SJAA EPHEMERIS

SJAA Activities Calendar

Jim Van Nuland

April

3 Observational Astronomy class, Houge Park, 8 p.m. Topic: Tools of amateur astronomy: types of telescopes, binoculars, accessories, manufacturers. What to buy and what to avoid.

4 Beginning of Summer time. Advance clocks.

4 Easter (school vacations week before or after)

9 Houge Park star party. Sunset 7:38 p.m., 40% moon rises 3:21 a.m.

10 Star party at Peak. Sunset 7:36 p.m., 30% moon rises 4:00 p.m.

17 Star party at Coe *(no host)*, Peak. Sunset 7:44 p.m., 6% moon sets 9:48 p.m.

23 Houge Park star party. Sunset 7:51 p.m., 65% moon sets 3:27 a.m.

24 General Mtg. at Houge Park, Noon, Swap/Auction IXX

May

1 Observational Astronomy class, Houge Park, 8 p.m. Using telescopes: setup, collimation, other maintenance issues. Finding objects with coordinates or star-hopping, magnification, filters.

7 Houge Park star party. Sunset 8:03 pm, 56% moon rises 2:00 am.

8 Star party at Peak. Sunset 8:00 pm, 46% moon rises 2:36 pm.

9-16 Texas Star Party

15 Star party at Coe *(no host)*, Peak. Sunset 8:08 pm, 1% moon sets 8:35 pm.

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Planetary Conjunction by Day: Paul and David's Excellent Adventure

David Smith and Paul Graves

David: A bright planetary conjunction in the evening is always a treat, but Paul wanted to show it to his middle school students, who are only around during the day, of course, this time the closest approach of Venus and Jupiter was to be during the day. So, at C-minus-2 days, he asked me if I would bring my telescope to Dartmouth Middle School and help him out. Neither of us had ever gone looking for planets during the day, although I tracked Jupiter and Saturn through sunup. I was also skeptical about the weather, but when Tuesday dawned clear, I went for it. I arrived at Dartmouth at about 10:00, and Paul had already set up his telescopes on the Sun. Some students were observing and talking with him, including my daughter Melanie. I set up my scope, with rough polar alignment based on the bubble level, Paul's estimate of north, our latitude, and the current declination of the Sun. But objects kept drifting north in the eyepiece, so I kept abjusting the axis eastward until the drift ceased.

Paul: David had mentioned a suggestion he had seen on the internet to use a skyglow light pollution filter for viewing the sun (together with the energy rejection filter over the objective, of course), so I gave it a try with my C8. It worked well, increasing contrast of the solar surface features. The sun suddenly became more than its bright plain self. The faculae are more distinct and what was almost subliminal granulation, becomes obvious. The feathery nature of the sunspots also becomes much more apparent. The students were impressed.

David: Throughout the day, we had many students come by during class breaks and lunch-time, and randomly. They loved looking at sunspots, and considering their sizes relative to the Earth. As they kept coming by, I was beginning to wonder if we'd get an opportunity to go looking for the planets. But presently there came a lull while Paul was in his room teaching a class. I offset from the Sun's coordinates to where Venus should be and removed the solar filter. No Venus. It didn't appear with some movement to the north, south, and east. I didn't want to risk getting too close to the sun while blindly searching to the west, so I put the filter back on, lined back up on the sun, moved one hour east and to the expected declination, and started a systematic search pattern north and south, eastward from there. I found Venus just a little west of the original try. Jupiter was a little below it, but whereas Venus was bright and obvious, Jupiter was much harder to see. Although appearing bigger than Venus, it was dimmer and more washed out. It would have been easy to miss while scanning for it, if Venus hadn't been nearby. Venus was bright and sharp, but atmospheric limb darken-

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

SJAA Activities Calendar

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21 Houge Park star party. Sunset 8:15 pm, 49% moon sets 2:06 am.
21 Astronomy Day event at The Tech Museum.
22 General Meeting at Houge Park, 8 pm, Chris Cody/Bad Astronomy
28-31 Riverside Telescope Makers Conference
31 Memorial Day

About Henry Coe Star Parties

My apologies for being a month late with this article — it should have appeared in the issue in which the subject was mentioned in the Board Meeting notes. Sorry about scaring some of you.

We have not discontinued use of Henry Coe Park.

But there is a problem. Newcomers have gone up to Coe on an announced star-party Saturday, and could not find anyone from SJAA (or any scopes at all). As those of us who love Coe are aware, these events are lightly attended. Even when the weather is favorable, sometimes there's nobody up there. So, the Board's thinking was to avoid printed and/or WWW mention. Coe would be a place that people find out about by talking to one of us, and we would also tell them just where to go, warn about light attendance, etc.

