SJAA Ephemeris — Sept '81

Sept. 5 Indoor star party at the Los Gatos Red Cross building, 18011 Los Gatos-Saratoga Rd, Los Gatos. Take Hwy 9 off Hwy 17 south, continue on Los Gatos-Saratoga Rd for about 1½ miles, and Red Cross building is on right, just before Rose Ave. There is an on-going telescope making class. 7:30 pm on. Everyone welcome!

Sept. 12 SJAA General Meeting. It's NASA Film Night with a great added plus! "The Eagle Has Landed: The Flight of Apollo 11", "Earth-Sun Relationship", and "Planet Mars" will be shown, along with film footage of the Voyager-Saturn Flyby brought back from JPL by Steve Greenberg and Patty Winter. The general meeting is held in room S-34, across the courtyard from the planetarium at DeAnza Community College in Cupertino. 8:00 pm. Everyone welcome.

Sept 12-13 AANC annual astronomical conference at El Rancho Tropicana Hotal in Santa Rosa. Contact Gerry Rattley at 732-0202 for directions and/or registration information.

Sept. 13 Full Moon

Sept. 18 SJAA Board meeting at Norm Neinchel's, 190 Rose Ct., Campbell. 378-4488. There will be a picnic dinner before hand. Meeting starts at 8:00 pm. All interested members are invited to attend.

Sept. 19 SJAA Star Party at Mt. Umunhum. Directions: Drive out Almaden Expressway to Guadalupe Dam Rd where you turn right and follow the signs up to Mt. Umunhum. If there is a locked gate at the top it will have the SJAA combination lock on it. Use 4565 to unlock. Follow the main road to the helipad and the star party. If you plan on leaving the star party early please set up near the perimeter of the pad.

Sept. 26 SJAA Star Party at Coulter Camp, Fremont Peak State Park, (Hwy 156 east off Hwy 101 south.)

Sept. 27 New Moon

Oct. 3 Indoor Star Party, Los Gatos Red Cross building. 7:30 pm on.

Oct. 10 SJAA General Meeting, subject to be announced. Rm S-34 at DeAnza Community College, Cupertino. 8:00 pm.

Oct. 13 Full Moon

Oct. 16 Board meeting at Steve and Patty's, 1272 Mills St., Menlo Park. 326-8614. 8:00 pm.

Oct. 17 Indoor Star Party, Los Gatos Red Cross building. 7:30 pm on.

Oct. 24 SJAA Star Party, upper parking lot at Sanborn Canyon Park.

Oct. 31 Indoor Star Party, Los Gatos Red Cross. 7:30 pm on. "Costume party -- come normal" Gerry Rattley

the san jose astronomical association

Observations

Be sure to attend the Sept. 12th general meeting. Besides the always excellent NASA films scheduled Steve Greenberg and Patty Winter will run film footage brought back with them from the Voyager-Saturn encounter at JPL this August 24th and 25th. Also on display will be numerous photos, many of which NASA did not release to the general news media. Bring your family and friends!

As editor I was going to write a short complaint about the lack of attendance at our general meetings. But having thought about it a bit I realized that it has been summer and astronomy is meant to be done outside in the summertime, and that SJAA attendance at star parties this summer has been strong, -- so, in short, I don't have anything to complain about and the club's doing what it should be -- observing!

Attention Graze Chasers! Jim van Nuland writes a quick note: "Graze Expedition!! Oct. 18-19, Sunday-Monday. East of Hollister and north of Los Banos. 6.5 magnitude: 58% sunlit but 12° cusp angle is very favorable. All the details next month."

To get involved in a graze expedition (and everyone is welcome to) one needs a telescope (4" or bigger), a cassette tape recorder, and some radio source of exact time (short wave radio or Radio Shack Time Cube), though having a time source can be worked around at the graze site. Grazing occultations can be educational, exciting, worthwhile, and are always fun. Consider joining the SJAA graze team (one of the better ones in the country)for this upcoming event.

