There is an unique texture to the moving-picture of a graze. The moon with its mountains and craters foaming above the Terminator, looms aggressively over the precise delicate point of the star. For all my reading, discussing, imaginings of the event, I still was not prepared for the startling sight of the star suddenly disappearing, or flickering as if some inner source of power was fading.

I did all the things Jim van Nuland said I would. I gasped when the star disappeared and barely managed to eek out the words; "In!". "...I mean, out!". "...I mean....what the hay the damned thing is off!" I could hear an excited voice 500 feet away echo a few of my own announcements just seconds after I made them.

In spite of WWV transmissions ticking away up and down our stations, the graze seemed hauntingly quiet. Maybe it's because one's senses are flushed toward the visual that all else is shut-out, still, it has a quality about it that moves you, leaving a residue of feeling that you've been to, or seen or experienced something special, and the real world is clammering all about you but is unable to get at you in those short moments of the graze.

Whoops and cheers brought me back to the real world, as others down the line let loose their excitement at the data they had collected. I just sat and collected a little oxygen as I had quite forgotten to breath during the graze. Playing back my tape was extremely disappointing as nothing came out, and I suspect myself of not having spoken loud enough. My friend had been transmitting WWV signals to me periodically but they didn't come through so my data was lost.

Gerry Rattley kindly assured me that it isn't unusual to loose data during a graze, especially on a first one. Actually I didn't mind the lost data too much. I was already planning and thinking about the next one. Let's see....I'll get a better this, and do a better that...I'll pop into one of those indoor star parties and make Jim van Nuland tell me the true story about "hearing" the star "snap" in and out.

Then when the next person comes up and asks me what I'll be doing on the weekend, I'll just smile and tell them I'm going dancing.

# NOTES ON A FIRST TIME ASTEROID CHASER

ASTEROID OCCULTATION 20 Sep 81

- 6:12 P.M. Mt View. Have I got everything? Telescope, tape recorder, tapes, eyepieces--nope, can't do much without those.
- 6:15 Leave for Loma Prietta. Be back sometime around 4:00 A. M. Ask Valerie you sure you don't want to go?
- 7:15 Arrive at Loma Prietta. Where are those other guys? Said they'd be here by 6:30. Oh well, get set up. Where'd the Allen wrench go to?
- 7:40 Bill Cook and Bruce Swayze finally get here. Go back down the mountain to check out a good spot to watch the occultation. My car's going to last half as long if I keep going up and down these cattle trails. Where does this road go to?
- 8:30 Time to do some serious observing. M31 looks nice. Veil Nebulae must be here some place.
- 9:00 Just handed a Xerox of the a photographic atlas with the star marked. You've got to be kidding! We'll never find that! Might as well start looking for it.
- 9:30 Still looking.
- 10:00 Is that it? Looks like an extra star in the field to the right. Proper magnitude difference. Let's watch it for awhile to see if it moves.
- 11:00 Did it move? I guess so. Bill is convinced. Check the star field again, I'm convinced too.
- 11:30 NGC 253 looks obvious, can even spot it in the finder, NGC 247 is awfully faint.
- 12:10 A.M. Moon rise. Where'd all the star's go?
- 1:00 Double Barlow with a 4mm on the moon in Bruce's 8 inch is a bit too much magnification.
- 1:30 Take pictures of Telescopes by moonlight. No comments from the peanut gallery.
- 2:00 Time to move down the hill. All packed up and ready to go. Time cube has very good reception up here.
- 2:05 What was that clunk?
- 2:10 Why's the mirror tilted like that? Almost completely out of the mirror cell! Have to take the whole thing apart. No need to panic, 30 minutes to go.

2:20 Working in the dark makes things really easy.

2:25 !#0\$&¢!!!

2:30 Now to align the finder.

2:35 Where's the right star? Where'd the asteroid go?

2:40 That's it! Start the time cube and the recorder.

2:45 Time cube is great company. What's rustling the bushes behind me? Have to stay glued to the eyepiece. Are my eyes tired or is that star getting fuzzy?

