

SJAA EPHEMERIS

Scary Halloween Observing

PK 164+31.1

It's time to get out the Milky Way and Mars candy bars, and time again to fill the candy jar with Moon Pies and Starburst chews. It's October and it's time for Halloween. While the kiddies will be out trick or treating on October 31, some of you will no doubt be showing starry or lunar views to them through your telescopes before handing out your astronomically correct treats. Well good for you. But save some scary treats for yourself, too. Here is a list of scary nuggets to savor and devour some dark clear night. Try some now, and save some, just like you save your favorite halloween candy, for later.

Mirach's Ghost, NGC404 in AND, r.a 01 09.33, dec +35° 43', mag 10.3, 4.3 x 3.9' gxy

The Phantom Streak NGC6741 in AQL, r.a. 19 02.42, dec. -00° 26', mag 12, 9" x 7" pn

Ghost of the Moon Nebula NGC6781 AQL, r.a. 19 18.31, dec +06° 33' mag 11.8, 1.9' x 1.8' pn

The Spider Galaxy in NGC5829 in BOO, r.a. 15 02.45, dec. +23° 20', mag 13.4, 1.7' x 1.5' gxy

The Skull Nebula NGC246 in CET, r.a. 00 47.6, dec -11° 52', mag 8.5, 4' x 3' pn

The Witch Head Nebula. IC2118 in ERI, r.a.05 06.9, dec -07° 13' bright neb

The Ghost Ring IC5148 in GRU, r.a.21 59.38, dec -39° 22', mag 11, 2' pn

Little Ghost Nebula NGC 6369 in OPH, r.a. 17 29.3, dec. -23° 46', mag 10.4 pn

Red Spider Nebula NGC 6537 in SAG, r.a. 18 05.18, dec. -19° 50' mag 12, 5" pn

Phobos and Deimos (Fear and Terror) - the moons of Mars

Hell, Rukl's Atlas of the Moon, chart 64. 33 km crater near Deslandres 32.4° S, 17.7°W

Lacus Doloris (Lake of Suffering), Rukl chart 23, 110 km mare 17° N, 9° E
Lacus Mortis (Lake of Death), Rukl chart 14, 150 km diameter flooded crater, 45° N, 27° E

Lacus Timoris (Lake of Fear), Rukl chart 63, 130 km long mare, 39° S, 28° W

Palus Putrendis (Marsh of Rot), Rukl chart 22, 180 km small plain on the prime meridian, near Hadley Rille and Apollo 15 site, 27°N, 0°

Epsilon (36) BOO, r.a.14 45.01, dec +27° 04.20, double star, mag 2.5 and 4.9, yellow/orange and blue/green double

Mu (51) BOO, r.a.15 24.32, dec. +37° 22, triple star, mag 4.3 and 7 and 7.6 triple, yellow primary, yellow/orange pair

Xi (37) BOO, r.a 14 51.26, dec. +19° 6', quadruple star, mag 4.7 and 7.0, with a 9.6 and 12.6 companion, yellow and reddish/orange

Happy Halloween, PK 164+31.1 (Jones 1)



September 11, 2001

SJAA Activities Calendar

Jim Van Nuland

October

- 6 General Meeting, Jeff Moore, NASA, Houge Park, 8:00 p.m.
- 12 Houge Park star party. Sunset 6:35 p.m., 18% moon rises 3:23 a.m.
- 13 Fremont Peak star party. Sunset 6:32 p.m., 10% moon rises 4:34 a.m.
- 20 Coe and Peak star party. Sunset 6:21 p.m., 22% moon sets 9:27 p.m.
- 26 Astronomy Class XI, 7:30 p.m., meeting room, Houge Park
- 26 Houge Park star party Sunset 6:16 p.m., 77% moon sets 2:59 a.m.
- 28 DST end. Retard clock by 1 hour at 2 a.m. -> 1 a.m.

November

- 3 General Meeting, Robert Naeye of ASP on the Chandra X-Ray Observatory.
- 4 Swap meet, Houge Park. Start time noon
- 9 Houge Park star party. Sunset 5:02 p.m., 32% moon rises 1:19 a.m.
- 10 Fremont Peak star party. Sunset 5:00 p.m., 21% moon rises 2:28 a.m.
- 17 Coe and Peak star party. Sunset 4:55 p.m., 10% moon sets 7:04 p.m.
- 23 Houge Park star party. Sunset 4:53 p.m., 61% moon sets 0:45 a.m.
- 23 Astronomy Class XII, 7:30 p.m., hall, Houge Park.

