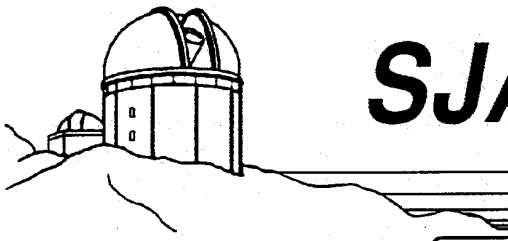

SJAA EPHEMERIS

Fourteen Perseids

So many people sallied so many places for the Perseids, it seemed simplistic to satisfy the sense of event with only a single sketch. With that in mind, various folks were asked to contribute their mini-reports. . . . As becomes apparent, "the Perseids" is not any single thing, but a fragmented panorama that looks very disparate in different eyes and moments.

"At the Peak I parked near a large oak tree and was pleased with the warm calm conditions. A constant trickle of people walking through with lawn chairs and blankets heading to and from the observatory hill punctuated the night with chatter. Alan Takahashi arrived about a half hour before moonset and set up his lounger. Timed counts between midnight and 2 AM came up with 7, 11, and 8 meteors during three 5 minute periods. It seemed like there was a high point of activity around 12:30, after 1AM, and again around 3AM. A few fireballs lit up the ground and drew cheers and applause fron various points in the park. Alan noted some of the brighter ones seemed to come in pairs or were soon followed by a companion in the same place. Some of the brighter perseids left ghostly trains that lingered for several seconds. Some folks were claiming to see 2-3 a minute with the darker sky around 3:30 AM." **Jack Zeiders**, Fremont Peak

"...at Palo Alto Baylands... we saw few meteors — in not quite three hours before midnight, I noticed only four." ***Jay Freeman***

See **Perseids**, p. 2

September

12 Houge park star party. Sunset 7:23 pm, moon all evening.

13 General meeting 8 pm, Houge Park. Slide & Equipment night. Open board meeting 6:30 pm.

20 Beginning Astronomy Class: CCD Astronomy with Kevin Medlock.

26 Houge star party. Sunset 7:02 pm, moonrise 2:28 am.

27 Star parties at Fremont Peak, Coe. Sunset 7:00 pm, moonrise 3:22 am.

October

4 Star party at Fremont Peak. Sunset 6:45 pm, 11% moon sets 8:45 pm

10 Houge star party. Sunset 6:37 pm., 68% moon sets 1:57 am

11 General meeting 8 pm, Houge Park. Member night: bring your questions, concerns, ideas and anything else of interest. Open board meeting 6:30 pm

24 Last Beginning Astronomy Class this year: the 30-inch telescope at Fremont Peak

24 Houge star party. Sunset 6:16 pm, 23% moon rises 3:03 am

25 Star parties at Fremont Peak, Coe. Sunset 6:16 pm, 23% moon rises 3:03 am

26 End of Darkness Squandering Time. Set clocks back one hour, and apologize to your honest sundial.

Please note that SJAA insurance only covers SJAA members at SJAA sponsored events.

The Search for The Cosmic Wobble

Jon Carroll

Sometimes this job is a gift; sometimes this job is like a magic door opening onto undreamed meadows.

A few months ago I got some e-mail from Geoff Marcy, who identified himself as an astronomer and asked me if I wanted to take a private tour of Lick Observatory at the summit of Mount Hamilton, 4,200 feet above San Jose.

Well, sure. I think observatories are among the coolest human structures. I spent a wild summer when I was nine thinking I wanted to be an astronomer, until the role of mathematics in stargazing turned my ambitions toward a career in cheap media.

Astronomers on the job sleep all day and work all night. We arrived at about 3:30 p.m., just as Marcy was waking up. We chatted about history and comets and science fiction and he took us up to the old telescope, the 108-year-old clockwork marvel with the parquet floor under which James Lick is buried with nice plastic flowers by his tomb.

