the san jose astronomical association

Bulletin

august 1982

Ephemeris

August 7 General Meeting. A talk on "Light Pollution"--by someone who won a battle against it! Our speaker will be Dr. Sandra Faber of Lick Observatory. NOTE: THIS MEETING WILL BE HELD AT THE LOS GATOS RED CROSS, 18011 Los Gatos Saratoga Road, NOT AT DE ANZA COLLEGE! 8:00 PM.

August 12 The Perseid meteor shower peaks this AM. (Light from the last-quarter moon, rising about midnight, will interfere somewhat with the dimmer members. With the coming return of Swift-Tuttle, the parent comet, hourly counts have been 100 or more.)

August 13 Board Meeting: at Gene Cisneros' Optron Systems store, 704 Charcot, San Jose. Call Gene at (408) 923-6800 for directions. Topics will include the latest on the SJAA tax status, setting up the October SJAA events calendar, and the great July non-Bulletin Bulletin debacle. If it gets too hot and heavy, there will be Perseids overhead.

August 14 Star Party at Henry Coe State Park. Take 101 south to the Gilroy area; get off at the East Dunne Av. exit; go east past Anderson Reservoir; wind up the mountain for 12 miles; go past the park entrance to the old ranch buildings. A horse trough stands near the locked gate on the left that leads to the SJAA site. As usual, the SJAA lock combo is 4565. Please relock the gate after you enter. Plan on spending a lot of time on your back; bring a camera with time-exposure, a tripod, wide-angle lens, and some fast color film (ASA 200 or 400), and enjoy and record the Perseid show! Overnight campsites are available.

August 21 Star Party at Fremont Peak State Park, at Coulter Group Camp. Take 101 south to San Juan Bautista (Hwy 156); take 156 east for three miles; turn right at the flashing yellow light (road G-1). Go about a quarter mile, then take the middle fork, and wind your way up to the park. Overnight camping is possible.

Aug. 27-29 WAA/AANC/NASA Joint Conference on Astronomy, at NASA Ames Research Center in Mountain View. Space is limited to 300 and is filling fast! See the application form included in July's Bulletin. No scheduled SJAA club activities this weekend.

Sept. 4 Indoor Star Party; Los Gatos Red Cross building, 18011 Los Gatos Saratoga Road; Bring your meteor, lunar eclipse, and other astrophotos, and any other current work in progress, including mirrors to be ground; 7:30 PM.

Sept. 10 Board Meeting. Don van Zandt's, 168 Waverley, Palo Alto. Call Don at (415) 327-3158 for directions. Everyone is welcome; 8 PM.

Sept. 11 General Meeting. Dr. SY Stein of Ames Research Center will discuss past and present space medicine research. Room S-34 at De Anza College; 8PM.

Sept. 18 Star Party at Fremont Peak Coulter Group Camp. Also, the China Lake Astronomical Society's annual Tehachapi Star Party; call Denni if you want to convoy down.

Sept. 25 Indoor Star Party at the Los Gatos Red Cross, 18011 Los Gatos Saratoga Road. Ongoing mirror making and telescope design by doing; 7:30 PM.

The SJAA Bulletin is published monthly by the SAN JOSE ASTRONOMICAL ASSOCIATION, 3509 Calico Avenue, 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 are available to non-members for $7/year.

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BULLETIN DEADLINE IS THE 15TH OF THE MONTH PRECEDING PUBLICATION.

Observations

by Steve Greenberg

As you have probably noticed by now, the July Bulletin was delayed even before it reached the post office. I wish to appologize to all club members who did not receive a timely second notification of the SJAA's July events, including the definitive announcement of the location for (and the total lack of directions to) the club picnic and the July Board Meeting; and to those board members who worked overtime to put the pieces back together.

I would also like to thank those members and subscribers who have already made valuable suggestions as to where I should go, and what I should do in the future, should anything similar happen. I will always be open to constructive suggestions about how to improve the Bulletin.

LAST OFFICIAL CALL FOR DUES! As of July 10th, dues from the following SJAA members and Bulletin subscribers had not reached Shea Pratt at 474 Safari Drive, San Jose, CA 95123. If your name is on the following list, and you have not already renewed your membership or subscription by the 15th of August, this will be your last Bulletin.

Unpaid Members

Von Bower
Theresa Channell
Charles Chew ($10.50 balance)
Christopher Colvin
Robert and Roberta Crapo
George Deirwert
Thor Devenish
Fred Eatock
R. E. Erickson
Herman Ferrier
Ronald Hansen
Orland Horn
Clifford Jones
Martin Kavanagh
Jeffrey Lo
Jim Loos
Donald Maples
David Mathis
Norm Neinchel
Richard Ortiz
Tom Palmer
Jack and Pat Parker
M. T. Peddy
Carlton Perry
David Pratt II
John Rhodes
Stephen Rosenthal
Robert Russo
Edwin Sabin
Ken Sakamoto
Walter Schoendorf
Ronald Seefred
Janice Smith
Glenn Taylor
Virgil Voss
Ira Weiss

