SJAA EPHEMERIS

SJAA Activities Calendar

Jim Van Nuland

March

4 Fremont Peak star party. Sunset 6:04 p.m., 1% moon rises 6:30 a.m.

10 Houge Park star party. Sunset 6:11 p.m., 27% moon sets 11:11 p.m.

11 Observational Astronomy class, Houge Park, 8 p.m. "Good Observing Practice"

18 General Meeting at Houge Park, 8 p.m., Mike Koop and Jane Houston Jones report on the Leonid Multi-instrument Aircraft Campaign

24 Houge Park star party. Sunset 6:24 p.m, 76% moon rises 0:02 a.m.

25 Fremont Peak star party. Sunset 6:23 p.m, 67% moon rise 11:59 p.m.

April

1 Fremont Peak star party. Sunset 6:29 p.m., 8% moon rises 5:02 a.m.

2 DST start; advance clock by 1 hour at 2 a.m.

8 Astronomy Day! Observational Astronomy class, Houge Park, 8 p.m. "Planetary Observing"

14 Houge Park star party. Sunet 7:42 p.m, 86% moon sets 5:13 a.m.

15 General Meeting. Swap/Auction at Houge Park, from Noon.

17 TAX day - Monday

23 Easter (school vacations before/ after)

28 Houge Park star party. Sunset 7:55 p.m., 28% moon rises 4:01 a.m.

29 Fremont Peak star party. Sunset 7:53 p.m., 19% moon rises 4:31 a.m.

30-May 7 Texas Star Party

Astronomy in your Public Library

What To Do When It's Too Cloudy to Observe

Akkana Peck

As I write this, it's raining, and the forecasts don't look too promising for observing this weekend. Perhaps the skies will have cleared by the time the March issue comes out; perhaps not. What's a poor astronomer to do when the skies are grey?

How about checking out some astronomy books? Yes, literally checking out — the local Santa Clara libraries have an excellent selection of astronomy books. I surveyed three local libraries —the main branches in Santa Clara, Cupertino, and Mountain View —and ended up with a list of interesting books way too long to list in a short newsletter article. Here's a sample.

At Santa Clara, start by heading straight to the reference section, where the maps are kept. In one of the drawers is the wonderful NASA publication SP-496, "Atlas of Galaxies, Useful for Measuring the Cosmological Distance Scale," by Allan Sandage and John Bedke. It's an oversized work, full of photos of all sorts of weird and wonderful galaxies. You can't check it out, but I guarantee you'll have a fun time leafing through it.

When you're tired of looking at galaxy pictures, head back to the regular stacks — code 520 is where the astronomy books live. Want to learn more about observing, or plan your next observing session for when the clouds roll away? How about *Star Hopping*, by our own Bob Garfinkle? Or Crossen and Tirion's *Binocular Astronomy*? Or the venerable three volumes of *Burnham's Celestial Handbook*?

Perhaps you're not tired of looking at pictures yet, or you want more color than the mostly-black-and-white NASA galaxy atlas. How about Dickinson and Newton, *Splendor of the Universe*, or David Malin's beautiful *A View of the Universe*, or the collection of images in *Hubble Vision*?

Or perhaps you're shopping for a telescope — Santa Clara has a copy of the much-praised second (recent) edition of Harrington's *Star Ware*.

Or you may be a planet fan. Choose from Paul Spudis' excellent *Once and Future Moon*, the *British Astronomical Association's Guide to Observing the Moon*, the wonderful NASA publication *Viking Orbiter Views of Mars* (the detail is unbelievable), or the National Geographic *Uncovering the Secrets of the Red Planet*.

But the real find in the shallow sky books here is a little gem by Carl Koppeschar called *Moon Handbook, a 21st Century Travel Guide*, which whimsically offers "Sightseeing highlights and recreational accomodations" for the lunar traveller. Don't forget to take the monorail to the lunar golf course while you're there!

Off to Cupertino, where we find another gem: the two-volume *Celestial Objects for Common Telescopes*, by the Rev. Webb. Written in '62, it's a wonderfully detailed observer's guide. Volume One, on solar system objects,

Continued on next page

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www.sjaa.net

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Astronomy for a Rainy Day

Continued from previous page

is my favorite (of course): it includes a long list of interesting telescopic targets on the moon and planets, better than we see in most modern books.