This telescope is open to the public; a splendid woman named

See **Cosmic Wobble**, p. 3

Perseis, from p. 1

"I took my family to the hills of Los Altos... at 11pm, a small storm of Perseids zipped from the zenith down to the southern horizon in a matter of seconds. Meteor activity continued to come and go in little storms like this throughout the night. We saw as many faint "zips" as we saw bright fiery trails — at least a couple dozen of each. There were plenty of "oohs" and "aahs". We continued to watch until about 2am... Although we saw only about 60 meteors in our 3.5 hours of watching, I would have to call our Perseid trip as a complete success." **Mark Taylor**, Montebello

"A combination of circumstances nixed my planned trip to Bristlecone Pine for the Perseids this year. I was reduced to watching from my balcony in the middle of San Jose. My LM was about 3 :-(In about a half hour of observing from 10:45 to 11:30 I saw one meteor, probably a Perseid. Then the clouds rolled in. Maybe next year .... no, next year the Moon will be bad; maybe 1999." ***Bill Arnett****, Willow Glen*

"I had a chance to observe some pre-Perseids on the morning of August10th from 7th magnitude skies near Yosemite. From 1am till dawn I counted an average of 50 per hour with about 25% traced back to the Perseid radiant. The sky seemed alive with activity. It was a joy to lay back and imagine the earth sweeping into the ancient cometary cloud. On one occasion, three very short and dim meteors appeared simultaneously from a tight radiant near the Pleiades. Kind of a "mini" meteor storm that lasted a full second. All the while I was thinking that my 90 minute M31 astrophoto was going be ruined by a cosmic interloper with Murphy's name on it. When I closed the shutter and looked through the camera viewfinder, a micro meteor shot across M31 like a red cinder out the top of a chimney. Murphy had finally been beaten ... this time." **John Gleason**

"I was too tired to drive south, and the marine layer was totally blocking Saratoga's sky." ***Duane Sand***

"I made it up to Del Valle for a short evening of meteor watching. I got there about 9:15 with my wife and kids who immediatly put out the lawn chairs and went to sleep. I didn't know how much I was going to see since I wanted to leave by 11:00 or 11:30 because I have to get up at 6:00 for work. What I saw was incredible! Of the 6 or 7 that I saw two were amazing. If you held a ruler up to the sky they would have been 1/4" wide and 3 or 4 feet long. They looked like fireworks when they get shot up in the sky before they explode." **Greg Zamira**

"I think I saw more Perseids the last week or so while out doing my regular observing than I might have from here in town last night, had it been clear." — ***Mark Wagner****, Los Gatos*

"...From my dark back deck, I saw absolutely none! zip! between 11 and 12 PM. From 12 to 1 AM I observed 9 perseids. No fireballs, no spectacular colors this night. But the peaceful concentrating on a singular project was very soothing." **Jane Houston**, San Rafael

"... it is a source of aggravation for me to live under a continual cloud layer..." ***Craig Wandke****, Monterey*

"Berkeley has been clouded over every morning and evening. In past years, I've gone out at 4:30 or 5am just to the street below, turned around to face east, and have been wowed by the fireworks. I miss seeing them this year." **Melissa Evans**

"I did see something out of the corner of my eye around 12:45, but that was it." ***Robin Casady****, Santa Cruz*

"My initial feeling that this was going to be a lackluster night...especially after the passing of the midnight hour when I logged only 20 perseids. Then the next hour came in like a tidal wave...In all, I recorded a total of 361 meteors with 302 of them being Perseids. The brightest were a pair of -8 Perseids plus a -7 Perseid..." **George Zay**, Descanso California

The editor viewed from his San Jose back yard, and from the Palo Alto Baylands (with the distinction of managing to face the wrong way every time) and did not see a single meteor between 9pm and midnight — after which he went home to dense overcast, popcorn, and a book he considers brilliant but has discovered (by being informed often and with gleeful enthusiasm) is actually just dull.

Cosmic Wobble, from p. 1

Lotus offers tours and answers and a kind of familial intimacy with the process of science — she has lived on the mountain for 20 years in the tiny community of acolytes who tend the many telescopes and domes along the ridge line.

There are 38 people living up there at the moment; there's an elementary school with eight kids, including those from ranches on the surrounding hillside. The Lick telescope is a fabulous Victorian invention with a movable floor (originally water-powered) and gigantic gears and a huge dome built like the hull of a ship — it looks a lot like something out of the computer game Myst.

The 19th century, I decided right then, was a time when men got to be boys until they died.

SO BY NOW I was on a sweet kind of romance-of-science high because Geoff Marcy was funny and informative and treated every question, including the seriously dumb ones, with a cheerful and endearing gravity. The world's best backstage tour, I said to myself.

In the lobby we passed a small display and he said, "And of course there's me on the cover of Time magazine," and I laughed, thinking it was one of those gag mock-ups that people make for postgraduate parties, and then I looked again and by God it was him, with his partner Paul Butler, looking rather somber, floating in a field of stars.