In further discussion, it's been decided to place warnings in the directions and invitations, hoping to avoid disappointments while still allowing people to know the schedule.

This same problem exists at Fremont Peak State Park as well, but it's much less likely that the site will be empty. Nevertheless, we are attempting to have an official "presence" at the Peak, such as a sign or banner. That's why the calendar lists the "host" for each Peak star party.

Clear Skies! Jim.

Stuff You Can See

Jane Houston

First there were the elections. New Board members Akkana Peck, Morris Jones and Jim Bartolini replace members Ed Erbeck, Terry Kahl and Bob Elsberry who are not running for election. Thanks Ed, Bob and Terry! Welcome Akkana, Jim and Mojo! The officers will be selected at the next meeting, and will be announced in the next newsletter. The program, Stuff You Can See, was next.

A five course optical feast was presented by club members and friends. Lance Shaw of the AAVSO and the Hercules Public Stargazers whetted appetites with his description of the recurrent nova U Scorpii which is undergoing a bright outburst – the first since 1987. Lance also handed out a finder chart centered on U Scorpii for those who might like to observe variable stars like this one.

Next up was Mark Wagner of TAC who presented Galaxies of Spring in a slide show he created using The Sky software by Software Bisque. It was quite a visual feast! Gorgeous examples of all galaxy types from lenticular , on to spiral, elliptical, irregular and compact galaxies were shown and explained. Mark also gave helpful hints and observing tips to help track down and identify the fainter of the fuzzies.

Jane Houston continued the deep sky portion of the celestial menu by describing some useful Messier Marathon tools. Endurance and caffeine are some intangible tools required. Practice also helps. Don Maccholz's Messier Marathon Observer's Guide, or Bob Garfinkle's Star–Hopping, Your Visa to Viewing the Universe (Chapter 15 is the Messier chapter) are two great guides. Another useful book is Harvard Penningon's The Year–Round Messier Marathon. One or more of these books will give a helpful boost to those trying to "see 'M all" in one night. First Marathon report is already in. Marsha Robinson grabbed 88 on March 12/13. A great number 88 – the number of keys on a piano and constellations in the sky! Way to go Mars!! And speaking of Mars...

Akkana Peck described observing the red planet, Mars. Using Mars and Earth Globes, she demonstrated opposition, explained subtle features to look for and warned the audience that it takes practice to distinguish Martian features, but not to give up, but rather to keep looking up! Colored filters don't hurt either. Akkana also showed some of her sketches of the red planet and encouraged everyone to try it, sketching, that is.

David North raised the roof the moon roof, that is – discussing elevation. The moon is at greatest elevation at first quarter and in the spring this elevation means we have less air to look through. David used a globe of the Earth – with a green Gumby stuck on to represent "the observer" in his demonstration of this phenomenon. A moon globe and a bright light bulb representing the Sun completed the picture. That about covers it!

Mooning

David North

High Moon, my favorite movie, continues this month. The moon reaches its greatest northern declination just a couple of days before first quarter, which means sunset and late first quarter viewing is still at the very best.

Of course, this is often coupled with some of the steadiest seeing in the San Jose area, so we get a double dose of opportunity.

Many of the targets in April will be very similar to those in February, save that the best window of opportunity has moved up a notch ... a few days earlier. That means the column from two months ago is very useful this month also.

But the very best day should be April 20.

Now, the difference between the best day and the second best, at early evening, isn't much (roughly a degree of elevation in April). So April 22-25 should also be as good, if not better, since the moon will linger longer at the top: when the moon reaches highest declination before first quarter, that means it's already sinking a bit when the sun sets! That's why March is, in some respects, the ideal month (except for weather.

Still, this month's day is the 20th, and we would do well to pay close attention. Why? Because of the slight but significant advantage it gives us in looking at the available goodies.

Most of the year, they are pretty low before first quarter, and the timing is clumsy near third quarter unless you like getting up in the middle of the night (which isn't most of us). And if you do, you'll still find the first quarter variation (light from the other side) to show a completely different moon, even with the same terminator placement!

So without further blather: the 20th.

It's a fairly static night in terms of terminator shift -- most observers will see less than a degree of movement in the light angle. This is both good and bad; good in that if something is showing well, you'll can give it a good look before conditions change -- but it's bad if you like watching the shift and play of light.

It's also a night of some anticipation, as the beginning of the "main sequence" of great moon sights is just over the horizon. But we're not concerned with them right now, since we have some very special showpieces.

The first and Greatest Hit for this night is the crater triptych Theophilus, Cyrillus (Rukl 46) and Catherina (Rukl 57). Even carefully held binoculars will easily show these three, so don't worry if equipment is somewhat modest.

