SJAA EPHEMERIS

SJAA Activities Calendar

Jim Van Nuland

May

5 Pinnacles Astronomy Night. (See Page 7.)
6 Star parties at Fremont Peak and Henry Coe. Sunset 8:05 p.m., 13% moon sets 11:13 p.m.
12 Houge Park star party. Sunset 8:11 p.m., 58% moon set 3:18 a.m.
13 Observational Astronomy Class at Houge Park, 8 p.m.
20 General Meeting, Houge Park, 8 p.m. Slide/Equipment Night
26 Houge Park star party. Sunset 8:23 p.m., 58% moon rises 2:02 a.m.
27 Fremont Peak star party. 46% moon rises 2:34 a.m.
26-29 Riverside Telescope Makers Conference. www.rtmc-inc.org

June

2 Pinnacles Astronomy Night.
3 Fremont Peak star party. Sunset 8:21 p.m., 4% moon sets 9:56 p.m.
9 Houge Park star party. Sunset 8:27 p.m., 61% moon sets 2:25 a.m.
10 Observational Astronomy class, Houge Park, 8 p.m.
17 General Meeting. Speaker T.B.A.
23 Houge Park star party. Sunset 8:32 p.m., 59% moon rises 1:05 a.m.
24 Fremont Peak star party. Sunset 8:29 p.m., 49% moon rises 1:33 a.m.

Dr. James Kaufman, IBM Almaden Research Center, has agreed to speak to SJAA on July 15. His topic will be the Moon Illusion, in particular, his explanation of it. (Took psychology and astronomy working together to solve it.)

President's Notes

State of the Club

David North

I've been elected again to the office of President of the SJAA, a fairly odd situation for someone who really isn't much of a joiner.

As is presidentially traditional, this seems like a good time to pass along a State Of The Club Address.

First, we're in very good shape. Membership is the highest I've seen since I first saw the member list (several years ago) and continues to grow. We have around 275 actual members, and well over 300 on the mailing list (we have co-op deals with clubs and other organizations).

Due to generous donations, a successful swapmeet/auction, good fiscal policy and the growing membership, we're financially in excellent shape.

We've made some modest additions to the loaner program, and fixed up quite a few of the older scopes. Further acquisitions are planned — I'll leave it to the returning Vice President Mike Koop to keep us appraised of the "blow by blow."

Meetings have been outstanding lately, with a very strong series of presentations by some fantastic speakers.

In other words, a lot of things are going very well.

Not, I might add, any doing of mine for the most part. Perhaps the old adage that "he who gets out of the way helps" best applies to my job...

Nevertheless, I'm left with some small dissatisfaction.

First, we haven't managed to involve too many club members in pushing things along. We sorely lack ATM programs, and this will only slide further with Ed Erbeck moving to Arizona and Jane Houston Jones being busy, married and happy up in Marin.

I'd love to see the ATM "wing" of the club get going again. Having Chabot nearby is terrific for mirror testing and figuring, but we can do just about everything else right here.

Some progress has been made in getting Fremont Peak back into shape as an observing site, but the process is slow and things aren't quite back up to their old standard. However, this has a good side: there has been a resurgence at Coe, and it may end up as an equivalent alternative (seeing and darkness are already similar. Perhaps with some small improvements to the lot, it will truly be six of one, half dozen of the other).

We could use a bit more oomph in our meeting schedule, but we have nobody specifically coordinating events.

The guy who runs the mailing list (me) doesn't do that good a job, and we could use some help there.

Mark Taylor suggested forming Interest Groups to pursue these ideas, and quite a few others, an idea I like quite a bit.

I think, overall, the biggest failure of my first term was not getting more people involved in the club — and finding ways to make that more fun.

I hope I won't make the same mistake this year.

24 Hour News and Information Hotline: (408) 559-1221
www.sjaa.net

Scopeabout

Jane Houston Jones

Every year since 1993, the Astronomical Society of New South Wales (ASNSW) hosts the now-famous South Pacific Star Party (SPSP) at Wiruna, their dark sky site. The eighth annual SPSP was held over the weekend of March 31 - April 3, 2000. Your intrepid Ephemeris editors were speakers at this year's South Pacific Star Party. We mingled with the near 400 observers attending the event. This month we'll take you on an Australian walkabout — I mean a scopeabout — through the great observatories of New South Wales, Australia. The ASNSW website, http://www.ozemail.com.au/~asnsw/ is a great place to bookmark. You'll love to refer to it for armchair astronomy or travel plans. You might even make some new email friends down under!