It's wonderful to read Webb's accounts of mail correspondence among active visual observers trying to correlate their observations. This is accompanied by speculations on the possible nature of some of the features — did you know that some people think that the craters of the moon might be impact structures rather than volcanos, and there are even people who think (much against the grain of common wisdom, of course) that the rings of Saturn might be composed of millions of small particles all in individual orbits, instead of solid sheets? Really, it's a wonderful book, and I was so sorry to have to return it after I'd reached the renewal limit that I hunted around until I found my own copy.

Cupertino has more modern shallow sky books, too: try Cherrington's excellent *Exploring the Moon Through Binoculars or Small Telescopes*, the book where more than one SJAA lunar observer got their start, or another copy of Spudis, to get the theory right after you've been amused by reading Webb's 1962 account.

Perhaps you're thinking about writing some astronomical software and need some algorithms. Here you'll find Duffett-Smith's *Practical Astronomy With Your Calculator*, the clearest reference I've found on programming celestial mechanics. Or perhaps you want to go back to the source: how about *Kepler's Conversation with Galileo's Sidereal Messenger*, in which Kepler describes his reaction to reading Galileo's works?

Perhaps you want to plan an observing session. You'll find Tirion's *Cambridge Star Atlas*, Howard's *Telescope Handbook and Star Atlas* (a sentimental favorite of mine, since as a kid I checked it out over and over from the local library, mostly for the atlas pages in the back), *The Photographic Atlas of the Stars* by Arnold, Doherty and Moore, Garfinkle's *Star Hopping*, and, of course, Burnham's.

Or you can look at pictures again, in the Malin book, or Dickinson & Newton. If you didn't buy Ken Croswell's new book when he spoke at our meeting late last year, you can peruse his earlier book, *Alchemy of the Heavens*. Or check out some interesting home observatories in Patrick Moore's *Small Astronomical Observatories*.

Moving on to Mountain View, we see some of the same staples we've seen at the other libraries: *Burnham's*, the *Cambridge Star Atlas*, Howard, and an updated version of that Moore home observatory book, this time entitled *Astronomical Telescopes and Observatories for Amateurs*. If you didn't like Duffet-Smith's explanations of celestial algorithms, you can try Meeus' *Astronomical Formulae for Calculators*.

Never got around to reading Hawking's *A Brief History of Time*? You'll find two copies here. There's also an interesting book by Fred Schaaf called *Seeing the Sky: 100 Projects, Activities and Explorations in Astronomy*, which might be especially fun for parents to do with their kids (though the projects are suitable for adults as well).

Mountain View's real strength is in planetary geology. They have the Spudis moon book, but that seems to be all — until you figure out that they keep planetary books in the geology section. Head over to the 559's and you'll find the comprehensive and wonderful NASA work, *Geology of the Terrestrial Planets* (another book I couldn't bear to return, and eventually found a copy to buy), the same *Viking Orbiter Views of Mars* that Santa Clara had, and the enormous *Geology of the Moon* by Thomas A. Mutch, which covers the findings of the Apollo 11-16 missions in great detail. There are also several other planetary geology books to keep any would-be planetary scientist busy for a long time to come.

Oh, wait — the sky has cleared, and you're headed out to observe? No problem — the libraries will be here for a long time to come. Take your time, and enjoy! Maybe I'll see you there.

Tom Clark's 36" "Yard Scope II" under a Chiefland, Florida sky. Photo by Morris Jones, before the clouds obscured NGC-1300, "The Superman Galaxy."

Observational Astronomy Classes Continue in 2000

Jane Houston Jones

Once again, SJAA member Doug Davis is offering his series of observational astronomy classes at Houge Park. This series of classes, which are open to the public, are provided at no charge. Doug mixes great slides he's prepared with great personal knowledge and understanding of the subject matter. Then there are club members and friends in the audience who augment the discussion with their own experience, observations and knowledge. It's a great interaction for all!

The second in the series was held on February 12, and I attended the class for the first time. I'm glad I did! The 30 participants were a great mix of new members, from astronomical novices to seasoned veterans of the star wars out there. Some members picked up their SJAA loaner scopes after a lesson or two from Loaner Scope program coordinator Mike Koop. Others returned scopes they have borrowed. It was a great night for astronomy, in spite of the rain and cloudy skies.

It was a great night for astronomy, in spite of the rain and cloudy skies.

Each class stands alone, but the sum of all of them will give the novice a great understanding of the most important and basic facts about observational astronomy. For example, in the first class, Doug offers up the sky. Literally!