Marcy and Butler, it turns out, are the guys who discovered planets circling around stars other than the sun. After 10 years of being dismissed as nut cases, of tiny grants and cheap meals and professional discomfort, they found places outside our solar system where life might at least have a chance of existing.

I'd heard about the feat — it was your basic front-page news — but had not registered the names. And there was this guy in sandals, this guy talking about the two winters Mario Savio had spent up on the mountain helping to crunch data — one of my people, to be precise — talking passionately about the discoveries he'd made in that very place, on the top of that very mountain.

What happens when you throw a ball in the air, Newton said, is that the ball falls to meet the earth — and the earth rises to meet the ball. Not by much, because the earth is so much bigger, but that is the nature of gravitational attraction.

So if something as large as a planet were orbiting a star, then the star would wobble in response to its gravity. Find the wobble, graph it over time, infer the existence of the planet, and its size, and the nature of the orbit.

The trick was to figure out how to detect the wobble. The trick before that was believing in the wobble. They did, and they did.

After we had dinner, my last sight of Marcy and Butler was them walking together up the oak-lined road at dusk, both carrying thermoses and midnight lunches, preparing to wait for the wobbles.

In which a small tour of an old building turns into a large tour of a big universe

Editor's note: Jon Carroll is a columnist for the San Francisco Chronicle, and this piece is reprinted with his permission. Amazingly, nobody arranged a chance for him to look through any of the scopes (shame!) However, Mr. Carroll assures me they did serve tacos for dinner, which is a cut above the standard Doritos-and-soda fare.

Aldebaran Graze

Bill Arnett

Negative Result . . .
Good Night

SJAA members Bill O'Shaughnessy, David R. Smith, Paul Barton and I met in Gilroy to observe the Aldebaran graze this evening. We had some nice views of Jupiter while waiting for the Big Event which was scheduled for 2:40 a.m.

Unfortunately, the Moon and Aldebaran were only 3.5 degrees above the eastern horizon at that time. They didn't rise above the cloud bank to our east until 2:50. We missed it by 10 minutes or about 2 degrees.

Oh well, it was still a nice night under the stars.

Buying Your Only Refractor

Rich Neuschaefer

If you were only to have one refractor what size would you choose?

The first answer that comes to mind is a four-inch refractor. It is large enough to show very nice lunar and planetary detail but not so large to be difficult to handle. A four inch will produce a bright enough image to let you see many of the brighter deep sky objects.

The second answer that comes to mind is a six inch refractor. They are larger and heaver than a four inch but still quite portable, assuming they are f/9 or faster. A six incher will show beautiful lunar and planetary detail. It will also resolve the brighter globular clusters and show some detail in the brighter deep sky objects. In dark skies with steady seeing a six inch refractor will show spiral structure in the galaxy M51.

Some of the new, fast five inch refractors show planetary detail very much like a six inch refractor, but for me the six inch gives a very nice boost in brightness for deep sky objects.

Another question would be: is it worth the extra cost to get an apochromatic (free of false color) refractor? This is a much more difficult question.

A good achromatic refractor will produce very sharp lunar and planetary detail but the image will not be as contrasty as it would be with an apochromat. With an achromatic refractor you can see a blue/purple (sometimes yellow) glow around edges of bright objects. When looking at a bright surface like the Moon an achromat will show a light blue glow over the surface. This blue glow becomes easier to see as the magnification is increased. Colored filters can improve the contrast when using an anchromat.

I don't feel colored filters help much with an apochromatic refractor. If you are willing to use a long focal length, an achromat can be quite free of false color. A three inch f/15 will show relatively little false color.

Recently glass has become available to allow very fine apochromatic refractors. The new APOs give beautiful sharp, high contrast images. They can be made very fast and still produce an image free of false color. You can get four inch f/6 and f/8, five inch f6 and f/8 and six inch f/7 and f/9.

Smaller refractors can be very portable and give very nice planetary images. You can use them to detect many bright deep sky objects.

Larger refractors are fun to use but they are not easily portable.

Editor's note: since Rich has owned and used virtually all sizes (and many types) of commercially available refractors at one time or anther, I asked him if he would try to answer this this difficult and controversial question. Everyone interested in buying a refractor would do well to consider the thoughtful reply.

