

SJAA EPHEMERIS

VOLUME 4 NUMBER 9 OFFICIAL PUBLICATION OF THE SAN JOSE ASTRONOMICAL ASSOCIATION September 1993



The EYEPIECE
by Bob Madden

This month we have a very nice article written by Ernie Piini who went to UNIVERSE '93. It is very informative. Ernie also sent me a copy of his latest publication, "Sunrise Eclipse Over Uruguay". This booklet is jammed packed full of some good ideas and a wonderful description of his trip to South America. Ernie takes the time to describe his design of a stepper motor driver - schematic, parts and sources. His booklet is packed with photos he has taken on past eclipse trips and the great observatories in South America. I want to take this time to personally thank Ernie for sending me a copy. Well done Ernie!

The Picnic has come and gone. Everyone had a grand time. However have you seen so many amateur astronomers in one place at one time? It was fun renewing old friendships and making new ones.

Also this month we have two articles about Yosemite - one from Jack Zeiders and one from Dean Linebarger.

Hopefully every one interested knows we have moved the Observational Astronomy class to Hogue Park, where we hold our public star party. The more we use this facility the more comfortable we will be come and the classes will run more smoothly. Jack Petersen does a terrific job and you should take time to stop in and watch him at work.

This month is "Show and Tell" at the general meeting and is one of the most interesting we have. It is an opportunity to show off your latest project, creation, photo-

Sept 4: General Meeting at the Milpitas Library 8:00pm. Preceeded by the Board Meeting at 6:15. General Meeting will be Slide and Equipment Nite. Come show your photographs of the night sky and your astro trips.

Sept 11: Star party at Fremont Peak SP. Sset 7:19, 21% moon, Mrise 2:47 am.

Sept 18: Star Party at H. Coe SP. Sset 7:09 pm, 13% moon, Mset 8:44 pm. Also star party at Grant Ranch County Park.

Sept 24: Star Party at Hogue Park. Sset 7:01 pm, 73% moon, Mset 2:17 am.

Sept 24: Ninth session of the Observational Astronomy class, 8:00 pm. at Hogue Park.

Oct 2: General Meeting at the Milpitas Library 8:00pm. Preceeded by the Board meeting at 6:15. General meeting speaker will be announced.

Oct 9: Star Party at Fremont Peak SP. Sset 6:37, 36% moon. Mrise 1:37am

Oct 16: Star Party at H. Coe SP and also Grant Ranch CP. Sset 6:21pm, 58% moon, Mset 1:09am

Oct 23: No activity.

Oct 30: Tenth and last session this year of the Beginning Observational Astronomy class.

graphs or what ever you have in mind. I suggest you talk with Jack Zeiders before the meeting if you have something you wish to display. Jack will quey you up and give you your chance to talk. I will miss this meeting (in Alaska trying to find the guy who'll leave the light on for ya).

Once more we are asking for a qualified operator to run the Association's 11" Celestron Compustar. The person who will take command of this instrument must be

willing to take it to school and Hogue Park public star parties. When you are not at a school or public star party the instrument is yours to use. Contact Jack Zeiders or Petersen - their telephone number is on the credit marque.

How many watched the Meteor shower on the 12th of August? What was your count? If you kept any record I'd like to publish the results (include the location of observation - Fremont Peak for example). I know some went to Fremont Peak. I wonder if the count was better than other locations. Shortly after midnight at one point I counted five in five minutes. We were near the IBM plant on Baley road. One thing I did count was that there were more cars out looking for a location to observe than meteors. In my opinion it was a Zoo.

BTW, sorry about the 9 pt print, but we are page count conscience this month.

Another weekend at Yo-semite
by Jack Zeiders

I made the trek to Yosemite for the Annual SJAA-weekend of parkpatron entertainment and bug feeding session. I rented a Ford Aerostar for the trip as the Scout is growing less reliable as it has now passed 200k miles and I am growing less amused of guessing games as to what is wrong with that damn machine this time while stranded in the middle of nowhere and I-5. My niece had never been to Yosemite and wanted to come along also, so I bit the financial bullet and went for a reliable vehicle, smart move as it turned out. We had a pleasant drive up on Friday arriving about 2-ish.

Upon arrival at Glacier point we headed out along the trail and met Jim Van Noodle strolling back from the point. He informed us of the campsite location and lack of flat or level spots and suggested we find a spot while we could. We heeded his advice and drove up to the campsite behind the rangers cabins. Jim Eiselt greeted us and pointed out the Fingerhuts and Petersens camps. I drove through the fire pit a couple

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Jack Zeiders' Yosemite

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of times and finally picked out a likely spot. After setting up the tent and having a lite dinner it was getting time to go set up the telescopes.