Unpaid Bulletin Subscribers

John Bally (Denni? Ed.)
Brad Carlson
Paul Cornett
Robert Kestner ($4.00 balance)
Richard and Susan Larson
Peter Manly
Jack Marling
Kevin Ritschel
Richard Segel
Virginia Stark
William Steyding
Bruce Swayze
Allen Takahashi
Kenneth Wilson

Attention Pocket Computer Owners: Geophysicist Fred Klein, whose "New List of 450 Deep-Sky Objects for Amateur Telescopes" was reviewed in the March Bulletin, has now written several astronomy programs for the Radio Shack pocket computer. As the next stage in their development, he would like volunteers to field-test them. Fred will provide each observer with a cassette, documentation, and program listings. (These materials should also work on the Sharp PC 1211.) If you are interested, please contact: Patti Winter; P.O. Box 537; Menlo Park, CA 94025; (415) 326-8614.

In The Recent Literature. The April, 1982 issue of Physics Today has an excellent (semi-technical) article on "The Solar Cycle" for those of you interested in current developments in the world of sunspots; solar cycles, pulsations and vibrations, magnetic fields, the changing(?) solar constant; and their effect on our climate. This same issue also contains a well-written article giving the basic details of the National Academy of Sciences recent report on funding priorities for astronomy and astrophysics in the 1980's. [The cover story for the July, 1981 issue of the same magazine was "Astronomers in Industry". A letter that appeared in the February, 1982 issue includes a fascinating detailed list of how many astronomers (281) work for what government agencies (15) and consultants (16).]

If your young (subteen) son or daughter is interested in astronomy, but is unable (or unwilling) to regularly plow through S&T and Astronomy magazines for further information, I highly recommend Astromedia's Odyssey magazine. It includes well-done articles on themes of current interest in astronomy and the space program, a star and planet finder for the month, a monthly pull-out construction project, a short biography of a famous astronomically related person, The Richard and Robert (Guess Who?) Show, a question and answer section, art contests, puzzles, and very active letters and reader projects departments.

Perhaps the best recommendation I can make is to note that my son Dan has yet to see the last two issues; and to quote a comment made to me by one of the two adults (about thirty years old) who do have them. (They are complete astronomical novices, who are interested in learning more about the sky.) "Now, THIS is more my speed!" I'm sure they'll be reading S&T and Astronomy shortly, but the simple and clearly written explanations and diagrams in Odyssey make good introductory material for children of all ages.

Also in the literature this month is SJAA member Patti Winter's article on "Astro Apples", in this quarter's Apple Magazine. Several very interesting applications of Apple computers in astronomy, space shuttle remote sensing, and satellite location, are discussed in it. This magazine (if memory serves) is available through local Apple computer dealers.

Uncle Editor Wants (To Help) You! (Part III). Scenario: You're new to the authoring business, and happen to be writing an important letter, or even (subtle hint) a Bulletin article, and wonder whether "who" or "whom" is correct. But, horror of horrors, you can't find your friendly local editor! Don't panic and stop writing! Dial Grammarphone -- (301) 689-4327. This public service is provided by the English Department at the Frostburg, Maryland, State College. It is manned weekdays from ten AM to noon (their local time) by volunteer faculty members, and all it costs is the price of a phone call.

In a more serious vein, I have been truly impressed by the quality of the articles and notes sent in recently, responding to my requests for broader clubmember participation in the Bulletin. Thank you very much, and I hope that this effort will continue.

If there is some club function that you've attended, a book that you would like to see reviewed, or some other subject that you wish to see written up in the Bulletin, you can assure that it's there for everyone to read, by writing it up yourself. Then, send it to me at: P.O. Box 262; Menlo Park, CA 94025.

World's Most Compact Telescope! For two years now, I've been trying to design a compact telescope to travel with me to solar eclipses, and other events, where every extra inch and ounce can be a real annoyance. Once again, I've been beaten to the punch. A couple of months ago, once-tight security restrictions were dropped by my current employer, world famous(?) for designing small nuclear weapons. Apparently, a completely new technology has been applied to telescope design, as inadvertently announced by the Livermore Lab's local weekly newspaper. "Edmund 8" F/8, 63.8 focal length, parabolic telescope in mirror and elliptical mirror, orig. $230, sell for $175." (Shades of Roger Hayward's Schmidt Cassegrain one-piece glass microscope!) And, if this development isn't enough to whet your appetite, the same ad also appeals to those amateurs who desire rock-solid focusing, combined with the largest aperture possible for a given size: "A - 1st quality planetary refractor up to 600x/large 15 cm aperture/air-spaced/coated/achromatic obj. lens/rock & pinion focusing & more/$500."