Alpha Aurigid Meteor Shower

George Zay

Just as the last of the Perseid meteors are seen the Alpha Aurigids become active. Rates are usually low for this shower except for a period of about one hour on the morning of Sept. 1. If you are situated in dark morning skies when this sharp maximum occurs you may see up to 50 shower members radiating from the "Pentagon" of Auriga. Shower members seen during this peak of activity are often bright and leave long-lasting trains. Notable displays were seen in 1935, 1986, and 1994. The Alpha Aurigids may be particles from Comet Kiess, last seen in 1911.

Comet Comments

Don Machholz

Another new comet has been discovered by a Southern Hemisphere observer. Meanwhile, Comet Hale-Bopp rolls into the morning southern sky for many North American observers. Comet Tabur (C/1997 N1), which is behind the Sun and will soon appear in our evening sky, has shown some diffuseness lately. This indicates that it may be fading out — only time will tell. Finally, three more comets have been found by the solar-orbiting SOHO satellite, bringing its total to 20. None of these comets have been seen from the Earth and most of them belong to the Kreutz Sungrazing Group.

Justin Tilbrook of Clare, South Australia, used an 8-inch reflector to discover a new comet on July 22nd. It was in the evening sky, just north of the constellation Corvus, and 10th magnitude. Comet Tilbrook (1997 O1) is presently receding from both the Earth and the Sun, and therefore growing dimmer.

Comet Hale-Bopp, as seen from the Earth, is pulling away from the Sun and moving south. This provides a limited opportunity for Northern Hemisphere observers to get their last look at the comet. From 25 deg. north latitude the comet will be seen best in mid-October when it will be 20 deg. above the southern horizon at morning twilight. This is why this is possible. In early September Comet Hale-Bopp is low in the southeast at astronomical twilight. With each passing morning it is higher in the sky at astronomical twilight; this is because it rises earlier each day while the Sun rises later, giving the comet additional time to climb. After mid-October this daily gain begins to be offset by the comet's continued southern motion, and by the end of the year it will no longer be visible. A final encore presentation of the comet for those at 25 deg. north latitude occurs in early 1998 when the comet winds northward again, peeking over the southern horizon at evening twilight.

Observers farther north will not be quite as lucky. At 40 deg. north latitude Comet Hale-Bopp will be best seen between mid-September and mid-October, when it will be rising above your ESE horizon at morning astronomical twilight. It will not get more than five deg. high in dark sky on any of these mornings. If you live between any of these aforementioned latitudes, you can probably figure out your own comet watching situation. In any event you'll need a low southeastern horizon, clear air and probably a medium-sized telescope to view the comet, which is about 300 million miles away.

Comet Hunting Notes: Many people quote the 1,700 hours it took me to find my first comet or the 1,742 hours to find my second. This has been surpassed twice in recent years. In 1987 Noboru Nishikawa took 3,024 hours in 2,389 sessions to find his first comet (1987a). In 1990 Yuji Nakamura discovered his first comet after searching 2,236.5 hours in 1,558 sessions.

Orbital Elements

Object:	Hale-Bopp	Tabur	Tilbrook
Peri. Date:	1997 04 01.13800	1997 08 15.4779	1997 07 13.2599
Peri. Dist (AU):	0.9141405 AU	0.395469 AU	1.373622 AU
Arg/Peri (2000):	130.58915 deg.	344.2126 deg.	336.0222 deg.
Asc. Node (2000):	282.47069 deg.	147.6169 deg.	231.1502 deg.
Incl (2000):	89.42943 deg.	85.9685 deg.	115.8011 deg.
Eccen:	0.9951172	1.0	1.0
Orbital Period:	~2500 years	Long Period?	Long Period?
Ref:	MPC 29568	MPC 30244	IAU Cir. 6707+
Epoch:	1997 06 01	1997 08 15	1997 07 13
Absol. Mag/"n":	-1.0/4.0	10.0/4.0	8.0/4.0

Ephemerides (for 0h UT)

C/1995 O1 (Hale-Bopp)