Out at the point I extracted the 4" Quantum, set it up and aimed it at the falls across the canyon. It immediately attracted a few passer-bys amazed to see people on the bridge over the falls. I unpacked the 17" and set it up nearby and proceeded to collimate it. As it was still light and there were 6 climbers on the face of Half Dome, I moved the 4" over to a group near the top. With the 14mm Meade Superwide you could see the climbers faces. Several folks were amazed that there were people camping on top of Half Dome, one was even trying to fly a kite but didn't have enough wind. Several others arrived and also set up their instruments around the site. As the sun set a cloud formed at the top of Half Dome, I bet it was cold and wet up there.

As darkness approached I started showing Epsilon Lyrae. Seeing was perhaps an arc second or so but transparency became very good as the evening progressed. We were able to show novice observers the Pelican Nebula near the North American Nebula by direct vision. We looked at most of the bright show objects until about 11:30 when I got tired and packed up. As I had to drive back to camp and unpack the scope to have a place to sleep my night ended early.

Next day I awoke about 8:30, made breakfast and decided a trip down to the valley was in order. Some of the more adventurous souls decided a hike was the order of the day. My niece and I went down to Bridal Veil Falls and walked up to the base and got wet. Some woman dropped her small dog in the rocks and a couple of young fellows had to fish the dog out. I don't think I'll ever understand. We strolled in the large meadow along the Merced river, snapped a few photos, went over to Yosemite Falls, then found a nice quiet glade near the river for lunch. Jim Hodgers fold-up chairs worked out real well. Soon it was time to head back up to Glacier Point.

After a light dinner it's out to the point to set up. Shortly after setting up the 4" and 17" and we are forced to remove all the vehicles out to the far reaches of the parking lot. Some members are annoyed at this to the point of packing up and leaving right then and there. I knew this was a possibility from past experience, and it was indeed published beforehand. Several folks were disturbed and I was on the receiving end of several members sharing of their lack of

enthusiasm as well as my own about the fourth trip back out to the van to pick up something forgotten earlier. Having to hike back and forth as well as not being able to drive the Quantum off the vehicle battery was a big pain, as was having to load and unload the scope twice each evening. I am certain everyone driving in and out to pick up the scopes messed up many peoples observing time. It is a nice trip if you want to show your scope and knowledge to a bunch of tourists, but I'm not real sure I want to drive five hours for that. I think I'd rather a dark sky star party where I can set up the scope once for the weekend and enjoy observing until I'm tired then crash without having to pack and unpack and drive to some remote campsite and unpack again just to have a place to sleep.

Some of the guys mentioned the possibility of Mt. Lassen as a possible dark sky site for a remote star party or perhaps Saddlebag Lake near Tioga pass or even White Mountain. All places we could go for a weekend observing session and not have the increasing hassles of Yosemite regulations. Anyhow I cooled off a bit after sharing my appreciation of the situation with the Ranger. Amazingly he didn't throw me out right then and there.

As darkness came I wandered about the site to visit with some of our members that had made the trek. Quite a fine selection of hardware and friendly knowledgeable folks to entertain the park's visitors. My niece manned the Quantum and followed the climbers well into the evening. The bright quarter moon provided enough light to allow passers by to watch the climbers making camp while clinging spider-like from the rocks. One group actually continued climbing with the aid of headlights even after moonset. I swung the 17" over and watched the climbing a bit, some folks came over and I showed them the climbers. When they swung their lights at each other you could see their faces easily. About this time the thinning clouds were opening enough to allow some astronomical work. I went through the usual bright show objects for the park's visitors. I started to feel tired early so packed up and beat a retreat back to the campsite.



UNIVERSE '93

by Ernie Piini

The Astronomical Society of the Pacific (ASP), in cooperation with Astronomy magazine, held a National Astronomy Exposition and Fair on July 10-15, 1993 at the San Diego State University. Over 1000 professional and amateur astronomers, educators, and interested lay persons, came to partake in this very successful event.

Joining me on our ride south were Joe Shrock (SJAA) and Betty Swyrd from Palo Alto. We stayed at the college dorms which were located conveniently close to the auditoriums, exhibits, and a multitude of fast food services.

At least 33 speakers of various notoriety gave their presentations (some twice) at one of five meeting rooms. The talks were given on Saturday and Sunday and we had to select which of the many talented speakers we wanted to see and hear. It was impossible to take them all in. The following were my choices and why I was interested in them:

Mark Coco, from Celestron, talked about The Green Flash, a subject dear to my heart. Even though I have seen the Green Flash once and the Blue Flash twice, I was pleasantly surprised to learn about the "Green Rim" and the "Green Segment", and other phenomenon which observers mistake for the elusive flash.

Dr. Ed Krupp, Director of Griffith Observatory, talked about the Astronomy of the Ancient Mayas. It was he who wrote to me the good news of my first place winner in the 1984 annual Hughes science essay writing contest for my article, The Ulugh Beg Observatory - A giant Astronomical Instrument of Stone.