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

www.sjaa.net

Under African Skies

Kevin Hand

Dear Cosmos Education Sponsors, Board Members, and Supporters; It gives me great pleasure to inform you that the Cosmos Education 2001 Under African Skies Eclipse Conference and Education Expedition was a great success.

Our international team of graduate students, educators, and young professionals travelled safely from Johannesburg, South Africa to Nairobi, Kenya over the course of our 39 day trek. The team was composed of individuals from eleven different countries — The Republic of South Africa, The Republic of Tanzania, Burundi, The Niger Republic, Uganda, Kenya, Zambia, The United States, The United Kingdom, Croatia, and (briefly) Japan. Along the way we visited over 27 schools and spoke to more than 3,500 students and teachers. Schools ranged from the primary school level to high schools and included the range from well-funded private schools to run-down rural schools.

In addition to the Education Expedition, our three-day Eclipse

Conference in Lusaka, Zambia drew over 500 attendees. The conference was filled with a fantastic diversity of presentations and performances. The Zambian Minister of Science and Technology gave the opening speech, followed by a host of great talks including one by Dr. Mazlan Othman on the peaceful uses of outer space and one by Professor W. U. Reimold on asteroid impacts, science, and conservation in Africa.

Highlights from the second day of the conference included a talk on prospects for alternative energy and a talk on the myths and legends of the Cosmos in African history.

Day three was of course the day of the solar eclipse, but prior to the beginning of the eclipse we had a performance by the University of Zambia Theater Group and the Lusaka Players. The actors portrayed the events surrounding the total solar eclipse of 1835 during which the Ngoni tribe was crossing the Zambezi river to settle in what is now Zambia. After the performance, awards were given to

secondary school students and eclipse glasses were distributed to conference attendees and the public. The eclipse itself was beyond words.

After the conference, our entire team was treated to a celebratory breakfast hosted by Eric Tilenius. The meal was great and much appreciated by our exhausted team.

We are still in the process of tabulating our numbers and statistics for the entire 2001 Under African Skies project. All of this information will be provided in our annual project report. This report is currently being compiled and we expect it to be mailed in October. Simultaneously, we are working on updating our web site to include the best pictures and stories from our travels (<http://www.cosmoseducation.org>).

On behalf of our entire team, I would like to thank you all for your incredible support and commitment to this project.

Please feel free to contact me at this email address or at (+1) 415-377-9053 if you have any questions or need any information prior to the distribution of our annual report.

Under the 100-inch and 60-inch

Steven Nelson

The lead article last month reminded me of my first visit to the 100-inch on Mount Wilson last year. I had grown up in sight of the mountain — had a childhood friend who did post-doc work on the 60-inch — but never had gotten a tour. My chance came last summer when attending the Astronomical Society of the Pacific's meeting in Pasadena.

An astro acquaintance was giving an unscheduled second tour! So I was fortunate to go up with a group that included Dr. Osterbrock from Lick (retired). He is a fine astronomy historian — and guess where he did his post-doc!

So — as we were climbing around up to the observing floor (of the 60-inch) he pointed out the small Wooden "observing lockers" of Hubble,

Humason, and Sandage. They still had the original names on them and were locked. And it appeared they hadn't been touched for 20-30-40 years.

Under the 100-inch it was a little more cleaned up. But the large concrete support pedestal, two stories high, was really spacy. Its triangles, buttresses, and circular lightening holes (15-foot diameter) seemed much more modern than the "iron bridge and boiler plate" feeling of the telescope structure. What is also unusual, you climb up inside of the pedestal to get to the observing floor.

Take a tour from the Mount Wilson Institute if you can. I also got to see the 100-inch mirror, freshly aluminized, ready to be bolted back on to the tube.

Upcoming School Star Parties

Oct. 16 — Pending, SE San Jose

Oct. 19 — Sunnyhills Park, Milpitas public star party

Oct. 23 — Pending, W. San Jose

Oct. 24 — Matsumo Elementary, E. San Jose

Oct. 25 — Cedar Grove Elementary, E. San Jose

Oct. 26 — School group at regular Houge Park star party

Oct. 31 — Halloween. Set up at home, show off the full moon

Nov. 19 — Pending, far E. San Jose

To join in the fun at a school star party, contact Jim Van Nuland, jvn@svpal.org

Putting The Dot In Math.com

Dave North

If you were to ask the question, "What is your favorite crater?" ... the answer would usually boil down to one of three: Copernicus (my choice), Tycho, or Clavius.