Date	R.A. (2000)	Dec.	El.	Sky	Mag.
08-10	07h29.6m	-16°21'	42°	M	4.9
08-15	07h34.7m	-18°16'	45°	M	5.0
08-20	07h39.5m	-20°13'	47°	M	5.1
08-25	07h44.1m	-22°11'	50°	M	5.3
08-30	07h48.4m	-24°11'	52°	M	5.4
09-04	07h52.4m	-26°12'	55°	M	5.5
09-09	07h56.2m	-28°15'	58°	M	5.6
09-14	07h59.5m	-30°19'	60°	M	5.7
09-19	08h02.5m	-32°25'	63°	M	5.8
09-24	08h05.1m	-34°31'	65°	M	5.9
09-29	08h07.3m	-36°38'	68°	M	6.0
10-04	08h08.9m	-38°46'	70°	M	6.1
10-09	08h10.5m	40°53'	72°	M	6.2
10-14	08h10.5m	43°00'	75°	M	6.3

C/1997 N1 (Tabur)

Date	R.A. (2000)	Dec.	El.	Sky	Mag.
08-10	09h09.2m	+02°56'	13°	M	6.9
08-15	09h35.8m	+08°52'	5°	M	6.7
08-20	10h02.0m	+14°45'	4°	E	6.9
08-25	10h28.4m	+20°10'	10°	E	7.5
08-30	10h55.8m	+24°54'	17°	E	8.2
09-04	11h24.6m	+28°54'	23°	E	8.9
09-09	11h54.8m	+32°11'	29°	E	9.5
09-14	12h26.3m	+34°47'	34°	E	10.0
09-19	12h58.8m	+36°43'	39°	E	10.5
09-24	13h31.6m	+38°00'	43°	E	11.0
09-29	14h04.0m	+38°41'	47°	E	11.4
10-04	14h35.5m	+38°52'	51°	E	11.8
10-09	15h05.3m	+38°36'	54°	E	12.2
10-14	15h33.3m	+38°01'	56°	E	12.5

C/1997 O1 (Tilbrook)

Date	R.A. (2000)	Dec.	El.	Sky	Mag.
08-10	12h53.9m	-06°17'	57°	E	10.7
08-15	13h01.4m	-03°58'	54°	E	10.9
08-20	13h08.4m	-01°57'	50°	E	11.1
08-25	13h15.1m	-00°11'	46°	E	11.3
08-30	13h21.5m	+01°23'	42°	E	11.5
09-04	13h27.8m	+02°48'	39°	E	11.7
09-09	13h33.8m	+04°05'	36°	E	11.9
09-14	13h39.7m	+05°16'	33°	E	12.1
09-19	13h45.6m	+06°22'	30°	E	12.2
09-24	13h51.4m	+07°24'	28°	E	12.4
09-29	13h57.1m	+08°24'	26°	E	12.6
10-04	14h02.8m	+09°23'	25∞	E	12.7"

CELESTIAL CALENDAR SEPTEMBER1997

RichardStanton

Lunar *(all times PDT)*

Phases	Time	Date	Rise	Trans	Set
NM	16:52	01	06:23	13:00	19:31
FQ	18:31	09	13:44	19:00	00:31
FM	11:50	16	19:25	00:38	06:39
LQ	06:35	23	23:50	07:02	14:13

Mercury 0.95 A.U. Mag. -2.3

Date	Rise	Trans	Set	R.A.	Dec.
07	05:48	12:17	18:47	10:17.7	+08:16
17	05:22	11:57	18:32	10:34.4	+09:44
27	05:55	12:15	18:35	11:30.8	+05:11

Venus 1.04 A.U. Mag. -4.7

Date	Rise	Trans	Set	R.A.	Dec.
07	10:00	15:32	21:04	13:29.9	-09:50
17	10:19	15:36	20:53	14:13.6	-14:31
27	10:39	15:42	20:44	14:58.3	-18:42

Mars 1.72 A.U. Mag. +0.6

Date	Rise	Trans	Set	R.A.	Dec.
07	11:44	16:51	21:59	14:50.3	-17:15
17	11:38	16:39	21:40	15:17.4	-19:12
27	11:34	16:28	21:22	15:45.7	-10:56

Jupiter 4.25 A.U. Mag. -2.7

Date	Rise	Trans	Set	R.A.	Dec.
07	17:58	23:04	04:14	21:05.7	-17:41
17	17:16	22:21	03:30	21:02.4	-17:55
27	16:35	21:40	02:48	21:00.3	-18:03

Saturn 8.47 A.U. Mag. +0.6

Date	Rise	Trans	Set	R.A.	Dec.
07	20:54	03:17	09:36	01:15.4	+05:03
17	20:13	02:35	08:53	01:13.1	+04:47
27	19:32	01:53	08:10	01:10.4	+04:30

SOL Star Type G2V Intelligent Life in System?