The first class: "Introduction to the Sky" provides a general overview of amateur astronomy, understanding the celestial sphere and coordinate systems, basic understanding of constellations, star-hopping and finding one's way around the sky, and naked eye sky phenomena. Now that's a great beginning for the novice, and a wonderful refresher for the beginning or intermediate amateur.

The second class: "Telescopes", explains how telescopes work, the evolution of the basic types and commercial brands, exploring what is on the market today. A little bit on how to determine which scope is right for you, and examination of some of the features and misconceptions. Doug also covers scopes to avoid!

Armed with the knowledge gleaned from just these first two classes, most attendees would agree with me that they have what it takes to really get started in astronomy! I'll bet these star savvy students are beginning with a more solid fundamental knowledge than most amateur astronomers out there. We have Doug to thank! I learned a thing or two myself.

Over the next few months, these great topics will be covered in Doug's class:

- Good Observing Practice - March
- Planetary Observing - April
- Deep Sky I - May
- Deep Sky II - June

There may be some more topics covered after these first six classes, so be sure to check the SJAA activity calendar, or the hotline for details.

Doug Davis

Students from the February Observational Astronomy Class on "Telescopes" came to Houge Park for a slide talk by Doug Davis and demonstrations by several SJAA members.

Directions to Observing Sites

Here are some of the observing sites used by SJAA members and other amateur astronomers around the Bay Area.

Houge Park

Houge (rhymes with "Yogi") 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. (Don't go from 17 to Hwy. 85, there's no connection to Bascom Ave.)

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.

Between the parking lot and tennis courts is a strip of grass where public star parties are held. The meeting hall is directly ahead (south) of the parking lot. There are restrooms on the other side of the the hall.

Grant Ranch

Grant Ranch County Park is located on Mt. Hamilton Road, which is also Hwy. 130, leading to Lick Observatory.

From Hwy. 101 or Hwy. 680 take the Alum Rock Ave exit east. 2.2 miles from 680 turn on right (south) Mt.Hamilton Rd. (Hwy. 130) and go 7.7 miles to the park, on the right. (Mt. Hamilton (Lick Observatory) is 11 miles farther.)

If you're starting from south of 280, take the Tully Road east exit from Hwy. 101. Turn right on Quimby Road which curves around Eastridge Shopping Center. Continue over the hill and back down (about 6.5 miles). Turn right on Mt. Hamilton Road. Grant Ranch is on the right just 0.2 mile from the intersection.

After entering to park follow the main road to the tee; turn left into the parking area where the observing session is held. There is a $2 fee.

Note that the park closes at sunset and you will not be able to get in at night except for officially scheduled events (usually organized by HVAG) or by special arrangement with the ranger.

Henry Coe

Henry Coe State Park is located east of Morgan Hill in the Hamilton Range.

Go south on Hwy. 101, past San Jose toward Morgan Hill. Take East Dunne Ave. Follow it east, past Anderson Reservoir, up the mountain for 12 miles. Eventually you'll cross a cattle guard, then an additional half mile brings you to a sign identifying the Park, and immediately afterward on the right, a parking lot; this is the SJAA observing site. The main park and campground are a half mile farther on. The park fee is $5 per vehicle, payable in the drop-box at the park entrance. *Please note* that the Coe star parties are lightly attended, so there may be nobody there, even when the weather is favorable.

Fremont Peak

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, towards San Juan Bautista. Go 3.0 miles, to a traffic light, and turn right onto county Hwy. G1 (San Juan Canyon Road). The traffic light is labeled "The Alameda". Go straight through the next intersection (don't turn left here) following a sign to the park. After a quarter mile or so, the road forks. Take the left fork. It then immediately forks again, this time go right. You should see a small brown sign saying "Fremont Peak State Park 11 miles." The road follows up the canyon and the winds up a ridge into the park.

The park charges a $3 use fee for day use, $7 for camping (the fee for astronomy is $3 unless you set up a tent, etc.; sleeping after observing in or next to your car doesn't count as "camping"), payable in any of several drop-boxes.

There are several areas within the park used by astronomers. Except for winter months, the Observatory is the contact point for SJAA activities at Fremont Peak. Check in there to find out who and where to meet. But note that only FPOA members are allowed to setup behind the ranger's house or next to the observatory. (In all cases, please be careful with your headlights.)

