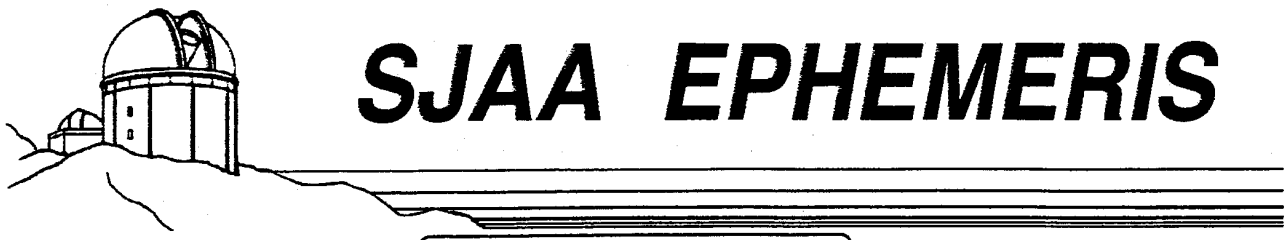

SJAA EPHEMERIS

Greetings from Aruba

Quite a few SJAA members made the trek to the local pond to catch a view of the recent eclipse. Here are some excerpts from their reports....

From John Gleason:

Arriving at the eclipse viewing site at 6am we were greeted to low overcast and rain! We knew something was up because the lizards were scampering about and hiding.

Skies parted to a beautiful blue at 9 am but quickly clouded over and started raining — again! In a quandary about what to do, we elected to stay on our ridge-top at the extreme south end of the island. If it was going to clear, it would clear here first. And that it did, just about 45 minutes before totality. Time enough to prep telescopes and focus cameras.

We witnessed a beautiful diamond ring and solar corona with many polar streamers and red prominences that lasted nearly 3 minutes and 40 seconds — maximum eclipse for Aruba, just 9 seconds short of the off-shore maximum. Venus, Jupiter, and Mercury were prominent objects in a slate-blue-gray sky. Pail orange colors were pronounced along the horizon.

Shot a number of images with the Astro Physics 104mm f/6 Traveler. View through the camera was very detailed — love this telescope.

See **Aruba**, p. 2

April

3 Houge park star party. Sunset 6:32 pm, 53% moonset 1:42 am.

4 General Meeting at Houge Park, 12 noon, Swap/Auction.

5 Darkness squandering time begins 2 am. Set clock forward.

11 Astronomy class at Houge Park, 8 pm. Subject: Star charts.

17 Houge Park star party. Sunset 7:45 pm, 66% moon rises 1:05 am.

18 Star party at Fremont Peak. Sunset 7:43 pm, 55% moon rises 1:52 am.

25 Star parties at Fremont Peak, Coe. Sunset 7:50 pm, no moon.

May

1 Houge park star party. Sunset 7:57 pm, 37% moon sets 1:24 am.

2 Astronomy Day (previous Houge night is our designated event).

2 Beginning Astronomy class "Lunar Observing" with David North at Houge Park, 8 pm

9 General Meeting at Houge Park, 8 pm. Open board meeting 6:30 pm.

22 Houge park star party. 8:15 pm, 10% moonrise 4:38 am.

22-25 Riverside Telescope Maker's Conference

23 Star party at Fremont Peak, Coe. Sunset 8:14 pm, no moon.

Please note that SJAA insurance only covers SJAA members at SJAA sponsored events.

24 hour News and Information:
SJAA Hotline: (408) 559-1221
Web Address: http://www.seds.org/billa/sjaa/sjaa.html

Total Solar Eclipse

Bob Garfinkle

Eclipse day (February 26, 1998) hung gloomy and overcast with clouds racing toward the east over the island of Antigua. Gray drizzle descended from the clouds as they crossed over the island.

The Celebrity Cruise line megaship M/V Galaxy headed out of port at 11:00 a.m. It began to drizzle at about 11:30, but the rain lasted for about 10 minutes. Many of the 1,700 passengers had already staked out observing sites on the upper decks. The group associated with Astronomy magazine had roped off an area, much to the consternation of others and showed a blatant disregard for the ship Captain's orders that the decks would be open to all.

A heavy downpour hit about noon, and lasted about 10 minutes. All hope of seeing the eclipse seemed suddenly drowned, but we could still see a glimmer of blue sky off the port bow to the southwest.

First contact occurred at 1:05 PM AST (Atlantic Standard Time) as we were still heading toward the centerline. We got to a clearing in the skies along the centerline about mid-eclipse (partial phase). We were encircled by distant clouds and had a clear view of the partially-eclipsed Sun.

See **Eclipse**, p. 4

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Aruba, from p. 1

Many cruise ships were chasing the centerline. The big Carnival "Fascination" shot by at what looked like 50 knots!

Absolutely perfect experience. And to think that I almost didn't come?

Aruba is still a funky island but has the most beautiful white beaches I've seen anywhere. Food is great! People are great!

Now that I've been eclipsed three times, it's time to plan for August 1999! See you in Istanbul!!

From Tom Frayne:

We set up our equipment right outside our kitchen window. As we were observing during the day, we showed many people the view of the Sun and Venus on the telescope. One of the group of German astronomers here to view the eclipse informed us that the eclipse was an hour later than I had thought. I checked, and found that I had set the wrong time zone into my star map program, so we had to change all the times of events connected with the eclipse on our script.