2:48 Still nothing. Supposed to be right now.

2:50 Still nothing. Am I sure I'm on the right star?

2:55 Zipsville. Give it five more minutes.

3:00 Enough of this. Pack up.

3:10 You didn't see anything either? What a bust!

3:30 Leave for home. Long night.

4:30 Back at home. Valerie says if I saw the asteroid, how can it have been a bust? She's right, I haven't seen one before. Besides there's always next time.

5:00 ZZZZZZ

Jeff Horne

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"Grazing Asteroids, Captain Comet! The Martians are coming!"

-- Jay Freeman

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For sale: 18" f/4.6 Newtonian on a solid, steady fork mount. Surrier truss tube assembly. Mirror is fused quartz. Award winner for design at Riverside (1977) and Stellafane (1980). A beautiful telescope. Asking \$7,000 firm.  
 Light weight 10" f/5 pyrex finished mirror. \$60.  
 30" pyrex mirror blank, 2-3/8" thick. \$2,000  
 12" JET brand metal lathe, complete tooling, good cond. \$2,000  
 Call Kevin Medlock at (415) 276-2753, eves.

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#### SJAA Ephemeris

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## THE CELESTIAL TOURIST SPEAKS

The SJAA star party at Mount Umunhum on Sept. 19 1981, was well attended by about thirty people with some fifteen telescopes. Although there was no fog to turn off the lights of San Jose, and the last-quarter Moon rose only about three hours after the end of twilight, there were no clouds above, temperatures were generally balmy, and the seeing was good to excellent.

The largest instrument present was Frank Dibbell's Celestron 11. I had not had much of a chance to look through it previously, and was glad to have the opportunity to do so. At about 270X, some of us were able to catch glimpses of the central star in the Ring Nebula. At 700X, the 0.6 arc-second double star 36 Andromeda was easily resolved, with plenty of dark sky between the components. This instrument should go to Dawes limit (0.41 arc-seconds) easily.

Rita Miram was there with her Celestron 8. She and Bob Fingerhut -- who did not bring a telescope of his own -- spent a while looking for various planetary nebulae. They had a nice view of NGC 6572 in Ophiuchus, elongated and bright green at 222X.

Wolf Hanisch was looking at double stars with his Questar when I wandered by. It was interesting to compare the 3 1/2 inch Questar with the latest addition to my own telescope family, a 3-inch f/10 refractor with a Jaegers objective. I looked at epsilon Lyra with both telescopes, using 160X on the Questar and 184X on my refractor. Both sets of optics seemed well corrected for spherical aberration, and neither showed any color that I could detect. The diameters of the central Airy discs were greater in the three-inch than in the Questar, no doubt due both to the Questar's half-inch advantage in aperture and to the effects of the Questar's thirty-odd percent diameter central obscuration (one of the lesser-known effects of central obscuration is to reduce the diameter of the Airy disc slightly). But there was definitely lots less light in the diffraction rings of the refractor's images than in those of the Questar: In the latter instrument, the rings looked about twice as bright, in relation to the Airy disc, as in the former one. That's about what you'd expect, given the Questar's big central obscuration.

There was a cute little baby rattlesnake coiled up part way down the stairs that lead from the helipad to where the rest rooms are. Baby rattlers are just as poisonous as full-grown ones, so we were all cautioning each other not to go down there, or to be very circumspect and keep to the far side of the stairs if we must. (The snake was only about eight inches long). Nevertheless, some people did not get the word, and went merrily tripping up and down the stairs, no doubt stepping quite close to it. The rattlesnake exhibited great wisdom, and did just what you or I would be well-advised to do when an animal a thousand times as large as we passes by:

It lay low and didn't say nothin'! This is probably the most dangerous non-humanoid critter to show up at a Club star party so far, though the mountain lion that wandered through the old Skyline site many years back was probably scarier.

The star party on September 26, at Fremont Peak, was attended by about 50 people with about 25 telescopes. Perhaps 20 or 25 SJAA members were there. The sky was clear, though not as dark as the Peak can get, since there was no fog below. Beginning about mid-evening, some people started getting a little dew on exposed corrector plates and the like. Seeing ranged from fair to pretty good.