Next came Terence Dickenson, a Canadian Science writer, who gave a talk and slide show on Seeking the Holy Grail of Amateur Astronomy. I was impressed when I read his fascinating article, The Zeta Reticuli Incident, (Astronomy, Dec 1974) which describes how a UFO landed near central New Hampshire, captured Betty and Barney Hill, took them aboard their space ship and showed Betty a 3-dimensional map of where the space aliens came from. They then released the Hills back on the ground still in a trance. The map later reconstructed via hypnosis. It points to the area of Zeta 1 and 2 Reticulum, which are neighboring stars some 37 light years away.

There was standing room only at the Don Powell theater where Sally Ride, America's first woman into space, dazzled

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UNIVERSE '93
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Sally Ride

the audience with her talk and slide/video presentation about Observing Earth from Space. I was impressed by her knowledge of both the mechanics of the shuttle and duties while in space. She is a true Superwoman!

Allen Dyer, Associate Editor for Astronomy magazine, gave a comprehensive discussion on Choosing a Telescope for Backyard Astronomy. He covered the gamut from small refractors to giant size Dobsonians. He has authored several books on this subject.

I split the last session for Saturday between Gerrit Verschuur and Stephen Edberg; both popular in the field of astronomy. Gerrit, a professor at Rhodes College in Memphis, has written many interesting articles for Astronomy magazine and spoke on The Spark that Bridged the Universe. Stephen Edberg, who works for JPL and coordinated the Halley Watch during the recent apparition, spoke on Chasing and Observing Solar Eclipses, another subject dear to my heart. He covered everything you wanted to know about eclipses but were afraid to ask.

The Sunday morning session started with Jack Newton's spectacular show on CCD Color Deep Sky Photography where he covered everything from his early days in astrophotography, mortgaging his home for a large telescope, his new observatory-home complex in Canada, and his dazzling photos with his CCD setup. He showed photos from his 25-inch telescope which rivals photographs done by Mount Wilson's 100-inch in Los Angeles. Also, by computer color calibration, showed the true colors of nebulas which have been printed wrong in astronomy articles over the past decades. Jack was one of several expedition leaders I made acquaintances with on our trip to Siberia for the 1981 Total Solar Eclipse.

Newton's talk was appropriately followed by former Astronomy editor, Richard Berry, who talked about Image Processing: The Key to Great CCD Images. The tremendous achievements in the use of CCD's to capture raw data in a matter of seconds, the removal of the system's inherent noise, and the color correction and other enhancements has improved modern day astrophotography to new levels. One of his presentation highlights was a 50-second fantasy ride to the "tropical island" of the Whirlpool Galaxy, M51. To create this video, he converted image brightness into a 3-dimensional



David Levy

display of large and small peaks. It looked like an island in the shape of M51 with two mountain peaks. The space ship circled it and zoomed down and through the multitude of peaks and valleys. (See S&T, Sept. 1993, pg 95).

Joe Shrock and I had planned to start our return drive to the Bay Area sometime around noon Sunday, but we chose to delay it so that we could hear David Levy's talk, The Art of Comet Hunting. I'm glad we did! The popular comet hunter, (18 to his / co-shared credit) told of how he came to discover his first comet. Ignoring rules about looking for comets with the moon up, he scanned the sky with only the music of Joan Baez to keep him company. The crescendo of his talk came when he saw "his" comet. He spoke of his excitement and emotions and how difficult it was to contain himself. He also talked about the co-discovery of Comet 1993e, better known as Periodic Comet Shoemaker - Levy, which has since been torn apart by a close encounter with the planet Jupiter and is currently a string of 17 icy beads. The big ending will come around July 23-25, 1994 when the remnants crash into Jupiter and possibly create enough of an explosion to illuminate nearby Jovian moons. I've followed several of Levy's comets across my front yard skies and I will surely watch the fireworks next July.

We did spend an additional hour looking over the more than seventy exhibit booths inside Aztec Hall and meeting the editorial staff from Astronomy magazine including Editor Robert Burnham; Associate Editors Alan Dyer, David Eicher, and Richard Talcott; and former Editor, Richard Berry. Astronomy magazine has been very good to me over the past two decades publishing some of my astrophotographs. After all this, I must conclude this was one helluva astronomical show!

Directions to Hogue Park by your Editor

The map below shows directions to our Observational Astronomy class and public star party site at Hogue Park. The Observational Astronomy class begins at 8:00 P.M. and may be followed with a step outside to look at the constellations. Every one is welcome at these classes members and non-members alike. Star parties begin at sundown and continue until around 11:00 P.M. As you know the public is invited and so is the membership. Come display your favorite telescope, help another who is less proficient, and get some one else interested in astronomy and the night sky.