At the last board meeting the topic of lending out the club telescopes was discussed and the following rules were adopted:

1) Any SJAA member may borrow a club telescope
2) The lending time is two months
3) If no one wishes to borrow the telescope at the end of two months the original borrower may retain it until someone does.
4) The names and phone numbers of the present borrowers will be published monthly in the Ephmeris. If you want to borrow a scope, contact them directly. If you have trouble borrowing from someone who doesn't want to give the scope up, contact the SJAA president.

The SJAA has two telescopes in usable condition at present, and they are available immediately for borrowing. The 6" (equatorial) is at Frank Dibbell's, 733-7208 (Sunnyvale), and the 12½" (Dobsonian) is at Chris & Shea Pratt's, 629-2994 (San Jose). If these instruments see a reasonable amount of use the set of 14¼" optics the club also owns will be made into a lending scope.

Those wishing to attend the October landing of the Space Shuttle write to the following for passes.
Office of Public Affairs
NASA/Dryden Flight Research Center
P.O. Box 273
Edwards, Ca. 93523

SJAA Trivia:

Congratulations to Frank & Paula Dibbell on the birth of Melanie Jean, on July 21, at 1:15 am (obviously a future astronomer). 7lbs, 8oz, and everyone is doing fine.

Don't miss John Gleason's gorgous photo of M-31 on page 83 of Sept.'s Astronomy. Also catch Jack Zeider's photo of Comet West in Aug.'s issue of Astronomy (Astrophoto of the Month).

And while it's not the SJAA's policy to mention commercial ventures this editor felt these were news worthy. Telescope World of Hayward is now officially defunct. On the other hand, Lumicon has now opened up a retail store at 2111 Research Drive, #5, in Livermore. 447-9570.

Last, but of course not least, I hope you enjoy this bulletin. With articles from a variety of sources I feel it is the best Ephemeris in recent history. Thanks to all the contributors and again to Dave Ambrose for mailing labels. Bulletin deadline for the Oct. issue will be Set. 20.

Denni

WANT ADS

For sale: 12½" f/6 Dobsonian w/4¼" finder. Keith Novak parts, w/Meade tube. Photo on page 36 of Telescope Making #9. Call Tom Palmer at (916) 966-1609, Sacto.

For sale: Meade 8" f/6 tube assembly. Slightly damaged near finder bracket but has been repaired. New 6X30 finder. Good optics. $175/offer.
12½" standard thickness pyrex fine annealed mirror blank. $75/offer.
12" X 1" plate glass tool $10
Call Bill Cooke (408)739-6319 eves.

For sale: Meade Model 826 8" reflecting telescope with motor drive, setting circles, 2 eyepieces, 2-inch focuser, 6X30 right angle viewfinder and dust caps. Used only 1 year. Like new condition. $450. Call George Taylor at 268-2593.

For sale: Cave Astrola tube assembly 8" f/7. Photo eyepiece, rotating rings, homemade mount equatorial bowling ball type. Criterion eyepieces 12.5 mm, 7 mm, 30 mm. 6X30 Meade view finder. $325. Bob at 377-0222, or Mark at 371-1866.

For sale: Celestron C-5 w/special coatings. Complete; 9 and 18 mm eyepieces, adapter for Canon and Konica cameras, Teledrive control, Celestron tripod and counter weights. Like new. Case for tripod and case for accessories. Dew cap. $800. Lloyd West, 5021 Cribari Vale, San Jose, 95135. 274-4382.

For sale: C-8 scope with coatings, tripod with carrying case and wedge. Accessories include: Celestron 1¼" star diagonal, visual back, Celestron 1¼" 40mm Kellner, 25 mm Kellner, Meade coated OR 12.5 mm and 6 mm. Celestron Porro prism, Celestron 6 piece weight set, 8X50 University right angle finder, T-adaptor with T-rings for Nikkon and Olympus cameras, teleextender, Celestron off-axis guider with illuminated OR 12.5 mm eyepiece, Celestron dual axis drive corrector, knob set, and K2 yellow filter. $1300 firm. Write Earl McReynolds, 200 Park Ave., #68, Yuba City, Ca. 95991 (916) 674-2476.(Because of job it is best to write).