The largest telescopes were sixteen-inch Newtonians: Charles Turner had his Telescope World sixteen-inch, which now -- after substantial applications of time and money -- seems to be working well, and there was a sixteen-inch Dobson as well. There were two Celestron 14s, two Coulter Odessey 13s, a C-11, and so on.

It seemed to be "Let's look at Gamma Andromeda" night. This lovely triple star is a fantastic object, probably because the wide pair is so easy and pretty (10 arc seconds, magnitudes 2.2 and 5.1, yellow and blue); whereas the narrow pair is much tougher (the blue star is double, magnitudes 5.5 and 6.3, present separation 0.6 arc seconds and slowly closing.) The close pair has a sixty-one year period, and some older listings of double stars show it as an 0.4 arc second double. My C-14 and Charles Turner's 16-inch blew the close pair out of the water -- lots of dark space between the two stars. Frank Dibbell had it very well prettily split in his C-11 at only 270X. Turner's Quantum Six showed it elongated, and perhaps even notched, at 615 power, notwithstanding being a bit out of collimation. On the preceding night someone had split it in a C-8.

One double star useful for testing large amateur telescopes is now well placed: It is 72 Pegasus, at (epoch 1950) 23<sup>h</sup>31.5<sup>m</sup>, n31°03'. The two components are magnitudes 5.6 and 5.7, and will remain at a separation of 0.4 arc seconds for the rest of the decade; according to the tabulation by Roger W. Sinnott in "The 'Sky and Telescope' Guide to the Heavens". I have split it nicely in the C-14, at 559 power; and in Turner's 16-inch at 400 power.

I got a nice view of Zeta Aquarius in Charles Turner's six-inch refractor at 214 power. (Yes, he did bring three telescopes). This lovely, 1.8-second double had both components slightly fainter than fourth magnitude. It's easy to find, too: Zeta is the middle star in the equilateral triangle that forms the "water jar" of Aquarius.

I did not get to do as much socializing at this star party as I might have like, so I am not sure I saw all the familiar faces who were there. Bob Fingerhut was present, again with no telescope. Chris and Shea Pratt brought their 12 1/2-inch Newtonian, but I don't believe they set it up. Jack Zeiders, John Gleason, Bob Schalck, Bill Ramstad, and Doug and Cindy Berger were all there.

Fans of clusters of galaxies, who are undergoing withdrawal symptoms since Virgo went into the Sun, should take note that the Fornax cluster of galaxies will begin to be well placed for observing along about November. This group is centered at roughly 3<sup>h</sup>30<sup>m</sup>, s36°, on the Fornax-Eridanus border. Norton's shows six or seven galaxies in this region, the Skal-nate Pleso shows about sixteen, and the Revised New General Catalog lists almost forty. My six-inch hand held Newtonian, at 36X, once showed six or seven galaxies in one field of view at the center of the cluster, at a casual glance.

Astronomers of numerological bent will be interested to note that the lowest- and highest-numbered objects in the Revised NGC can be seen side by side in a single medium-power field in Pegasus. NGC 1 is a galaxy at (epoch 1959) 0<sup>h</sup>4.7<sup>m</sup>, n27°26'. It is a galaxy of photographic magnitude 13.5. The 15.5-magnitude galaxy NGC 7839 lies about 4 arc-minutes to the southwest. Do not confuse it with 15th-magnitude galaxy NGC 2, which lies about two arc-minutes south of NGC 1. The visual magnitudes of the galaxies are probably somewhat brighter than the photographic magnitudes. I have seen all three of these in my C-14, though it took medium power to do it. The original NGC went to number 7840, but this last was one of the ones that the authors of the RNGC could not find when they inspected the Palomar Sky Survey plates.

-- Jay Freeman

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Overheard at the October board meeting:  
"I find it difficult to believe God made trees just so telescope makers could have pitch."