ASTRO ADS

ASTRO ADS are free to all noncommercial advertisers wishing to sell astronomically related products or services. Please send your ad directly to the Editor:

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3.5 inch Questar and Linhof deluxe pan head - heavy duty tripod - each in excel-

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Meade 5 inch Refractor with computer drive. Immaculate condition. Complete with accessories. Cost over \$3,600; will sell for \$2,900 Edward Hillier (209) 931-0486 - 7 pm to 9:30 pm Stockton. 9/93

Celestron Ultima 8 w/hand controller. All in mint condition - \$1850. Call Patrice Larson at (408) 736-2153 7/93

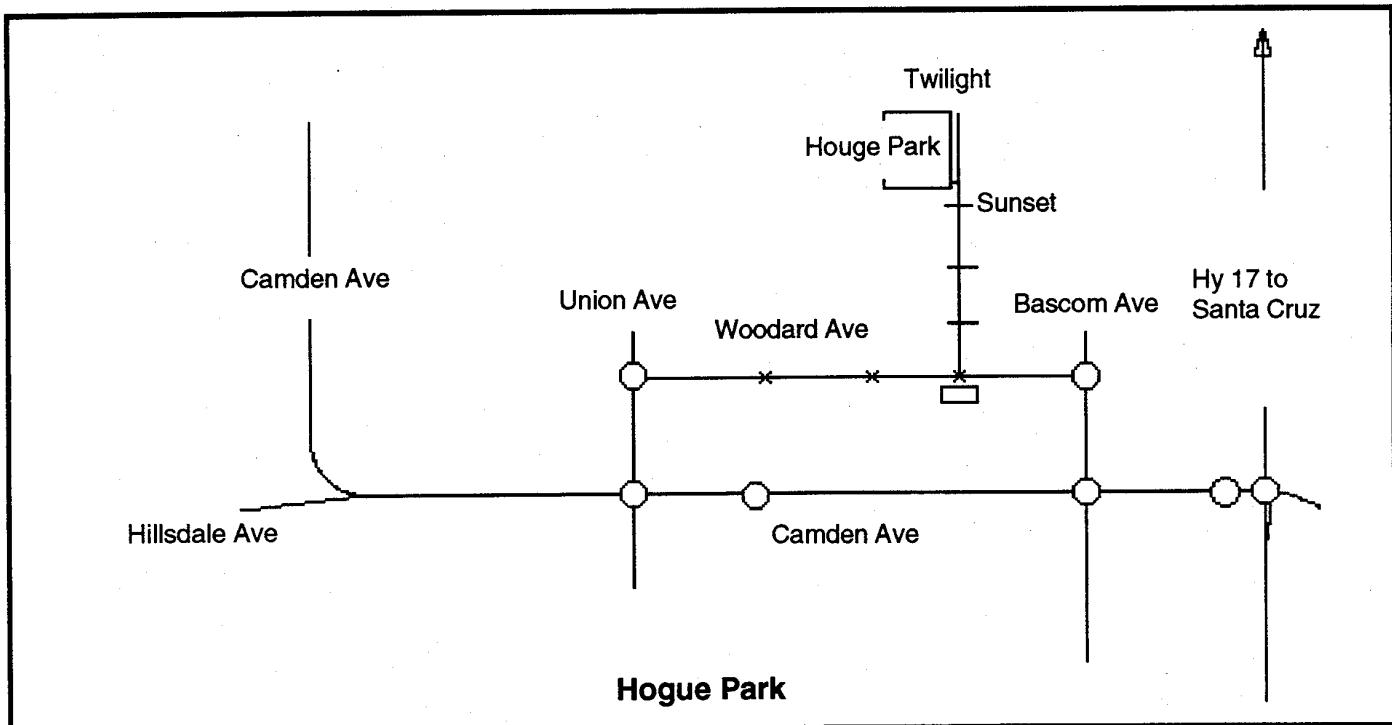
Takahashi TSC 225 Immaculate condition with dew shield, Losmandy G11 mount, Advanced Astromaster computer. Barely used - Serious inquiries only please. John Bettencourt (408) 956-1810 8/93

8" Newtonian on a Super Polaris Mount w/digital setting circles and dual axis drives - \$1000. Call Paul Mancuso (408) 946-0738 9/93

Teleview Eyepieces - one each 32mm Widefield, 19mm Widefield, 15mm Widefield - all in excellent condition, best reasonable offer for one or all. Call Rich Neuschaefer WK (408) 285-0730 or H (408) 446-0975 9/93

Wanted to Trade: SJAA member and registered mechanical engineer willing to trade services of design, drafting, building and analysis of astronomy gadgets for your skills or services in lathe or mill work, welding, help in electrical systems, programing shareware, or mutual project building Call Jack Kelly-thorne (408) 335-4806 9/93

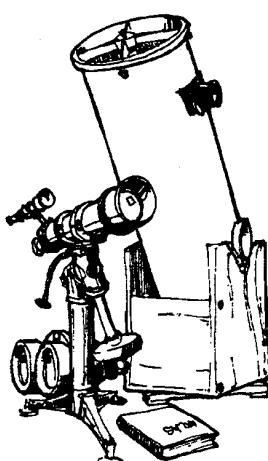
Criterion 6" Newtonian, f/7, motorized, 6X30 Finder, 2 lens: 9mm and 18mm. Excellent condition - \$500. Call Sal Orlando (408) 292-1300 9/93



