

# SJAA EPHEMERIS

## Leonid Memories 1998-2002

Jane Houston Jones

### 1998 Mercey Hot Springs:

The rain scared everyone away at about 4:30 a.m. (12:30 UT). On the way down the road, we began seeing a really nice clearing, and many meteors.

At 12:55 UT a double flash split by one degree changed color from yellow to orange. 15 degrees from Corvus — 12:59 UTC — yellow to orange to red ... a whopper. A huge audible "WOW!" emanated from my cassette recorder. 10 degrees above Corvus a horizontal meteor a split-second later. Then another. And another. We saw a couple dozen Leonids within a span of about 15 minutes, capped with the brilliant zodiacal light, a cone of light pointing toward the milky way above.

### 1999 Airborne Leonids over the Mediterranean Sea:

The ARIA flew through the old comet debris. The peak of the Leonid storm of 1999 was over so soon! The anticipation, the speculation, the practice had drained every ounce of our energy. We had eaten every peanut butter cracker, every Skittle in sight.

The storm peaked at 2300 ZHR barely 20 minutes after it began. By



Meteor image by George Varros taken during the 2002 Leonid multi-instrument aircraft campaign.

## Asteroid Jenniskens

An asteroid has been named for Leonid MAC principal investigator and SJAA member Dr. Peter Jenniskens.

The following citation was published in a recent Minor Planet Circular 47170 (20.11.2002). The asteroid was discovered by Petr Pravec of Ondrejov Observatory, who provided the text below.

(42981) Jenniskens = 1999 TY224 Discovered 1999 Oct. 2 at Ondrejov. Peter Jenniskens (b. 1962), meteor astronomer of NASA Ames, organized several successful airborne missions (Leonid multi-instrument aircraft campaigns) to observe the Leonid returns from 1998 to 2002. He has substantially improved our knowledge of the behavior of meteor streams.

03:00 the numbers were down to 500 ZHR, still a lot of beautiful meteors to observe and count. By 04:00 the count was back down to less than 50 Leonids per hour, adjusted to ZHR. Although exhausted, we tried our best to keep observing, to catch the falling stars, to record our meteor counts. And to bid farewell to the Leonids for another year.

### 2000 Leonids from United Technologies Inc., South San Jose:

In a nutshell, we saw maybe 40 Leonids all night long from 11:00 until 03:00 am. (UTC 7:00 until 11:00 UTC November 17) I hope we caught some of the brilliant fireballs on film. A dozen great fireballs, and three dozen lesser Leonids. Many with brilliant persistent trains. It was so cold I had frost on my shortwave radio.

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## SJAA Activities Calendar

Jim Van Nuland

### January

- 4 Deep sky weekend. Sunset 5:02 p.m., 6% Moon sets 7:05 p.m.
- 10 Houge Park star party. Sunset 5:09 p.m., 56% Moon sets 1:06 a.m.
- 11 ATM class. Houge Park, 7:30 p.m.
- 18 **General meeting**, Houge Park. 8:00 p.m. Dr. Nick Kanas, *Of epicycles and unicorns: Celestial mapping in the golden age*
- 23 ATM class. Houge Park, 7:30 p.m.
- 24 Astronomy class. Houge Park, 7:30 p.m.
- 24 Houge Park star party. Sunset 5:23 p.m., 52% Moon rises 0:39 a.m.
- 25 Deep sky weekend. Sunset 5:24 p.m., 41% Moon rises 1:47 a.m.

### February

- 1 Deep sky weekend. Sunset 5:31 p.m., 1% Moon sets 5:54 p.m.
- 7 Houge Park star party. Sunset 5:39 p.m., 38% Moon sets 11:52 p.m.
- 8 ATM class. Houge Park, 7:30 p.m.
- 15 **General meeting**, Houge Park. 8:00 p.m. *SJAA flies through the Leonids*
- 20 ATM class. Houge Park, 7:30 p.m.
- 21 Astronomy class. Houge Park, 7:30 p.m.
- 21 Houge Park star party. Sunset 5:54 p.m., 67% Moon rise 11:41 p.m.
- 28 Deep sky weekend. Sunset 5:53 p.m., 56% Moon rises 12:50 a.m.