## Space Program Update

### by Bob Fingerhut

#### NASA Schedules Shuttle Launch for Nov. 4

NASA announced that the second flight of the Space Shuttle Columbia has been rescheduled for Nov. 4.

Repair work is proceeding following the spill of nitrogen tetroxide on the Columbia. The accident made it necessary to rebond 365 thermal protection system tiles and replace 26 insulation blankets in the forward Reaction Control System module. The spill was caused by a build-up of iron nitrate in a 'quick disconnect' valve on a ground pumping unit.

The landing for the five day mission is scheduled for the dry lake bed at Edwards AFB, Ca., but will be shifted to White Sands, N.M., if the lakebed is affected by rain.

#### Air Force General Named To Head Shuttle Development

Maj. General James A. Abrahamson, deputy chief of staff-systems for the Air Force Systems Command, has been assigned to NASA-Headquarters where he will take over as associate administrator for the Space Transportation Systems.

Abrahamson succeeds John F. Yardley, who head Shuttle development for seven years before leaving the agency to become president of McDonnell Douglas Astronautics.

While Abrahamson will be responsible for development and production of the shuttle, Dr. Stanley I. Weiss, associate administrator Space Transportation Operations, will direct Shuttle operations, including preparation of the flight manifest.

#### Solar Mesosphere Explorer Successfully Orbit

NASA successfully launched its Solar Mesosphere Explorer spacecraft into a 336-mile polar orbit Oct. 6, where it will study reactions between sunlight, ozone and other constituents of the atmosphere, and how concentrations of ozone are transported in the region from 19 to 55 miles altitude.

The 990 pound satellite was launched by a Delta launch vehicle from the Western Test Range.

Also launched piggyback atop the Delta was the "Uosat", (University of Surrey satellite), an amateur radio satellite built by the University of Surrey in England, which carries instruments to study the ionosphere and which will transmit its data in a band available to amateur radio.

#### SBS-2 Successfully Launched

Satellite Business Systems second domestic satcom, SBS-2, successfully launched by NASA aboard a Delta launch vehicle at 7:09 PM EDT, Sept. 24 from Cape Canaveral, is in a 19,165/19,225 nautical-mile orbit at 134 degrees east longitude and functioning nominally.

#### French-Soviet Oreol 3 Launched

The Soviet Union launched the Franco-Soviet Oreol 3 satellite on Sept. 21 as part of a project to study physical process in the Earth's magnetosphere and ionosphere and to study the nature of the Northern Lights. The satellite was put into orbit at 380/1920 kilometers, 82.6 degrees, 108.2 minute period.

#### Final Ariane Test Launch Reset for Dec. 14

The fourth and final test launch of the European Space Agency's Ariane launch vehicle has been rescheduled for Dec. 14 at Kourou, French Guiana. It will carry the Marecs-A (Maritime European Communications Satellite-A) payload.

#### NASA Selects Experiments For First Spacelab Life Science Mission

NASA has selected twenty-five experiments for the first dedicated life sciences mission to be conducted by Spacelab (Spacelab 4), which is scheduled to fly aboard the Space Shuttle on Oct. 1985.

Six of the experiments concern cardiovascular and cardiopulmonary studies; three vestibular studies; three venal and endocrine studies; three hematology studies; one immunology; four muscle studies; one bone studies; and four general biological studies.

Spacelab 4 will consist of a Spacelab double habitat module equipped with a spaceborne biological laboratory.

Spacelab 4 will consist of a Spacelab double habitat module equipped with a spaceborne biological laboratory.

#### NASA Assigns Official to White House Space Policy Review

Issac T. Gillam IV, the director of NASA's Dryden Flight Research Center, has been named special assistant to NASA Administrator James Beggs and detailed to the White House Office of Science and Technology where he will participate in the ongoing space policy review.

The review, being conducted under the direction of presidential science adviser Jay Kexworth, is scheduled to be completed by the end of the year. He has designed to develop the ideas and plans to set the course for the U.S. activities in space for "years to come."

