

C1996 B2 (Hyakutake)														
YR	MO	DA	HR	JD(ET)	RA	DEC	DR	VARI	DOEC	DELTA R	POSANG	THEYA	BEYA	GLONG
1996	3	20	0	2450162.5	14 53.38	-00 22.3	-6.87	-66.8	20	1.15	270.6	136.4	56.8	221.0
1996	3	21	0	2450163.5	14 52.24	-00 04.1	-6.43	-109.2	18	1.13	264.1	137.3	36.7	218.8
1996	3	22	0	2450164.5	14 50.56	-12 0.3	-6.02	-147.5	15	1.1	255.1	137.3	36.7	218.8
1996	3	23	0	2450165.5	14 48.30	-12 12.2	-5.64	-185.8	13	1.07	243.3	137.3	36.7	218.8
1996	3	24	0	2450166.5	14 45.52	-12 23.1	-5.29	-224.1	11	1.03	231.5	137.3	36.7	218.8
1996	3	25	0	2450167.5	14 42.19	-12 33.1	-4.97	-262.4	9	1.0	219.7	137.3	36.7	218.8
1996	3	26	0	2450168.5	14 37.41	-12 42.0	-4.68	-300.7	7	0.96	207.9	137.3	36.7	218.8
1996	3	27	0	2450169.5	14 31.57	-12 50.0	-4.42	-339.0	5	0.92	196.1	137.3	36.7	218.8
1996	3	28	0	2450170.5	14 25.63	-12 56.1	-4.19	-377.3	3	0.88	184.3	137.3	36.7	218.8
1996	3	29	0	2450171.5	14 19.69	-13 0.2	-3.98	-415.6	1	0.84	172.5	137.3	36.7	218.8
1996	3	30	0	2450172.5	14 13.75	-13 0.2	-3.79	-453.9	0	0.8	160.7	137.3	36.7	218.8
1996	3	31	0	2450173.5	14 07.81	-13 0.2	-3.62	-492.2	0	0.76	148.9	137.3	36.7	218.8
1996	4	1	0	2450174.5	14 01.87	-13 0.2	-3.47	-530.5	0	0.72	137.1	137.3	36.7	218.8
1996	4	2	0	2450175.5	13 55.93	-13 0.2	-3.33	-568.8	0	0.68	125.3	137.3	36.7	218.8

Eye on Everything by Lew Kurtz

So, how about them Martians? OK, so they're only bacteria, and not yet even confirmed, but still some interesting food for thought. Earlier this year it was extra solar planets around sun like stars, and now ETs! Sort of makes you wonder when something is going to stop by Earth and say Boo!

SJAA needs a good **slide projector** and **screen**. If you have a slide projector or screen that you would like to donate to the club, please call any board member.

To order your 1997 **RASC Observer's Handbook**, call Bob Elsberry.

All of the articles in this Ephemeris were written by SJAA members.

First School Star Party

The first school star party of the season will start at 7:30 on September 13 at Bertha Taylor Elementary. Sun set is 7:15.

Contact Jim Van Nuland (371-1307) if you want to help with this or any other school star party.

This is one of our regulars. The principal is very interested in the school and will be there, as will many of the teachers. Co-ordinator is Norine Ruiz. Good turnout last year, expect a hundred kids and parents.

From Hwy.85, exit at Cottle Road. South on Cottle 0.4 miles to Curie Dr, stop sign. Turn right. West on Curie 0.2 miles to Woolsey Dr, stop sign. Turn right. North west 0.2 miles Sautner. Turn left. Pass school on left, after parking lot, seek a small service road that runs behind buildings and opens onto the play area.

Activities Calendar

September

- 7 Star party at Fremont Peak state park. Sun set 7:25 pm, 20% Moon rises 2:54 am.
- 14 Star party at Henry Coe state park, also Hall's Valley Astronomical Group at Grant Ranch. Sun set 7:15 pm, 5% Moon sets 8:15 pm.
- 20 Houg park star party. Sun set 7:07 pm, 58% moon sets 0:49 am.
- 21 General meeting, 8:00pm, Slide/Equipment/Member night. Board meeting, 6:30 pm is open to all.
- 28 Observational Astronomy Class, Houg Park, 8 pm.