Meanwhile it continued cloudy, with clouds sometimes covering most of the sky. First contact, when the Moon first appears to touch the Sun, occurred a few minutes earlier than I expected, as the Sun was emerging from the clouds, and I missed the first few seconds of partial eclipse. Jerry and I continued to observe, and we continued showing the view to passers-by.

Everyone was thrilled. As more and more of the Sun was covered we used breaks in the clouds (which were rapidly moving) to view the eclipse and take photos.

As the eclipse approached totality, the sky was about 50% covered by clouds, but there was a big break coming toward us, racing the Moon. The break arrived first, so we saw the first instant of totality, and it was spectacular. We heard cheers from all the surrounding buildings, and fire works went off.

A woman told us later that she was unable to focus during the first few moments of totality because it was so beautiful she started crying. First we saw the blacked out Sun, with the bright corona around it, and Mercury and Jupiter on either side. I looked for Saturn, and could not see it. Jerry was taking pictures. I removed the solar filter, and observed the Sun through the telescope. I saw a huge red prominence extending thousands of miles above the surface of the Sun at a position about 12 o'clock, and hundreds of small red prominences at about 9 o'clock.

We had had about 10 seconds of totality (really 3 minutes and 10 seconds, but it passed SO fast). Others in the area saw the approaching cone of totality in the distance and the shadow bands: we did not.

From Bill Arnett:

The short version is: WE SAW IT !!!!

The medium version is: The rest of the trip was wonderful, everything went flawlessly, the ship was like the Ritz, the food would put Alice Waters to shame. I am totally sold on the idea of cruising for eclipses.

We had about 50% cloud cover in the hours preceding the eclipse. The ship had more high tech communications equipment than the average TV station and it was put to good use. About 20 minutes before totality the captain saw a big cloud coming our way with his weather radar. A quick turn about 40 degrees to port saved our eclipse. We saw the whole thing in a nice clear hole. Just a few minutes after 3rd contact the Sun was under a cloud.

The statistics said we had about a 60% chance of seeing the eclipse. The ship's maneuverability was a huge advantage.

Editor's note: a more complete description of Bill's eclipse report can be found at: ***http://www.seds.org/billa/tse98/tse98.html.***

From Gary Mitchell:

I remember Ernie Piini's recommendation to "go for the vacation and treat the eclipse as a bonus." This was good advice.

We planned to see the total solar eclipse in February on the island of Aruba. Carnival's big Fascination ship was going on a special solar eclipse cruise—one stop would be Aruba on the day in question.

The best advanced reports were that Aruba would be windy and possibly even a little dusty. The best advice going around was to go ashore if you were going to do any serious astrophotography, but stay on board if this is your first eclipse.

The deck was remarkably stable and practically no vibrations, only a slight sway. As far as photography was concerned, this was going to work except for perhaps the longest exposures.

In the half hour before second contact, I noticed my camera bag was no longer hot (from sitting in the Sun) and it was not as bright. The temperature was noticeably cooler.

It was interesting to see it get dark in the several minutes before

totality. It's not like the dim orange light of dusk, there is still a more-or-less white light above, it's just not giving off as many photons as usual. It reminded me of the light given off by low-wattage high-intensity lights—intense white, but not much of it.

As totality gets near (several seconds way), things start happening faster. The last bit of Sun goes way within seconds. It was during that time that I popped off the filters and started the camera with the C-90 (for the "diamond ring").

After the first photo sequence I looked up to see Venus shining brightly above the horizon. Overhead was the often-described pearly white corona, with Jupiter and Mercury on either side. The inner corona and prominences were easy to see through the C-90 even though the image was on the camera's ground-glass. The camera with the 400 mm lens showed the full corona in all its glory... and I ran off some sequences from that camera (during mid- totality for the outer corona).

It was over all too soon—three minutes and forty four seconds. It seemed like less; I was glad to get that extra 35+ seconds by staying on the ship. After it got light, I was relived to see both cameras showing frame 38 (meaning both 36-frame rolls had been exposed).

This was my first attempt at photographing an eclipse. One lesson is clear: there's no substitute for automation.

The Fascination has a photo lab on board which offered 24 hour film developing. I wanted to see how my work paid off... I figured I wouldn't get any good "diamond ring" or "Baily's beads" shots since those come and go so fast, but they were the ones that came out best...go figure.

My next project will be to scan these into the computer and try to combine them to make an image that bring out the detail in the corona from the prominences to the outer edge.

It no longer amazes me why some people travel far and wide chasing eclipses. It's nice if you have the means. It's too bad total solar eclipses don't occur more often.

By the way, as per Ernie's advice: aside from the eclipse, the Fascination isn't a bad choice for a cruise; I hated to leave.

And With A Somewhat Different Perspective, **Duane Sand:**

YES!! YES!! YES!!

Duane Sand and Christina C. are now engaged to become married!

In late February, Christina and I took a cruise in the southern Caribbean to see the total solar eclipse of Feb. 26 from the island of Aruba. I proposed to Christina just after the concluding moments of totality, after the eclipse's second "Diamond Ring".