On the way from the Sydney airport is the first observatory on the tour. An hour's drive north west of Sydney is the ASNSW's other club observatory, Crago. Crago, the ASNSW's "local" observatory, is located at Bowen Mountain, near North Richmond. Crago delivers great dark and relatively steady skies. A high class 16" f/7 Dobsonian is housed in a large rotating dome, which is of superb quality, and gives fantastic views of the

Crago Observatory

sky. Website: http://www.ozemail.com.au/~asnsw/crago/crago.htm

The observatory of 19th century amateur astronomer John Tebbutt (1834 -1916) was our next stop on the way to the Star Party at Wiruna. It stands 57 km northwest of Sydney. His telescope, an 8-inch Grubb refractor, is still housed at his observatory in Windsor, NSW. Both the wooden and the brick observatories still stand, and the house, built in 1845, is still owned by the Tebbutt family. He discovered the great comets of 1861 and 1881. Tebbutt and his observatory were featured on one face of the Australian $100 note. Website: http://www.walkabout.com.au/fairfax/locations/NSWWindsor.shtml

John Tebbutt's observatory from the 19th century.

Wiruna (Aboriginal for "Sunset") is the ASNSW 43-hectare dark sky observing site near Ilford. A 3-hour drive south west of Sydney will take you there. The 107-acre site has two main fields. The eastern field is the main observing field (about 25 cleared, level acres), where most members set up their telescopes, and the western field has a small house, and a small cleared observing area for observers who like to observe with perhaps a little music, or who are not too worried about short exposure to a little light. A radio telescope antenna and the pier for an 8 inch refractor stand nearby as club member projects. Not a bad site for a honeymoon, wouldn't you agree? Website: http://www.ozemail.com.au/~asnsw/wiruna/wiruna.htm

Three hours drive north west of Ilford and the Wiruna observing site lies Coonabarabran, the astronomy capital of Australia. Coonabarabran is an aboriginal word meaning inquisitive man. Siding Spring Observatory is a collective name for all telescopes sited on Mt. Woornut, near Coonabarabran. A radio telescope (nearby at Mopra) is part of the Australia Telescope National Facility. The Anglo-Australian Observatory, with the 3.9 meter AAT telescope and the 1.2 meter UK Schmidt Telescope perch on a hilltop in the majestic Warrumbungle National Park. Six other telescopes share the Siding Spring site, 400 KM north of Sydney. These include the Uppsula Schmidt telescope moved from Mt. Stromlo, with its spherical mirror. This telescope was moved from Canberra and Mt. Stromlo in 1980 due to light pollution. The 2.3 meter Advanced Technology Telescope is also here. The Observatory was established here at Siding Spring to take advantage of the extremely dark skies, and to provide the opportunity for astronomers to observe the southern sky where some of the most exciting objects are found, including the centre of our own Milky Way galaxy and our neighbors the Magellanic Clouds. The Siding Spring Exploratory is open 7 days from 9:30 to 4:00 PM. Visit the Exploratory and walk around and view the 3.9 meter telescope from the gallery on the main observing floor. Outside the dome, the metal shipping case for the 3.9 meter mirror rests on the plaza. Ironically, it is labeled "fragile," with a wine glass painted on the bulky exterior. Website: http://www.aao.gov.au/ Don't miss a drive through the National Park, too!

Also in Coonabarabran, is a commercial observatory. Skywatch Observatory and Miniature Golf offers just what you think it will, unfortunately. Website: http://www.lisp.com.au./~skywatch/minigolf/index.html

Next on the scopeabout is Narrabri, where the Australian Tele-

scope National Facility is located. A set of 6 radio antennas (22-m diameter) are equipped with 6/3-cm and 13/20-cm receivers. The visitor center was unmanned when we visited, but there was great interpretive material and three great videos. Two large dishes facing each other on the lawn allowed us to whisper sweet nothings into the dish and for the recipient to hear the romantic words bounced off the parabolic dish! Just like the whispers from space cradled in the great radio receivers. Website: http://www.narrabri.atnf.csiro.au/