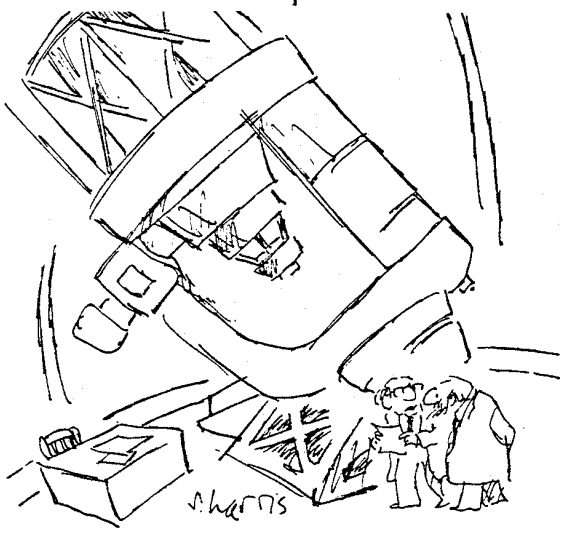
Club Telescopes. Due to my living under my car for several days in June, while replacing the transmission and rebuilding the engine; my going to the STS-4 landing immediately after that; and moving my domicile in July, I have lost track of the club telescopes. If you are in possesion of one of them, please call me at the new number listed in this issue, (415) 443-6638; or write to me at P.O. Box 262, Menlo Park, CA 94025.

Club nameplates with your name and the SJAA logo are available from Jack Zeiders. They are a very attractive gold-and-black design, approximately 1"x3". To order one, sign up at any ISP or General Meeting, or send $3.00 to Jack at 2961 Magliocco Drive, #3, San Jose, CA 95128.

Ads

TIRION ATLASES: Field and desk editions available from the SJAA at a good discount. Contact Shea Pratt, (408) 629-2994.

For Sale: C-8; coatings; wedge; tripod; Accutrak Compact two-axis; five eyepieces, Barlow, prime focus adapter, tele-extender, off-axis guider, University Optics Omniguide reticle, deluxe telecompressor; and, a Celestron-Williams cold camera. All in new condition: $1700 for everything. Contact: Gary Hethcoat, at (408) 251-4719, evenings.



"The only part of the universe which *isn't* expanding is the budget for this place."

Galaxy

—the Bulletin's miscellany department.

by Jim van Nuland

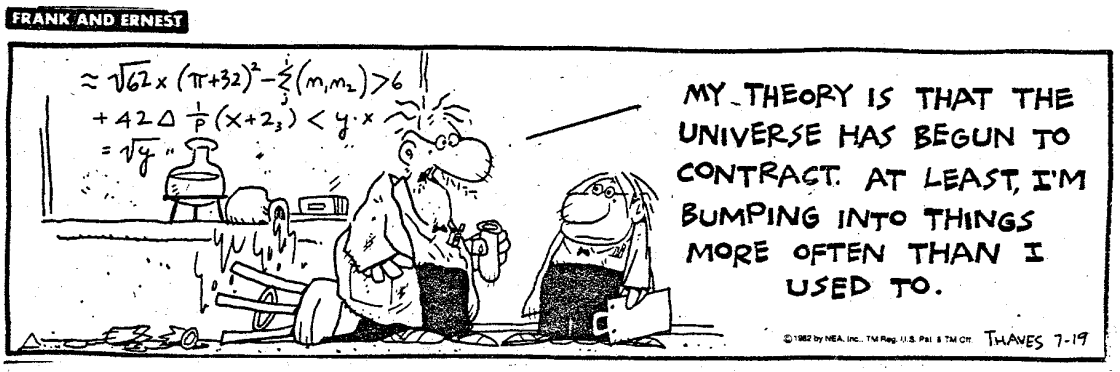
The following table gives the times at which the Great Red Spot is in transit across the face of Jupiter, and is therefore facing directly toward Earth. Try to detect the Spot, east of the central meridian, about a half an hour before the times given. You should be able to follow it for a little longer afterward.

da	mo	d	h	m
W	8	11	08	57 pm
M	8	16	08	5 pm
Sa	8	28	08	6 pm

Jupiter is now well-placed during twilight, but will soon slide behind the sun. I have moved the limits to include mid-twilight transits of the Spot, and I have also included some transits for which Jupiter may be too low for adequate seeing.

I see the Spot as bright yellow, though other observers at Riverside called it pink. You might try some comparisons using various apertures. Let me know what you find out.

This will be the last Red Spot ephemeris for the current apparition. Recovery will be attempted when Jupiter watching resumes in November.



The Celestial Tourist Speaks

by Jay Reynolds Freeman

The near-coincidence of the July lunar eclipse with Independence Day provided me with a little amusement. As the Moon slid into the Earth's shadow on the evening of the fifth, Belmont was full of leftover revelers setting off leftover firecrackers. They put me in mind of earlier days when superstitious barbarians made loud noises to frighten off the demons who were devouring the Moon. Contemporary barbarians are possibly less superstitious than those of yore, but they certainly suffer no lack of noisemakers. In any case, those of us who were rooting for the demons were not disappointed, for the eclipse was deep and colorful.

The view through binoculars just before the onset of totality seemed strangely familiar to me -- strange, because I had not seen a lunar eclipse for two decades, and certainly never one with such a deep shade of red. Then I realized that the Moon was mimicking the Martian disc, which I had spent much time observing during this most recent opposition. The last thin sliver of Luna that was still receiving direct sunlight was imitating a pale white polar cap, while the rest of the orb, with its ruddy hue and dark, shadowy markings, was providing a fairly good simulation of the ocher and greenish-black of Mars.