At first, of course, you'll want to have others around to lend a hand as needed. But feel free to go to the parks on your own time, as they are open to the public. One needn't attend the club function; go where you feel you'll get the most from it. Be aware, though, that the locked gates and closing times will apply, and the special arrangements are usually available only with prior arrangement. You might ask the ranger if he will put the SJAA lock in the gate for you, but don't be upset if he declines.

Maps are availble from the SJAA web site, www.sjaa.net.

Mooning

Rilles, Strings, Domes, Mountains, and Craters

David North

There are really only two significant "Moon Events" this month (unless I missed something).

First, around full there will be a strong libration of the eastern limb; this will be best just before the actual full moon on the 21st. If you wait until after full, it will be in shadow!

You'll be looking for things that don't require great seeing or high magnification

The moon won't be at its very highest, but that won't matter all that much because you'll be looking for things that don't require great seeing or high magnification: the eastern Maria. In particular Smythii, Australe and Humboldtianum should show you dark patches that usually aren't seen, and the smaller darkenings around Crisium (Anguis et al) should be spectacular rotated around like this.

Even fair Endymion will look more obvious and round than usual.

Also, this is the month that you'll probably get your best looks at the area of Copernicus (just after first quarter, which is on the 14th). This is, of course, the great spectacle of the moon.

Here you can see all manner of the most magnificent rilles, secondary impact strings, domes, mountains and the best defined craters on the moon. Just look near the center of the disk for the next few nights and (weather and seeing permitting) you'll get a shot at what real mooning is all about.

I'm not going to go into great detail about what you should look for. Eventually, you have to strike out on your own, get a reasonable map, and start finding stuff. There's really no substitute.

There was an incredible talk at the January general meeting by Michael Light about his book *Full Moon*. It is, of course, the wonderful collection of pictures he culled from those shot by astronauts. He cleaned them up a bit, and the results are stunning.

He turns out to be a fascinating speaker. I don't think there was anyone there who wasn't stuck to their seat, fascinated by his talk about the moon and the stories of the astronauts.

I wish I could do that!

One curious problem came up when nobody could figure out for sure what the cover picture was. In the ensuing debate I surely got the answer wrong, didn't hear anything that turned out to be correct, and even the author had the facts a bit muffed.

Turns out the main Maria showing is Mare Smythii. Akkana and I sat around with a globe trying to get the images to mesh, and you can duplicate her feat (she spotted it first) by holding the globe with Smythii toward you and the poles almost horizontal. Then look at the photo, and imagine the lower half (eastern) is dark.

Continued on next page

The Shallow Sky

Last Chance for the Giants

Akkana Peck

March is our last chance, for a while, to observe the giant planets Jupiter and Saturn which have graced our fall and winter skies, before they disappear in the sunset glare around the end of the month. Get your telescope out at sunset, before they sink too low to show much detail. Sometimes you get lucky and the air gets especially steady just after sunset, before becoming turbulent again later in the evening.

Meanwhile, Mars, which has hung low in the western sky for months now, draws close to the two outer planets, heading toward a conjunction with Jupiter early next month. The trio will make a nice triangle around March 22nd.

March will be a good month for catching asteroids as they pass by deep-sky objects. (I'm a sucker for views of multiple objects in the same field!)

Asteroid 1 Ceres, at magnitude 6.9, is in the Coma/Virgo area, and will make a close pass by galaxy M91 on the 21st (unfortunately this is just past full moon), less than a day before its opposition, and will be near M88 by the following (third-quarter) weekend. April will see it pass by M100, M99 and M98. If you're practicing for a Messier Marathon (or even if you're not), why not take a shallow-sky break while navigating through the realm of galaxies this month?

Asteroid 2 Pallas, at magnitude 7.4, passes right by the open cluster M47 during the last few days of February and the first few days of March. Watch over several successive nights and see if you can spot the motion of this "star" just west of M47 (the opposite side from M46, but closer to M47 than M46 is).

Venus, Mercury, Uranus, Neptune and Pluto are all visible in the pre-dawn hours. On the 15th and 16th, use binoculars or a wide-field telescope to locate faint Mercury (showing a slight crescent at higher magnifications) just over two degrees above bright, gibbous Venus.

The earth reaches equinox just before midnight on the night of March 19th.

Mooning

Continued from previous page

The author's error? He thought it was a picture of the far side, but in fact most of what you see is nearside viewed from a very strange angle, with the wrong stuff foreshortened!