The most magnificent of the Australian telescopes is the Parkes Radio Telescope. Parkes is located a couple hours south of Narrabri on the Newell Highway, or 400 km west of Sydney. 37 years old, 64 meters or 210 feet wide, this telescope mostly studies active radio galaxies and the hydrogen, ammonia, silicon monoxide stellar dust and stars in the Milky Way. Website for the great Visitors Discovery Centre http://wwwpks.atnf.csiro.au/home.html. Website for the Parkes Observatory: http://wwwpks.atnf.csiro.au/home.html

The capital of Australia, Canberra, is the home of the Mount Stromlo Observatory. The Stromlo Exploratory is open 354 days a year and has a great cafe! Together, Mount Stromlo and Siding Spring Observatories form one of the leading optical astronomical observatories in the world, 600 km apart. Their main areas of research interest are in stellar and extra galactic astrophysics — in particular, the structure and evolution of stars and galaxies, the origin and development of the universe as a whole, and the physics of the tenuous material between the stars. The observatories have a total staff of about one hundred, most of whom work at Mount Stromlo, where the main workshops and computer laboratories are located. There are about twenty five astronomers on the staff, and an equal number of post-graduate students undertaking Ph.D. studies. Website: http://msowww.anu.edu.au/

South of Canberra is the NASA Deep Space Communication Complex. The Canberra Deep Space Communication Complex (CDSCC) is responsible for the tracking of spacecraft that partake in interplanetary missions. The complex is a NASA facility operated under a USA-Australian government agreement which involves JPL, CSIRO Australia and BAE Systems Australia. It is adjacent to the Tinbinbilla National Park, where you can glimpse the elusive koala, or a mob of kangaroos! Opened in 1965, the complex is home to the largest steerable antenna in the southern hemisphere and the former Honeysuckle Creek antenna which received the first pictures of Neil Armstrong's famous walk on the moon. The facilities at CDSCC are similar to those at Madrid and Goldstone. These three complexes, together with the Jet Propulsion Laboratory, form NASA's Deep Space Network. Website: http://www.cdscc.nasa.gov/

There are many observatories that we missed. We drove right by some, but we saved some observatories for another scopeabout. Visit the ASNSW website for a comprehensive list, or do your own surfing. Website: http://www.ozemail.com.au/~asnsw/misc/observat.htm

We ended our scopeabout back in Sydney. The Sydney Observatory is located on Observatory Hill, in the Rocks, not far from Sydney's famous Circular Quay. Sydney Observatory http://www.phm.gov.au/observe/

It was time for some terrestrial viewing. Sydney is full of history, beauty and great people. A final stop at the Binocular and Telescope Shop at 55 York Street was a fitting end to our astro-honeymoon. Telescope maker Don Whiteman and owners Mike and Lily Smith, welcomed our return and we signed the guest register. Why, we hadn't seen these folks for nearly a week, when we were observing at the South Pacific Star Party of 2000. Website: http://bintel.com.au

Two of the six receiver dishes that make up the northernmost component of the "Australia Telescope," located near Narrabri, NSW, Australia.

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.

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.

Congratulations

... to Jim Van Nuland and his wife, celebrating their 40th wedding anniversary this month!

Astrocon 2000 July 19-22

The Ventura County Astronomical Society presents the 54th annual convention of the Astronomical League, the Association of Lunar and Planetary Observers, Astronomical Society of the Pacific, American Association of Variable Star Observers, International Occultation Timing Association, the American Association of Amateur Astronomers, International Dark Sky Association, Search for Extraterrestrial Intelligence Institute, and the Society of Amateur Radio Astronomers for the first major astronomy conference of the 2000's.

Astrocon 2000 will bring together astronomy groups and individuals that have never met together before. You do not need to be a member of any of the participating organizations to register and attend the conference. The schedule includes many lectures, workshops, and field trips, such as tours of Mt. Wilson and JPL. (SJAA's Don Machholz will speak on "Fifty Years of Comets.")

The conference is held at the Holiday Inn Ventura Beach Resort. More information and registration is available at the VCAS web site www.vcas.org/astrocon and by email to astrocon2000@vcas.org.