Wanted to buy used C-8. Will consider C-5 at good price. Ira Weiss at 578-8925 or 224-8258.

Anyone needing 8" ID Sono tube contact Pat Parker at 279-2222.

The Ephemeris will accept any astronomically - related want ads on a free and one-month, unless otherwise requested, basis.
This editor apologizes to Tom Palmer for having lost his for-sale ad for two months.

comet comments

In the past six weeks three comets have been recovered and a new one has been discovered -- all by professional astronomers. Meanwhile, Comet Bowell has set in the west; it will be in the morning sky in a couple of months as it continues to near the sun. So at this time we have no known bright comets in the skies.

Comet Gonzalez (1981g): Discovered June 29 in the southern sky by Luis Gonzakez at the El Roble station in Chile, this 15th magnitude comet is now pulling away from both the sun and earth. It is not expected to get much brighter.

Periodic Comet Kearns-Kwee (1981h): Recovered by T. Seki of Japan on June 29, this returning comet (9-year orbital period) won't get brighter than magnitude 15.

Periodic Comet Slaughter-Burnham (1981i): Recovered on July 9 by Schwartz and Shao of the Harvard observatory, this 20th magnitude comet will brighten by only two more magnitudes over the next few months. Discovered in 1958, this comet has an orbital period of 11.6 years.

Periodic Comet Swift-Gehrels (1981j): This comet was picked up by Schwarz and Shao (again) on July 31. Then at magnitude 18, it is not expected to get brighter than magnitude 15 late this year. This comet had a 9.3-year period. It was first discovered by Swift in 1889, then lost until Gehrels recovered it in 1972.

Great Comets

Comet Tebbutt (1861II): Discovered by the Australian sheep farmer John Tebbutt on May 13, 1861 as a 4th magnitude object, this comet grew brighter as it travelled northward. Sir John Herschel noted it as the brightest comet he had observed up until that time. On June 30, the earth passed through its tail, the sun reportably darkened and the sky took on a yellow hue. There seemed to be no ill effects, after all -- the coma was still some 11 million miles away!

Don Machholz
(408) 448-7077

Some Observations of the Perseid Meteor Shower

As announced last month, the peak of the Perseid meteor shower was Aug 12, in the pre-dawn hours. Three observers:Vickie O'Fallon, my wife Laura, and I all took counts on that morning.

On Loma Prieta we were above the low clouds which hampered observing for most of the Bay Area. Beginning at 0324 (PDT) we did 78 minutes of observing and our meteor counts were 92, 94, and 97 for Vickie, Laura, and I. This means hourly rates of 70.7, 72.3, and 74.6. Additionally, I also kept a seperate count of the Perseid meteors and the background members. For these hourly rates I got 63.1 Perseids and 11.5 background.

There were two bright meteors, both about magnitude -2. Quite a few were magnitude 4 and 5.

Don Machholz

THE CELESTIAL TOURIST SPEAKS

The August 1, 1981 star party at Fremont Peak was very successful: There were lots of telescopes, lots of people, and pretty good skies. As I was driving up the road to the peak in late afternoon, I spotted Chris and Shea Pratt's van coming down. We stopped and chatted a bit. They were tired from a previous engagement and had decided to go home.

I set up my C-14 amid long discussions with Bob Kestner and Charlie Stifflemire. Bob showed me one of the volumes of his atlas of galaxies and clusters of galaxies (by Zwicky and somebody else, I seem to remember), which he uses for plotting deep-sky objects to observe with large telescopes. Charles Turner spent a while telling of some of the difficulties he has had getting his new Telescope World sixteen-inch to run right. He has had problems with both the optics and with the mechanical parts.