This month, I did some comparative testing of eyepiece types. While rummaging through my eyepiece box, I found three different kinds of half-inch focal-length eyepieces: the 12.4-mm Meade Research-Grade Erfle that I've mentioned here before; the 12-mm Orthoscopic that came with my Celestron 14; and a nondescript 12-mm Kellner that I had picked up used, a few years ago, at Riverside.

On paging through my stack of manufacturers' catalogs, I noticed that Jaegers listed a coated Ramsden for $8.75, and I ordered one to round out the collection.

The Ramsden is not only the least expensive of the eyepieces I tested, but it also is about as inexpensive an eyepiece as you'll see anywhere. By way of contrast, the Erfle was recently listed (by Crown Optics) at $35.00. I suspect that the Kellner would list for about $20.00, or so.

Both the Ramsden and Kellner have apparent fields of view that are (at best) modest. Measuring roughly, I got about 35° for both of them. The Orthoscopic offers a little more (perhaps 40°), while the Erfle appears to be achieving the 65°, or better, that they are famous for.

The Ramsden and Kellner share a couple of minor design quirks. First, when you look through these eyepieces, dust on their front lenses is pretty much in focus. And, of course, you can never get the front lens perfectly clean! How much of a bother this is depends on what you are looking at: (dust shows up worse against the Moon than against a star field); and on your personal aesthetics (just as dirty windows bother some people more than others). Second, when a very bright object is in the field, both lenses show noticeable "ghost" images; spurious reflections, which are incompletely circumvented by the coatings. The Orthoscopic and Erfle are free of these two problems.

I took this eyepiece collection to the Club's June 19th star party at Henry Coe State Park, and tried out each of them on three different telescopes: a Celestron 11, whose focal ratio is f/10; an 8-inch f/6 Newtonian and a 13.1-inch f/4.5 Newtonian. All three telescopes seemed to have decent optics in good collimation, but of course, the fast paraboloid showed a good deal of coma in its own right. In all cases, the test object was Vega. I let the star drift across the fields of view, and noted what the image looked like at different places.

At f/10, with the C-11, all four eyepieces showed no image defects (that I could notice) across the central 25° to 30° of their fields of view. They would be completely indistinguishable for looking at planets, double stars, or other narrow-field objects. In the outer 5° or so of the field, the Kellner and Ramsden images both showed slight deterioration, but of different kinds. The Ramsden had lateral chromatic aberration: stellar images near the edge of the field were trailed out into tiny spectra. The Kellner showed no trace of color at the edge of its field, but did exhibit enlarged images, with mixed coma and astigmatism. For observing stars, it is difficult to say which aberration is worse. For looking at extended objects, the lateral color is probably worse, because it would cause colored fringes to appear at the edges of things in the outer part of the field of view.

Still using the C-11 at f/10: the Orthoscopic showed good image quality at a distance from the center of the field where the Kellner and Ramsden were beginning to have trouble; and it continued to show good images all the way to the edge of its slightly larger field. I got the impression that the stop limiting the field of view on the Orthoscopic, could have been made a little larger with no ill aesthetic effects.

Continuing at f/10: the Erfle matched or exceeded the Orthoscopic all the way across the latter's field. And, the Erfle continued to give good images almost all the way to the extreme edge of its own very much larger field.

At f/10, the bottom line appeared to be that the less expensive eyepieces were completely satisfactory over their respective narrow fields; and, that more money bought wider fields -- not better images.

Results with the 8-inch f/6 Newtonian were qualitatively similar. However, the effects from the paraboloid's own intrinsic coma were beginning to be detectable off axis, and the Ramsden and Kellner were both doing a little bit worse at the edges of their respective fields (as compared to the Orthoscopic and Erfle). However, I would still rate the Kellner and Ramsden as being completely satisfactory for narrow-field objects at this f-number. It was particularly pleasing to see that a nine-dollar budget special, like the Ramsden, could hang in there and give critically sharp definition near the center of its field, even at a moderately fast f/6 focal ratio.

With the f/4.5 Newtonian, all of the eyepieces were in trouble because of the intrinsic coma of the paraboloid. Besides this, the Ramsden and Kellner were also suffering severely, due to their own intrinsic aberrations. These two eyepieces were definitely not satisfactory with this telescope. Considering the coma of the paraboloid, the Orthoscopic

and Erfle were doing as well as could be expected. At such fast f-numbers, the bottom line was that the more expensive eyepieces begin to pay for themselves not only in field of view, but also in image quality.

One C-11 owner at the star party had a 13-mm Nagler eyepiece. I didn't ask to borrow this $200 item to try on the other telescopes, but I did use it on the C-11. The more than 80° apparent field gave a real "porthole" effect. The aesthetics were delightful, and the wide field helped in finding things. And yet, the field was not completely usable. Specifically, if I rotated my eyeball so as to look squarely at the edge of the field (as I might for testing image quality, or for trying to see fine detail there), the fact that the lens and pupil of my eye were now somewhat kitty-corner to the optical axis induced a noticeably uneven illumination across the field of view. That's not strictly a problem with the Nagler design. It's just a fact of life with very wide apparent fields of view. In other respects, the eyepiece seemed to be excellent.