During the brief moments when the partial eclipse becomes total, and then when it becomes partial again, a tiny speck of the bright core of the Sun is still visible, shining thru some deep valley on the mountain ranges on the Moon's east or west flank. These moments are called the Diamond Ring, because the bright speck of sunlight on the edge of the backlit Moon looks just like a large diamond set on a Tiffany-style solitaire ring. I thought these rings would be far more spectacular and memorable than any engagement ring available in jewelry stores, and indeed they were!

Reporters went around getting reactions afterwards, and were surprised to stumble across our special story. We think we appeared on some Canadian TV show, and will definitely be in several astronomy magazines. Afterwards, we learned of two other couples who became engaged that day on Aruba.

One guy made the tactical blunder of proposing in the middle of totality rather than afterwards. We think they probably got themselves so distracted that they missed the precious second half of the best part of the eclipse. If I had asked Christina then, she would have distractedly said only "Huh?" and kept on staring up in rapture . . . .

Fremont Peak Disaster

Storm damage to the 30" Challenger telescope at Fremont Peak is estimated at about $10,000 by the Fremont Peak Observatory Association. This telescope has been an important linchpin to Bay Area astronomy for years, and we should do everything in our power to make sure it's up and running as soon as possible, better than ever.

The telescope depends on private donations and "sweat equity" from those of us who benefit from it.

Our own recent president Jack Zeiders has already pledged seed money of

$1000. Anybody else out there willing to put dollars or muscle in to get

the FPOA back together?

Please call the FPOA treasurer, Denni Medlock. Her email address is **epoch@majornet.com**, or she can be reached at 510 339-9224.

Let's step up to the plate, folks.

Eclipse, from p. 1

The Sun was high (49 degrees) above the horizon off the port side of the ship. By the time totality arrived (2:32 p.m.; 18:32 UT) the Sun was about midship with Venus barely off the port bow. I had my Minolta camera with a 400 mm lens and a Nikon F with a 50mm lens mounted on a single tripod. The Nikon sits on an aluminum bracket attached with C-clamps to the tripod and is aligned with the Minolta. I tried to keep the solar image in the viewfinder on the Minolta, but with so much ship motion I had to use the Nikon as a finder scope. Due to the rocking of the ship in 5 - foot swells and the turning of the ship, I was unable to photograph totality, but did fire off a few shots of the partial phases of the eclipse.

During totality Venus (magnitude -4.6), Jupiter (-2), Mercury (-1.5), and Mars (1.2) were easy visual targets. Saturn was obscured by clouds toward the west. The stars Capella, Aldebaran and Altair could barely be seen. Fomalhaut was more noticeable, but that was probably due more to its proximity to the eclipsed Sun.

Temperatures was 86 degrees F before first contact and dropped only 6 degrees F from first contact to after–totality. This surprised me, because in 1991 the temperature dropped 20 degrees during the eclipse.

The corona extended past Jupiter and engulfed Mercury. A large L-shaped prominence extended from the northeast limb of the solar disk. I counted 3 additional red prominences along the disk. There could have been more.

I noticed that the demarcation between the darkness of the partial eclipse and the darkness of totality at the onset and at the end of totality appeared to be faster with this eclipse than in 1991.

Totality lasted 3.16 minutes. There was some guy on an upper deck calling out the times. He had a GPS. I tried to get WWV on my radio, but all I could pick up was the whoosh, whoosh, whoosh of the ship's radar and Spanish-language religious stations. One station overpowered 3 entire short-wave bands.

In 1991 I watched the second diamond ring through the camera viewfinder. This time I watched it 'live.' There is no comparison. Naked eye is the way to go!

The ship erupted with applause and cheers as totality ended. Everyone had 'cat-ate-the-canary' grins. Jupiter and Mercury disappeared right after totality ended. Venus was visible for about five minutes. It could have been visible longer, but the superstructure of the ship began to block my view as the Captain turned the ship to head back to Antigua.

It was fantastic day and I cannot wait until August 11, 1999.

Periodical Publication Statement

SJAA Ephemeris, newsletter of the **San Jose Astronomical Association**, is published monthly, 12 times a year, January through December.

San Jose Astronomical Association
5380 Pebbletree Way
San Jose, California 95111-1846

Auction & Swap Meet

Don't forget the annual SJAA "Transfer Of Various Projects From One Garage To Another" on April 4. People come from all over northern California for this event, so us local members should definitely make the effort.

The swap meet begins at noon, and after the first feeding frenzy, general perusal continues into the afternoon. If you have several items to sell, setting up for the swap meet may be your best option.

The Auction itself, presided over by our own Jay Freeman, begins at 4pm after a brief intermission.

For those of you who don't care to set up at a table and hang around all afternoon, the auction may be the best way to sell one or two items you no longer have a use for, or would rather see someone else use more often. Jay does all the work for you, and will probably negotiate a better price than you would anyway (if you're as inept as I at such things).

This is a fun event with a lot of bargains, most of the folks in the astro community on hand, and plenty of opportunity to trade notes about equipment. No matter what your astronomical interest, this is an event to savor.

Submit

Members are encouraged to submit articles for publication in the *SJAA Ephemeris*. Send articles to Dave North via e-mail to **Timocharis@aol.com**. Articles received by the tenth will be put in the following month's newsletter. Please include your name and phone number.

Lunacy

David North

Okay, I spent months telling you March was the month to get the best views of the first quarter moon... and that was true. But March is gone, and now I'm gonna tell you a little secret: April is almost as good.