1993 SJAA Calendar

General Meeting	Houge Park Star Party	Observational Astronomy Class
Sept 4	Slide/Equip night 24	25
Oct 2	22	30 Last one
Nov 20	19	none
Dec 18	17	none

Please read your *Ephemeris* each month for changes

**SJAA Loaner Status**

by Paul Barton

No.	Name	User	Due Date
1	4-1/2" Newt/P Mount	available	
2	6" Dobson	Bob Dow	9/6/93
4"	Quantum	Jack Petree	9/23/93
6	C-8 Celestron	Lee Courtney	8/24/93
7	12-1/2" Dobson	B. & L. McClure	8/24/93
8	14" Dobson	John Da Silvia	8/13/93
14	6" Newt/P mount	Stan Stanley	9/17/93
15	8" Dobson	John Schoenenberger	8/24/93
18	8" Newt/P Mount	available	
19	6" Newt/P Mount	Albert Chien	9/4/93

Solar telescope. Available only to experienced members for special occasions such as day time public star parties, etc. Call.

Quantum 4

(on waiting list)
Stan Stanley
Chung-Lin Lee
Shiloh Unruh *needed for Labor Day
(*Arrangements will be made)

If you want to borrow a telescope call Paul Barton (number is on the credit Marque) and get your name on a general list (any telescope) or on a specific telescope list.

Telescope Loaner Program

by Paul Barton

A few notes about our needs and status of several telescopes are in order. If anyone can help on these items contact me. My telephone number is on the credit marque on page 7.

Telescope #4, 60 mm refractor can be obtained on request, however I consider it too small for most purposes.

Telescope #9, the 11" Celestron needs a qualified operator who is willing to support star parties.

#18, the reflector on a polar mount (loaned by Del Johnson) has been rebuilt (again) after a break down which spoiled Chung-Lin Lee's Yosemite trip.

A very small finder is needed for #4 A 5" tube about 2 feet long is needed for #20, a 4" Dobson which is being built.

Wanted - for our telescope loaner program: A Super Polaris GEM Mount to replace our current (shaky) mount used with the Solar Tele-

ASTRONOMY MAGAZINE RENEWAL

The renewal information for Astronomy magazine has not been received. Last year the renewal cost was \$16, and could go up this year. If you subscribe through SJAA, you will get a postcard telling you to renew.

If you subscribe on your own, and if your subscription expires very late in 1993 or during 1994, you may convert it to the association rate. Keep the mailing label from a recent issue, and call Jim Van Nuland (telephone on the credit marque - page 7).

Subaru Meets Half Dome

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management does not seem to want to make it any easier for us. I have also heard from some of my backpacking friends that parking and access in the park is getting to be a problem for them as well.

The consensus among the SJAA members I have spoken with seems to be that next year we should treat the Yosemite trip as primarily a public star party, and that we should schedule a dark sky event at another park. Mark Wagner suggested Lassen, and I for one think that is a good idea. Mark feels the skies are better at Lassen, the park is easier to reach, and that there are several areas we could drive right into. He also feels the park management would welcome us. I would like to discuss the idea of adding a Lassen trip to our schedule next year, and would like to know if anyone besides Mark and myself are interested.

Yosemite July 23/24, or Subaru Meets Half-Dome

by Dean Linebarger

At the request of Paul Barton and Bob Madden I have jotted down a few notes on the July 23/24 Yosemite star party. This is my first appearance in the Ephemeris so please excuse any inadvertent astronomical fauxpas. This was also my first trip to Glacier Point, so I can't compare this trip to prior Yosemite trips. Overall, I felt the event was a lot of fun and more than worth the effort despite some logistical problems.

After protracted and multiple phone conversations, and consulting with other club members (i.e., Crazy Ed), Mark Wagner and I estimated the trip to Yosemite to be an easy 5 hours with a stop for lunch. So naturally after leaving my house at 10:00AM I was still on the road at 3:30PM and was just approaching the park. I managed to get through the bumper to bumper traffic in the valley and up to the Glacier Point camp site by about 5:00PM the same day. By 6:00PM we had a collection of 7 or 8 vehicles at the campsite and approximately 16 SJAA members and friends. We had the Glacier Point camp to ourselves, and I think we all really enjoyed the isolation from the valley. Also, the camp site was an easy 1/4 mile drive away from the Point.

By 7:30PM we were setting up at Glacier Point and had been joined by several additional SJAA members. I did not pass a sign-in sheet, but those who I know were present included Jack Zeiders, Jack Peterson, Jim Van Nuland, Bob Bauer, Mark Wagner, Paul Mancusco and Alan with the Takahashi TCS 225 (sorry Alan I forgot your last name). I would estimate a minimum of 12 scopes were available to the public for viewing, ranging from a 25" Dob (owner unknown to me), a number of 18" to 13" Dobs, several to 5" and 4" refractors, Jack's 4" Quantum, Alan with his Takahashi TSC 225, various C-8s and Jim's Newtonian.