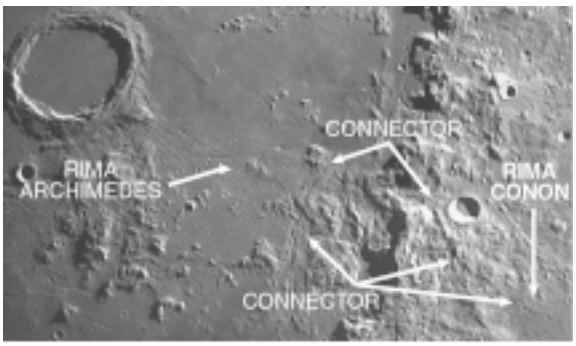
Mooning

Follow the Dots to a Secret Project

Dave North

Other than a good view of a high moon, I don't know of any special events happening this month. From new 'til full, it should be an interesting lunation on every clear night.

But I am going to single out one time and place: the area of the Apennine Mountains between Rimae Conon and Archimedes. For those of you with Rukl, it's on map 22 — and right on the lunar meridian.



Why there? Because it illustrates something I find fascinating about the moon: weirdnesses you can find with your own telescope.

With any luck, this area should be just about ideally lit on Thursday, May 10, with some light shift during the evening. If the seeing is at all decent, you should get a view at least as good as the photo that accompanies this article.

For those of you who like to follow along "on screen," a largish jpeg image can be viewed at http://member.aol.com/timocharis/mo.jpg — an address that might be somewhat familiar.

A quick digression about the illustration: it was shot by the outstanding CCD artist and telescope maker Maurizio Di Sciullo in Florida through one of his 10-inch newtonians. This is only a small part of a much larger mosaic he sent me, which I edited and labelled.

It's meant to show something I noticed about 18 months ago, and have since studied and reconfirmed several times.

I noticed one night that Rima Conon has what seems to be a buried extension that climbs up the eastern face of the Apennines.

Fascinated, I kept tracing, and soon found two major channels that seem to go all the way through the mountain range and join up with the Bradley rille complex, as well as the Rima Archimedes.

First, it's possible that this is just an optical coincidence. Second, even if it's true, I have no idea who would find it interesting (or why) other than myself and perhaps some other lunar observers.

There is nothing unique about this situation — both rimae Sirsalis and Hesiodus cut through all manner of mountainous terrain, and run greater distances (though neither cuts through quite so spectacular a range, nor has twinned branches... but hey, details).

What is interesting, from my point of view, is I have been unable to find any reference to this phenomenon — making it a bit of a "secret" little project to consider and discuss.

This is not at all that rare on the moon: it's a big place that hasn't been looked at *all* that carefully.

If the photo reproduces well, you should be able to trace both branches from the end of the exquisite Conon squiggle up the slope, where it splits at a steeply shadowed scarp. From there, one branch runs almost due west, straight through the mountain range to very near the southern end of Rima Bradley, and even closer to what appears to be a terminus of Rima Archimedes.

The other branch of the mystery rille trace angles northeast for a short stretch (this is, in some ways, usually the easiest part of it to see) and back down the eastern slope to nearly join Rima Bradley again.

None of these three stretches looks exactly like a rille, but more like a rima concealed under a light covering.

What does it all mean? I don't know. In fact, I look forward to comments and discussion.

But it does mean this: if you look at the moon, and let your curiousity lead you where it will, all manner of interesting puzzles and ideas crop up.

They'll lead you to some understanding of geology, and how structures differ on other bodies in the solar system. Conjectures about how — and why — such formations happen.

And a sense of wonder.

Meteors

Swift and Bright

Jane Houston Jones

This month's major shower, the Eta Aquarids is moonlit free. That's the good news. The bad news is that Aquarius, a small "Y" shaped constellation rises in twilight only an hour or two before dawn for us in mid-northern latitudes. It is one of two showers associated with comet 1P/Halley, last at perihelion in 1986. The other is the October Orionids, and like the Orionids, Eta Aquarids are very swift, bright, and frequently leave persistent trains. Both showers show a variable number of submaxima around their main peak, although the Eta Aquarids peak is generally the highest of wither shower. This shower is active from April 19 to May 28.. ZHR is 60, but does vary. Radiant is 22h32m.

It is a good radio shower for both northern and southern hemisphere with high echo counts from soon after the Lyrids of April.

Our First Messier Marathon

Bob Havner

Len Bradley and I have been amateur astronomers for several years. Recently we have been having frequent observing sessions at his home in Gilroy. The sky is fairly dark, very dark if compared to my home in Campbell, and there is a good view of the sky. We have both had very good success at finding faint deep sky objects, Len with his 8" Meade SCT, and I with my 8" Orion DSE.