A BASIC Program for Converting Right Ascension and Declination to Azimuth and Elevation

by Jeff Horne and Sean Spratt

A few months ago, we heard someone discussing the possibility of using a Dobsonian with azimuth and elevation circles for finding celestial objects. The process involved converting Right Ascension (RA) and Declination (Dec) to azimuth (Az) and elevation (El). (The April, 1982 issue of Astronomy magazine has an article on "Altazimuth Setting Circles", by Paul Burke, in the Equipment Atlas (p.74), if you wish to delve further into this subject. Ed.) While the mathematics is a simple coordinate conversion, one must first have an accurate source of local sidereal time for the conversion to be effective. Several versions of a converter are available for handheld calculators, but their price is a bit high.

In light of this, we decided to write a program that could be used with a computer (or a programmable calculator) without using tables. Our program is written in standard BASIC, which can be used on most personal computers. Although it will require conversion to other languages for use with a TI-55 or HP-41, it will still give you a good start.

It is possible to bring a regular computer (such as a TRS-80 or Apple) into the field: if it does not use too much power, can be adapted to 12 volts DC, and you have a battery-powered TV.

One of the new small handheld computers, such as the Sinclair ZX-81 (with 16K of memory), will handle the job easily. Even better would be the Sharp PC-1500 or the Radio Shack PC-2, both of which require no external power or TV set. You will also need azimuth and altitude circles on your telescope. (A level for the mount, and two circular protractors will do.)

Our program first asks for your latitude and longitude in degrees and minutes; then it asks for the current date; then for the RA and Dec of the desired object; and finally, for the current universal time.

Lines 150 to 240 calculate the current local sidereal time; lines 250 to 310 do the coordinate conversion; and lines 320 to 360 print out the new coordinate information.

(Some makes of personal computers will not accept multiple program statements on a single line. If this is the case with your computer, such lines in this program would have to be broken up into individual statements. If you overcome any other difficulties in adapting this program to your system, please drop me a line, so we can start a file to help others with similar problems. Ed.)

```
10 REM AZ-EL CONVERSION
20 PI=ATN(1)*4:DR=PI/180:REM INITIAL PARAMETERS
30 PRINT"ENTER LAT-DEG,MIN AND WEST LONG-DEG,MIN"
40 INPUT LD,LM,LG,LS
50 LT=(LD+LM/60)*DR:LN=360-(LG+LS/60)
60 PRINT"ENTER YEAR,MONTH,DAY"
70 INPUT YR,MN,DY
80 PRINT"ENTER RA-HH,MIN AND DEC-DEG,MIN"
90 INPUT RH,RM,DG,DM
100 RA=RH+RM/60:DC=(DG+DM/60)*DR
110 PRINT"ENTER CURRENT UNIVERSAL TIME-HH,MM,SS"
120 INPUT HH,MM,SS
130 DD=(HH+MM/60+SS/3600)/24:FF=365*YR+DY+31*(MN-1)
140 IF MN>2 THEN 170
150 FF=FF+INT((YR-1)/4)-INT(.75*INT(((YR-10/100)+1)))
160 GOTO 180
170 FF=FF-INT(.4*MN+2.3)+INT(YR/4)-INT(.75*(INT(YR/100)+1))
180 TT=FF-719527+DD
190 GH=99.2439+.98564733*TT+DD*360
200 SD=(GH-INT(GH/360)*360+LN)/15
210 IF SD>24 THEN SD=SD-24
220 HA=(RA-SD)*DR*15
230 H=SIN(DC)*SIN(LT)+COS(DC)*COS(LT)*COS(HA)
240 H=ATN(H/SQR(-H*H+1)):REM ALTITUDE
250 AZ=(SIN(DC)-SIN(H)*SIN(LT))/(COS(H)*COS(LT))
260 AZ=-ATN(AZ/SQR(-AZ*AZ+1))+PI/2:REM AZIMUTH
270 H=H/DR:AZ=AZ/DR:PRINT:PRINT
280 IF HA<0 THEN AZ=360-AZ
290 SM=(SD-INT(SD))*60:SC=(SM-INT(SM))*60
300 PRINT" AZIMUTH ";AZ:PRINT" ELEVATION";H:PRINT:PRINT
310 PRINT"SIDEREAL TIME";INT(SD);":";INT(SM);":";INT(SC)
320 PRINT:PRINT
330 PRINT"ANOTHER OBJECT? Y OR N":INPUT A$
340 IF A$="N" THEN 360
350 GOTO 80
360 END
```