October

- 5 Star party at Fremont Peak state park. Sun set 6:43 pm, 35% Moon rises 1:59 am.
- 12 Star party at Henry Coe state park, also Hall's Valley Astronomical Group at Grant Ranch. Sun set 6:33 pm, 1% Moon sets 6:50 pm.
- 18 Houg park star party Sset 6:26 pm, 43% moon sets 23:44 pm.
- 19 General meeting, Speaker TBA.
- 26 Last Observational Astronomy Class of 1996, Houg Park, 8 pm.
- 27 2 am: Darkness-Squandering time ends. Set clocks back.

24 hour News and Information:

SJAA Hotline: **408-559-1221**

Home page url

<http://www.rahul.net/resource/sjaa>

(see current and past Ephemeris issues on the home page!)

A Night of Observing Passion

Fremont Peak, California

August 9, 1996

By Richard Navarrete

I didn't get to the Peak until 5:30 pm. I'd hoped to get there earlier and beat Friday traffic. There were three observers already there: astro-photographers Robert Hoyle, John Hales and EAS member Carter Roberts. I was expecting a few more people and eventually Rich Neuschaefer, Alan Nelms, Jim Bartolini, and Mark Wagner with budding amateur astronomer Mimi Wagner in tow (who says females aren't involved with astronomy?). I met a few new people, and was excited about a good night of observing in shorts a t-shirt weather, with a group of congenial and talented observers.

We were there on a Friday because the Peak was going to be crowded on Saturday for the Annual Star-B-Q (catchy name, huh?) and we knew the place would be swarming with people and we wouldn't be able to do any REAL observing or astrophotography. We, the few, the proud, the dedicated.

I had a list of things I wanted to accomplish this evening. Check the SCT's collimation, try out a new camera, take some test shots with Fuji 400 HG V (pretty soon Fuji's gonna run out of space on the box for all the letters in their films' name), and get a little more practice guiding for some prime focus photography. I also brought my binocular mount and 12x80 Celestron binoculars, C90 (who knows why) and a laptop computer running The-Sky.

There was plenty of heavy duty equipment there. Bill Arnett and his 12" LX200, Mark Taylor with his 8" LX200,

continued on page 2, see *Passion*

Mark had a 14.5" Crazy Ed, Ray Gralak with a 17" dob, John Hales' NGT 18 and ST4 auto-guider, Gil Chin's Travler, a beautiful AP 6" refractor, a 4"? Takahachi, a Genesis, Carter Robert's nice homemade 10" equatorially mounted newtonian, Alan's mind boggling Miyauchi 100mm binoculars, Bartolini with an 8" Celestron SCT and 80mm Celestron refractor, and my 8" Meade SCT. There were a few other scopes and computers around, but you get the idea. Watch out photons, were gonna getcha!

The sky was clear, the weather warm, and fog was moving in from the Monterey area. Dark skies ahead.

Nine o'clock rolled, around. Time to start polar aligning, re-check the collimation, set out the eyepieces, find the red flashlights and set out the star atlas, fire up the computer, load the camera with that special film. Ready, set, JUPITER!

"Boy, the sky sure is mushy."

"You can see the air currents blowing past Jupiter."

"When it steadies for a second it doesn't look too bad."

"Maybe your scope hasn't cooled down yet."

"Where' Hale-Bopp?"

"Boy, it sure has moved a lot since I saw it last."

"It's better in the binoculars."

"Can you see the tail?"

"WOOAH! That was a good one!"

"Let's go see what's happening on the other side."

"He got that scope in trade for a \$600 microscope!? What a steal!"

"Gee, it's already 1:00, have you found anything new? Me neither."

"Have you really tried? Me neither."

"OOOH, there goes another one."

"It's too windy, the autoguider is jumping around."

"Are those clouds?"

"Where did they come from?"

"It sure is great just sitting here talking."

"Look, the clouds have moved off."

"Remember watching Perseids last year through the fog?"

"That was a short one"

"Missed it again!"