Even at first glance it's clear they are of three different ages: Cyrillus has been pounded practically to oblivion, but Theophilus is nearly fresh... with Catherina somewhere between the two in time. But they are all of roughly the same size and form, so this area is literally a classroom in the look of craters from different eras.

Note in Theophilus how distinct the central peaks and the terraces on its seemingly sharp and cleanly seen walls. Contrast this with the fractured and ruined rim of Cyrillus and its eroded central peaks. Catharina, in some parts, is still fairly distinct, and has a somewhat cleaner floor (except where it has a pretty large crater superimposed).

But there is another interesting difference between Cyrillus and Catherina: the older crater also has a fairly prominent rille inside. It is usually the older craters that have inner rilles, and this also distinguishes it from its younger cousins.

Next, if we glance just a bit toward the terminator, we'll see the northern end of an extraordinary sight: a mountainous ring around Mare Nectaris, mostly right near the terminator (where it stands out best).

This will be one of the best views of the Altai Scarp you're likely to see (officially, Rupes Altai but that's just tiresome by comparison. Rukl 57) ... and indeed in the best conditions, people with sharp eyes can make it out with no optical aid at all.

It's a shock ring. Something really big whacked into the moon to make Mare Nectaris, and part of what was left after the dust settled was this shockwave ring frozen in the moon's crust for billions of years. And you thought your pimples never healed...

If you keep an eye on this area, you'll note that another, much fainter ring can be traced further out, when the light is just right. You'll also notice that quite a few curious formations on the moon (such as Vallis Rheita) are oriented radially from Nectaris. Whether they are strictly related is not certain, to the best of my knowledge.

There's plenty to look at and think about in this regard.

Of course, this is an excellent rille night if seeing permits. None of them are on anyone's Top Three Rilles On The Moon list, I don't think, but there are tons of them. I'll list the more notable in order from north to south, by Rukl page. You might enjoy them.

Rukl 5: Rima Sheepshanks. Great name. Long and a bit thin, but fun.

Rukl 14:

Rimae Burg, nearly a top five! For one thing, it's in Lacus Mortis (The Lake Of Death) which is one of my favorite grim names. For another, it's easy to get the main stem and hard as the dickens to get the faint extensions.

Rimae Daniellii: Long and deep, an easy target usually.

Rimae Posidonius: Outstanding crater with tremendous interior structure. I've written way too much about this before, but it deserves the verbiage. Don't miss it.

The Shallow Sky

Akkana Peck

Mars dominates the late night sky in April, reaching opposition on the 24th. This is the closest the planet will get to us this year; its disk extends 16", only a little smaller than we typically see Saturn's disk. It will be visible most of the night, at magnitude -1.6 far outshining nearby Spica.

It's still summer on the Martian hemisphere pointed toward us (the northern). The north polar cap has been reported to be unusually small this year, even earlier in the season; it may be difficult to see at all by opposition. Be careful you don't mistake the bright desert area Hellas for a polar cap.

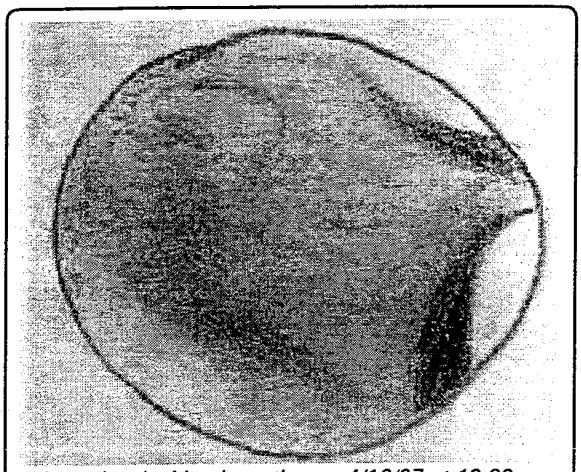
The Sky & Telescope software site, http://www.skypub.com/resources/software/basic/basic.html has a free Windows program called "Mars Previewer" (scroll down to the bottom of the page) which makes it easy to tell which features are rotated toward us at any given time and date. Some planetarium programs also offer correctly-rotated Mars views, including GUIDE, Starry Night, and the freeware Unix program (maybe also available for other platforms?) XEphem.

Dark features visible should include Syrtis Major (a fairly easy feature which looks rather like India), and possibly Sinus Meridianus and Solis Lacus, the "Eye of Mars", which I found difficult to see in the last Mars apparition.