**24 Hour News and Information Hotline: (408) 559-1221**

<http://www.sjaa.net>

## **Leonid memories**

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I recorded the following on my audiocassette over the course of a couple hours:

"Running along the horizon basically about uh 10 degrees elevation from perhaps southeast to east ... no ... no ... that would be east to southeast ... cool 07:54 ... it died about 15 degrees south of the east end of Lepus."

Crinkle of space blankets ... they do work!

Nice long train ... a slow Taurid ... running along the bottom of the dipper, no in the middle of the big dipper.

08:06:05 Zenith ... Leonid ... wake ... fireball overhead during the 3rd set of exposures

40 degree train, maybe magnitude -2 although it got brighter then dimmer as it went by. It was going toward Cassiopeia but it didn't quite make it.

### **2001 — Leonids from Alice Springs:**

Aussie Bob Ostergaard wrote: At 0130 my eyes snapped open as I heard cheers way beyond what you get at fireworks displays as a massive fireball came up over the eastern horizon, zipped right overhead, and continued on over to the western horizon, leaving a bright train that glowed for minutes high in the atmosphere. The best meteor I'd ever seen in my life, up to that moment. If you've seen the Bruce Willis movie "Armageddon," you have an idea of what it looked like, except none of these meteors hit the ground. Quite frankly it was more and better meteors than I've ever seen in my life, and better than most fireworks displays I've ever seen. I ended up logging 1,596 Leonids, and maybe 10-15 sporadic meteors. Towards the end of the night the radiant of the Leonids was more than apparent, it was a fact of life, like a giant astronomy experiment you've only read about and now see come true.

### **2002 — the grand finale — the Leonids Airborne from the North Atlantic:**

By dawn on Leonid morning our team had counted 18,600 meteors. I personally counted 3,730 Leonids and

98 sporadics, many of which were slow bright Taurids. My highest one minute counts came at 04:09 UT during the first shower when I counted 60 Leonids and one sporadic. My highest one minute count for the second peak came at 10:50 UT when I counted 75 Leonids and 1 sporadic meteor. This is no surprise — these are the exact moments of the peaks for both storms. For the 15 minutes before and 15 minutes after the first peak I counted a total of 920 Leonids and 19 sporadic meteors. For the 15 minutes before and 15 minutes after the second peak I counted a total of 1063 Leonids and 9 sporadic meteors. That is more than half of all the meteors I counted in over 6 hours of counting! The Leonid rate stayed quite high — we counted about 100 Leonids per hour during all the hours between the two peaks.

We had an extra bonus on our flight over the polar regions — the aurora borealis, or northern lights! Dr. Peter Jeniskens wrote "A curtain of aurora over the northern horizon emitted pulsing waves of light into the sky, penetrated by a rain of meteors." The intensified view through my i-goggles was breathtaking and lasted for well over an hour, with columns, sheets, swirls and rays of shimmering light filling my field of view, punctuated by dozens of meteors per minute. I rushed to the window to see the aurora and meteor storm for myself without the aid of goggles or cameras. The pale white glimmering sheet with subtle hints of red and green was stunning. What a grand finale to the multi-instrument aircraft campaign!

— Jane Houston Jones,  
jane@whiteoaks.com

## *The shallow sky*

### **Saturn gets crabby**

Akkana Peck

We start 2003 with an interesting phenomenon: on Jan 4-5, Saturn passes directly across the Crab Nebula (M1).

Now, the Crab is pretty dim — ask any new telescope owner who carted a new Christmas telescope out in the backyard, armed with a star chart, to start observing the Messier list from the beginning! And Saturn is pretty bright. Will the light from the ringed planet overwhelm the poor supernova remnant? Your guess is as good as mine, but I'm looking forward to finding out!

If you can't see the Crab nebula, then you'll just have to content yourself with looking at the loveliest planet in our solar system, with its rings spread before us, about as high in the sky as it ever gets (which means less atmosphere between us and the planet, and steadier views in the eyepiece). I think I can live with that!