Some forty or fifty telescopes were present. The Stifflemire 16½-inch Dobson was largest. I spotted a 14¼-inch Dobson, another C-14, and at least one 12½-inch. There were perhaps 100 people. A lot of club members and other regulars were eclipse-chasing, but familar faces included Frank Dibbell, Wolf Hanisch, Janics Smith, Jack Zeiders, Mary Engle, and Herman Fast. The fog was late rolling in over the coastal plain, so the lights of Salinas and Santa Cruz were a problem for a while, but after a few hours it got pretty dark.

There is some bad news: You all know the incandescent on a pole, over by the turn from the paved road into Coulter Camp at Fremont Peak, right above the place where campers are supposed to put their money in? Well, there's going to be a Mercury-vapor parking light set up there soon, probably some time in August. The park people already have the parts.

There is some corresponding good news: The ranger (Kate) and the maintenance person (Tom, I think his name is) are both well aware that Fremont Peak is much in use by amateur astronomers, and that a Mercury-vapor light will almost ruin the site for us, and appear to be very happy to turn the light off (the switch is in the maintenance person's house) whenever anyone is observing. I hope people have sense enough to be very polite and appreciative about this matter, and to realize that the decision to install the light was not made by any of the personnel at the park, but by some faceless and thoughtless bureaucrats at a much higher level in the Department of Parks and Recreation. The personnel at the Peak have always been very nice to us, and do not deserve any hassling on account of this light. Indeed, the way I learned about the light was when the maintenance person came by one evening, offered the information that a light was to be installed, asked politely if it would interfere with observing, and volunteered with no prompting to turn it off when asked to do so. So save your wrath for the bureaucrats of Sacramento.

I seem to have been observing a whole lot of planetary nebulae lately -- so far I have logged over 100 -- and have spent a while experimenting with two special techniques useful in locating even the smallest and faintest of these elusive objects, Neither technique is that well known, so I thought I would explain them both here. Both are ways of spotting a planetary when you are using too low a power to show it as a disc (and the most common reason for using low powers, of course, is to have a wide enough field of view to improve the odds that the darn thing is in it.)

First is the "blinking" trick, which is based on the fact that all common nebular or light-pollution filters transmit nearly all of the light from planetary nebulae while reducing the light from stars by half or more. So suppose you are looking through an eyepiece at a field of view which includes some stars and a planetary. You have a nebular filter in hand -- not screwed to the eyepiece. As you look, slip the filter in between the eyepiece and your eye. All the stars get a lot dimmer, but the brightness of the planetary is virtually unchanged. If you keep moving the filter in and out from the position between eyepiece and eye, the effect will be that all the stars seem to blink back and forth from bright to dim, whereas the light from the planetary stays steady.

Second is the "prism" trick, which is based on the fact that the visible light from most planetaries is almost monochromatic: Thus when you look at a planetary through a prism, nothing happens -- the image is not stretched out into a streak because there is essentially only one wavelength present. Stellar images, on the other hand, become long, thin streaks, because stars, by and large, have continous spectrum. So suppose you are looking at a field of stars with a planetary, through an eyepiece with a long enough eye relief so you can get a prism in between it and your eye. Hold a prism as shown in Figure 1. You will probably have to practice some to find just the right positions of eye and prism for the trick to work, but when it does, you will find that all the star images have become long streaks, whereas the image of the planetary is still round. The prism need not be fancy -- I use a cheap 90°glass prism sold as a scientific toy.

The prism trick definitely requires more practice than the blinking trick. Neither trick is systematically better than the other -- blinking seems to work best with some planetaries, using the prism with others.

There is, of course, one planetary that blinks all by itself! This is NGC 6826, the Blinking Planetary, which you can find in the Skalnate Pleso or in Norton's (as 73^{4}) in northwestern Cygnus. It is ninth magnitude, and half an arc-minute in diameter. In most telescopes, the central star can be seen when you are looking square at it, but the nebula is faint enough that averted vision helps a lot. However, when you do use averted vision, the reduced resolving power of the eye then makes the central star disappear in the nebulosity. As you switch back and forth from direct to averted vision, the star and nebula appear to turn off and on in alternation. I have seen this effect with four to fourteen-inch telescopes, better at some powers than at others.