I'm collecting a list of links and observing information related to Mars, which I'll put on the Shallow Sky site at: http://www.shallowsky.com/mars.html

Meanwhile, as the red planet rises, the other naked-eye planets share the twilight. Bright Venus (magnitude -4) dominates the western sky at sunset. To a telescope it will show a gibbous phase all month. Saturn sits well below Venus; early April is the last month to see the rings in the evening before Saturn reaches conjunction with the sun on the 27th. Jupiter reaches conjunction on April 1, and will not be observable this month. Mercury, too, is lost in the Sun's glare during April and May.

Pluto is in Ophiuchus, high in the southeast after midnight. Uranus and Neptune are in the early dawn sky, in Capricornus.



Mars, sketched by the author on 4/16/97 at 10:30pm using a 6" f/8 Newtonian. Visible features include the North Polar Cap (upper right) surrounded by Vastitas Borealis; Hellas just barely starting to rotate into view at lower left, with Sinus Meridiani and Sabaeus barely visible as a darker streak above Hellas; Isidis Planitia (white area at right) with Syrtis Major (dark area surrounding Isidis) just beginning to rotate into view. The lighter patch at the upper left is either Xanthe or Chryse.

Telescopes at the Tech

Bill Arnett

SJAA will be putting on a telescope display and demonstration at TheTech Museum in San Jose <http://www.thetech.org/> on Saturday and Sunday May 22/23. We have several activities planned:

- the pieces of a Dob displayed on a table so folks can see how simple they really are
- a mirror making demonstration - so the kids can get their hands dirty :-)
- a few scopes setup inside for display
- a solar scope or two outside for solar viewing

If all goes well, at the end of the day on Sunday we will reassemble the Dob with the newly polished (but still unaluminized) mirror and take a look at the Moon.

This will be all day for two days so we need some volunteers to man the display and answer questions. We also need a few scopes for display. TheTech has an LX200 (naturally :-) that we will use but it would be nice to have a couple of nice scopes of other designs. We'll also need a mirror kit and the various bits and pieces that go into making a small Dob. If you can help with your time or equipment, please contact Bill Arnett (mailto:billa@znet.com or 650-780-9645).

If you haven't been to TheTech, it is a very cool place. Well worth a visit, though it may take you a whole day to tear yourself away :-) Those helping with this event will get a free entry to the museum and if we have enough volunteers we'll all have time to wander around a little, too.

Striking Sparks with kids

Jane Houston

Adrian Zelaya is a remarkable young man. He's twelve years old and in the seventh grade. He has a really cool haircut. He earns an allowance each week. On the outside he is like any other twelve year old. What makes Adrian remarkable is what he did with his allowance this year. I'll have to go back two years first to set the scene for Adrian's tale.

When Adrian was in the fifth grade and ten years old he wrote an essay about why he should be given a telescope. His essay was one of dozens submitted to the Sonoma County Astronomical Society's (SCAS) annual Striking Sparks Telescope award program. All Sonoma County, California school kids from elementary grades through high school are eligible for this program. His essay was selected by a jury of club directors and other dignitaries. He was awarded one of the ten Striking Sparks telescopes in 1997. His teacher, Mr. Nolan and his parents joined him on an April Saturday that year to partake in the award ceremony. One touching part of his essay told about how he could remember being two years old when his dad put glow-in-the-dark stars on his bedroom ceiling. He remembered looking at the stars on the ceiling and at the stars his dad showed him outside at night. The essay contest involves the student and his or her teacher and cultivates not only a love of visual astronomy, but a respect for education, creative writing, mentoring and teamwork.

Each year ten 5 ½ inch mirror blanks are lovingly ground and polished to a shiny F7 focal ratio by ten different club members. Tubes and mounts are constructed in a local high school wood shop by other members.

The funds to sponsor the telescopes are solicited from local businesses, charitable groups, astronomy clubs, and individuals. Some are sponsored in the memory of a departed family member who loved sharing telescopes with kids. One telescope each year is sponsored by the Young Astronomers, a kids club within the SCAS club comprised of Striking Sparks telescope awardees from past years. One scope honors the memory of the founding father of the Striking Sparks program, Bob Ferguson.

It costs $175 to sponsor one of the little Striking Sparks scopes - and this money buys the plywood, tubes, focusers, spiders, mirror cells, primary and secondary mirrors and other materials needed to build scopes. In addition each student receives a telrad, red flashlight and an eyepieces. In their bag of goodies is a sky chart and a planisphere. Each awardee is also given a one year membership in the Young Astronomers club and gets a copy of their monthly newsletter. Material such as ground boards, teflon scraps and mirror aluminizing are donated by local businesses. The club treasurer bargains all year with astronomy businesses for good deals or freebies to keep the cost of the scopes down.