Every time you look you see a different moon.

I wasn't able to see the January eclipse, and since I have to write this at the beginning of February, I have no idea how last month's best nights went — whether we could see Humorum and environs or not.

I hope so.

But don't let that slow you down. There really need be no schedule for when you look at the moon, save for that imposed by the moon itself.

When it's up, look at it!

If it's still in the east at nightfall, wait a bit and it will get higher. If it's near the meridian already, start looking now!

Make sure your scope is out and cooling at sunset, or as soon as possible.

Find the terminator and work your way up and down. See if there's anything interesting — using this approach you don't actually need a map. You can just look.

But if you want to identify your finds, or see where something else might be, or just discuss things with other folks using common terminology, you'll need something.

Rukl's *Atlas Of The Moon* (usually available at Orion) is best. If you can't get that, head for Akkana Peck's "Hitchhiker's Guide To The Moon" at:

http://www.shallowsky.com/moon/hitchhiker.html

That will get you off on the right foot.

School star parties:

March, 2000

8 Haman Elementary
14 Briarwood Elementary
16 Silver Oak Elementary

Meteors

March: A Month for Minor Meteors

Jane Houston Jones

March is a nothing month as major meteor showers go. March is a month of low sporadic rates and a few minor showers. Nothing major, so to speak. So, instead, I'll give a few definitions from the meteor glossary published in Guy Ottowells's Astronomical Calendar 2000. I'll also include two good websites to visit when there are no meteors to observe. Oh, and I'll mention the March meteor showers, of course. The delicate minor showers have their plusses, and many people enjoy the hunt for them. Don't forget that this month's SJAA general meeting will feature SJAA's own Mike Koop and yours truly "talking meteors" —

The delicate minor showers have their plusses, and many people enjoy the hunt for them

Leonids, as in the NASA Leonid MAC Leonid Mission, that is ...

Here goes with the months pickings ...

Eta Virginids Observations of this shower indicate a duration of February 24 to March 27. Maximum is not prominent, but seems to fall on March 18 (solar longitude=358 deg), from a radiant of RA=185 deg, DEC=+3 deg. The maximum hourly rate reaches about 1 to 2. A possible southern branch of this stream seems to exist about 10 deg to the south. Virginid meteors generally emanate from a large area which slowly tracks through leo, Virgo and on towards Libra by mid-April. Virginids are normaly slow, but some can be bright, thought few leave persistent trains. Activity is generally low.

Rho Leonids Although visual observations of this shower seem virtually nonexistent, support for this stream appears in two radar studies conducted during the 1960's, as well as five photographic meteors detected over the period of 1937 to 1954. The first official detection of this stream was made by B. L. Kashcheyev and V. N. Lebedinets (Kharkov Polytechnical Institute) during a radar survey conducted in 1960. The radar was not operated continuously, but five meteors from this stream were detected during March 14-15, from an average radiant of RA=172 deg, DEC=+3 deg.

Gamma Normids The duration of this shower extends over the period of March 11 to 21. Maximum occurs on March 16 (solar longitude=356 deg), from an average radiant of RA=245 deg, DEC=-49 deg. The maximum ZHR reaches 5-9. First quarter Moon should present no problems for covering this under-observed minor southern hemisphere shower, because its radiant is well on view only after local midnight. Ok, this shower will not be visible from our latitude here in California, but your intrepid co-editors will be on their honeymoon at the South Pacific Star Party in the Blue Mountains of Australia around this time of March. We won't see it either.

Continued on next page

Change of Address

The San Jose Astronomical Association has a new mailing address! Please be sure to start using our new address for membership renewals and other correspondence.

Many members use the cover from an old copy of the Ephemeris when preparing their renewal. If you do this, please be sure not to use the old address from the form.

Our new mailing address is:
San Jose Astronomical Association
P.O. Box 28243
San Jose, CA 95159-8243

March Meteors

Continued from previous page

Leonids - Ursids Although visual radiants of this stream are a distinct rarity, it is interesting that its strongest support for existing is based on several photographic meteors detected during the 1950's. In all, seven meteors were detected by cameras operating in the United States and Czechoslovakia, with individual details subsequently being reported in H1959, MP1961 and C1977. The indicated duration covers March 18 to April 7, while the average radiant is RA=175.7 deg, DEC=+23.0 deg.