Two other interesting planetaries are NGC 6572, in northeastern Ophiuchus, and NGC 6781 in western Aquila. Both are shown in Norton's and in the Skalnate Pleso, with NGC numbers. NGC 6572 is a ninth-magnitude disc a quarter arc-minute in diameter, with a twelth-magnitude central star. NGC 6781 is an irregular bright annulus almost two arc-minutes in diameter, of magnitude 12.5, with a 15.5-magnitude central star.

NGC 7293, the Helix Nebula, is a huge, faint planetary nebula in Aquarius, at (epoch 1950) $22^{h}27.0^{m}$, $-21^{\circ}06'$. It is shown in the Skalnate Pleso but not in Norton's. The Helix is fifteen arc-minutes across -- that's half the size of the Moon's disc -- and faint enough to require a large exit pupil. I have seen it in a 7 X 50 binocular.

In June, I looked for the planetaries NGC 6578 and NGC 6620, in Sagittarius, and couldn't find either one. I was using the excellent AAVSO Variable Star Atlas, which plots stars to magnitude 9.5, so there was no ambiguity about identifying the field. I did a little research, and found that the AAVSO Atlas, the Skalnate Pleso (charts), the Skalnate Pleso Catalog (book), and Burnham's Celestial Handbook all agree exactly on the positions of these two objects, and are all wrong! I found different positions in Sulentic and Tifft's Revised New General Catalog, and went back to the telescope with them. Sure enough, the planetaries were at the RNGC positions. NGC 6578 is about half a degree southeast of the erroneous position, and NGC 6620 is about a quarter degree east of the false location. That's clear in the next country when one is sweeping for a small, faint object. (Both these planetaries are thirteenth to fourteenth magnitude and around a tenth of an arc-minute in diameter.) The correct positions, precessed to 1950 coordinates (the RNGC uses epoch 1975), are:

NGC 6578: $18^h13.3^m$, s20°27'
NGC 6620: $18^h19.8^m$, s26°51'

Has anyone ever seen the Egg Nebula, In Cygnus? This twelfth-magnitude, one-third arc-minute object looks like some sort of odd, double-lobed planetary, but actually seems to be a reflection nebula associated with a recently-formed star. There was an article about it in the January, 1975 issue of Sky and Telescope. Coordinates for epoch 1950 are $21^h00.0^m$, n36°30'.

With Bob Kestner and Charlie Stifflemire to show me where the field was, I managed to locate some members of the Hercules Cluster of Galaxies with the C-14. In Figure 2, I show the finder field for the galaxies I found near the fifth-magnitude kappa Hercules. Limiting magnitude for the figure is about 9.5. The galaxies -- some five or six -- are in the dashed circle. The large dot at the right side of the circle is a star. These were faint objects for the C-14, though perhaps a 12½-inch might show them. I used powers of 71 and 122.

-- Jay Freeman

"What will I do when I've seen the last 300 objects in Burnham's? Take up scuba diving, I guess." Jay Freeman

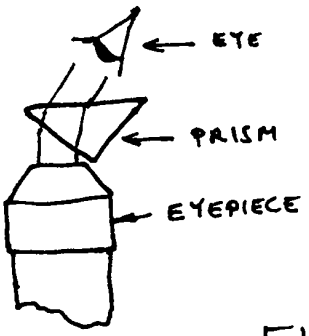

FIGURE 1

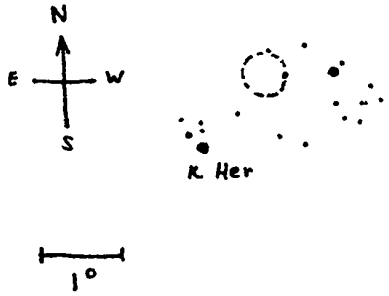

FIGURE 2

Who Owns Loma Prieta?