In an informal straw poll, the answer is most often the last: Clavius.

This should be no surprise. Clavius is something of a coincidental miracle that's easily seen by anyone with a halfway decent telescope.

The miracle? It has a series of craters inside, describing an almost perfect arc while going from small to large in a surprisingly even series.

On top of that, it has two notable craters on its rim, both named for Americans: Rutherford and (the newer-named) Porter.

Porter? Yup, Russell Porter, the inventive amateur who ended up working on just about every major telescope built during his life. Mr. Stellafane. That guy.

Clavius has the disadvantage of being placed very much in the south — not all that far from the southern limb. But it has two advantages to make up: it's almost on the meridian (just a few degrees west of the halfway mark) and it is Huge! In fact, it's one of the largest of the "walled plains" (great big honking craters) on the Moon. Side-to-side on the long dimension, it weighs in at 225 kilometers, or about 140 miles.

You could easily fit the entire San Francisco Bay Area in it, with room to spare.

Another very cool thing about it is just being able to say the name: Clavius. Rolls easily off the tongue and sounds very hifalutin.

Where did it come from? And what does that have to do with dots?

Let's connect:

Christopher Clau (anybody who was anybody in those days had a latinate version of their name for publishing; in Clau's case, Clavius. Look how close he came to being Santa Claus, though!) was a German-born Jesuit mathematician who taught at the Collegio Romano for most of his

career.

That's a pretty distinguished post, but not good enough to get your name on the Moon.

His reputation was the highest: he was considered one of the greatest scholars of his time, and assisted guys like Tycho Brahe, Johann Kepler, Galileo Galilei. He was called the "Euclid of the sixteenth century."

Even so, he was also the instigator of one of the funniest scandals of the late middle ages, by using his influence to solve a problem with the Julian calendar.

The Julian leap-year rule created 3 leap years too many in every period of 385 years.

As a result, the occurrence of the

*You could easily fit the
entire San Francisco Bay
Area in it ...*

equinoxes and solstices slowly moved away from their calendar dates. The date of the spring equinox determines Easter so the church began to press for reform.

Clavius proposed that Wednesday, Oct. 4, 1582 (Julian) should be followed by Thursday, Oct. 15, 1582 (Gregorian).

He also proposed that leap years occur in years exactly divisible by four, except that years ending in 00 must be divisible by 400 to be leap years. This rule is still used today and is so accurate that no further reform of the calendar will be necessary for many centuries.

Problem solved, right? Sort of.

The people of Frankfurt rioted against the Pope and mathematicians who, they believed, had conspired together to rob them of 11 days!

Several articles later (published popularly) he managed to explain what had happened well enough to calm the panic... as it turns out he was also an excellent teacher, with several texts to

College Astronomy Program Needs Your Help

Benjamin Mendelsohn

Unfortunately, a number of years ago, the eyepiece collection at West Valley College was stolen and the funds to replace them have been unavailable. We have a few old Dynamax telescopes, one Dobsonian, and a C-8 which the students can't use due to a lack of optics.

If you have any 1-1/4" eyepieces, diagonals, filters, or telescopes that you are no longer using, the astronomy program would appreciate your making a donation of them to the program.

Please contact the director of the Astronomy program, Benjamin Mendelsohn at (408) 741-4018, if you can help. Thank you.
Benjamin_Mendelsohn@westvalley.edu

his name.

He was also gifted with handiwork, and produced an instrument to measure fractions of angles, sundials and developed a quadrant for use in surveying.

But what's this dot stuff?

Okay, he was the first guy to use the decimal point.

So whenever you see that old ad from Sun about putting the "dot in dotcom" (whatever that means), you might look to the night sky for a bit more reality: it was more the Moon's Clavius than Sun's marketing.

If you'd like to look at it, just watch for a first-quarter Moon and glance at the southern limb through just about any scope.

That big thing you see will be it, and you'll have no problem figuring out which one is Clavius if the terminator is anywhere near it.

If you catch it at sunrise, the craterlets may not stand out as they will the next night, but it's an awesome sight anyway!

Gas Giants and Rings

Akkana Peck

This month is a great chance to watch the gas giants of our solar system: all of them will be in the sky during normal evening viewing hours.