One day Len contacted me asking what I thought about trying a Messier marathon. Of course I was thrilled. We set the date for April 1, 2000 and made plans for the attempt. For our first try we decided to work as a team. This would offer us a chance to get the maximum number of objects. The two of us got together earlier in the week to make our strategy. Len's backyard was chosen for our site. The list published in Sky & Telescope was used as our guide. Our plan was simple, we divided the list between us and as we found objects we would share views. Knowing that all 109 objects were not possible, due to horizon obstructions, we made up a realistic goal for ourselves of 92. To be truthful would have been happy with somewhere in the 60 to 70 range.

The evening of April 1st arrived. I got to Len's house at 6:30 and immediately set up. "The Sky" astronomy software was used for location and identification of objects. As the sky darkened we trained our scopes on our first targets. At 7:41 Len spotted M103 and the hunt was on. To my surprise we were checking off objects at a fairly fast pace. We had little trouble finding objects and cruised through the "early evening" and "Leo and the Big Dipper" sections. M101 gave me a little trouble and NGC 5866 was used as M102 as suggested by Sky & Telescope magazine.

The Virgo cluster worried me a little. I thought that this area would make or break the night. I started by finding a close pair of galaxies, and identified them as M 84 & 86. After that it was a simple matter of star hopping through the rest of the cluster.

After the Virgo region came my personal favorites M13 & M57. They were the first deep space objects I had ever seen through my telescope. Cygnus was still low in the sky so it was time to take a break. It may not show dedication to the hobby, but we escaped the dark to the garage for a few games of pool. After about an hour we were ready to go the distance.

The night continued with the same success as it started. Cluster after cluster we saw our list getting to its end. M22 was the last that we expected to find, and anything after that was a bonus. We ended up finding six more including M52, which was at the start of the list and obstructed. The list was tallied as the sky was beginning to lighten. We had found 98 Messier objects! Both of us were thrilled and tired. Our gear was packed in the pre dawn morning and as I headed home, a thin, crescent moon was hanging over the foothills a very cool sight after a great night.

The Long Wait

Norman Wild

In 1992 I built a mount for a 12.5" mirror. The components were ordered from AstroSystems. I followed the instruction manual to assemble the mirror box and the rocker box using 3/4" grade plywood. I had AstroSystems make the upper cage assembly. The mount has performed well. In order to transport it, I removed the passenger seat from my '83 Volvo. The mirror box fit, but it was snug.

Last June I called AstroSystems and ordered a Telekit, an advanced design that uses pre-cut Baltic birch plywood. Instead of screws, slow-drying epoxy is used to bond the finger joints. Eight clamp blocks are recommended to tighten the corners. I made do with less, but larger scopes would need 8. I found an electric sander essential to smooth the joints.

There are only 4 tube blocks each of which has 2 holes angled for proper positioning. This is a big improvement over my previous mount which had 8 bulky blocks, six of which fitted outside the box. The Telekit uses 1" instead of 1.25" tubes through 14" scopes. To adapt them to my upper cage assembly, I cut 2" sections from the old 1.25" tubes and epoxied them to the ends of the 1" tubes. It works great.

Another big improvement is the altitude bearings. They are less bulky than my originals and fit in predrilled holes of the mirror box. This removes guesswork for determining the balance point.

A real gem is the mirror cell. It is made of wood which makes it lighter but strong. The strap is held by dowels instead of slotted steel rods. Eight turns of the three adjusting screws (halfway), and I get perfect focal travel. You can easily install the mirror from the top of the box, or you can loosen two acorn nuts which allows the hinged mirror cell to drop down for access from the bottom.

To finish the mount I used Minwax semi-gloss outdoor urethane. I avoided stain — too much work! Not only does the great looking new mount function well, it also has other advantages. It is lighter and more compact — the mirror box is 5-1/4" x 2" less in size and don't forget those inside tube blocks. My light shroud fits better, and the upper cage assembly stores in the rocker box.

I received the components at the end of November which was a six month wait from the time of ordering. I often got impatient and considered canceling the order, but I held on and the wait was worth it. My particular kit size was not highest priority as the company had to fill orders for larger sized kits first. I heartily recommend the AstroSystems Telekit, but just remember, if you order, you may have a long wait.

[Editors Note: If you'd like a Telekit of your own without the wait, be sure to see Page 8.]