Example: A Sample Run

```
RUN
ENTER LAT-DEG,MIN AND WEST LONG-DEG,MIN
?32,30,118,25
ENTER YEAR,MONTH,DAY
? 1982,2,15
ENTER RA-HH,MIN AND DEC-DEG,MIN
? 5,22,27,10
ENTER CURRENT UNIVERSAL TIME-HH,MM,SS
? 2,15,00
 AZIMUTH  93.5340938
 ELEVATION 63.2864351
SIDEREAL TIME 3 : 20 : 51
ANOTHER OBJECT? Y OR N
? N
RUN
ENTER LAT-DEG,MIN AND WEST LONG-DEG,MIN
? 32,30,118,25
ENTER YEAR,MONTH,DAY
? 1982,5,11
ENTER RA-HH,MIN AND DEC-DEG,MIN
? 8,22,45,10
ENTER CURRENT UNIVERSAL TIME-HH,MM,SS
? 5,30,00
 AZIMUTH  304.785187
 ELEVATION 37.6500341
SIDEREAL TIME 12 : 51 : 3
ANOTHER OBJECT? Y OR N
? N
```

Comet Comments

by Don Machholz

A new comet has recently been discovered by Rodney Austin, an observer in New Zealand. It will remain visible in the southern hemisphere only until mid-August. Afterwards, it should be visible in the evening sky to those of us in the northern hemisphere. This is the first comet discovery by an amateur astronomer in 1-1/2 years, and the first for this observer.

There are no other bright comets now visible; although, in a couple of months, two returning comets will capture our attention.

Comet Austin (1982g) was discovered on the morning of June 18th, when this magnitude 10.2 comet was 60° south of the sun. It will pass closest to the sun on August 24th, at a distance of 0.65 astronomical unit (AU). It will be closest to the earth in early August, at 0.30 AU. Because it will be near to the earth in August, it will appear to move very rapidly.

Comet Austin (1982g)

DATE (UT)	R.A.	DEC.	MAG.
07-30	05h 50.6m	-19°18'	5.7
08-04	06h 32.8m	-07°40'	5.0
08-09	07h 37.2m	+10°56'	4.2
08-14	09h 02.6m	+30°22'	4.2
08-19	10h 25.3m	+41°01'	4.4
08-21	10h 51.9m	+42°58'	4.6
08-23	11h 14.1m	+44°06'	4.8
08-25	11h 32.4m	+44°41'	5.0
08-27	11h 47.2m	+44°52'	5.2
08-29	11h 59.0m	+44°49'	5.5
08-31	12h 08.6m	+44°36'	5.7

Moving northward and crossing the ecliptic in mid-August, Comet Austin will be in the sun's glare until it enters the evening sky later in August. I hope to have more predictions later; call me for them, at (408) 448-7077.

Great Comets: Comet Bennett (1969i 1970II) Discovered by Jack Bennett (of Pretoria, South Africa) on December 28th, 1979 (at RA 01h 03.3m; Dec -65°50') this comet moved north from its discovery position. Its magnitude at discovery was estimated as 8.5 to 9.0, but by April, 1970, it was a fine magnitude 1.5 object in the morning sky. It displayed two tails (one gas and one dust) some 29° long. Additionally, one of our orbiting satellites detected a hydrogen cloud around the coma of the comet -- measuring eight million miles in diameter. After coming to within 50 million miles of the sun (on March 20th, 1970), Comet Bennett rocketed back into deep space, where it will remain for a long, long time.

SJAA PICNIC

by Denni Frerichs

Approximately fifty people attended what has now become the annual SJAA picnic, held this year on July 10th at Cupertino's Portal Park. Officially, it is held to install the new officers and board members for the following year, and to present the Dr. A. B. Gregory Award to its recipient. In actuality, however, it has become a day for SJAA members, associates and families to get together and play frisbie, fly kites, and eat. And eat. And eat. This year most of the hamburgers and hot dogs provided by the club were consumed along with gourmet salads, appetizers, salsa, and desserts (and desserts, and desserts, and desserts) brought potluck by the attendees. How about the San Jose Gastronomical Association? It would certainly fit this group just as well.

Some astronomy was attended to, though, with Gerry Rattley's C-90 set up in the picnic area all day, showing us a beautiful group of sunspots. But, most of the time was spent dodging insanely-thrown frisbies (Chuck Olsen, Bruce deGraff, Bob Fingerhut, Gerry Rattley, Jack Zeiders, and Bill Cooke); disengaging kites from trees (John and Jane Cincotta, and Chris Pratt); keeping the kids from taking over the club (the Dibbells, deGraffs, Ambroses, Cisneros', Ahls, Gates', and Lowds); and eating (all of us!).

The club business was eventually attended to: the officers were installed (Do you plug in an officer or bolt one down?); and, the beautiful Dr. A. B. Gregory Award plaque was presented to Gerry Rattley, in a short ceremony.

Because the July Bulletin fell behind schedule, and the picnic was not as publically announced as it should have been, the board had worried about a small turnout. Many, many thanks to Chris and Shea Pratt, Jack Zeiders, and Bill Cooke for the Thursday and Friday night phone effort to notify as many members as possible. The SJAA apologizes to those of you whom we could not contact. Even with this handicap, the picnic was a success. It was good to see a number of new members show up: Florence and Howard Coleman; Jim Eistadt; Tom Ahl and family; and Wayne Rosing; as well as all the spouses and kids. (Can a C-90 be considered family?) We'll do it again next year -- even better!

Many thanks to Gerry Rattley and Chuck Olsen for handling the park reservations; to Chris and Shea Pratt and Jack Zeiders for the meat and condiment arrangements; to Jack Zeiders for designing and ordering the Gregory Award plaque*; and to Sharon Cisneros for the incredible German chocolate cake!