Those of you who went to the 1981 Messier Marathon on Loma Prieta may remember the controversy about us using the property. As it was, it was okay if we stayed on the road and did not block traffic. Since I use this area about 100-150 times a year, and have been for the past five years, I decided to try and find out who owns the property and their opinion of us using it and/or the road running through it. The County Acessor was able to help here; he told me a company known as C.H.Y. of Sacramento owns 500 acres up there, and that this probably invludes the area we set up on. I wrote to them in late May explaining who I am and what I do, and asked if I could continue using this land for my non-destructive hobby. The reply was that my work sounds "interesting and worthwhile" but that due to insurance policy, they cannot give me written permission to use the property. I would guess that they would liable if they did and they would rather avoid all that. So we have no written permission from the people who we believe own the property at this time.

The people who live down the road and drive past us are quite pleased to have us there. and they would be willing to stand up and say so. I believe that if we don't go off of the road we'll be okay.

Don Machholz
(408)448-7077

SPACE PROGRAM UPDATE

by Bob Fingerhut

Shuttle Schedule

The shuttle orbiter Columbia has been mated to its fuel tank and solid boosters for the second flight. The nine day Shuttle Interface Test was begun at 8 AM Monday 17 August in the Vertical Assembly Building. NASA is running behind schedule for rollout of the vehicle to the launch pad, which may slip four or five days beyond the planned August 26 date. Such a slip would likely impact the planned Sept. 30 launch for STS-2.

Solar Mesosphere Explorer to Track Ozone Production

The Solar Mesosphere Explorer is scheduled for launch about Sept, 15 from Vandenberg AFB. The 958-lb spacecraft carries five instruments to monitor ozone, minor atmospheric instruments, temperature, water vapor and the amount of incoming solar radiation to determine the role each plays in ozone production in the mesosphere extending 19 to 50 miles above the earth and the overlapping upper atmosphere extending about 30 miles. The spacecraft will be placed into a sun-synchronous, 336 mile orbit.

Reusable Relics

NASA hopes to save more than $500,000 by pulling spaceflight hardware out of the Smithsonian Institute's National Air and Space Museum for flight in the shuttle and spacelab program. 35 fans were recently removed from the backup Skylab space station in the museum. Each unit would have cost over $22,000 to procure since they use special materials and brushless d.c. motors that will not create sparks.

NASA/RCA Twin Dynamics Explorer Spacecraft Put in Abnormal Orbit

The two spacecrafts were put in the wrong orbits Aug 3 as a result of a short burn of the second stage of the Delta 3913 booster following launch from Vandenberg AFB. The Dynamics Explorer science mission is expected to be completed in spite of the abnormal orbits.

Planned Shuttle Schedule

NASA has scheduled the third space shuttle launch for Jan 18, 1982. Planning documents specify other launch dates as May 3, 1982 for Flight 4; Sept 1982 for Flight 5; Dec., 1982 for Flight 6; March, 1983 for Flight 7, and May, 1983 for Flight 8

DETERMINING NAKED-EYE MAGNITUDE LIMIT USING THE "GREAT SQUARE OF PEGASUS"

by Don Machholz

Between the constellations of Andromeda and Pegasus are four second-magnitude stars forming a square of about 15 degrees on each side. By counting the number of stars within this square, one could get a rough estimate of the faintest stars visible. Listed below are the stars in decreasing magnitude which are within the square. Count the number of stars you see and read off the magnitude next to the number. The magnitudes are taken from the "Atlas of the Heavens Catalogue."

# of stars observed	Mag.	# of stars observed	Mag.
1	4.57	9	5.87
2	4.65	10	5.91
3	4.75	11	5.93
4	4.98	12	5.94
5	5.23	13	6.14
6	5.42	14	6.18
7	5.51	15	6.22
8	5.69	16	6.23

ASTRONOMICAL WEEKEND

by Bill Dellinges

I would like to share with you an unique experience I had recently. On the nights of July 31 and August 1, I participated in Dr. William Kaufmann's "Exploring the Universe" weekend workshop at Incline Village, Lake Tahoe. The class met at an observatory on the estate of Mr. Gordon MacLean, a Trustee of Sierra Nevada College.