Throughout October, Saturn rises well before midnight and is viewable most of the night, making a nice naked-eye sight in Taurus near the Hyades cluster. Even the smallest telescope should show the rings wide open, with Cassini's division prominent; observers who wait until late in the evening when the planet is nearly overhead, where the air is steadiest, should be rewarded with good views of the translucent inner C ("Crepe") ring and the ever-elusive gaps in the outermost ("A") ring. Also look for the subtle banding on the planet's globe, and the possibility of storms which might create large light or dark spots. These come and go without warning, and I haven't heard many reports yet from observers who have seen Saturn high in the sky this year.

When you tire of looking for storms on Saturn, turn to an easier task: Jupiter, the stormiest planet in our solar system, now rising about two hours after Saturn and visible in our late evening skies. Is the Great Red Spot (the mother of all storms) continuing to redden, as appeared to be happening last year when we lost track of Jupiter? Will we be able to see as many

festoons in the equatorial bands, and white swirls near the GRS, as last year? Picking up Jupiter again after a hiatus is always a treat, since the stormy planet changes so rapidly that you never know what to expect.

Well, that's not quite true. We do know we can expect to see the four Galilean moons: Io, Europa, Ganymede and Callisto, transiting across the face of their parent planet and casting shadows onto Jupiter's cloud tops. Any planetarium program can show predictions of Jovian moon events, or use my Java applet at <http://www.shallowsky.com/jupiter.html>, or

"Don't forget ... to give the trick-or-treaters some 'eye candy!'"

the tables in Sky & Telescope magazine. This year, we should be able to see transits of Callisto (which is so far out from Jupiter that sometimes it appears to pass above or below the planet instead of across its face) as well as the three others.

Remember I said we could see all the gas giants this month? Well, Uranus and Neptune are both in Capricornus, and fairly easy to find. Uranus is brighter than sixth magnitude

this month, which means it's visible to the naked eye from a dark site such as Fremont Peak or Henry Coe. But use binoculars or a telescope to find it if you've never looked for it before. In a telescope at moderate power, you should be able to identify it by its pale green disk — if you've ever wondered why "planetary nebulae" were given that name (they don't look anything like Jupiter!), look at Uranus and find out. Neptune is quite a bit more challenging: at magnitude 7.9 it doesn't stand out from the stars around it, and in order to see its small bluish 2.1 arcsecond face as a disk, you'll have to use fairly high power, which makes it challenging to find it in the first place (but worth the challenge).

Tired of gas giants? Okay, Mars is still visible in the early evening, racing west in Centaurus. Some observations have suggested that the near-global Martian dust storm which has obscured our view of late may be abating somewhat; observers have gotten hints of polar caps and Hellas. Alas, our tiny neighbor is also receding fast, so it will be challenging to see much detail.

Venus lays low in the morning twilight, joined by Mercury to make a nice pair in the final week of the month (before that, Mercury will be too close to the sun for easy observation). Both planets show gibbous phases to a telescope.

Oh, and don't forget to set out a telescope on the 31st to give the trick-or-treaters some "eye candy!" Unfortunately, Saturn doesn't rise until after 8pm, too late for most trick-or-treaters. But there's a full moon out (oooh, spooky!), and however jaded you may be regarding full moons, most kids (and their parents!) really get a kick out of seeing a full moon in a telescope at low power. Try filters in deep colors — dark purple, or a nebula filter — if you need to cut out some of the light to make viewing more comfortable; color filters also make the view pretty and can sometimes bring out a little more ray detail. Have fun!

December Holiday Party

Mark Taylor

The club's December general meeting will again be held as a holiday party and social occasion. The last two years each included tasty contributions to our "potluck" table, interesting "show and tell" items, a fun-filled gift lottery, and lots of great conversation.

If you would like to display a piece of unique astro equipment, an astro photo, a new astro software package, or other such item of interest please bring it along.

Contributions of food or drink are appreciated but not necessary. No

alcohol, please.