The day before the M1 transit, the earth hits perihelion — that's the point of its orbit closest to the sun. So go outside and warm yourself in all that close-by sunlight! Oh, wait, it's cold

now, even though the sun is close to us? That's because we in the northern hemisphere are tilted away from the sun right now, so we're only getting glancing sunlight. Even though the sun is 5 million kilometers (or about 3 million miles) closer now than it is in summer, we're essentially in twilight all day ... it just never warms up.

A few hours behind Saturn comes Jupiter, the king of planets. People are debating on the various planetary observing lists whether the "great red spot" is darker, or paler, than in previous years. I've seen both opinions — nobody agrees. My advice is, go out and take a look, and decide for yourself! Be sure to watch the moons and their shadows while you're at it.

In the mornings, early risers get a new view of a conjunction between Venus (showing roughly half phase) and Mars (rather far away, so too small to show much surface detail). Their actual conjunction was at the end of December, but they remain fairly close all month, gradually separating as they

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## **Shallow Sky**

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enter Scorpius (and Mars draws closer to its rival, Antares). Near the end of the month Venus passes Pluto, hanging out in Ophiuchus where it's hiding among all the Milky Way stars.

Uranus and Neptune are in the morning sky, but too close to the sun to be easily found this month. Mercury is observable in the evening sky during the first week of January, then races in front of the sun to reach inferior conjunction on the 11th.

Comet C/2001 RX14 LINEAR reaches perihelion this month, but so

far the comet does not seem to be brightening as expected, so it may be a disappointment. Still, it might be fun to look for it as it passes through the bowl of the Big Dipper — will it outshine the many faint galaxies there?

One other thing: I talk now and then about sketching as a good way to record things you see on planets, to improve your observational skills, and just to have fun. This month's *Astronomy* magazine has an article on how to get started with planet sketching. Check it out — it might inspire you to try it, and you might find it's a lot more fun than you expected.

— Akkana Peck,  
observer@shallowsky.com

don't know what they're talking about.

No doubt you'll try a low-power view at first, and that might prove to be pretty bright. Too bright? Mask off some of the aperture. You won't need full resolution at low power anyway.

But in the long run, you'll find the high-power views are most satisfying, and they cut some of the glare.

Start by working the terminator (the zone of high shadows where the "lit" side of the moon meets the "dark" side). Here the reflected light is not very bright at all, and you'll find it reasonably comfortable in just about any scope. (I run my 12.5-inch wide open like this regularly, and have used the 30-inch at Fremont Peak full bore. Not to mention the 60-inch on Mount Wilson).

What kind of scope? Any kind! That's one of the great things about the Moon. From smallest to largest, you'll get something worthwhile. Seeing can be an issue if you're packing an 18-inch or so — you might want to consider an off-axis mask for "nervous nights."

Anything smaller, just point and shoot.

I find the useful magnification range runs between 125x to 400x fairly often, with the most typical views between 180x and 225x due to seeing pains. If your eyepieces work that range adequately, you're okay for now.

This being winter, consider eyepieces with fairly significant eye relief. I find the moisture from my eye tends to fog up eye lenses when I get too close to them — this is not much of a problem in summer.

Books? There aren't any "ideal" maps, and I find most frustrating due to the reference numbers or other weird labeling systems.

In the long run, Antonin Rukl's *Atlas of The Moon* (under whatever publishing rubric you find it) is the best overall. And for more general finding, a Moon globe is an unbeatable aid.

But any rough chart will work at first — when I started "mooning," I hated all the maps so much that I traced one out and labeled it myself. With your computer, you can probably make this project a little simpler if you decide to duplicate my effort. (The

## Mooning

### **A New Look At The Moon**

Dave North

Merry Christmas, you got a new telescope and want to look at something spectacular? Yeah. Probably by now you've looked at the Moon (if you haven't, you're in for a big shock. Amazing!)

But you haven't really. There's a bit more to it.

Besides, even if you didn't get a new scope, you're probably stuck at home most of the time, weather is spotty ... hey, nobody will know. Go ahead! Take a look.

Here's the good news: the new year has begun. The first half of the year is when the Moon is best viewed in the evening. You're not going to believe how high it can get!

It doesn't hurt that the sun sets early, so there's a lot of dark time ... but the real point is the Moon will be higher in the sky between now and June (basically) with the high point late in the cycle now (near full) and moving toward first quarter around March or April.