#### NASA Submits Additional Budget Cut Proposals to OMB

NASA submitted to the Office of Management and Budget, Oct 5, its recommendations on which programs should be affected by \$357 million in additional cuts for the FY 1982 proposed by the Reagan Administration the week ending Oct. 2.

Among the programs considered likely to be killed or delayed by the new budget cuts are the Galileo Jupiter mission and the Centaur Upper Stage.

In March, the Reagan Administration proposed a reduction of \$604 million from President Carter's request of \$6.7 billion, leaving NASA with \$6,122 billion. The latest budget cuts would now reduce that amount to \$5,755 billion.

#### India Developing Two New Launch Vehicles

India is developing a launch vehicle capable of placing a 600 kilogram satellite into a polar orbit, according to Indian Space Research Organization Officials. In addition, it is developing a more advanced version of the SLV-3, called augmented satellite launch vehicle, that would be used for launching 150 Kg satellites into orbit. The SLV-3 can put 40 Kg satellites into low orbit. Both projects are expected to take five to six years to complete.

#### Brazil Plans to Launch 4 Satellites

Brazil plans to launch its first four satellites - two meteorological and two remote sensing spacecraft - between 1985 and 1993, according to the Brazilian Space Activities Commission.

Plans call for all equipment connected with the space program to be manufactured in Brazil. The country's Space Research Institute will construct the satellites, the tracking system, and ground data-collecting stations, while the Space Activities Institute will manufacture the launch vehicle, which will place the 200-300 Kg satellites into 600-700 kilometer high orbits.

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"You do know what Hanukkah is, don't you?" Denni Medlock

"Yeah, it's a Japanese camera, isn't it?" Chris Pratt

"Yes, the type that have seven candles across the top as the flash attachment." Jack Zeiders

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And now: Presenting the SJAA FORUM, this month featuring view and counter-view of last month's article, "I Bought a C-14 Because It Was Cheaper Than A Dobson," by Jay Freeman.

YES, BUT.....

Jay, you've got to be kidding! A C-14 cheaper than a Dobson? You must not be married! If you were, you would have discovered by now that you can't get away with specious arguments, faulty logic, or even excellent rationalizations. Come on, Jay, admit it! You bought the C-14 because it's sexy as hell! (It really is! I wish I had one!) There's no need to justify the expense to anyone but yourself. But just in case anyone was fooled by your rhetoric, I have some specious arguments, excellent rationalizations, and faulty logic of my own with which I hope to set them straight.

First, you used the wrong formula for what your \$7000 was worth. You would have received COMPOUND interest (at least in Eastern banks!) on your money. The formula for what your \$7000 would be worth compounded annually is:  $A=P(1+i)^n$ . If you let \$7000 sit for 30 years at 10% net interest you'd have \$122145.82. Pretty nice retirement, huh? Think of the Dobson you could build with that! Your formula was what you'd have to pay if you could find someone to lend you the money under those terms.

Also, if you had a van you could sell your subcompact hatchback. (I hear the Bulletin editor has a need). Put the money from that in a C/D using the previous equation and see if that doesn't bring the relative cost of the Dobson down.

Or conversely, instead of buying a van buy a trailer lit from your local discount department store and build a custom box on it for your Dobson. If you can build a telescope surely you can build a box that bolts onto a trailer frame and the whole thing would only cost a couple of hundred bucks!

One other option: Build a 12.5" Newtonian. Good hand-made 12.5" Newtonian optics will match or outperform any C-14 under any conditions. At Stellafane the worst insult we offer is that someone's optics are "commercial quality". I've seen a 12.5" scope split  $\chi$  Andromeda B-C and show the central star in M-57 when a C-14 next to it would do neither. (Both instruments were thermally stabilized and properly collimated.)

Now that I've made an enemy of Jay Freeman and enraged every Celestron, Cave, Coulter, and Criterion owner on the West Coast, I'll get back to the subject at hand. I like to argue telescopes and I always take the position that good aperture beats any other factor. But I'm also cheap enough to think up lots of arguments against shelling out \$7000 for anything. (My mother once told me, "If you spend more than \$5000 for anything it'd better have a cellar under it!")