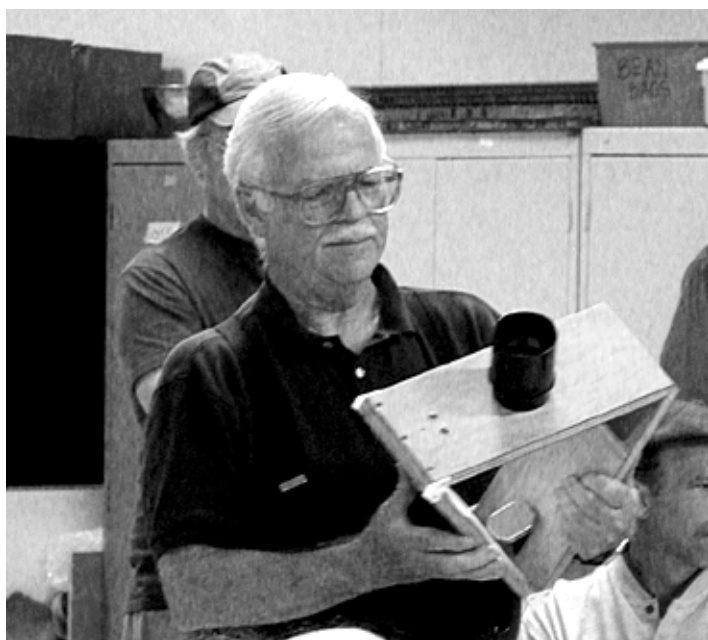
Each person who would like to participate in the gift lottery should anonymously wrap (no name tag) an astronomically-themed item of small value and/or large humor and bring it along. It can be a used item that you no longer have a use for, an inexpensive new item, and can be either a useful or funny "gag" gift. We'll do the exchange as a "draw or steal" lottery, which is always great fun.

Please join us on December 1st at 8 p.m. for our holiday social.



Slide and Equipment Night

Here are a few of the many treats from September's "Slide and Equipment Night" at the SJAA General Meeting at Houge Park. Clockwise from above: a square-tube dobsonian; a Fraunhofer folded refractor (note the leg-warmers for the mount); an aluminum frame dobsonian that compacts for travel; a 60mm solar telescope (a "sun spot-ter") in triangular wooden frame that rides on a pair of bicycle rims. Photos by Akkana Peck.



2002 Pocket Calendar Fund Raiser

Mark Taylor

The SJAA is selling "Astronomical Pocket Diaries" for the 2002 calendar year. For those of you not already familiar with this handy item the APD is an astronomically-themed, week-at-a-glance format pocket calendar. But it goes way beyond a regular calendar. It has weekly sunrise/sunset horizon maps, a weekly orrery, weekly planet ephemerides, daily lunar data, daily astro events such as occultations and oppositions, an extensive calendar of world events and trivia, and all of SJAA's 2002 dates pre-filled for your planning convenience.

The SJAA sells these pocket

sized calendar / reference books for \$10 each as a fund raising event that benefits our loaner equipment fund. This allows us to maintain, upgrade, and occasionally increase our holdings.

We hope to have the APDs available for sale starting with the October 6 General Meeting, but since they are coming from overseas their initial availability date is somewhat uncertain. Please plan to pick yours up at any Houge Park event from October onward until they are gone.

Visit www.sjaa.net for more information about the SJAA Astronomical Pocket Diary.

Free Lecture October 10th at Foothill College

Andrew Fraknoi

On Wednesday evening, October 10th, at 7 pm, Dr. Chris Chyba of the SETI Institute and Stanford will give an illustrated talk on "Life in the Universe: Is It Just Around the Corner?" It will be the opening talk in this year's Silicon Valley Astronomy Lecture Series, at Foothill College in Los Altos Hills.

Admission is free and the public is invited. Call the series hot-line at 650-949-7888 for more information. The series is co-sponsored by NASA's Ames Research Center, the Astronomical Society of the Pacific, the SETI Institute, and Foothill's Division of Physical Science, Mathematics, and Engineering.

Dr. Chyba will discuss what scientists today mean by life, what familiar and unfamiliar forms of life might be out there, and just where and how we propose to look for life beyond the Earth. NASA has recently inaugurated a national program in "astrobiology" (with its headquarters at the Ames Research Center), to learn more about the origin of life on Earth and how common it might be among the planets and the stars. Dr. Chyba has been a leader in this field, and recently headed the NASA committee to define what

sort of probe we might send to Jupiter's mysterious moon Europa (which may harbor an underground ocean).

Chris Chyba holds the Carl Sagan Chair for the Study of Life in the Universe at the SETI Institute in Mountain View. He also serves as an Associate Professor at Stanford, where he is Co-Director of the Center for International Security and Cooperation. He was on the national security staff of the White House from 1993-1995, working on issues related to science and technology. Both his research and teaching focus on the scientific search for life beyond our little planet.

The program will be held at the Foothill College Smithwick Theater in Los Altos Hills. From Interstate 280, exit at El Monte Road and travel west to the campus.

For Sale

Celestron Refractor GP-C102 with equatorial "Great Polaris" mount. It is basically brand new, I just don't have the room to store it any more. Price new - \$1,400, will take \$850. Sheryl Brereton, email sbrereton@msn.com, or (408) 265-5811.