Friday evening started with high clouds which disappeared by 9:00PM with the onset of cooler temperatures. It seemed to me that total darkness did not really set-in until about 10:00PM. On a scale of poor to excellent, I would estimate (guess) the viewing was "good" for the Glacier Point site, and close to what we might call "very good" at Fremont Peak. There was heavy dewing by 11:00PM, but it did not seem to create any serious problems. Charts, books and jackets were however wet with dew by 1:00AM.

The best part of Friday night for me had to be the public attendance. We must have had well over 200 visitors, and I know

that most of us had viewers at our scopes past 11:00PM. There were a number of visitors from Europe and Japan, and also large numbers of children and young adults. All of the scopes had lines, and the public enthusiasm was quite high. Despite the logistical problems of getting heavy equipment into and out of the site, I must admit that Glacier Point provides a very dramatic setting for a star party.

The first part of the night was spent viewing bright easy objects like Jupiter, the moon, the ring and the double double in Lyra. I found that people were so eager to view, that it was quite difficult to get the time to turn the scope to a new object. People waiting in line would groan with disappointment when we would move off an object to look for a new one. I had to wait a number of times while someone would run off to drag over relatives or friends to view something they had just seen for the first time. I am sure most of us feel those experiences are a lot of fun to watch, and are one of the reasons we all make the effort to support these events.

A little later in the night, when things slowed down some, it was possible to take a few seconds to locate some of the brighter deep sky objects like the Dumbbell, Lagoon, Trifid, Helix, Vail, and North American nebulas. All of these objects were quite bright and displayed very high contrast in my Astro-Physics 5.1" refractor. They were quite stunning in large and small scopes alike. With a Lumicon UHC filter, the Trifid looked like a small photograph in the eyepiece of the 5.1" APO. The Dumbbell appeared bright and huge with no image breakdown whatsoever at high powers. Even first time observers of these objects were able to pick out details with just a little coaching.

We spent so much time with the public on Friday that we didn't get to do any really serious viewing until almost 12:00PM. Here are some brief comments on some of the objects we looked at. I found M101, M81 and M82 to be easy objects in the dark skies. As a beginner I often struggle trying to find these objects. It was actually possible to view some threshold spiral structure in M101 with averted vision and careful observation. M13 showed detail and dark lanes almost to its core. Most of the open and globular clusters were easy targets. It was possible to find so many objects that by 2:30AM most of us had given up and retired to the camp site, exhausted by the long drive and all of the hours of public observing.

For me, the high point on Saturday was the hike Mark Wagner, his son Dan, and I took down to the falls. It was a lot of fun and we talked with a lot of interesting people on

the trail, but the 1,200' elevation gain on the way back was tiring. The falls were impressive and still showed signs of what must have been a heavy spring runoff. Snow fields were clearly visible at what looked like the 10K' level.

The crowds were not as heavy at Glacier Point on Saturday, and once again there were high clouds in the early evening. Unlike Friday, the clouds never did seem to leave the horizon. We did have some good viewing up to about 2:00AM when the clouds really set in for good. Some brave souls (Van Nuland & Bauer among them) stayed later, but I never did learn if it ever cleared. Because of the clouds the dewing was not nearly as heavy on Saturday and it was relatively warm.

For some obscure reason I had decided to save Saturn for viewing on Saturday. I guess I wanted to have at least one bright, easy, unobserved object for Saturday just in case the conditions were not good. We viewed Saturn in the 5.1" APO with 2.4mm eyepiece (433X) with no image breakdown. Cloud belts, threshold detail and the shadow of the ring were easily visible on the planet. The Cassini division looked about as wide as an interstate freeway. I actually liked the view best with the 7mm Nagler, and with at least some of the moons in the same field of view.

One of the most interesting sights very late Saturday, that for some reason I did not notice on Friday, was a very bright ribbon of stars climbing above Half-Dome. With the cloud cover on the horizon I could not figure out what I was looking at. The naked eye view was very impressive, so I took the time to ask Jim Van Nuland and Bob Bauer to try to identify the cluster. After a moment of reflection Jim said "that's Subaru". At first I thought he was referring to someone backing up their car in the parking lot. Actually, it turns out that in Japan the Pleiades are called "Subaru". Anyway, they looked quite impressive in Jim's 4" rich field and it was interesting to see an object in July that I usually associate with the fall.

Well that about covers the trip from my point of view. I managed to fall asleep Saturday looking up at a bright patch of stars through a break in the clouds. Unfortunately, I also managed to leave the tent fly open all night and woke up with so many bug bites that I looked like one of the characters in a Dick Tracy comic strip.