I've got a 12.5" f/5.7 that I transport in a MG-B but I'm building a bigger "scope and I have given considerable thought to transportation for it. I agree fully, Jay. Moving large telescopes has to be either expensive or innovative. I am sure, though, that whatever I do will not cost \$7000. There are sexier things than telescopes out there to spend money on!

NOTE:  $A=P(1+i)^n$

A is the total amount after compounding.  
P is the principal  
i is the interest rate (net) expressed as a decimal  
n is the number of years of compounding  
= is the standard symbol representing the axioms of Reflexivity, Symmetry, and Transitivity

George H. Scotten  
president,  
Springfield Telescope Makers

Dear George,

Your letter arrived less than a week before the deadline for the present SJAA Bulletin. Denni read it to me over the 'phone, and I hope that the notes I took are sufficient for this reply.

I agree that there are sexier things in life than telescopes, and I suggest that demonstrated wisdom in managing money may help induce some of them to go out with you.

My formula is not incorrect; It is indeed the formula for what you would have to pay if you borrowed \$7000 for thirty years at 10 percent, with a once-a-year loan payment; and this is precisely appropriate, as I shall now demonstrate. If I had left the \$7000 in the bank for thirty years at 10 percent net interest, compounded annually, at the end of the thirtieth year my bank balance would be \$1221,145 -- agreed? Well, all right, so suppose I take the money out instead, and repay it at the rate of \$742.55 per year. My first payment is made at the end of the first year, so it sits in the bank drawing compound interest at 10 percent net for 29 years. The second payment is made at the end of the second year, so it draws compound interest for 28 years, and so on until the thirtieth year and has no time to draw any interest at all. Still agreed? But the total of all these payments, plus the compound interest they draw from their respective times of deposit, is \$1221,145! At the end of thirty years of payments, the bank account is back to where it would have been if the \$7000 had never been withdrawn. Try it on your calculator, or look up the formula for the sum of a finite geometric series.

I didn't sell my present car and buy a van instead, because only about 15 percent of my driving involves hauling the telescope around. The rest involves merely transporting me, plus an occasional passenger, plus something like an attache' case or a bag of groceries. For this kind of driving, I need a high miles-per-gallon econobox. The extra fuel costs for a van would eat up the saving in telescope capital costs if I took this approach.