In fact, the earlier days in the lunation (particularly days three through five, especially the opening days of April) are actually better than they were in March. So, no rest for the loony, particularly during the early days (when it's normally hard to get good views since the moon after sunset is a bit low in the sky).

As a bonus, the prime viewing nights come before Daylight Squandering Time (April 5) so you can get your best views before dinner, if that's to your taste... and two of the best are Friday and Saturday, weather willing.

The best eastern libration is on April 3, which is quite strong at about eight degrees, and coincident with the first quarter moon. This is significant in that the eastern maria show their "stains" best when the sun is directly overhead (highest contrast) and that will exactly the prevailing conditions. So if you've ever been curious about Maria Marginis, Smythii, Australe or Humboldt, now's the time. Next to Crisium, Undarum (underarm) and Anguis (snaky, not sorry) will also put on a show. The libration will also favor the north somewhat, making the Humboldt sea a prime target.

At full, there will not be any special librations, so it's just a hunt the terminator night.

Early in the morning on the 23rd, the moon will be within a degree or two of both Venus and Jupiter, a good opportunity to see the color contrasts that are so obvious when objects are near each other. This is a very good widefield/binocular event for the early risers.

Keep an eye out during the period between first quarter and full; several great views should be available — in particular, sunrise over Sinus Iridium, Schroter's Valley close to the terminator, and sunrise over Mare Humorum and Grimaldi, all of which are spectacular events. And, as always, Copernicus.

The west limb will be well exposed (about seven degrees) on the 19th, for those who like to hunt down Orientale each month. It will be low in the sky (near nadir) so somewhat unfavorable, but there will be dark markings visible in such a high sun — it's third quarter moon, so this is similar to the view available at first quarter on the other limb (no shadows at all). There is a slight bonus in that the moon reaches perigee not too long after (the 25th) but the resultant enlargement is not significant.

AANC Annual Conference: Life In The Universe

April 11, 1998
8:30-5:00 p.m.
Lawrence Hall of Science
University of California at Berkeley

In this workshop, you'll hear from astronomers and the world-renowned pioneer on the search for signs of intelligent life in our galaxy.

Featured speaker: Dr. Jill Tarter, renowned radio astronomer and Project Scientist for Project Phoenix.

Other presenters include: Chris McKay of NASA Ames Research Center speaking on future exploration of and possibilities of life on Mars; Simon Clemett, one of the members of the Mars meteorite team at Stanford University; Dan Werthimer from Project SERENDIP; Jeff Moore from NASA Ames Research Center, Galileo Imaging Team speaking on "The Mysterious World of Europa." Andrew Fraknoi from Foothill College and Astronomical Society of the Pacific (ASP) on "Discovering Planets Around Other Stars and What It Means For Star Trek Fans"

Spend the day pondering discoveries that may change your ideas about our place in the Universe.

Registration fees:
Advance: $20.00
11-18 years old: $12.00
Registration at door (all ages): $25.00.

There may be a small fee for parking and lunch is available optionally for $8.00. More exciting speakers may join us, so for up-to-date information and registration form, please visit the AANC web site at **http://www.lhs.berkeley.edu/SII/AANC/aanc.html**. Completed registration forms can be faxed to 510-653-0994 (with credit card info) or mailed to LHS with check or credit card info.

The Celestial Tourist Speaks

Jay Freeman

On The Far Side Of The Moon:

The first few months of 1998 frustrated California amateur astronomers with storm and rain, yet as I found myself leaving work in the small hours of 20 February, I noticed clear sky and an old Moon rising, between last quarter and new.

Members of my observing group had mentioned that night's extremely favorable libration for observing the (Selenographic) west limb of Luna, so I hauled out my 63 mm Brandon refractor when I got home to Palo Alto.

My guilt at not setting up larger equipment evaporated with my first glance through the eyepiece. At 59x, the seeing was visibly poor — the Moon's limb rippled and shook like a flag in the breeze.

Even so, the substantial libration was obvious — Grimaldi stood far in from the limb, dark and eye-catching in the high sun. Shadows were too short to show much topography, but several prominent albedo features aided navigation.

The dark patch in Riccioli, as well as Lacus Aestatis and Cruger, all made it easy to find my way. Beyond the latter two, closer to the limb, lay a prominent rise with a dark patch beyond it — a high point in Montes Cordillera, overlooking Lacus Autumnae. Crater Eichstadt, to the south, confirmed the identification.

Beyond the Cordillera I found the lower Montes Rook, with perhaps a hint of Lacus Veris at their base, and still farther off, crossing the limb, lay a larger dark patch, well seen and unmistakable. It was Mare Orientale, the Eastern Sea, on the Moon's far side.

I picked up the Baby Brandon, an easy one-hand carry on its light photographic tripod and prepared to go inside and to bed.

Then I caught myself laughing at the incongruous name of one of the features I had looked at. Lacus Autumnae means "Lake of Autumn", but Scorpius was climbing up the southeastern sky.

It was almost spring.

On Apochromatic Refractors:

In the technical sense, as a descriptive term for lens design, an apochromat is an objective which brings three (or more) specified wavelength of light to the same focal point, and which is corrected for spherical aberration at two specified wavelengths. An achromat brings only two specified colors to the same focal length, and is corrected for spherical aberration at only one wavelength. There is also a difference in coma correction, but let's not complicate things any more than necessary.