"Well, I had to work today and I'm toasted. I'm gonna head home."

"Yeah, me too."

"I'm staying for the Star-B-Q."

"Let's check out Saturn."

"Boy the seeing sucks. Saturn is swimming around."

"I'm going to sleep."

I know some of us found a lot of objects, and everyone had a different agenda for the night, but most of us would agree it was a lazy and relaxing night of observing. I actually managed to do most of the things I wanted to, but I didn't do much observing.

It may sound like we didn't do much, but it was a great night. Being out all night under a beautiful sky, with good friends (missing my wife who stayed home), good weather, beautiful objects to observe and looking forward to the next star party.

What was your last star party like?

39 Planetary in Scutum

by Douglas Snyder

It was a dark and stormy night. Huddled between stacks of astronomical catalogs, atlases, assorted DeepSky magazines, and my trusty computer spitting out reams of objects to observe during the next sucker hole, I accidentally came across an object with the designation of Weinberger 1-7 in Scutum. Wow! Two of my favorite astro consumables in one name. And in a constellation that I really enjoy observing in, even though it is 84th in size (only 109 sq. degrees) among all the constellations. I had to put this object on some list, because this particular night was not ideal for viewing it, as everytime the SCT tube was pointed skyward, it became more of a rain gauge than a light bucket. So I dutifully entered the information on a list that was conveniently stuck to the refrigerator by a Barney magnet. I was sure this list would still be there when the skies cleared. But alas, the next day the list was gone, having served its purpose as someone's shopping list and then tossed like so much cheap confetti. But

sitting on the counter was one fine bottle of Thunderbird Wine and seven soybean burgers - life is so good. But I digress.

I have since relocated Weinberger 1-7, a planetary of size 17 arcseconds, and an undetermined magnitude. It has a central star shining brilliantly at mag 21. Having relocated it, and viewing it are two different animals though. So began my search for other planetaries within the constellation Scutum. I have since compiled a list of 39 from various sources and have included them in this posting. There is not a single one that has an NGC designation, and only one with an IC number (IC 1295). The most common catalog designation found is of Minkowski, along with PNG (Strasbourg-ESO planetary), and several others. The magnitude ranges of these 39 planetaries are from 12.2 (Minkowski 1-61) to mag 19.9, with a majority falling within the range from 14 to 16, and several with mag's that have not been determined (from the literature I've come across).

The sizes vary from about 1 arcsecond to 35 arcseconds, and with IC 1295 the largest at 90". These Scutum planetaries are on my visual and CCD imaging agenda, and if I can manage to find some reasonably dark skies (and cooperative weather) to pursue them over the next month or so, I will post my progress on a future post. In the mean time, any observations of these ghosts in the Heavens are certainly welcome, either by an email or a posting to s.a.a. I am sure we all need more astronomical challenges, right? BTW, there is a FINE article on planetary nebula in the July, 1996 issue of Sky & Telescope. I cannot address all the viewing techniques for planetaries, but be sure to have at least an OIII filter, and an UHC filter for some planetaries that have high surface brightness. Another excellent article on planetaries appeared in the Summer, 1986 issue of DeepSky (Thank you, Jack Marling!) So this is just more info to mull over in your astro life (don't we just love data!), and if you want some planetary challenges within a small area of sky, the list follows (on the next page). Good hunting!

Planetaries in the constellation of Scutum (a list of 39)