Pinnacles Starry Night Programs

Chad Moore

Pinnacles National Monument will present a series starry night astronomy programs on the east side of the park this spring. Pinnacles National Monument is fortunate to have relatively pristine night skies away from city lights, and offers great views of the stars and planets.

Our programs will be held Friday evenings, May 5th at 7:30 p.m. and June 2nd at 9:00 p.m. The program will last until dawn. Amateur astronomers with their own telescopes are invited to attend.

Autos arriving at the east entrance (accessed via Hwy 25) will be directed to an area suitable for nighttime viewing. There is no access from the West side. Nighttime temperatures at Pinnacles can be cold, so dress very warm. Overcast weather at the park cancels; please call ahead for last minute information.

Pinnacles National Monument was established in 1908. The 24,000 acre unit of the National Park Service features tall rock spires, unique geology of an ancient volcano, miles of hiking trails, rugged wilderness, abundant wildlife, and native chaparral vegetation. Spring is a popular time for visitors to come to the park, and many public programs are featured throughout the season. In addition to the Starry Night programs, Pinnacles sponsors a variety of nature hikes, wildflower walks, evening bat talks, and full moon hikes. Visitors are reminded that Pinnacles National Monument is designated as a fee collection site and operates as a day use park. Night programs are subject to special conditions and operating hours. For further information call the park at (831) 389-4485 or consult the park website at www.nps.gov/pinn.

The Shallow Sky

Planets Close to Each Other and Sun

Akkana Peck

Alas, we're into lean times for evening planetary observers. The bulk of the easily visible planets (Jupiter, Saturn, Mars, and Mercury) lie in a narrow band of the ecliptic, too near the sun to make for good observing, and passing from the evening into the morning sky during the course of the month.

Even in the morning sky, conditions are no better, with Venus also very close to the sun, though early risers on May 17th might be able to see the end of a close conjunction with Jupiter (hours earlier, the two were barely farther apart than the size of Jupiter's disk!) It might also be possible to see them after the sun is up, if you're careful to hide behind a building (both to reduce glare and to reduce the chance that you'll accidentally sweep your binoculars across the sun).

If you miss this one, try for the conjunction of Jupiter and Saturn, just before sunrise during the last five days of May. They're so close to the sun that they'll be hard to see in the dawn glow: try using binoculars to locate them.

The only shallow-sky showpieces remaining to late-evening observers are the outer planets: Uranus, Neptune, and Pluto. Tiny magnitude 13.7 Pluto is nearing opposition in Scorpius. From a dark sky (like those at Fremont Peak or Henry Coe), use a good finder chart (the one in the RASC Observer's Handbook is usually reliable) and the biggest aperture you have to locate the starlike glint of our farthest neighbor.

Uranus and Neptune remain close together in the sky, in Capricornus, and should be fairly easy to locate before morning twilight begins.

Dave North presents the A.B. Gregory Award for 2000 to an astonished Jane Houston Jones in the glow of the computer projector. Jane is dressed in her official NASA flight suit. The award was presented just before Jane and Mike Koop conducted the March program on their visit to the Leonid meteor storm last November.

Comet Comments

Don Machholz

More comets have been found by the SOHO satellite, while LINEAR has discovered a faint, small comet. No bright comets are in our sky again this month.

This is a slow time of the year, comet-wise. The comet that is expected to be the brightest of the year- Comet LINEAR (C/1999 S4)- is new to the solar system. This means it burned off tons of volatile material while far from the sun, giving the impression that it is a bright comet. It may brighten to only magnitude 5 or 6. Remember Comet Kohoutek!

We have a couple more comets that should be visible late in the year. Comet McNaught-Hartley (1999 T1) may approach magnitude 6 late this year, but it will be far south and within 70 degrees of the sun until then. Periodic Comet Encke will be briefly visible to each Hemisphere late in the year.

SOHO images revealed ten more comets in the past month. Five of them were from images taken in 1999. Nine are from the Kreutz family of sungrazers. Various people found these comets, among them are: M. Oates, D. Biesecker, A. Vourlidas, M. Meyer, T. Lovejoy, J. Shanklin, and K. Cernis.

The LINEAR program recently found a comet that may be of short period. Comet LINEAR (C/2000 G1) is presently only 30 million miles from us but at a faint magnitude 17. That's a small, faint comet!