Why does high matter? Less air in the way, clearer views. New telescopes, especially those with good optics, cut their teeth very nicely on the Moon.

Sure, Jupiter and Saturn are up there (and you absolutely should spend time with them), but there just isn't an

object as "telescope friendly" as the Moon.

It has hard edges on the shadows of mountains and craters. So? This

***"More detail can be seen on the moon than any other celestial object, save perhaps the Sun ..."***

gives practically the maximum contrast aside from a star against a black background.

Contrast is a good thing, especially for scopes with central obstructions (such as Newtonians and catadioptrics: SCTs, Maks, etc). The secondary mirror cuts contrast a hair, so starting with a strong image range of light is a real plus.

More detail can be seen on the moon than any other celestial object, save perhaps the Sun with some very expensive equipment. For most of us, that means the Moon is the obvious starting point.

First, the issue of filters: you don't need any. Save your money.

In fact, I'll go so far as to say if you see someone recommend a moon filter to new telescope owners, they

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## New mooning

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original has long since been recycled).

If you do, publish! I think it's best to start by memorizing a few major features, particularly Mare Crisium, Mare Nectaris, Mare Imbrium, Clavius, Tycho, Ptolemaeus, and Mare Humorum.

I know you'll find Mare Tranquilitatis — who could resist? No, you can't see the landing site, but yes you can find the craters named for Armstrong, Aldrin and Collins. It might not be easy the first time, but with a good map and some steady seeing, you'll succeed. Of course, you'll also need the right terminator position.

If you have just these landmarks down, you'll be able to navigate to less familiar places ... so let that be your first project, after the obvious one:

Just looking.

If you are a new telescope owner, and don't know what they can do yet, there are at least four experiences that will be completely unforgettable:

Your first view of the Moon (unbelievable detail), your first view of Saturn (is that real?) your first view of Jupiter (you can see the bands and moons?! ) and M42 (what, deep sky? Yup).

And of course, there will be more. But don't forget your first best friend ... the Moon.

— Dave North, north@znet.com

## Out there

### Starhop from a cascade to the river Eridanus

Mark Wagner

This month we visit a famous open cluster with nebulosity, a number of lesser known open clusters, and finally a bright planetary nebula. Only one of these is a Messier object. If you wonder why these articles include only a handful of bright objects, it is because well known objects can be found easily in any number of printed astronomy guides or on the Internet. I also pick objects within a strict observing window each month, concentrating on a swath of sky two hours of Right Ascension wide from zenith east at astronomical dark. This month is from Right Ascension 03:28 to 05:28.

In prior months I've mentioned several local observing sites, all within an hour drive of San Jose. This month I select objects that you may be able to observe from your backyard or at an SJAA in-town star party at Hough Park. Unless otherwise noted, the notes you'll read are from my daughter Mimi's observations (my note taking though) from our Los Gatos backyard in a 10" f/5.6 Dobsonian. All drawings are courtesy of local observer Peter Natscher ([natscher@pacbell.net](mailto:natscher@pacbell.net)).

Our first object is in Camelopardalis (Cam). NGC1502 is an open cluster which punctuates a 2.5 degree long string of pearl asterism comprised of a

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## School star parties

Bob Havner

I hope the New Year finds you, your family, and friends well. 2002 was a good year for the SJAA. Great attendance at the Hough Park star parties and meetings. Membership is increasing and the ATM class has been a big success.

I feel one of the most important things we do is public outreach and education. As I said the Hough Park parties are well attended but the school star party member turnout is rather light. School star parties bring the love of astronomy to the young people in our communities. The students, usually 4th through 12th grade, and their parents, are introduced to astronomy, many for the first time. School star parties are rewarding and a lot of fun. I get no bigger thrill than hearing the oohs and ahhs of seeing the craters on the Moon, the rings of Saturn, or when they spot "E.T." in NGC457.

Some schools are lightly attended by students, parents, and faculty but many are large groups of 200 or more usually combined with some sort of after school program. Many of these nights we are found to be short handed and you can imagine the lines when there are only a few scopes. We have a small core of members that regularly

attend these events and Jim Van Nuland does an excellent job of organizing all of them but we need your help. We would like to see more of our members getting involved at these events.