*For the past three years it has fallen on Jack Zeiders, the SJAA's resident artist, to design and order the plaque for the Dr. A. B. Gregory Award. Each year the artwork has been subtly different, making each one unique. This year he borrowed the 1981 plaque (the one presented to me) to use as an example, so that the trophy shop could get an idea of the general layout. When he went to pick Gerry's up the Thursday before the picnic, he was handed one that read: "The Gerald W. Rattley Award presented to Debra Frerichs-Medlock, ..." The trophy shop, whose name shall remain anonymous, explained to a shocked Jack that the person responsible no longer worked for them. After a hectic redesigning session, Jack was able to obtain a correct engraving and Gerry was presented with the proper plaque on time.

The SJAA is now stuck with a dilemma. Do we come up with a Gerald W. Rattley Award that I'm suitable for being the first recipient of, or will the brass plaque join the ranks as a SJAA frisbie?

("Well, at least it's not the Gerald W. Rattley Memorial Award." -- Gerry R.)

(A square frisbie?!? Wait till Whammo hears about this one! Ed.)

Space Program Update

by Bob Fingerhut

In Memorium. Esther C. Kirk Goddard, 81, died on June 4th at her home in Worchester, Massachusetts. She lived near the Auburn, Massachusetts site where her late husband, Dr. Robert H. Goddard, fired the world's first liquid-propelled rocket on March 16th, 1926. They met at Clark University, where Dr. Goddard taught physics and she was a secretary. She later became a very capable assistant in his rocket experiments, until his death in 1945.

In the 1960's, she won a decades long patent suit against the U.S. government, forcing it to pay royalties to his estate on dozens of patents, which it was infringing every time it launched a liquid-fueled rocket.

In the 1950s and '60s, she was an active supporter of the American Rocket Society and the National Space Club, and sought to ignite public interest in the space activities and dreams which she and Dr. Goddard had pioneered and shared for so long.

Columbia is Operational! The STS-4 mission ended successfully, with a perfect landing on the 15,000-foot long concrete runway at Edwards AFB. Mission controllers believe they have obtained results from 95% of the planned development tests. With the successful STS-4 mission behind her, Columbia has now completed her developmental test program and will start flying operational missions.

Return to Kennedy Space Center. Columbia left Edwards AFB at about 8 AM on July 14th, and arrived at the Kennedy Space Center on July 15th. (NASA officials, after the shuttle orbiter was checked for damage, enthusiatically announced that it could be relaunched ten days before the previously scheduled turnaround date. However, in response to complaints from the companies preparing the STS-5 satellite payloads that they could not be be ready on this accelerated schedule, the launch was set back to its original date. Ed.)

STS-5 Scheduled for November 11th. Columbia is scheduled to remain in the orbiter processing facility until September 10th. The external fuel tank and solid rocket boosters will be mated on August 4th, in the Vehicle Assembly Building. The orbiter will be added to them sometime between September 10th and 13th. The assembled launch vehicle is scheduled to be towed to Launch Pad 39A on September 21st. The cargo for this five-day mission will be two commercial satellites. They are the SBS-C, and Telesat-E (which will be renamed Anik-5 after being placed in orbit). This mission will also include a two-man extravehicular activity, plus a demonstration and verification of some repair techniques for the Solar Maximum Mission satellite.

Lightweight External Tank Status. The first lightweight external fuel tank is being readied for the STS-6 launch. It is 6000 pounds lighter than the tanks now being used, and will allow the shuttle to boost that much more payload into orbit.

Inertial Upper Stage (IUS) Status. The first IUS has been shipped to Kennedy Space Center, for use in the STS-6 mission, to propel the tracking and data relay satellite system (TDRSS) into a geosynchronous orbit. This flight, now scheduled for January 1983, will also be the first for the Challenger.

Space Station Office Formed. Johnson Space Center (JSC) has assembled a formal "space station office" to focus JSC management's attention onto the jobs of defining and planning a permanently manned U.S. space facility.

Soviet/Indian Space Flight. Planning has begun for a joint Soviet/Indian space mission, which will provide an opportunity for an Indian cosmonaut to orbit with Soviet crew members in the Salyut space station.

Observing After Work: A Trip to Digger Pines.

by Donald D. Stone

Some of my fellow SJAA members out there know me as a board member of the East Bay Astronomical Society. Others know me as a slightly frustrated deep-space observer!

Since I work for a bakery (no, I'm not a baker!) I must work on Saturdays. This means that for most of the year it's not possible to travel to star parties, except when they occur in conjunction with my vacation. Last April 10th, I decided to try an experiment; pack the scope and equipment in the car, go to work, and leave immediately after work. Sounds simple, and it should work. In practice, it became a near nightmare!

(1) I arrived at 7:15 PM and (since I am diabetic), the ensuing effort to set up my 14 inch in failing light (even with help) proved too physically taxing. (It might work better during daylight savings time.)

(2) Because I arrived there later than most of the others, I was in the unfavorable position of having to set the telescope up some distance away from my car, thus increasing my fatigue. If I could ensure that the scope and car wouldn't be separated, I might try this scheme again.