A few of us have shared our thoughts about the event. The restrictions on allowable uses of vehicles at Glacier Point make the logistics involved with large scopes a serious problem. In addition, the park

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CELESTIAL CALENDAR

September 1993

LunarPhases	Date	Rise	Trans	Set
LQ	05:10hr	09-9	----	0713 1440
NM	08:21hr	15-9	0620	1239 1848
FQ	12:28hr	22-9	1412	1915 ----
FM	02:58hr	30-9	1837	0032 0702

Nearer Planets

Mercury	07-9	0723	1339	1953
1.33 AU	17-9	0807	1429	2004
Mag -1.4	27-9	0843	1414	1944

Venus	07-9	0405	1104	1802
1.40 AU	17-9	0425	1112	1759
Mag -4.2	27-9	0445	1120	1754

Mars	07-9	0920	1504	2047
2.37 AU	17-9	0913	1449	2024
Mag +1.4	27-9	0907	1435	2002

Jupiter	07-9	0916	1502	2049
6.36 AU	17-9	0846	1430	2014
Mag -1.7	27-9	0817	1359	1940

Saturn	07-9	1834	2352	0514
8.90 AU	17-9	1753	2310	0431
Mag +0.8	27-9	1712	2228	0349

SOL	Star Type G2	V Mag -	26.72
RA	DEC		
11:06	0549	07-9	0642 1306 1928
11:42	0200	17-9	0651 1302 1913
12:18	0154	27-9	0659 1259 1858

Astronomical Twilight	Dawn	Dusk
JD 2,449,237.5	07-9	0514 - 2057
,247.5	17-9	0524 - 2040
,257.5	27-9	0533 - 2023

Sidereal Time

Transit Right	07-9	0000	PDT=2057
Ascension at	17-9	0000	PDT=2040
Local Midnight	27-9	0000	PDT=2023

Darkest	Saturday Night	Sept 18
Sunset		2156
Twilight End		2237
Moon Set		2316
Moon rise next morning		0845

TIMES AND DATES ARE PACIFIC DAYLIGHT

by Richard Stanton

Times are Local Civil

Derivation of these values are from
Astronomy with Your Personal Computer

by Peter Duffet-Smith

MacEphem

by Elwood Charles Downey

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COMET COMMENTS

by Don Machholtz

One faint comet has been recovered. This month we'll begin watching Comet Mueller. It was discovered early this year during the Second Palomar Survey. It remains circumpolar until mid-November and will be visible to Northern Hemisphere observers through early next year.

Periodic Comet West-Kohoutek-Ikemura (1993o) : Jim Scotti of Kitt Peak recovered this comet on July 20 at magnitude 20. It has an orbital period of 6.4 years and a perihelion distance of 1.6 AU. It may reach magnitude 12 late this year.

EPHEMERIS

COMET MUELLER (1993a)

DATE (00UT)	R.A. (2000)	DEC.	ELONG	SKY	MAG
08-21	08h11.0m	+61°58'	54°	M	11.1
08-26	08h18.9m	+63°07'	57°	M	11.0
08-31	08h27.5m	+64°24'	60°	M	10.8
09-05	08h37.0m	+65°50'	64°	M	10.7
09-10	08h47.6m	+67°27'	67°	M	10.5
09-15	08h59.9m	+69°15'	71°	M	10.4
09-20	09h14.6m	+71°16'	74°	M	10.2
09-25	09h33.1m	+73°28'	78°	M	10.1
09-30	09h57.9m	+75°53'	82°	M	9.9
10-05	10h34.3m	+78°24'	85°	M	9.8
10-10	11h33.1m	+80°51'	88°	M	9.6

SEEKING COMETS

Do comet hunters commute to their comet hunting sites, or do they search from their own back yards? The deciding factor seems to be the level of light pollution that can be tolerated, although occasionally a comet hunter must go elsewhere to seek better horizons.

Australian's William Bradford visits several sites for his comet hunting. He is considering a short move which will result in, among other things, darker skies. Rodney Austin commutes to various sites, depending upon which horizon he needs to sweep and the fishing lights off his coast in New Zealand. Both Rolf Meier and Doug George used the 16" telescope belonging to an astronomy club in Ottawa, Canada, and housed in its observatory. Many of the Japanese comet hunters must commute to find darker and cleaner skies.

Others sweep from their homes. David Levy visually discovered his comets from his backyard in Tucson, Arizona. Michael Rudenko swept from his backyard in Amherst, MA., using a light pollution filter. Howard Brewington commuted while living in South Carolina. He has since moved to a mountain top in New Mexico which provides low horizons and dark skies. George Alcock of England and Leo Boethin of the Philippines both discovered comets from their porches.

For fifteen years I commuted to comet hunt, often for 40 minutes each way up to 200 times a year. Three years ago we moved to a more rural location for several non-astronomical reasons, one of the fringe benefits being darker skies.

EPHEMERIS is published monthly by the San Jose Astronomical Association - 3509 Calico Ave., San Jose California 95124. Members are encouraged to submit articles for publication. These should be typed and submitted no later than the 12th of the previous month. All submissions should be sent to the editor, Bob Madden, 1616 Inglis Lane, San Jose, California 95118. A text file on a 3-1/2" IBM or MAC diskette is preferred, but written is accepted.