Please take the time to look over the school star party list. Find a school near your home or work and take the time to come out and share your love of astronomy with some future astronomers. You may find it as rewarding an experience as I have.

For more info on the school star party schedule, directions to schools, and "suggestion for astronomers new to school events" see Jim Van Nuland's web page at: <http://www.svpal.org/~jvn/index.htm>, or contact me at: [bhavner@earthlink.net](mailto:bhavner@earthlink.net).

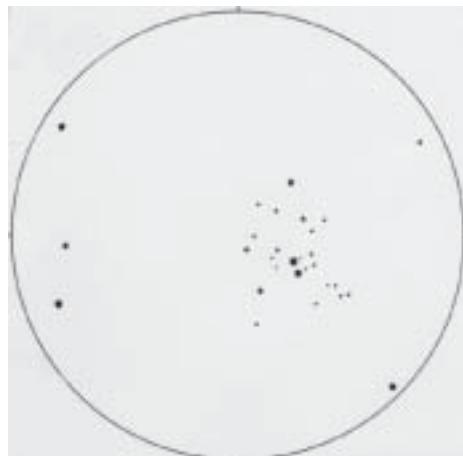
January school star party schedule

Jan. 7 Huff Elementary, on Martins Ave E of Grant Road, Mountain View (near Hwy 92 and Hwy 85)

Jan. 13 Steinbeck Elementary, on Steinbeck Drive E of Santa Teresa, SE San Jose.

Jan. 17 Weller School, on Dixon Landing Road E of Arizona, Milpitas

— Bob Havner,  
[bhavner@earthlink.net](mailto:bhavner@earthlink.net)



Open cluster NGC1502 (Camelopardalis) at 124x, sketched by Peter Natscher

## "Take me to the river ... "

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dozen faint 8th and 9th magnitude stars. It's known as Kemble's Cascade. Begin in Perseus on Algol. Move 9 degrees north-northeast to Mirfak (Alpha Persei), then 10 degrees north into Cam to dim SAO 24054 (mag 4.2). Using an optical finder will make this easier. Continue 4 degrees north-northeast to an east-west chain of four stars all mags 4 and 5. Then imagine the chain continuing the same distance east-southeast. You will have found a small bright jewel. A tight pair of bright stars stand out in the middle of the group, with other pairs running mostly east to west on either side of the bright pair. The cluster was visible in my 11x70 finder. This one is worth a look.

NGC 1528 is in a convenient location, and is easy to find in my 11x70 finder. It is an attractive open cluster with many bright stars. Two distinct chains extend west from the center of the group in a northeast to southwest direction, and a distinct condensation of stars sits southeast of the chains. Find it by following the curve of Perseus from Mirfak east, to where bright right triangle of mag 4 stars point west (these are the three eastern-most stars in the stick-figure of Perseus). Imagine a fourth star forming a parallelogram at the northeast corner, and you've found the spot.

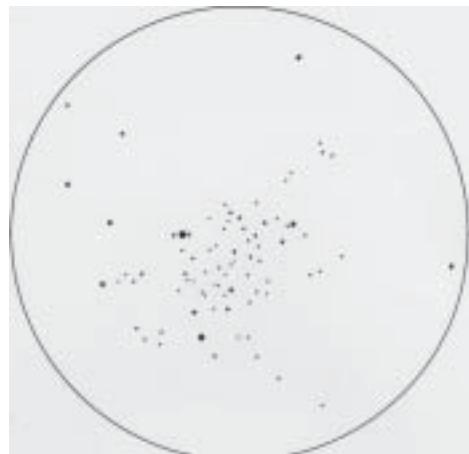
Just over a degree southeast you'll see NGC 1545, another open cluster in an easy location just east of a pair of mag 4 and 5 stars. It is a deceiving cluster. At first it seems there is nothing there but 4 bright stars. After looking a bit, many dim components begin to appear. The cluster is large.

Bright Capella is east south-east from NGC 1545. The three stars close to the south of Capella are called "The Kids" and are the jumping off point to open cluster NGC 1664. Make another parallelogram using The Kids but place the imaginary star slightly more westerly. A bright star sits very close just SE of a chain extending south of a central concentration of stars defining the core of the cluster. Another chain emanates from the core sweeping to the east. All in all, this is a pretty

cluster... a nice swirl of stars."