Last month at the SCAS general meeting Mario Zelaya stood up to make an announcement. He told the group that his son Adrian had saved $175 from his allowance to sponsor one of the Striking Sparks telescopes. I can't begin to describe the beautiful symphony of applause and exclamations which accompanied Mario's announcement.

A few weeks later I got to meet twelve year old Adrian. He and his dad showed up to help at the first Striking Sparks Saturday work party, held during a torrential rainstorm at the Cloverdale High School wood shop. He not only donated his allowance to sponsor a telescope, he wanted to help with the construction by donating his time! While a panel saw was whirring out the rocker box pieces, and a jig saw was cutting and rounding cradle boards and other pieces, and a nail gun was rat-a-tat-tatting the pieces together, Adrian joined the twelve adults with a sander, a putty knife and a quiet determination. "It's really neat to see these being made", he told us.

"Why did you do it?" I asked Adrian? "I usually just spend my allowance on stuff, and I wanted to spend it on something important", he replied, during a break from covering nail holes with wood putty. "This is the only program like this in the whole world", he told me he had heard. Mario, the dad told me "This is where we got together - the two of us".

The Striking Sparks Telescope award program and the Young Astronomers club are examples of astronomy club programs which encourage young people to love the sky and love astronomy. There are now about 100 of these little telescopes out there striking sparks with kids in Sonoma County California. On April 17, 1999 at the Proctor Terrace Elementary School in Santa Rosa California, ten white reflector telescopes with shiny bright new 5 ½ inch mirrors, will be arranged in a semi circle on the stage. Near each base will be a basket of flowers and a bag of astro goodies for each awardee. A few hours later, one by one, ten students will be escorted to the stage by their teacher and their family members to receive their telescope and begin what we hope will be a lifelong journey by starlight to worlds we can only imagine.

Meanwhile, young Adrian is busy helping build this year's crop of Striking Sparks scopes, and enjoying views of Saturn and the Moon (his favorite objects) through his telescope. Bob Ferguson would be proud!

— Jane Houston, Striking Sparks program mirror grinder and putty knife expert

Minutes of the Meeting of the SJAA Board of Directors 1999 February 27

Bill Arnett

The meeting was called to order by President Ed Erbeck at about 6:45 p.m. at Houge Park. All directors were present (eventually).

It was decided that SJAA will use Ed Erbeck's PO box instead of purchasing one of our own. Thanks Ed!

The Park Service has allocated very bad dates for our Yosemite Star Party this year (nearly full Moon) and we will not be allowed to camp at the Bridalvail Campground necessitating a long drive to Wawona each night after observing. It looks like we may have to cancel entirely unless some members really express a desire to go anyway. Check with Jim Van Nuland if you have any thoughts on this.

At least one member was upset about our decision to remove Coe from the publicly announced star parties. He apparently thought we were canceling them altogether (we are in fact just not publicizing them so we don't have to worry if someone shows up and there's no one else there). JVN will write a note for the Ephemeris explaining the situation more clearly.

Bill Arnett, Dave North and Akkana Peck met with some folks from The Tech Museum in San Jose who want us to put on a show. Looks like there will be no problem with this. We will need some volunteers. We will try to do it on the May 22 and 23 to coincide with Astronomy Day. Anyone wanting to help out should contact Bill Arnett.

Dave suggested that we make some improvements to the solar scope. It badly needs a drive and some maintenance. We agreed in principle to buy the drive, which should be only about $100 if we can't scrounge one somewhere. Dave and Ed will do the work.

As his final act as a board member, Ed proposed that Jim Van Nuland be appointed Secretary for as long as he wants the job. This was unanimously agreed to.

The meeting was adjourned at 7:50.

At the general meeting following the annual election for members of the board was held. This year we had six vacant seats, five whose terms expired and Terry Kahl's who is resigning. The Nominating Committee's six candidates were presented. No other nominations were made. The six were elected by unanimous consent.

The six newly elected board members are

Jim Van Nuland
Bill O'Shaughnessy
Dave North
Akkana Peck
Jim Bartolini
and Morris Jones.

The other three in the middle of their terms are

Bill Arnett
Mark Taylor
Mike Koop.

Mooning with Mom and Dad

Jane Houston

I looked at the moon tonight and jumped in the car. Five minutes later I reached my destination - a house at the end of a dead end street. I approached the front door and took a small box out of my pocket. A silver haired man answered the door. "Here's your moon filter, Dad", I said. "We were just wondering if you were ever going to return the filter", said my Mom. I knew that they would want their filter. It was a crisp and clear night. The near full moon was brilliant. I wanted to spend the evening sharing the 15 day old moon with my parents.