The relevant questions for actual use are, "where do the other colors focus", and "how good is the spherical aberration correction at other wavelengths". Restated slightly, "how much longitudinal color is present", and "how much spherochromatism is present". For fluorite doublets, the answer is, "very little": In the sizes and focal ratios offered in the small-telescope market, it takes quite a lot of effort to detect any color error of any kind in a well-made fluorite doublet. That is, the residual longitudinal color and spherochromatism are pretty much too small to see. (But try looking at Venus again, or at a blue-white star, and look for a far-violet halo — fluorite doublet color correction starts to fall off near the extreme blue end of the visible spectrum.)

If you called the small fluorite doublets "essentially color-free", or something similar, I would agree, for they are — my 90 mm Vixen fluorite has (IMHO) the highest-quality optics I have ever seen. But terms like "achromat" and "apochromat" are misleadingly used to describe performance. They are types of design used to obtain performance; what counts is how well the color is eliminated, not the kind of system used to do so.

And if that's not confusing enough already, there have been apochromats made which had quite lousy color correction, as bad or worse than achromats made with conventional glasses: These were early photo-visual telescopes, in which the three colors brought to the same focus were two in the visual and one in the near ultraviolet — where early photographic emulsions were most sensitive.

The design goal was to create a telescope which could be focused visually for taking photographs — in conventional achromats, the visual and near-ultraviolet foci were too far apart to do so. These designs attained their intended goal, but had lots of left-over color in the visual. (Notwithstanding, most modern apochromats have excellent color correction.)

We confuse ourselves enough already without using words incorrectly. I think we should strive to maintain the correct meanings of words like "apochromat"

See **Celestial Tourist**, p. 8

Summer Position With A.S.P.

Astronomy Education Resource Book Organizer

Project ASTRO at the Astronomical Society of the Pacific has a summer position for someone with background in both astronomy and education. The job involves compiling, evaluating, and rewriting an update edition of the Project's Universe at Your Fingertips resource notebook (for grades 4-9).

Project ASTRO is an NSF-supported program to link professional and amateur astronomers with local school teachers.

This project will take about three months of intense and interesting full time employment, working with other project staff in the Society's offices in San Francisco. (Exact start and end times are negotiable.)

Tasks would include organizing and requesting astronomy education activities from a variety of sources around the country (many are already in hand), learning about the Project ASTRO approach, evaluating the activities (with help from a panel of teachers), doing any necessary rewriting or supplementary writing so the activities can stand on their own, re-formatting activities into standard style, and obtaining permission from copyright holders. Some clerical support will be available.

Qualifications include a degree in astronomy (or equivalent background), some experience teaching science, familiarity with hands-on activities, good writing skills, and the ability to work on a complex project in an organized way without constant supervision. Salary will be commensurate with experience. Note that this is a one-time summer position.

Interested candidates should send a letter describing the reason for their interest in the job and their qualifications, together with a resume to: Andrew Fraknoi, Director, Project ASTRO, A.S.P., 390 Ashton Ave., San Francisco, CA 94112. Write, call 415-337-1100 ext. 120, or e-mail: fraknoi@admin.fhda.edu for more information about the position.

Yosemite Star Party

The SJAA weekend at Yosemite National Park will be Friday and Saturday, June 26 and 27, 1998. There is a small evening moon.

To attend, contact Jim Van Nuland with your name, postal address (if it's not the same as your *Ephemeris* mailing address), number of people, and number of instruments that will be set up for the public. We are asked to have one instrument for every two people. We will camp in Bridalveil camp, 8.5 miles from the Point.

Jim will provide a copy of the Rules, which also is your gate pass. He'll try to hand them to you at a meeting, or mail them in time for the trip. We are limited to 30 people. If we go above that, Jim will keep a waiting list.

The following times are calculated for Glacier Point's coordinates and elevation, but without taking account of the local horizon. It is surprising that rise and set times differ by about 15 minutes compared to sea-level values.

Twilight times do not account for elevation; the twilight data are from ICE using sea-level.

	Friday	Saturday
Sunset	8:42 pm	8:42 pm
A-twi	10:19 pm	10:19 pm
Moons	10:28 pm, 11%illuminated	11:23 pm, 18% illuminated
A-twi	3:44 am	3:44 am
Sunrise	5:21 am	5:21 am

Longitude: 119d 34.6' west; 37d 43.5 north; 7200 ft elevation.

There are many tradeoffs in the selection of a date; later in the summer would provide a longer night, but would also mean that Sagittarius and Scorpius would be lost in the trees. Yosemite is especially spectacular in spring & early summer, as the falls will be running.

Jim Van Nuland. Phone: 408.371.1307 (10 am to 10 pm) e-mail: **jim.van.nuland@sjpc.org** (24 hours)

Comet Comments

Don Machholz

Comet Hale-Bopp slowly dims deep in the southern sky. It is still displaying a short tail. Meanwhile Comet Meunier-Dupouy continues its travels in the morning sky. Both comets are about three astronomical units away.

Comet Hunting Notes: Of the 100 comets visually discovered since 1975, only one was found without the use of a reflector, refractor, or binoculars. It was Merlin Kohler's comet discovery on Sept. 3, 1977. He used an 8" Dynascope Schmidt-Cassegrain. This discovery took about 40 hours of sweeping. Mr. Kohler is now retired and still living in Quincy, California.