Everyone knows the next one, the Seven Sisters, *Subaru*, The Pleiades — M45. Located in Taurus, this open cluster is obvious without optical aid. It is a wonderful target for binoculars, revealing dozens of young stars. Robert Leyland in Novato describes it in his 8" f/6 Dob: "Tonight they were very nice. The telescope brings out dozens of additional stars beyond the 6 I can see directly, (maybe 7 or 8 with averted vision). The 4 brightest stars simply glowed and a faint touch of nebulosity surrounded them."

Move to NGC 1647 in Taurus using the V of the Hyades as a pointer. Come off the bottom (eastern) extension. The four stars are a great yardstick, taking that distance beyond Aldebaran and slightly west to mag 5.0 97-Tauri. A nice V of stars can be seen in a low power field, and the cluster sits just beyond the vertex of the V. A grouping of three double stars seem to define the central portion of the cluster, arcing gently east to west. The brightest star in the field was about 23' S of the center of the group. Six and one half degrees east south-east in Taurus is NGC 1817. It sits just off the tip of Orion's bow. Steve Sergeant used his Nexstar 5 at Hough to note "It is at the lower limit of stuff I expected to really see that night. With only perhaps 5 bright stars in my view, it was definitely an object for subtle tastes. One thing that made it interesting though, was observing it as a double cluster with



Open cluster NGC1528 (Perseus) at 120x sketched by Peter Natscher

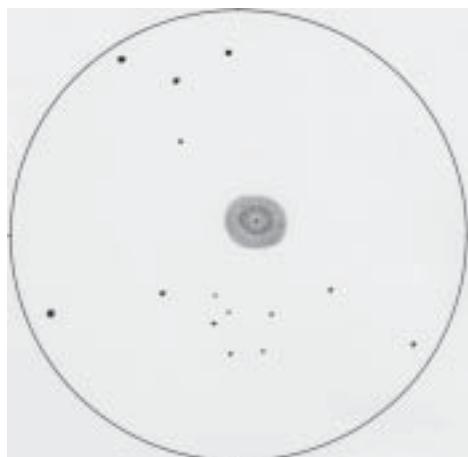
neighboring NGC-1807."

The last object is a bright planetary in Eridanus — NGC 1535. At 48"x42" this will appear about half the size of the Ring Nebula. I find it by starhopping from Rigel almost 20 degrees west to Zaurak (34-Eridani) which is the brightest star in the area at mag 3. Just about 4 degrees back toward Rigel, you'll find this planetary. William Schultz reports with his CG11 from Henry Coe "WOW! This P/N was bright enough to stop your eye at 80X, and it demanded more magnification. I clearly saw the two layers of nebulosity, the dark inner space and clear view of the central star."

Other objects of interest for those who want more are NGC 1501 in Camelopardalis, NGC 1342, NGC 1444 and NGC 1513, all in Perseus, NGC 1857 in Auriga, NGC 1788, in Orion and NGC 1407 in Eridanus,

— Mark Wagner, mgw@resource-intl.com

[Editor's note: Kemble's Cascade, named by Walter Scott "Scotty" Houston, honors Rev. Lucien Kemble. It is a 2.5 degree rivulet of magnitude 8 and 9 stars. If Cassiopeia is west of Polaris the cascade flows "upward" into open cluster NGC1502; if Cassiopeia is east of Polaris, then the cascade flows "downward" into the cluster like a sparkling pool at the bottom of the cascade. In my f/5 Orion Short Tube 80 with a 25mm eyepiece for 16x, the whole cascade fits easily in the field of view. Use this object to quickly determine your own field of view!]]



Planetary nebula NGC1535 (Eridanus) at 245x, sketched by Peter Natscher

## Telescope Making

Mike Koop

Learn to make a telescope! Class begins Saturday, January 11, at 7:30 p.m. at Houce Park. It's easier than you think and a lot of fun! The class will meet bi-monthly based on the Houce

### Directions to Houce Park

Houce (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.

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.

Park star party schedule.