Celestial Calendar

October 2001

Richard Stanton

Lunar Phases:	Date	Rise	Trans	Set
FM 06:49 PDT	02	19:20	00:55	07:03
LQ 21:20 PDT	09	23:52	06:32	14:11
NM 12:23 PDT	16	06:59	13:01	18:54
FQ 19:58 PDT	23	14:17	19:10	00:04

Nearer Planets:	R. A.	Dec.
Mercury, 0.69 A.U., Mag. -2.3		
07 08:19 13:38 18:58		13:38.4 -13:45
17 06:43 12:23 18:04		13:02.4 -07:14
27 05:56 11:45 17:35		13:01.1 -04:28

Venus, 1.54 A.U., Mag. -4.1		
07 05:08 11:29 17:49		11:24.8 +05:18
17 05:30 11:35 17:40		12:10.5 +00:31
27 05:51 11:42 17:31		12:56.3 -04:21

Mars, 0.97 A.U., Mag. -0.6		
07 14:37 19:16 23:55		19:12.9 -25:08
17 14:21 19:04 23:48		19:40.9 -23:55
27 14:04 18:53 23:43		20:09.4 -22:23

Jupiter, 4.89 A.U., Mag. -2.5		
07 23:43 07:06 14:25		07:03.1 +22:29
17 23:07 06:29 13:48		07:06.0 +22:25
27 22:29 05:52 13:10		07:07.6 +22:24

Saturn, 8.40 A.U., Mag. +0.5		
07 21:42 04:58 12:10		04:55.2 +20:45
17 21:02 04:18 11:30		04:54.1 +20:42
27 20:21 03:37 10:48		04:52.2 +20:38

SOL Star Type	G2V	Intelligent Life in System ?
Hours of Darkness		
09:33 07 07:08 12:55 18:42 12:51.7		-05:33
09:56 17 07:17 12:53 18:28 13:28.7		-09:18
10:17 27 07:27 12:52 18:15 14:06.6		-12:49

Astronomical Twilight:

		Begin	End
JD 2,452,189	07	05:42	20:08
	199	05:51	19:54
	209	06:00	19:43

Sidereal Time:

Transit Right Ascension at Local Midnight	
07 00:00 = 23:56	
17 00:00 = 00:35	
27 00:00 = 01:15	

Darkest Saturday Night: 13 Oct 2001

Sunset	18:34
Twilight End	20:00
Moon Set	17:15
Dawn Begin	05:47
Hours Dark	09:47

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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
1	4.5" Newt/ P Mount	Tim Roberts
3	4" Quantum S/C	Hsin I. Huang
7	12.5" Dobson	Bruce Horton
8	14" Dobson	Jack D. Kellythorne
10	Star Spectroscope	Steven Nelson
15	8" Dobson	Daron Darr
19	6" Newt/P Mount	Ilkka Kallio
23	6" Newt/P Mount	Dennis Hong
24	60mm Refractor	Al Kestler
26	11" Dobson	Robert Morgan
31	8" f/8 Dobson	John Templeton
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	Patrick Whalen	11/10/01
12	Orion XT8 Dob	Robert Morgan	9/27/01
13	Orion XT6 Dob	Tajinder Singh	11/24/01
14	8" f/8.5 Dob	Dennis Hong	10/28/01
16	Solar Scope	Bob Havner	9/2/01
29	C8, Astrophotography	Eric Anderson	10/27/01

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
11	Orion XT6 Dob	Raghu Srinivasan	9/16/01
21	10" Dobson	Ralph Seguin	Repair
27	13" Dobson	Gene Schmidt	9/30/01
28	13" Dobson	Michael Dajewski	12/2/01

Waiting List: Orion 8": Gordon McClellan, Dennis Hong **Loaner Notes:** Please let me know if you have storage space for a telescope or two!

Submit

Submit articles for publication in the SJAA Ephemeris. Send articles to the editors via e-mail to ephemeris@sjaa.net.

To subscribe to or unsubscribe from the SJAA Mailing List, visit <http://www.sjaa.net/mailman/listinfo/sjaa-announce>

San Jose Astronomical Association Membership Form

New ___ Renewal ___

Membership - \$15

Junior (younger than 18 years old) - \$6

Sky and Telescope - add \$30 to membership

(Sky & Tel will not accept multiyear subscriptions)

Make checks payable to "SJAA"

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

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