Ephemerides (for 0h UT)

C/1997 J2 (Meunier-Dupouy)

Date	R.A. (2000)	Dec.	El.	Sky	Mag.
04-02	21h53.6m	+31o35'	48o	M	11.7
04-07	21h58.8m	+31o27'	50o	M	11.7
04-12	22h03.6m	+31o20'	51o	M	11.6
04-17	22h08.2m	+31o13'	53o	M	11.6
04-22	22h12.3m	+31o07'	55o	M	11.6
04-27	22h16.1m	+31o01'	58o	M	11.6
05-02	22h19.5m	+30o55'	60o	M	11.6
05-07	22h22.5m	+30o49'	63o	M	11.6
05-12	22h25.1m	+30o41'	66o	M	11.6

C/1995 O1 (Hale-Bopp)

Date	R.A. (2000)	Dec.	El.	Sky	Mag.
04-02	05h02.4m	-53o06'	79o	E	9.3
04-07	05h05.3m	-52o32'	78o	E	9.4
04-12	05h08.5m	-52o01'	78o	E	9.5
04-17	05h11.9m	-51o33'	77o	E	9.5
04-22	05h15.7m	-51o07'	76o	E	9.6
04-27	05h19.6m	-50o45'	76o	E	9.7
05-02	05h23.8m	-50o26'	75o	E	9.7
05-07	05h28.1m	-50o10'	75o	E	9.8
05-12	05h32.6m	-49o57'	75o	E	9.9

Orbital Elements

Object:	Hale-Bopp	Meunier-Dupouy
Peri. Date:	1997 04 01.1347	1998 03 10.4365
Peri. Dist (AU):	0.914008 AU	3.051015 AU
Arg/Peri (2000):	130.5787 deg.	122.6755 deg.
Asc. Node (2000):	282.4653 deg.	148.8429 deg.
Incl (2000):	89.4268 deg.	91.2731 deg.
Eccen:	0.995085	1.000760
Orbital Period:	~2500 years	Long Period
Ref:	MPC 30738	MPC 30738
Epoch:	1997 12018	1998 03 08
Absol. Mag/"n":	-1.0/4.0	4.0/4.0

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CC234XT 01-07-98 Don Machholz (530) 346-8963

Celestial Tourist, from p. 6

On Storing Eyepieces:

I have been known to put inexpensive eyepieces in my pocket occasionally, but am reluctant to do so on a regular basis, for fear of contamination with used chewing gum, dead frogs, worn hack-saw blades, and other such things.

More often I sit an eyepiece on the dash or seat of my car to let it undew. The chewing gum, frogs and so forth in my car have usually settled to the floor, where they are relatively harmless.

To Subscribe to/Unsubscribe from the SJAA Mailing List send mail to **sjaa-request@seds.org** with a blank subject line followed by a single text line that says "subscribe" or "unsubscribe"

The Shallow Sky

Akkana Peck

This month is a poor time for planet watchers, unfortunately. Most of the planets are in the morning sky, and even then are too close to the sun to be well placed for observing.

Early risers on April 23rd will see a close grouping of the crescent moon (three days from new), Venus, and Jupiter.

Meteor showers: the Lyrids, associated with Comet Thatcher 1861I, peak on April 21-22 with an average of 15 meteors/hour. The Eta Aquarids, associated with Halley's comet, should be observable beginning in mid April, though their peak is on May 6, with perhaps 15-20 meteors/hour.

Celestial Calendar April 1998

Richard Stanton

Lunar *(S=Standard Time; D=Daylight Savings)*

Phases	Time	Date	Rise	Trans	Set
FQ	11:18 S	03	11:19	18:32	00:52
FM	15:23 D	11	19:40	00:49	06:47
LQ	12:53 D	19	01:54	07:09	12:26
NM	04:11 D	26	06:47	13:32	20:24

Mercury 0.61 A.U. Mag. -1.5

Date	Rise	Trans	Set	R.A.	Dec.
07	06:30	12:59	19:27	00:56.0	+08:38
17	05:48	12:02	18:17	00:37.8	+03:53
27	05:22	11:33	17:45	00:46.8	+02:35

Venus 0.84 A.U. Mag. -4.8

Date	Rise	Trans	Set	R.A.	Dec.
07	04:47	10:18	15:49	22:11.8	-10:33
17	04:39	10:20	16:01	22:53.2	-07:25
27	04:30	10:22	16:15	23:34.9	-03:48

Mars 2.43 A.U. Mag. +1.3

Date	Rise	Trans	Set	R.A.	Dec.
07	07:07	13:41	20:16	01:35.8	+09:37
17	06:47	13:30	20:14	02:04.2	+12:21
27	06:27	13:20	20:12	02:32.8	+14:53

Jupiter 5.71 A.U. Mag. -2.2

Date	Rise	Trans	Set	R.A.	Dec.
07	05:28	11:10	16:51	23:04.8	-06:56
17	04:54	10:38	16:23	21:12.9	-06:07
27	04:20	10:07	15:53	23:20.5	-05:20