The class format is casual, with a talk at the beginning followed by a grinding session. The talk will be on all aspects of telescope making, focusing on mirror making in the beginning and scope building at the end, corresponding to where most people are in the class. A Foucault tester will be available to help determine the figure of your mirror along with some advice on how to correct it.

A few SJAA members have partially completed mirrors, so bring those on in to finish them up. The club is also working on a 10-inch "Community Mirror". So if you want to get a feel for what mirror making is all about, come join us for an evening!

ATM classes for the first half of 2003:

Thursday Classes: Jan. 23, Feb. 20, Mar. 27, Apr. 24, May 22, June 19

Saturday Classes: Jan. 11, Feb. 8, Mar. 8, Apr. 5, May 10, June 7

(Oh, and ATM means "amateur telescope maker.")

— Mike Koop, koopm@best.com

### January speaker Dr. Nick Kanas

*Of epicycles and unicorns:  
celestial mapping in the golden age*

Nick Kanas, M.D., Professor of Psychiatry at UCSF and the Veterans



Systema Solare et Planetarium ex Hypothesi Copernicana, by Johann Doppelmayr and Johann Homann.

Hospital in San Francisco, is currently conducting research on psychosocial factors affecting astronauts and cosmonauts in space. An amateur astronomer since childhood, he has pursued the study and collection of antiquarian star atlases for over two decades. He has presented lectures for the California Map Society, as well as regional amateur astronomy associations. His upcoming articles on celestial cartography along with his collection will be published in Mercator's World and Sky and Telescope Magazine. In this slide presentation he will discuss the golden age of pictorial celestial cartography from the 1600-1800.

An article by Dr. Kanas can be found at: <http://www.mercatormag.com/article.php3?i=111>

## Celestial Calendar

### January 2003

Richard Stanton

Lunar Phases:	Date	Rise	Trans	Set
NM 12:22 PST	02	07:26	12:12	16:59
FQ 05:14 PST	10	12:03	18:30	00:09
FM 02:47 PST	18	17:43	01:12	07:49
LQ 00:32 PST	25	00:38	06:17	11:47

#### Nearer Planets:

Mercury, 0.69 A.U., Mag. -1.9	R. A.	Dec.
07 07:50 12:50 17:50	19:52.2	-19:10
17 06:22 11:21 16:21	19:02.2	-19:14
27 05:44 10:40 15:35	18:57.2	-20:37

Venus, 0.72 A.U., Mag. -5.0	R. A.	Dec.
07 03:45 08:55 14:05	15:53.4	-16:36
17 03:55 08:58 14:01	16:35.5	-18:36
27 04:06 09:04 14:02	17:20.8	-20:09

Mars, 1.91 A.U., Mag. +0.9	R. A.	Dec.
07 03:22 08:27 13:32	15:25.6	-18:04
17 03:15 08:14 13:13	15:52.0	-19:38
27 03:07 08:02 12:56	16:18.9	-20:58

Jupiter, 4.36 A.U., Mag. -2.6	R. A.	Dec.
07 18:16 02:17 09:15	09:15.8	+16:43
17 18:31 01:34 08:32	09:11.4	+17:05
27 17:45 00:49 07:49	09:06.3	+17:29

Saturn, 8.19 A.U., Mag. +0.5	R. A.	Dec.
07 15:15 22:32 05:53	05:33.7	+22:02
17 14:33 21:50 05:11	05:30.8	+22:02
27 13:51 21:08 04:29	05:28.5	+22:02

#### SOL Star Type G2V Intelligent Life in System ?

Hours of Darkness	R. A.	Dec.
11:13 07 07:23 12:14 17:05 19:11.8	09:15.8	+16:43
11:03 17 07:21 12:18 17:15 18:55.1	09:11.4	+17:05
10:49 27 07:15 12:20 17:26 20:37.2	09:06.3	+17:29

Astronomical Twilight:	Begin	End
JD 2,452,646 07	05:50	18:38
656 17	05:49	18:47
666 27	05:45	18:56

#### Sidereal Time:

Transit Right Ascension at Local Midnight	R. A.	Dec.
07 00:00 = 06:58		
17 00:00 = 07:37		
27 00:00 = 08:17		