My parents gently carried "Aubergine", their purple 6 inch F5.2 Pierre Schwaar "Companion" reflector - out to the back yard. It's a twin of my own 6 inch "Red Dwarf" reflector. They love their moon filter when the moon is full or near full and I had borrowed it. "There's not much to look at when the moon is so full", my Mom said. That gave me the fuel to keep warm for a half hour as I described some of the spectacular lunar features only visible at this time of the lunar cycle.

To keep warm they donned their matching purple Lands End windbreakers. They turned off the inside lights out of habit. We took a tour of the Tycho and Copernicus ray systems. I explained the dark basin Grimaldi and nearby plain Riccioli. It is anything but plain! These are some of my favorite features on the moon. Then from dark to light - we looked at some of the bright objects - The tiny bright and white crater Linne surrounded by Mare Serenitatis and Aristarchus in Oceanus Procellarum.

We took some looks at the limb - long enough to show my parents the terminator, and to have them observe the crater walls and mysterious features barely visible.

A slow meteor streaked by brightly in the north - we all saw it, mother, father and daughter. We were getting cold and it was getting late. We brought Aubergine inside, and they stored the moon filter in a safe place. My mom told me a story of how as a little girl she could imagine objects she could not see, and by concentrating real hard bring them closer and closer - to where she could almost touch them. Looking at the moon tonight reminded her of her youthful imagination. I think I inherited some of that ability to imagine and bring objects closer and closer - to where I can almost touch them. We didn't need the moon to share memories and stories tonight, but it provided a canvas for our imagination and a backdrop for our tales.

AANC News

Astronomical Association of Northern California

Each year the AANC recognizes significant contributions to Amateur Astronomy with several awards. This year the awards have been given to several astronomers known well to the SJAA.

Ed Erbeck, our SJAA "CEO" and known to thousands as Crazy Ed of Crazy Ed Optical, was selected as the Commercial Astronomer of the year. Ed is well known not only to the SJAA but to countless legions of amateur telescope makers.

Denni Medlock was selected as Amateur Astronomer of the year. Not only was Denni active in the founding of the AANC, Fremont Peak Observatory Association and the Group 70 project, she was active in the SJAA — serving as vice president and newsletter editor. She is also a recipient of the A. B. Gregory Award of the SJAA. Much more than an amateur astronomer, Denni is an inspiration to many. She was also recognized this year by the Eastbay Astronomical Society, who awarded her the prestigious Helen Pillans Award.

The Professional Astronomer of the Year award goes to Dr. Peter Jenniskens, of the SETI Institiute. Dr. Peter is also well known to Bay Area Amateurs, and particularly to the SJAA for his meteor observing and counting projects.

A special award was also given to the Mount Tamalpais Interpretive Association for ten years of public astronomy programs on Mount Tamalpais. Each month during spring, summer and fall, notable astronomers trek to the WPA era stone-seated Mountain Theatre to share their knowledge and insight with the public.

Congratulations to this years recipients!

Meteor Watch

David North

The Lyrid shower peaks on April 21/22, producing 15 meteors per hour on average. Although the Lyrids are considered a major shower, they are really just a very active minor one.

The Lyrids are associated with Comet Thatcher 1861 and have produced several bursts of activity. The most recent such event occurred in 1982 when the ZHR reached 90 meteors per hour.

Begin observations around 11pm, and the shower should peak near 4 am. This year the 1st quarter moon sets around 1 - 2 am.

There will also be some incidental activity from early Eta Aquarids: the outbound (post-perihelion) particles of Halley's comet. This shower is active from mid-April through the end of May with most activity occuring May 3 through May 10.

Leonid fireball recorded November 17, 1998. Photo by Hans Betlem, Dutch Meteor Society

Planet Conjunction by Day

Continued from page 1

ing caused Jupiter to look out of focus unless carefully studied. The distance between Venus and Jupiter appeared to be about 1/3 of the diameter of a 50-degree eyepiece field, at a magnification of 126x. I went to the doorway of the classroom and gave Paul the thumbs-up. At the next opportunity, he came out with some students.

Paul: After a major adjustment to my wedge, I finally got the sun to agree with my declination and the ephemeris. The RA clock is set, wedge locked and then slowly move 20 to 30 degrees east of the sun, remove the solar filter, and set the circles for Venus. Within 1 to 2 minutes, Venus is in view at 100x. "Fantastic! I've got it!" Venus' gibbous phase is obvious and the air is marginally stable, causing intermittent "wiggling" of its pearl-like sphere. Jupiter was vastly dimmer. Most viewers missed it unless they lightly tapped the scope, causing Jupiter to wiggle. Its major cloud bands were obvious. The students were intrigued and very surprised that such objects as planets could be seen in daylight. It was a rare sight. We felt like we had really achieved something, and were pleased to be able to share it with the students. And Melanie was pleased to have her dad doing the showing. In my rush to get to school with all the equipment, I forgot my camera. I hope David's pictures turn out. I was pleasantly surprised at how well we got our platforms aligned using the sun and its drift. A small but very pleasant totem to add to a largely unrecorded life long observing list, though many have been caught on film. Quite a day! Thanks for the memories.