The observatory site is about ten miles up the Mt. Rose Highway at an elevation of 8300 feet and houses a Celestron-22. The class was limited to twenty persons and was split into two groups to facilitate movement in the dome area. While Dr. Kaufmann and one group toured the heavens with the C-22, the others were free to take a break outside the dome area where one could chat with fellow observers and watch the many meteors which fell those nights. Also available downstairs (the observatory is some fifty feet or so above the ground, accessible via a fire escape-like stairway) was a rest area, basically a large garage which provided us with tables and chairs, coffee and donuts and protection from the chilly night air.

Surprisingly, only about a third of us had any stargazing experience. So we used the C-8 just outside (also provided by Mr. MacLean) to point out interesting celestial objects to the uninitiated while we waited our turn to use the C-22. My 11X80 binoculars were a big hit those nights, providing some nice wide field views of M45, M31/32/110, the Milky Way, the Coathanger in Vulpecula, the Double Cluster, Mel 11 in Coma Berenices and that lovely star rich area about one degree south of Alpha Persei which seems to be nameless but looks terrific in binoculars. My fellow stargazers were noticably excited about what they could see through them, providing a nice alternative to the high power - small field of the C-22.

I should say that this class is aimed at those who know little or nothing about the night sky and astronomy, and Dr. Kaufmann's comments at the telescope are very elementary. However, there are times when you can get him to the side for those heavy duty questions you have. Also, considering our location and elevation, the night sky seemed to be unusually bright. I have seen a much darker sky at Big Sur at zero elevation.

If you're wondering what it's like to see all those popular summer objects through a C-22, let me say this. They were a little brighter than what you can see in a C-14. I don't think the light grasp of the C-22 is that much more impressive than the C-14.

Of course, that's just me opinion. Not that it matters anyway, it was the event itself, the "happening" that made it a great weekend. Dr. Kaufmann, the C-22, being out there on Mt. Rose, meteors, learning, teaching, shooting the bull with other night owl's like myself all contributed to a fun weekend. I recommend this work shop to anyone who enjoys playing with telescopes and observing the night sky.

The tuition was $165.00 and I believe the rest of the sessions this summer are booked full. However, since this class was offered last year, I would think there's a good chance it will be repeated again next year. For information regarding this seminar, write:

Astronomy Weekend
C/O Dr. Greg Voge, Academic Dean
Sierra Nevada College
P.O. Box 4269
Incline Village, Nevada 89450

SPACE TELESCOPE STATUS

After two and a half years of being shaped & polished to within .000001 inch of theoretical perfection, the primary mirror for NASA's Space Telescope is now in the final stage of optical fabrication, undergoing the first of two extremely thin coatings before installation in its vehicle. When the 12-ton, 94-inch telescope is placed in orbit -- early in 1985 on the present schedule -- it should be able to see stars 50 times fainter than can now be observed with earth-bound telescopes.

from August, 1981 Optical Spectra

Dealing With Light Pollution

SHOOT-OUT AT BILLY BOB'S TRUCK STOP

In the state of Texas the minimum legal length for a shotgun barrel in 18 inches, although most police feel that 20 inches gives rise to a tighter pattern. Since we will be using slugs for most mercury vapor lights, the extra two inches gives us no particular advantage and might possibly be a hinderance in terms of concealment or a quick getaway. Sawing the stock is definity not recommended because we want as much control over the ballistics as possible.

It should be noted that the above suggestion is a last ditch, desperation measure on the part of the amateur who is attempting to stake his claim on a piece of dark sky. There are more subtle measure such as bribery, but the few individuals who can realistically consider this alternative could probably buy a piece of land so remote that they would never have to worry about mercury vapor lamps again.

Finally, we are left with the art of persuassion. Here we have quite a bit of latitude. Persuassion can be everything from a gentle word dropped in the right ear to a broken face. Let us look at an example.