ZHR: Zenithal Hourly Rate, the maximum number of meteors an excellent observer could see from a shower if the radiant were directly overhead and the sky perfectly clear (magnitude +6.5 stars visible). Haze, clouds and bright moonlight drastically reduce the observed number of meteors, since fainter meteors become effectively invisible. Low radiants, or times away from the shower's peak, also produce many fewer meteors.

Sporadic Meteors: Randonly distributed meteors that are visible at any time of the night throughout the year. They are normally more abundant between local midnight and dawn, and during the second half of the year for northern hemisphere observers.

Persistent Trains: Glowing ionized gas left along the paths of mainly the faster and brighter meteors. Visible only after the meteors themselves have dissappeared, they normally last only for a few seconds, at most. Much rarer examples last for minutes or longer, often twisting into an "S or Z or 2" shape before completely fading due to high-atmosphere winds.

• The International Meteor Organization: http://www.imo.com

• Gary Kronk's Comets and Meteor showers: http://comets.amsmeteors.org/meteors/calendar.html

Project Astro Seeking Volunteers

Project ASTRO is searching for amateur or professional astronomers who would like to work with teachers in grades 4 - 9. This is a great opportunity to help kids learn science while sharing the wonder of astronomy with the most enthusiastic audience you can find (and you'll also sharpen your own teaching and communication skills).

Through Project ASTRO, you will be paired in a one-on-one partnership with a Bay Area teacher at a school near you. Together, astronomer and teacher partners attend a free two-day summer training workshop where they learn effective hands-on astronomy activities and receive a copy of Project ASTRO's 800-page curriculum resource book, *The Universe at Your Fingertips*.

The project emphasizes ongoing partnerships, not just one-time class visits. During the school year, astronomers make at least four visits to their adopted classroom. Some partners go beyond the classroom to organize stargazing events, field trips, or astronomy clubs.

Volunteer astronomer applications are now being accepted for the 2000-2001 school year. The deadline is April 26. Space is limited to 20-25 partnerships. All participants are required to attend the free training workshop, which will be held August 11-12, 2000, at the San Mateo County Office of Education in Redwood City.

Project ASTRO, a program of the non-profit Astronomical Society of the Pacific, began in the Bay Area in 1993 and has now expanded to 11 other sites around the country.

Astronomer application forms are available from Project ASTRO, 390 Ashton Avenue, San Francisco, CA 94112; tel. 415-337-1100 ext. 101; email astro@aspsky.org. Forms can also be downloaded from www.aspsky.org/astro/volunteer.html.

Coming Astronomy Events:

"An Inhabited Universe" in Mountain View

March 8, 2000, Dr. Seth Shostak, will present "An Inhabited Universe?" Dr. Shostak is public program scientist of the SETI Institute. The event is a benefit for the Mountain View/Los Altos School Foundation. Master of Ceremonies for the event is ABC7 Meteorologist Joel Bartlett.

The event begins at 7:30 at the Mountain View Center for the Performing Arts, 500 Castro St., Mountain View. Tickets are available at the box office or by telephone (650) 903-6000. Tax deductible tickets for the presentation and reception are $50 for adults, $25 for students. Presentation-only tickets are $25 adults, $10 students.

A Date with the Universe

March 25, 2000, is the date for a special symposium sponsored by the Astronomical Association of Northern California in conjunction with the Morrison Planetarium and the California Academy of Sciences in Golden Gate Park.

The all-day event features speakers

• Dr. David Morrison from NASA Ames, "Astrobiology: The Search for Life"

• Dr. Donald Goldsmith, astronomer and author, "The Runaway Universe"

• Dr. Seran Gibbard, Livermore National Laboratories, "Adaptive Optics and Laser Stars"

• Dr. Karel Shrijver, Lockheed Martin, "Living with a Star — Our Sun"

Also on the agenda are a special amateur observers panel discussion, introduction of a new amateur observer's challenge, and presentation of the AANC awards.

Preregistration by March 21 is $20 for adults, $10 for ages 10-18. Registration is available at the door for $25. More information is available online at http://www.aanc-astronomy.org

Comet Comments for March 2000

Don Machholz

Several comets have been discovered recently, none expected to be visible to us. Meanwhile, Comet LINEAR (1999 L3) is presently brighter than expected, positions are presented below. The magnitude predictions are estimates.