The site that the Tri-Valley Amateur Astronomers used was nice but too cramped, and that exacerbated the problem. Anyway, by 10 PM I DID SUCCEED in getting the 14 inch operational! But, the poor seeing quality (III to IV on the Antoniadi scale) meant equally poor views. (See the definition in the July Letters section. Ed.) I did view Jupiter, Saturn, Mars, and M-13 until a little beyond midnight: before the chill (it was CHILLY) and frost closed EVERYONE down.

That was the coldest, wettest Digger Pines observing session I have ever been at! Upon getting home, I noticed that my car sported a beautiful rust-red "paint" trim along the lower exterior margins!!

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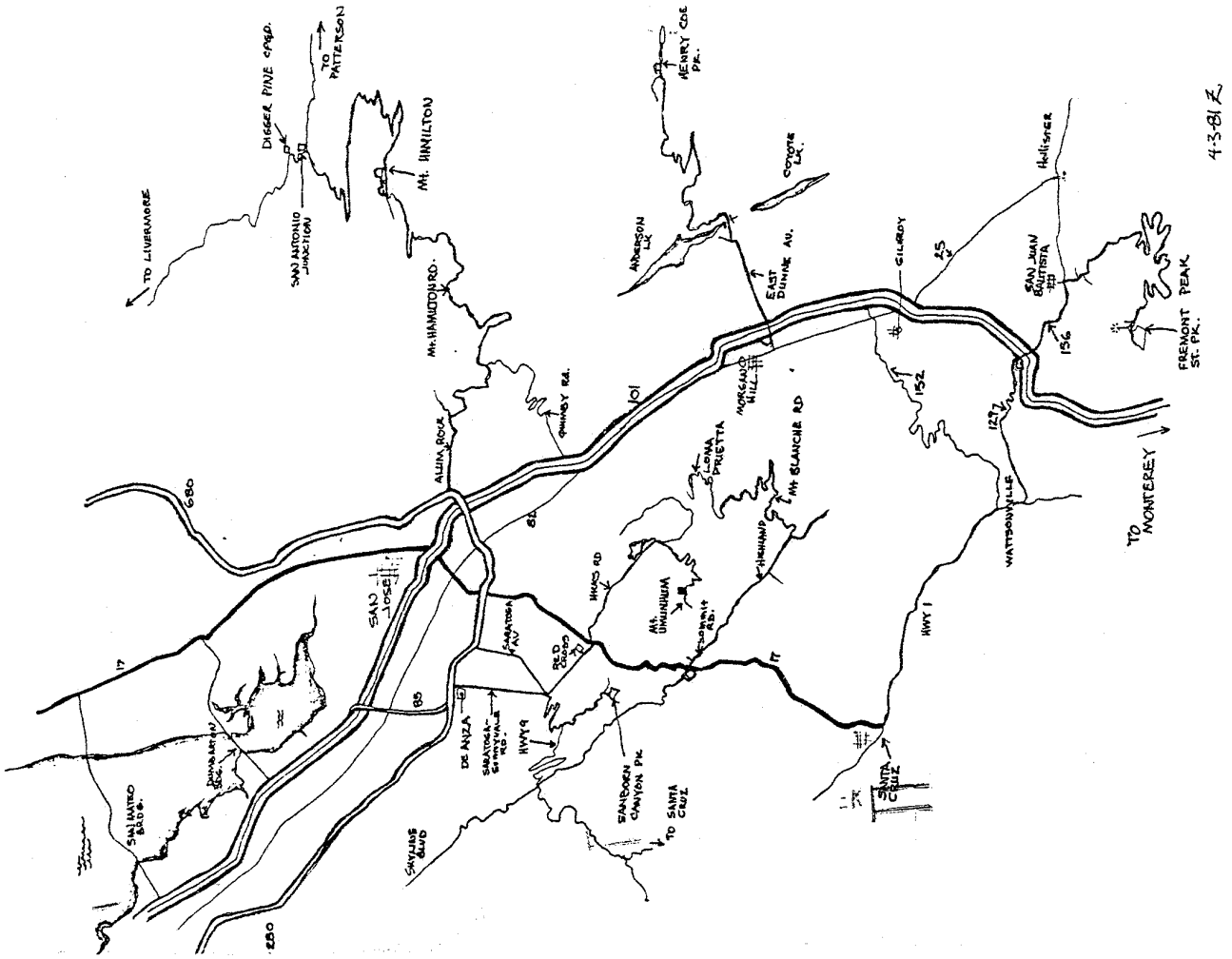

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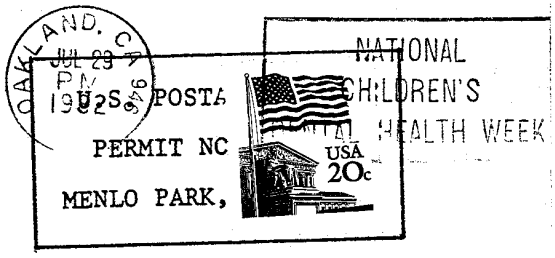

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