(HOD = Hours of Darkness)

HOD	Dt	Rise	Trans	Set	R.A.	Dec.
08:15	07	06:42	13:06	19:29	11:03.7	+06:01
08:42	17	06:50	13:02	19:13	11:39.7	+02:12
09:08	27	06:59	12:59	18:58	12:15.6	-01:41

Astronomical Twilight		Begin	End
JD 2,450,	698 07	05:12	20:58
	708 17	05:22	20:41
	718 27	05:32	20:24

Siderealtime

Transit Right	07	00:00 = 21:57
Ascension at	17	00:00 = 22:37
Local Midnit	27	00:00 = 23:16

Darkest Saturday Night	00-Sept-97
Sunset	00:00
Twilight End	00:00
Moon Set	00:00
Dawn Begin	00:00

ACTIVITIES THROUGH OTHER CLUBS

There has been a significant development, as TAC has reserved the Montebello site for every Wednesday, more or less indefinitely. This means anyone interested in attending can plan well ahead with a strong expectation of access and company at this genial nearby site up Page Mill Road. Rather than list each date, we will simply make the statement that this even takes place each Wednesday; in that respect it is unique in the astronomical community.

September

12 PAS General Meeting: Equipment Night. TAC Van Meter School public night.

13 TAC FP or Henry Coe lunar observing.

27 HVAC at Grant Ranch. FPOA public night.

October

10 TAC Van Meter School public night.

11 FP or Henry Coe lunar observing.

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

To Subscribe to/Unsubscribe from the SJAA Mailing List send mail to sjaa-request@seds.org with a blank subject line followed by a single text line that says "subscribe" or "unsubscribe"

DIRECTIONS TO SJAA PLACES

Houge 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.

Henry Coe State Park is east of Morgan Hill.

From Hwy.101, exit onto East Dunne Avenue. Continue for 12 miles, far past Andersen Reservoir, to the park, atop the ridge. The current SJAA site is the parking lot on the right about 1/2 mile before the main entrance. There is now a fee for use.

Fremont Peak State Park is south of the village of San Juan Bautista.

From Hwy.101, about 11 miles south of Gilroy, take the eastbound Hwy.156 exit. Run for 3.0 miles, to a traffic light, and turn right onto county Hwy.G-1. Follow G-1 for 12 miles into the park. Be careful to note the sudden "left/right jog" soon after the turn; signs are posted. There is a $3 entrance fee.

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Telescope Loaner Program Status

Mike Koop

No.	Scope Description	Borrower	Due Date
1	4.5" Newt/ P Mount	Available	
2	6" f9 Dob	John Paul De Silva	?
3	4" Quantum S/C	David Manley	10/1/97
4	60mm Refractor	Del Johnson	Indefinite
6	8" Celestron S/C	Bob Bootz	9/13/97
7	12.5" Dobson	Available	
8	14" Dobson	Bryan Zaring	10/1/97
9	C-11 Compustar	Paul Barton	Indefinite
15	8" Dobson	Jack Kellythorne	8/2/97 Note 1
16	Solar Scope	Jack Peterson	Indefinite
18	8" Newt/ P Mount	Steve Sergeant	9/30/97
19	6" Newt/P Mount	Available	
21	10" Dobson	Nick Tucci	8/30/97
23	6" Newt/ P Mount	Bob Hess	8/8/97
24	60mm Refractor	Ravi Tembhekar	7/31/97 Note 1
26	11" Dobson	Terry Kahl	10/1/97 Note 2
27	13" Dobson	Dean Sala	10/1/97
28	13" Dobson	Ramin Ghafouri	8/19/97
29	C8, Astrophotography	Scott Wade	8/28/97
30	7" f/9 Newt/Pipe Mount	Available	

Note 1: Please call us and tell us how it's going.
Note 2: Now with improved instructions on How to Use the Digital Setting Circles. Thank you, Dean Sala!

All scopes are available to any SJAA member. To reserve a scope, please contact Mike Koop at (408) 473-6315 or email at koopm@best.com.

Submit

Members are encouraged to submit articles for publication in the *SJAA Ephemeris*. Send articles to Dave North via e-mail to Timocharis@aol.com. Articles received by the tenth will be put in the following month's newsletter. Please include your name and phone number.

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San Jose Astronomical Association
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