Kazimeras Cernis, a visual discoverer of three comets that bear his name, has now found a comet on images produced by the SOHO satellite. The comet was in a retrograde orbit and never got closer to the sun than 4 million miles. No earth-based observations were made of the comet. Perihelion was on Dec. 28. It is named C/1999 Y2.

On Jan. 24, SOHO images yielded yet another comet, a Sungrazer. J.D. Shanklin found it.

The LINEAR program found a comet on Dec. 7, and one each on Jan. 27 and 29. The Spacewatch program found one on Jan. 12. Not to be left out, the Catalina program found a faint comet on Feb. 4.

Comet Hunting Notes: A few amateurs have found comets on the SOHO images. The SOHO webpage carries images that have been quickly inspected for comets. Anyone can inspect the images and search for additional, fainter comets. This reminds me of the Palomar Sky Survey plates from which comets were discovered for decades.

Ephemeris

Comet LINEAR (C/1999 L3)

Date(00UT)	R.A. (2000)	Dec	El	Sky Mag
02-11	08h04.8m	+25d29'	156d	E	11.2
02-16	07h31.7m	+27d32'	143d	E	11.4
02-21	07h03.1m	+28d51'	132d	E	11.6
02-26	06h39.4m	+29d38'	122d	E	11.8
03-02	06h20.2m	+30d03'	113d	E	12.0
03-07	06h05.0m	+30d16'	104d	E	12.2
03-12	05h53.0m	+30d22'	97d	E	12.5
03-17	05h43.7m	+30d24'	90d	E	12.7
03-22	05h36.6m	+30d24'	83d	E	12.9
03-27	05h31.1m	+30d23'	77d	E	13.1
04-01	05h27.1m	+30d23'	71d	E	13.2
04-06	05h24.1m	+30d23'	66d	E	13.4

Elements

Object: LINEAR (C/1999 L3)	
Peri. Date:	2000 01 04.9101
Peri. Dist (AU):	1.988921 AU
Arg/Peri (2000):	353.2987 deg.
Asc. Node (2000):	140.1609 deg.
Incl (2000):	166.0993 deg.
Eccen:	0.974292
Orbital Period:	680 years
Ref:	MPC 37478
Epoch:	2000 02 26
Absol. Mag/"n":	7.8/4.0

Don Machholz, (530) 346-8963,
DonM353259@aol.com

Auction XX

Jim Van Nuland

On Saturday, April 15, an astronomical swap meet and auction will be conducted at Houge (city) Park in San Jose. Sponsored by the San Jose Astronomical Association, this is our only fund-raiser.

Doors open at noon (or only slightly before) for the swap meet. Each buyer pays the seller. Sellers are to keep track of their sales, and pay a 10% commission. For big items, there's a commission cap of $50/item.

At about 3:30 we'll break down the tables and set up for the auction. Items for auction must be registered, but there's time for that during the day. Auction starts at 4, usually done by 6. Settle-up is done afterward by one check to (or from) SJAA, then the items may be claimed. The same commission applies. Seller specifies minimum bid; if not met, it goes back to the seller with no commission applied.

There are no table fees other than a $1 requested donation for the auction bidder/seller number. We do not handle charge cards. The commissions are tax-deductible, as SJAA is a 403(c)(3) educational organization.

Celestial Calendar March 2000

Richard Stanton

Lunar Phases:

		Date	Rise	Trans	Set
NM	21:17 PST	05	06:32	12:07	17:49
FQ	22:59 PST	12	10:46	18:02	00:17
FM	20:44 PST	19	18:04	00:30	06:14
LQ	16:21 PST	27	00:55	05:58	11:00

Nearer Planets:

				R. A.	Dec.
Mercury, 0.73 A.U., Mag. -1.6					
07	05:48	11:29	17:10	22:25.9	-06:35
17	05:12	10:45	16:17	22:19.1	-09:45
27	04:58	10:33	16:08	22:45.1	-09:17
Venus, 1.54 A.U., Mag. -4.0					
07	05:30	10:47	16:04	21:40.2	-14:51
17	05:25	10:55	16:26	22:28.2	-10:51
27	05:19	11:03	16:48	23:14.7	-06:22
Mars, 2.25 A.U., Mag. +1.2					
07	07:48	14:14	20:40	01:08.0	+06:59
17	07:27	14:02	20:38	01:35.7	+09:52
27	07:09	13:51	20:33	02:03.6	+12:35
Jupiter, 5.71 A.U., Mag. -2.1					
07	08:31	15:12	21:54	02:08.0	+11:54
17	07:57	14:41	21:25	02:15.9	+12:36
27	07:27	14:10	20:54	02:24.3	+13:20
Saturn, 9.81 A.U., Mag. +0.9					
07	09:02	15:49	22:36	02:44.8	+13:41
17	08:25	15:13	22:01	02:48.5	+14:01
27	07:52	14:38	21:25	02:52.6	+14:21

SOL Star Type G2V Intelligent Life in System ?