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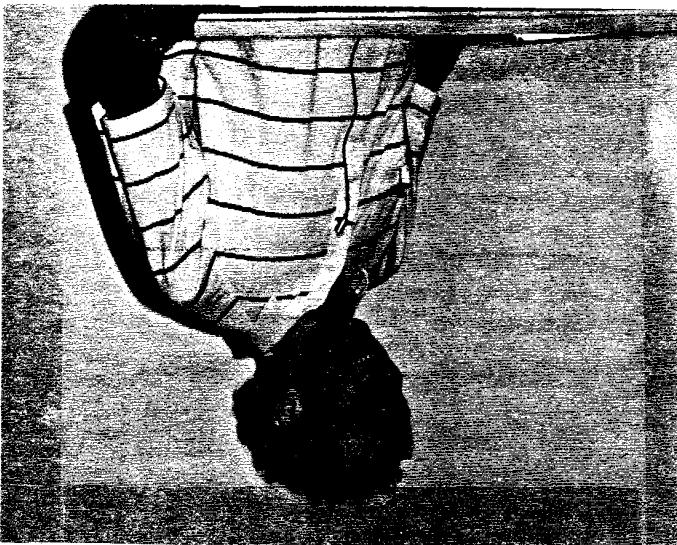
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We did spend an additional hour looking over the more than seventy exhibits booths inside Aztec Hall and meeting the editorial staff from *Astronomia* magazine including Editor Robert Burnham; Associate Editors Alan Dyer, David Eicher, and Richard Talcott; and former Editor, Richard Berry. *Astronomia* magazine has been very good to me over the past two decades publishing some of my astrophotographs. After all this, I must conclude this was one helluva astrophotographer!

Joe Shock and I had planned to start our return drive to the Bay Area sometime around noon Sunday, but we chose to delay it so that we could hear David Levy's talk, "The Art of Comet Hunting." I'm glad we did! The packed auditorium was first come, first served (read: no room), so we stood in the back of the room, looking for comets with the moon up, he scanned the sky with only the music of Joan Baez to keep him company. The crescendo of his talk came when he saw "his" comet. He spoke of his excitement and emotions and how difficult it was to contain himself. He also talked about the co-discovery of Comet 1993E, better known as Periodic Comet Shoemaker-Levy, which has since been torn apart by close encounters with the planet Jupiter and is currently a string of 17 icy beads. The big ending will come around July 23-25, 1994 when the remains crash into Jupiter and possibly create enough of a explosion to illuminate nearby Jovian moons. I've followed several comets since my first year at the University of Michigan, but Levy's comet across my front yard surely will be the most memorable.

David Levy



display of large and small peaks. It looked like an island in the shape of M51 with two mountain peaks. The space ship circled it and zoomed down and through the multitude of peaks and valleys. (See S&T, Sept. 1993, pg 95).

The Sunday morning session started with Jack Newton's spectacular show on CCD Color Deep-Sky Photography where he covered everything from his early days in astrophotography, most-gaining his home for a large telescope, his new observatory-home complex in Canada, and his dazzling photos with his CCD setup. He showed photos from his 25-inch telescope which rivals photograps done by Mount Wilson's 100-inch in Los Angeles. Also, by computer color calibration, showed the true colors of nebulae which have been printed wrong in astronomy articles over the past decades. Jack was one of several expedition leaders I made acquaintances with on our tip to Siberia for the 1981 Total Solar Eclipse.

Newton's talk was appropriately followed by former Astron-
key to Great-CD Images. The tremendous achievements in the use of CDs to capture raw data in a matter of seconds, the removal of the systems' inherent noise, and the color correction and other enhancements has improved modern day astrophotography to new levels. One of his presentation highlights was a 50-second fantasy ride to the "tropical island" of the Whirlpool Galaxy, M51. To create this video, he converted image brigthnesses into a 3-dimensional

Supernovae! Allen Dyer, Associate Editor for *Astronomy*, gave a comprehensive discussion on Cherenkoving Solar Eclipses, another subject dear to my heart. He covered every thing you wanted to know about eclipses but were afraid to ask.

Alden Dyer, Associate Editor for *Astronomy*, gave a comprehensive discussion on Cherenkoving Solar Eclipses, another subject dear to my heart. He covered every thing you wanted to know about eclipses but were afraid to ask.

I split the last session for Saturday between Gertt and Stephen Edberg; both popular in the field of astronomy. Gertt, a professor at Rhodes College in Memphis, has written many interesting articles for *Astronomy* magazine and spoke on The Spark that Bridged the Universe. Stephen Edberg, who works for JPL and coordinated the Haleyle Watch during the recent apperelation, spoke on Chasing and Observing Solar Eclipses.

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Sally Ride



continued from page 2