Comet Comments

Don Machholz

Comet LINEAR (1998 M5) fades in our evening sky as it pulls away from both us and the sun. Periodic Comet Jager is also dimming in our evening sky. It will be back in 15 years. Meanwhile, Comet LINEAR (1998 T1), discovered late last year, emerges from behind the sun and into our morning sky.

Comet Hunting Notes: Of the 79 visual comet discoveries since 1975, 30 (38%) have been made in the first half of the year, with 49 finds in the second half. Subdividing the year into quarters, the first quarter has 18 discoveries, the second has 12, the third has 26 and the last three months of the year yields 23 finds.

Ephemerides

C/1998 M5 (LINEAR)

Date(00UT)	R.A. (2000)	Dec	Elong		Sky Mag
03-08	19h49.2m	+82d24'	90d	M	9.0
03-13	20h03.9m	+87d29'	92d	M	9.1
03-18	07h38.4m	+87d20'	92d	E	9.1
03-23	07h52.5m	+82d09'	93d	E	9.2
03-28	07h58.9m	+77d03'	92d	E	9.3
04-02	08h04.3m	+72d05'	92d	E	9.5
04-07	08h09.3m	+67d21'	90d	E	9.6
04-12	08h14.3m	+62d51'	89d	E	9.7
04-17	08h19.1m	+58d38'	87d	E	9.9
04-22	08h23.9m	+54d41'	84d	E	10.1
04-27	08h28.7m	+51d02'	81d	E	10.2
05-02	08h33.5m	+47d39'	79d	E	10.4
05-07	08h38.2m	+44d31'	76d	E	10.6
05-12	08h43.0m	+41d37'	73d	E	10.7

P/1998 U3 (Jager)

Date(00UT)	R.A. (2000)	Dec	Elong		Sky Mag
03-08	06h34.1m	+23d11'	111d	E	10.8
03-13	06h39.2m	+22d14'	107d	E	10.9
03-18	06h45.0m	+21d19'	104d	E	11.0
03-23	06h51.2m	+20d25'	100d	E	11.1
03-28	06h57.9m	+19d33'	97d	E	11.1
04-02	07h05.0m	+18d42'	94d	E	11.2
04-07	07h12.4m	+17d52'	91d	E	11.3
04-12	07h20.1m	+17d02'	87d	E	11.4
04-17	07h28.1m	+16d12'	84d	E	11.5
04-22	07h36.3m	+15d23'	82d	E	11.5
04-27	07h44.7m	+14d33'	79d	E	11.6
05-02	07h53.2m	+13d43'	76d	E	11.7
05-07	08h01.9m	+12d52'	74d	E	11.8
05-12	08h10.7m	+12d01'	71d	E	11.9

C/1998 T1 (LINEAR)

Date(00UT)	R.A. (2000)	Dec	Elong		Sky Mag
04-07	23h32.5m	-02d07'	24d	M	11.6
04-12	23h33.7m	-02d18'	29d	M	11.5
04-17	23h34.8m	-02d31'	33d	M	11.3
04-22	23h35.6m	-02d48'	38d	M	11.1
04-27	23h36.3m	-03d08'	43d	M	10.9
05-02	23h36.6m	-03d33'	48d	M	10.7
05-07	23h36.5m	-04d04'	53d	M	10.5
05-12	23h35.9m	-04d44'	48d	M	10.2

Elements

Object:	Jager
Peri. Date:	1999 03 10.0607
Peri. Dist (AU):	2.133926 AU
Arg/Peri (2000):	180.8903 deg.
Asc. Node (2000):	303.5430 deg.
Incl (2000):	019.1411 deg.
Eccen:	0.648175
Orbital Period:	14.9 years
Ref:	MPC 33650
Epoch:	1999 03 03
Absol. Mag/"n":	6.5/4.0

Object:	LINEAR (T1)
Peri. Date:	1999 06 25.2578
Peri. Dist (AU):	1.468118 AU
Arg/Peri (2000):	226.3361 deg.
Asc. Node (2000):	153.3540 deg.
Incl (2000):	170.1601 deg.
Eccen:	0.99915
Orbital Period:	71,000 years
Ref:	MPC 33451
Epoch:	1999 01 22
Absol. Mag/"n":	6.8/4.0

Object:	LINEAR (M5)
Peri. Date:	1999 01 24.5753
Peri. Dist (AU):	1.742203 AU
Arg/Peri (2000):	101.2881 deg.
Asc. Node (2000):	333.3762 deg.
Incl (2000):	082.2279 deg.
Eccen:	0.995988
Orbital Period:	9,000 years
Ref:	MPC 32866
Epoch:	1999 01 22
Absol. Mag/"n":	5.5/4.0

Don Machholz (530) 346-8963
Web Page: http://members.aol.com/cometcom/index.html
DonM353259@aol.com.