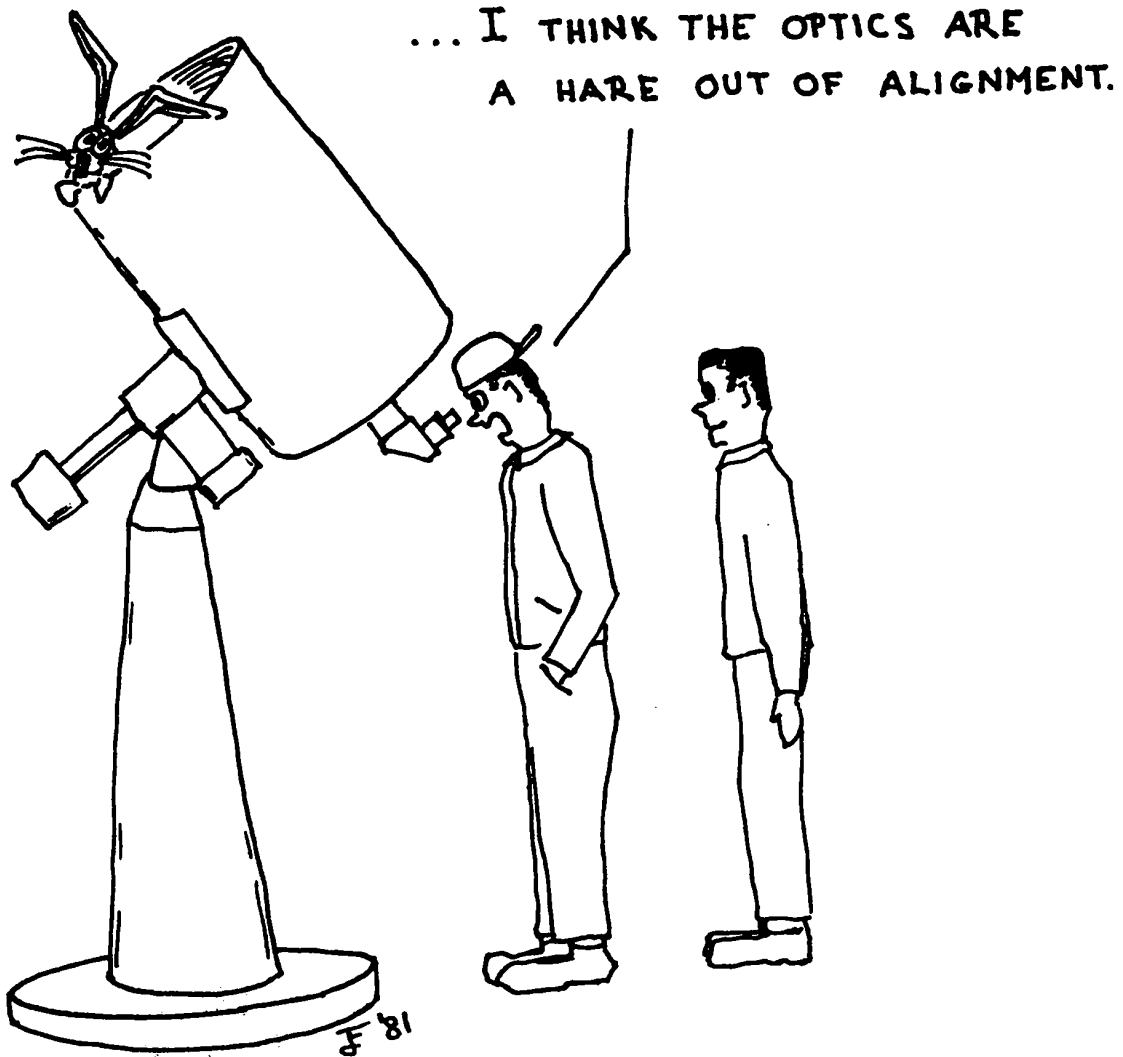
I couldn't find a trailer frame suitable to build a Dobson-size box on, and I did look. The problem is that as trailer sizes get bigger, trailer weight rises dramatically, and my car can't haul a trailer whose loaded weight exceeds 1000 pounds. If you know of a source of suitable trailers, please do all would-be Dobson-transporters a favor and describe it in print.

You get a 12 1/2 -inch Dobson in an MG? I am indeed impressed. How? And is it protected from the weather?

My C-14 seems to have very good optics, as verified by star-testing in excellent seeing, and I calculate that its light grasp (with coated corrector and enhanced aluminum on all three mirrors and with an 0.32-diameter secondary obstruction) is the same as for a 13.26-inch conventional Newtonian (with regular aluminum and with an 0.25-diameter obstruction.)

Actually, I was planning to build a big Schmidt-Cas, but could not come up with a mechanical design that I could build that was light enough to be portable. I was beginning to think about Dobsons when I heard in conversation that the San Francisco Sidewalk Astronomers' big Dobsons had been inoperative for about a year, simply because there wasn't enough money to fix up the vehicle they used to transport the telescopes. Thus inspired, I sat down and did essentially the same cost calculation that I presented in the last Bulletin. As a confirmed ATM from junior high-school days, I have regularly sneered at commercial telescopes, (and still do), but I was forced to the conclusion that if I wanted to do deep-sky observing, and had to live in an urban area, a C-14 plus trailer was the cheapest way to go.

-- Jay Freeman




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\*\*\*NEW MEMBERS\*\*\*

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Welcome to the SJAA! We hope to see you at the club activities! Don't hesitate to introduce yourselves to the other members. We would like to meet you and share the many events that happen in this Southbay astronomical community. The SJAA has a lot to offer the interested member. Take advantage of it!