Saturn 10.3 A.U. Mag. +1.0

Date	Rise	Trans	Set	R.A.	Dec.
07	07:07	13:31	19:55	01:26.9	+06:42
17	06:31	12:57	19:22	01:31.7	+07:10
27	05:55	12:22	18:49	01:36.4	+07:37

SOL Star Type G2V Intelligent Life in System?
(HOD = Hours of Darkness)

HOD	Dt	Rise	Trans	Set	R.A.	Dec.
08:05	07	06:43	13:10	19:37	01:03.7	+06:47
07:36	17	06:28	13:07	19:47	01:40.6	+10:46
07:06	27	06:15	13:05	19:56	02:18.0	+13:48

Astronomical Twilight		Begin	End
JD 2,450,	910 07	05:13	21:08
	920 17	04:56	21:30
	930 27	04:39	21:33

Siderealtime

Transit Right	07	00:00 = 11:53
Ascension at	17	00:00 = 12:32
Local Midnit	27	00:00 = 13:12

Darkest Saturday Night	25-April-98
Sunset	19:54
Twilight End	21:30
Moon Set	19:14
Dawn Begin	04:42

Activities Through Other Clubs

TAC has reserved the Montebello site for every Wednesday, more or less indefinitely (weather permitting). To get there, take Page Mill Road off 280 (or get to it via El Monte Road) until you're near the top. Montebello's sign will be visible on the left.

First quarter Friday star parties have become a "mobile" event, and checking their web page **http://www.rahul.net/resource/TAC/** is the best way to get times. Third quarter Friday star parties are at Van Meter school when the skies cooperate.

PAS opens Foothill Observatory for public viewing every clear Friday evening from 8:30 p.m. until 11:00 p.m. PAS operates a 16-inch reflector and a 6-inch refractor. Solar viewing is also held every clear Saturday morning from 10:00 a.m. until noon with a very nice filter setup. Both of these programs are outstanding, and all SJAA members are encouraged to check them out.

April

10 PAS General Meeting "Total Solar Eclipse" 7:30 pm at Foothill College

15 PAS Board Meeting 7:30 pm Foothill College Observatory

25 HVAG Star Party at Grant Ranch.

May

8 PAS General Meeting 7:30 pm at Foothill College

13 PAS Board Meeting 7:30 pm Foothill College Observatory

Directions to SJAA Places

Houge Park is in San Jose, near Campbell and Los Gatos.

From Hwy.17, take the Camden Avenue exit. Go east 0.4 miles, and turn right at the light, onto Bascom Avenue. At the next light, turn left onto Woodard Road. At the first stop sign, turn right onto Twilight Drive. Go three blocks, cross Sunrise Drive, then turn left into the park.

From Hwy.85, take the Bascom Avenue exit. Go north, and turn right at the first traffic light, onto White Oaks Road. At the first stop sign, turn left onto Twilight Drive. You will now be passing the park. Turn right at the first driveway, into the parking lot.

Henry Coe State Park is east of Morgan Hill.

From Hwy.101, exit onto East Dunne Avenue. Continue for 12 miles, far past Andersen Reservoir, to the park, atop the ridge. The current SJAA site is the parking lot on the right about 1/2 mile before the main entrance. There is now a fee for use.

Fremont Peak State Park is south of the village of San Juan Bautista.

From Hwy.101, about 11 miles south of Gilroy, take the eastbound Hwy.156 exit. Run for 3.0 miles, to a traffic light, and turn right onto county Hwy.G-1. Follow G-1 for 12 miles into the park. Be careful to note the sudden "left/right jog" soon after the turn; signs are posted. There is a $3 entrance fee.

Editor's Extras

David North

We definitely have a theme for this month's *Ephemeris*: the eclipse in the Caribbean. Several reports were circulated, including a complete submission from Bob Garfinkle. Excerpts from several other reports have also been "sewn together" by the editor to give a broader perspective on the event.

April is quite a month for meteor activity, and you can catch up on the general news regarding the flashy night sky in this month's **Shallow Sky**. It's still a darn good moon month, too.

Elections were held, of course, at the February meeting. We have some new directors, but sadly we lose our President Jack Zeiders, who has done an outstanding job of holding the club together during tough times. I can't say enough about the excellent job he's done, but when an officer wants to end their voluntary time on the job, there's only one reasonable answer: a loud, clear and heartfelt...

THANKS!

For once, the weather was good March 6 at Houge Park on a scheduled Friday night star party. The seeing was pretty fair, the sky only had a few clouds for a while, about 20 scopes showed up (including a conga line of AP refractors), and Jack Z. estimated over one hundred visitors. It's nice to see the sky coming back again.

Recently we ran a poll over the SJAA email list to find out if anyone would be interested in getting their *Ephemeris* electronically rather than on paper through the mail. Since this was only on the email list, it was of course skewed in the direction of those who actually can get email or web access to an *Ephemeris*. The results were:

10 people wanted the paper *Ephemeris*, regardless.

11 people preferred to read it on the Web instead.

6 thought it would be best to get it via email.

So, we have 17 for an electronic version (one type or the other) as opposed to 10 who prefer paper. My read is that it's definitely worth looking into, for those who would prefer either option. Of course, there is no plan to discontinue the paper version.

In the way of a reply, we have Lloyd Frisbee on the printed *Ephemeris*:

"I do have full access to the net but prefer paper rather than plastic. The hell with the trees, they only block my view."