Hours of Darkness

09:28	07	06:29	12:19	18:09	23:12.4	-05:07
09:02	17	06:14	12:16	18:18	23:49.1	-01:11
08:35	27	06:01	12:13	18:27	00:25.5	+02:46

Astronomical Twilight:

		Begin	End
JD 2,451,610	07	05:03	19:35
620	17	04:47	19:45
630	27	04:31	19:56

Sidereal Time:

Transit Right Ascension at Local Midnight

07 00:00 = 10:53

17 00:00 = 11:33

27 00:00 = 12:12

Darkest Saturday Night: 04-Mar-2000

Sunset	18:06
Twilight End	19:32
Moon Rise	05:57
Dawn Begin	05:07
Hours Dark	09:35

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Mike Koop (408) 446-0310

Web Page

Bill Arnett billa@znet.com

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San Jose Astronomical Association,
P.O. Box 28243
San Jose, CA 95159-8243

SJAA Loaner Scope Status

All scopes are available to any SJAA member; contact Mike Koop by email (loaner@sjaa.net) or by phone at work (408) 473-6315 or home (408) 446-0310 (Leave Message).

Available Scopes

These are scopes that are available for immediate loan, stored at other SJAA members homes. If you are interested in borrowing one of these scopes, please contact Mike Koop for a scope pick up at any of the listed SJAA events.

# Scope	Description	Stored by
3	4" Quantum S/C	Doug Hendricks
7	12.5" Dobson	Jeff Crilly
8	14" Dobson	Darryl Lambert
19	6" Newt/P Mount	Dean Sala
23	6" Newt/P Mount	Glenn Yamasaki
24	60mm Refractor	Michael D. Turner
30	7" f/9 Newt/Pipe Mount	Mike Koop

Scope Loans

These are scopes that have been recently loaned out. If you are interested in borrowing one of these scopes, you will be placed on the waiting list till the scope becomes available after the due date.

# Scope	Description	Borrower	Due Date
1	4.5" Newt/ P Mount	Esme Wong	3/23/00
6	8" Celestron S/C	Richard Burks	3/18/00
15	8" Dobson	Gary Strawn	3/17/00
16	Solar Scope	Michael D. Turner	2/20/00
26	11" Dobson	John Templeton	4/14/00
27	13" Dobson	Al Kestler	3/17/00
28	13" Dobson	Bruce Horton	2/14/00
29	C8, Astrophotography	Doug Hendricks	5/3/00
32	6" f/6 Dobson	Rob Dewis	3/18/00

Extended Scope Loans

These are scopes that have had their loan period extended. If you are interested in borrowing one of these scopes, we will contact the current borrower and try to work out a reasonable transfer time for both parties.

# Scope	Description	Borrower	Due Date
2	6" f/9 Dob	John Paul De Silva	?
9	C-11 Compustar	Paul Barton	Indefinite
18	8" Newt/ P Mount	Dave North	Repair
21	10" Dobson	Ralph Seguin	Repair
31	8" f/8 Dobson	Lee Barford	1/23/00

Waiting List

6	8" Celestron S/C	Al Kestler
27	13" Dobson	Steve Sergeant
32	6" f/7 Dobson	Gordon A McClellan

Notes:

Do you have some space to store a scope or two? Please email or call me. Thanks!

Submit

Members are encouraged to submit articles for publication in the SJAA Ephemeris. Send articles to the editors via e-mail to ephemeris@sjaa.net.

To subscribe to or unsubscribe from the SJAA Mailing List send email to
sjaa-request@sjaa.net
with a blank subject line followed by a single text line that says "subscribe" or "unsubscribe"

San Jose Astronomical Association Membership Form

New __ Renewal __
Membership - $15
Junior (younger than 18 years old) - $6
Sky and Telescope - add $30 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

San Jose Astronomical Association
P.O. Box 28243
San Jose, CA 95159-8243

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