Billy Bob Simmons is the owner of a truck stop. The site consists of a half acre of land, two tin buildings and 487 mercury vapor lights. The first thing a conscientious amateur would want to do is (a) convince Mr. Simmons that all of that light isn't necessary, (b) that he would be dollars ahead of the game if he cut out some lights, (c) that it would be cheaper to make the existing lights more efficient by installing shields and (d) such a plan of action would be the patriotic thing to do. We include the patriotism angle because Billy Bob's politics are known to be somewhere to the right of Ganghis Khan. You can dig up some other angle to fit your particular situation.

The responsible thing to do is to pay a visit to your tormentor. In this particular situation, we call on Billy Bob at his office during his lunch break. We find him sitting at his desk, eating chicken fried steak and mashed potatoes with his hands. We must be very careful not to mention astronomy or any other science, because Billy Bob doesn't like scientists and doesn't trust anyone who has finished ninth grade. In order to make the best possible impression, we have donned suitably worn and faded Levi's, some old Nocona boots, a shirt with pearl snaps and a beat-up, straw cowboy hat. Before entering his inner sanctum, we place a judicious pinch of Red Man 'twixt cheek and gum and stroll in.

"Afternoon, Billy Bob," we say smiling.

"Muphgruh," he says. This is going to be more difficult than we thought.

"Hey, Billy Bob," we say forging ahead, "I was wonderin' what yore doin' with all them light ya got outside?"

"I need 'em."

"What-in-na-hell fer?"

"I gotta have 'em to keep off the communists and the hippies."

What would a communist want with a capitalistic lackey outfit like a truck stop anyway? Maybe we should put him out of his misery right here and now, but that's what we came here to aviod. So we press on.

"Ya know, I wuz talkin' to a friend of mine yesterday, ya know, Tommy Lee, who works down at the power plant. Anyway, he says that a light costs about twenty bucks a day to run. Yew gotta lotta lights out there. It must be a purdy good 'lectric bill."

"It's purdy healthy," he says, licking his fingers.

"Well, there's a guy in town that has somthin' called a shield that makes a light work better. He says that it don't cost much to put up, and it don't waste so much energy. Ya know, I'd hate ta do anythin' ta help the Eye-rainians."

"Hmmm," says Billy Bob. He's obviously thinking hard about it. Smoke is coming out of his ears.

"Well, I gotta go. I gotta look at some cows," we say, edging for the door. "Ya know, I talked to the sheriff the other day and he said that a place got robbed that had a bunch pf lights like this place has. Said that the crooks didn't need flashlights with all the streetlights around. Said it just gave 'em an extra hand to carry off the stuff."

Billy Bob's eyes are beginning to glaze over with the effort of thinking about electricity bills, Iranians, crooks, and, undoubtedly, communists. We quietly leave and head for the car after depositing the Red Man in an inconspicuous corner. In a few weeks we will see what fruit comes from the seeds we planted today.

And if that doesn't work, there's always the shotgun.

Rod Fleming
Focus
Denton County Astronomical Society
Denton, Texas

Private Astronomy

Sometimes I'll sit below
that darkened hollow, all
sequined and almost gaudy
with suspended fires.

It is a taste of wildness that
of being alone with the night
and reaching for delicate light
perched upon the very edge of imagination

When it isn't embarrasing to
fancy the hum of the Universe
in my ear, or feel its mysterious
essence careening through my veins.

Peering behind the clock at old
light, no-one will jest if I
wonder that I am witness to an
apparent asymetry in time.

Relentlessly it drags us thrashing
and protesting from past to future.
Yet, in the gentlest comedy, I glance
skyward and know myself <u>as</u> the future.

For moments then, I can linger
in the fine little ache that
wells up, the one I keep
private when others are near-by.

"Why I'd like to sail away
out there! Sail clean away in
a good sterile machine, so
sleek and fast, slicing through
the vacuum like..."

A spray of dew in the air,
a soft milk on the horizon
heralds the edge of day
I'll tuck it all away—
in my heart, in my car,
and one last meteor down...just for me.

Janice Smith

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