Celestial Calendar
April 1999

Richard Stanton

(Times are Pacific Daylight)

Lunar Phases:

		Dt.	Rise	Trans	Set
LQ	17:51	08	01:48	06:55	12:02
NM	21:22	15	06:36	12:56	19:26
FQ	12:02	22	12:28	19:40	02:00
FM	07:55	30	20:10	01:00	06:39

Nearer Planets:			R. A.	Dec.
Mercury 0.86 A.U. Mag. 1.6				
07	05:47	11:38	17:29	23:31.7	-03:58
17	05:32	11:29	17:26	00:01.4	-02:24
27	05:25	11:36	17:48	00:46.9	+02:00
Venus 1.13 A.U. Mag. -4.6				
07	08:22	15:32	22:44	03:24.5	+19:49
17	08:20	15:42	23:05	04:13.3	+22:51
27	08:22	15:52	23:23	05:03.1	+24:54
Mars 0.59 A.U. Mag. 1.7				
07	21:12	02:39	08:00	14:31.9	-12:58
17	20:18	01:47	07:11	14:20.0	-12:16
27	19:21	00:54	06:20	14:05.5	-11:24
Jupiter 5.92 A.U. Mag. -2.1				
07	06:38	12:53	19:09	00:47.9	+03:58
17	06:04	12:23	18:42	00:56.8	+04:53
27	05:31	11:52	18:14	01:05.6	+05:48
Saturn 10.2 A.U. Mag. +1.0				
07	07:38	14:16	20:54	02:10.9	+10:51
17	07:02	13:41	20:21	02:15.7	+11:17
27	06:27	13:07	19:48	02:20.6	+11:42

SOL Star Type G2V

Intelligent Life in System?

Hours of Darkness

	Dt.	Rise	Transit	Set	R.A.	Dec.
08:06	07	06:43	13:10	19:37	01:02.8	+06:41
07:37	17	06:29	13:07	19:46	01:39.6	+10:21
07:07	27	06:16	13:05	19:56	02:17.1	+13:43

Astronomical Twilight:

			Begin	End
JD 2,451,	275	07	05:13	21:07
	285	17	04:56	21:20
	295	27	04:39	21:32

Sidereal Time:
Transit Right Ascension at Local Midnite
07 00:00 = 11:52
17 00:00 = 12:32
27 00:00 = 13:11

Darkest Saturday Night:17-Apr-1999
Sunset 19:46
Twilight End 21:20
Moon Set 21:52
Dawn Begin 04:56
Hours Dark 07:07

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Submit

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

SJAA Loaner Scope Status

All scopes are available to any SJAA member; contact Mike Koop by email or by Phone at work (408) 473-6315 or home (408) 446-0310 (Leave msg.).

Stored 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	Morris Jones
8	14" Dobson	Ralph Seguin
18	8" Newt/ P Mount	Mike Rupe
24	60mm Refractor	Akkana Peck
26	11" Dobson	Raymond Brinson
28	13" Dobson	Ramin Ghafouri
29	C8, Astrophotography	Alexander Koczur
30	7" f/9 Newt/Pipe Mount	Mike Koop

Current 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	Kevin Lemay	04/08/99
6	8" Celestron S/C	Slone Wiktorowicz	04/30/99
15	8" Dobson	Darryl Lambert	05/27/99
16	Solar Scope	Akkana Peck	03/05/99
19	6" Newt/P Mount	Nilesh Shah	04/22/99
27	13" Dobson	Bud Wittlin	05/01/99
31	8"/f8 Dobson	John Templeton	04/30/99

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	Notes
2	6" f/9 Dob	John Paul De Silva	?	
3	4" Quantum S/C	Manoj Khambete	6/5/99	
4	60mm Refractor	Del Johnson	Indefinite	
9	C-11 Compustar	Paul Barton	Indefinite	
21	10" Dobson	Eric Anderson	6/5/99	
23	6" Newt/P Mount	Monica Patterson	5/13/99	

Notes:

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

Waiting List:

#	Scope Description	Borrower
16	Solar Scope	Bill Maney

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