#### Darkest Saturday Night: 04 Jan 2003

Sunset	17:03
Twilight	18:35
Moon Set	19:07
Dawn Begin	05:50
Hours Dark	11:15

## **Officers and Board of Directors**

<b>Pres</b>	Mike Koop	(408) 446-0310
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<b>Sec</b>	Jim Van Nuland	(408) 371-1307
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Jim Van Nuland	(408) 371-1307
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## **Telescope Loaner Program**

Mike Koop	(408) 446-0310
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## **Web Page**

Bill Arnett	bill@nineplanets.org
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## **SJAA Email Addresses**

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Announcements	announce@sjaa.net
Chat List	chat@sjaa.net
Ephemeris	ephemeris@sjaa.net
Circulation	circulation@sjaa.net
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Members Email Lists:	

<http://www.sjaa.net/mailman/listinfo>

## **Publication Statement**

*SJAA Ephemeris*, newsletter of the San Jose Astronomical Association, is published monthly, 12 times a year, January through December. San Jose Astronomical Association, P.O. Box 28243 San Jose, CA 95159-8243

## **Submit**

Submit articles for publication in the SJAA Ephemeris. Send articles to the editors via e-mail to [ephemeris@sjaa.net](mailto:ephemeris@sjaa.net).

## **SJAA Loaner Scope Status**

All scopes are available to any SJAA member; contact Mike Koop by email ([loaner@sjaa.net](mailto: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
1	4.5" Newt/ P Mount	Annette Reyes
3	4" Quantum S/C	Hsin I Huang
7	12.5" Dobson	Michael Lagae
10	Star Spectroscope	Lew Kurtz
24	60mm Refractor	Al Kestler
32	6" f/7 Dobson	Sandy Mohan

### **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 until the scope becomes available after the due date.

# Scope	Description	Borrower	Due Date
6	8" Celestron S/C	David Findley	2/1/03
8	14" Dobson	Ron Gross	1/19/03
11	Orion XT6 Dob	Krishna Seshan	11/16/02
12	Orion XT8 Dob	George Gadd	1/19/03
13	Orion XT6 Dob	Vinod Nagarajan	1/18/03
14	8" f/8.5 Dob	Tom Frerickson	1/19/03
15	8" Dobson	Vikram Keshavamurthy	12/13/02
16	Solar Scope	Suzanne Patrick	1/24/03
19	6" Newt/P Mount	Daryn Baker	12/27/02
23	6" Newt/P Mount	John Bunyan	11/30/02
26	11" Dobson	Jan Lynch	1/19/03
27	13" Dobson	Richard Savage	12/21/02
29	C8, Astrophotography	Murali Balasubramaniam	12/27/02
33	10" Deep Space Explorer	Tod Irwin	11/28/02
34	Dynamax 8" S/C	Lee Barford	11/16/02
35	Meade 8" Equatorial	Carl Ching	12/13/02
37	4" Fluorite Refractor	Steve Sergeant	11/16/02
38	Meade 4.5" Digital Newt	Tej Kohli	1/12/03

### **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
21	10" Dobson	Ralph Seguin	Repair
28	13" Dobson	Michael Dajewski	1/31/02
36	Celestron 8" f/6 Skyhopper	Tajinder Singh	12/27/02
39	17" Dobson	Patrick Lewis	Repair

### **Waiting List:**

3	4" Quantum S/C	Eric Anderson
8	14" Dobson	Doug Hendrix
10	Star Spectroscope	David Kingsley
13	Orion XT6 Dob	Adam Clark
16	Solar Scope	Jim Turley
36	Celestron 8" f/6 Skyhopper	Mik Macedo

# San Jose Astronomical Association Membership Form

New    Renewal (Name and corrections below)

**Membership Type:**

Regular — \$15

Regular with Sky & Telescope — \$45

Junior (under 18) — \$6

Junior with Sky & Telescope — \$36

Bring this form to any SJAA Meeting or send (with your check) to

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

Subscribing to Sky & Telescope magazine through the SJAA saves you \$10 off the regular rate. (S&T will not accept multi-year subscriptions through the club program. Allow 2 months lead time.)

Make your check payable to "SJAA"

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**City/ST/Zip:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**E-mail address:** \_\_\_\_\_

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