Comet Hunting Notes: How many comets are discovered visually by amateurs each year? In the past 25 years there have been 81 visual discoveries, or 3.24 per year. From 1975 through 1984 there were 33 finds, with 34 comets from 1985 through 1994. The rate slowed a bit during the five years 1995-1999, with 14 finds, or 2.8 per year. It will be interesting to see how this will change in coming years with competition from the automated programs.

Don Machholz

This is my last issue of Comet Comments. After twenty-one years of writing this column I am now at the point where it is often difficult for me to write an intelligent, interesting and timely article each month. At the same time there seems to be less need for this type of comet news on a monthly basis. The Internet can substitute for the things I write, and more rapidly too. I want to thank you for being an attentive audience.

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

For Sale

Unassembled AstroSystems Telekit manufactured for a 14.5" f/5 mirror. The kit is in perfect condition and ready to finish and assemble, no optics included. Ready for pick-up in Campbell. $1,000. Morris Jones (415) 453-2885 or (408) 836-4300, mojo@whiteoaks.com.

Celestial Calendar
May 2000

Richard Stanton

Lunar Phases:

		Date	Rise	Trans	Set
NM	21:12 PDT	03	06:14	12:53	19:41
FQ	13:01 PDT	10	12:34	19:41	01:58
FM	00:34 PDT	18	20:44	01:10	06:29
LQ	04:55 PDT	26	02:00	07:30	13:05

Nearer Planets:

				R. A.	Dec.
Mercury, 1.25 A.U., Mag. -2.1					
07	06:00	12:58	19:58	02:49.7	+15:59
17	06:23	13:46	21:10	04:17.0	+22:42
27	06:55	14:29	22:02	05:39.4	+25:33
Venus, 1.71 A.U., Mag. -3.9					
07	05:43	12:29	19:16	02:22.5	+12:58
17	05:38	12:38	19:38	03:10.7	+16:54
27	05:37	12:49	20:01	04:00.8	+20:07
Mars, 2.50 A.U., Mag. +1.5					
07	06:52	14:06	21:21	04:01.1	+21:05
17	06:37	13:57	21:16	04:30.5	+22:23
27	06:23	13:47	21:10	05:00.1	+23:21
Jupiter, 5.99 A.U., -2.0 A.U.					
07	06:10	13:06	20:03	03:01.8	+16:16
17	05:38	12:36	19:35	03:11.3	+16:56
27	05:06	12:06	19:07	03:20.9	+17:33
Saturn, 10.1 A.U., Mag. +1.0					
07	06:22	13:17	20:11	03:12.5	+15:49
17	05:47	12:42	19:38	03:17.6	+16:09
27	05:11	12:08	19:05	03:22.8	+16:29

SOL Star Type G2V Intelligent Life in System ?

Hours of Darkness

06:36	07	06:03	13:04	20:06	02:58.2	+16:55
06:09	17	05:54	13:04	20:15	03:37.5	+19:25
05:46	27	05:48	13:05	20:23	04:17.7	+21:21

Astronomical Twilight:

		Begin	End
JD 2,451,671	07	04:23	21:47
681	17	04:09	22:00
691	27	03:58	22:12

Sidereal Time:

Transit Right Ascension at Local Midnite

07 00:00 = 13:54
17 00:00 = 14:33
27 00:00 = 15:12

Darkest Saturday Night: 27-May-2000

Sunset	20:23
Twilight End	22:12
Moon Rise	02:32
Dawn Begin	03:58
Hours Dark	05:46

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Publication Statement

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

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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
7	12.5" Dobson	Jeff Crilly
15	8" 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
31	8" f/8 Dobson	Lee Barford

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	Al Kestler	6/24/00
8	14" Dobson	Gary Strawn	6/29/00
26	11" Dobson	John Templeton	4/14/00
27	13" Dobson	Steve Sergeant	5/12/00
29	C8, Astrophotography	Doug Hendricks	5/3/00
32	6" f/7 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	?
3	4" Quantum S/C	Mike Koop	Repair
9	C-11 Compustar	Paul Barton	Indefinite
16	Solar Scope	Michael D. Turner	5/20/00
18	8" Newt/ P Mount	Dave North	Repair
21	10" Dobson	Ralph Seguin	Repair
28	13" Dobson	Bruce Horton	5/14/00

Waiting List

15	8" Dobson	Mike Rupe
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.

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