February 7 Board Meeting Notes

Bill Arnett

The meeting was called to order 6:35 pm at Houge Park. All directors were present except Bob Elsberry and Bob Brauer.

Starting with this meeting Bill Arnett has agreed to assist the Secretary with the minutes. Bill will to take the notes, produce the minutes and present them to the board for approval at the next meeting. Jim will continue to perform all the other duties of the Secretary, including archiving the minutes.

Jim recited the upcoming calendar events. The only unusual thing is the annual auction coming up at noon on April 4. No formal action was taken.

Bob Elsberry arrived in the middle of the meeting and passed out the Treasurer's report. The bottom line: SJAA had a $400 loss for 1997. Bob agreed to produce a new budget for 1998. No formal action was taken.

There was a discussion of some changes to the SJAA bylaws proposed by Bill Arnett. This is still in a preliminary stage. No formal action was taken. All agreed that the final approval of these proposals should be made by the membership as a whole not the board.

The only formal action was the motion to adjourn, which occurred at 7:30.

The Election:

The annual meeting of the SJAA membership was held at 8pm at Houge Park. 26 members were present, which constituted a quorum. Elections were held for the 4 Board of Directors whose terms expired this month. Outgoing board members were: Paul Mancuso, Terry Kahl, Bob Brauer, and Jack Zeiders. The Nominating Committee proposed the following candidates: Bill Arnett, Mark Taylor, Terry Kahl and Mike Koop. There were no nominations from the floor. The number of candidates being equal to the number of open seats, Jim Van Nuland asked that the slate be approved by acclamation and this motion was passed unanimously.

Officers and Board of Directors

Pres Ed Erbeck 379-5413
VP David North 297-5257
Sec Jim Van Nuland 371-1307
Tres Bob Elsberry 226-4483
Dir Bill Arnett 947-8721
Dir Terry Kahl 629-0563
Dir Mike Koop 446-0310
Dir Bill O'Shaughnessy 984-3985
Dir Mark Taylor 737-9135

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Circulation Bob Brauer 292-7695
Lew Kurtz 739-7106
Layout Mrs. Crazy Ed
Proofing Bill Arnett

Mentoring Program Chairman
Ed Erbeck 379-5413

Activities Committee
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Dave Smith 978-5503

Observational Astronomy Teacher
Jack Zeiders 281-0220

Observatory Committee
Bob Brauer 292-7695
David North 297-5257

School Star Party Chairman
Jim Van Nuland 371-1307

Telescope Loaner Program
Mike Koop 446-0310

Web Page
Bill Arnett billa@znet.com

TELESCOPE LOAN PROGRAM STATUS

Mike Koop

After 10 years, Paul Barton has retired from the Telescope Loan Program.Thanks Paul for all the hard work and vision you have provided the loaner program. Look forward to consulting with you for many years.

Scope Loans

No.	Scope Description	Borrower	Due Date
1	4.5" Newt/ P Mount	Mark Cousins	11/24/97 Note 1
8	14" Dobson	Steve Sergeant	2/7/98
19	6" Newt/P Mount	Madhava Kidambi	10/15/97 Note 1
21	10" Dobson	Nathan Hill	11/9/97 Note 1
23	6" Newt/ P Mount	Steve Wanamaker	3/13/98
28	13" Dobson	Gennaro Sorrentino	2/1/98
29	C8, Astrophotography	Dean Sala	3/13/98

Extended Scope Loans

No.	Scope Description	Borrower	Due Date
2	6" f9 Dobson	John Paul De Silva	?
3	4" Quantum S/C	David Manley	12/1/97 Note 1
4	60mm Refractor	Del Johnson	Indefinite
6	8" Celestron S/C	Bob Bootz	11/13/97 Note 1
7	12.5" Dobson	Nick Tucci	2/11/98
9	C-11 Compustar	Paul Barton	Indefinite
15	8" Dobson	Alexander Koczur	3/14/98
16	Solar Scope	Jack Peterson	Indefinite
18	8" Newt/ P Mount	Cecelia Yarnell	1/18/98
24	60mm Refractor	Ravi Tembhekar	11/30/97 Note 1

Availible Scopes

No.	Scope Description	Stored At:
26	11" Dobson	Steve Sergeant
27	13" Dobson	Dean Sala
30	7" f/9 Newt/Pipe Mount	David Manley

Waiting List

No.	Scope Description	Standby
6	8" Celestron S/C	Ravi Tembhekar
29	C8, Astrophotography	Michael Lagae

Note 1: Please call and let us know how things are going with the scope

Do you have some space to store a scope or two? Please E-mail or call me. Thanks

All scopes are available to any SJAA member. To reserve a scope, please contact Mike Koop at (408) 473-6315 or email at koopm@best.com.

San Jose Astronomical Association Membership Form

New __ Renewal ___
Membership - $15 ___
Junior (younger than 18 years old) - $6 ___
Sky and Telescope - add $27 to membership
(Sky & Tel will not accept multiyear subscriptions)

Make checks payable to "SJAA"

Bring this form to any SJAA Meeting
or send (along with your check) to
Bob Elsberry, Treasurer
San Jose Astronomical Association,
5380 Pebbletree Way
San Jose, CA 95111-1846
Telephone: (408) 226-4483

Name: _____

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