	RA (2000.0)	DEC	Mag	Size	Misc*	Class**
PNG 19.9+0.9, Minkowski 3-53, SA3-132, PK19+0.1	18 24 07.8	-11 06 45	19.5p	4.6"	2	
PNG 16.4-1.9, Minkowski 1-46, HE2-401, PK16-1.1	18 27 56.7	-15 32 57	14.6p	11.0"	12.8	4+2
PNG 22.5+1.0	18 28 35.0	-08 43 24	18.0p	17.0"		
PNG 16.9-2.0, SA3-134	18 29 19.7	-15 07 40	16.4p	---		
PNG 20.2-0.6, Abell45, PK20-0.1	18 30 14.7	-11 37 08	---	4.8'	21.1	3b
PNG 23.9+1.2	18 30 30.4	-07 27 41	---	---		
PNG 21.8-0.4, Minkowski 3-28, SA3-136, PK21-0.1	18 32 41.1	-10 05 49	14.3p	9.0"	20.1	2+3
PNG 18.6-2.2, Minkowski 3-54, SA3-137, PK18-2.1	18 33 03.7	-13 44 20	16.6p	5.5"		
PNG 21.7-0.6, Minkowski 3-55, SA3-138, PK21-0.2	18 33 14.6	-10 15 07	19.9p	7.2"	20.7	2
PNG 20.9-1.1, Minkowski 1-51, HE2-411, PK21-1.1	18 33 28.8	-11 07 22	16.7p	9.5"	3	
PNG 17.7-2.9, Minkowski 1-52, SA2-346, PK17-2.1	18 33 58.3	-14 52 26	15.5p	6.6"	2	
PNG 19.2-2.2, Minkowski 4-10, SA2-347, PK19-2.1	18 34 13.8	-13 12 25	15.0p	1.2"		
PNG 27.7+0.7, Minkowski 2-45, SA3-141, PK27+0.1	18 39 21.7	-04 19 50	17.8p	6.4"	21.0	2
PNG 22.1-2.4, Minkowski 1-57, SA2-356, PK22-2.1	18 40 20.1	-10 39 47	13.5p	8.4"	16.3	2
PNG 23.8-1.7, SA3-144, KOH3-11, PK23-1.2	18 41 07.3	-08 55 59	---	3.0"		
PNG 17.9-4.8, Minkowski 3-30, SA3-143, PK17-4.1	18 41 15.1	-15 33 47	14.6p	17.2"	17.9	4
PNG 25.9-0.9, PK25-0.1, PEREK1-14	18 42 05.5	-06 41 03	19.2p	4.6"	2	
PNG 22.0-3.1, Minkowski 1-58, SA2-357, PK22-3.1	18 42 57.0	-11 06 53	13.9p	6.4"	2	
PNG 23.9-2.3, Minkowski 1-59, SA2-358, PK23-2.1	18 43 20.1	-09 04 49	13.3p	4.6"	2	
PNG 19.7-4.5, Minkowski 1-60, SA2-359, PK19-4.1	18 43 38.1	-13 44 48	14.1p	10.0"	1	
PNG 21.2-3.9, WEIN1-7	18 44 07.4	-12 12 58	---	17.0"	21.0	
PNG 26.0-1.8, PK26-1.2, PEREK2-15	18 45 27.5	-06 56 58	17.4p	3.0"	2	
PNG 26.6-1.5, KOH4-5, PK26-1.1	18 45 35.1	-06 18 30	15.7p	20.0"		
PNG 19.4-5.3, Minkowski 1-61, SA2-365, PK19-5.1	18 45 55.1	-14 27 38	12.2p	1.8"	17.1	1
PNG 25.9-2.1, SA3-145, PK25-2.1, PEREK1-15	18 46 24.6	-07 14 34	16.1p	5.0"	16.2	2+3b
PNG 24.8-2.7, Minkowski 2-46, SA3-146, PK24-2.1	18 46 34.5	-08 28 02	18.3p	4.4"	3	
PNG 26.3-2.2, SA2-366, PK26-2.1, PEREK1-16	18 47 32.3	-06 53 56	14.1p	7.6"	15.5	2b
PNG 24.3-3.3, SA3-147, PK24-3.1, PEREK1-17	18 47 48.3	-09 09 08	16.7p	5.0"	3+2	
PNG 27.3-2.1, SA3-148, PK27-2.1, PEREK1-18	18 48 46.6	-05 56 04	15.9p	6.8"	2a	
PNG 20.7-5.9, SA1-8, SA2-370	18 50 44.2	-13 31 02	14.5p	8.0"	14.1	
PNG 26.5-3.0, SA2-368, PK26-2.3, PEREK1-19	18 50 44.8	-07 01 32	15.2p	4.4"	16.4	2
PNG 21.1-5.9, Minkowski 1-63, SA2-371, PK21-5.1	18 51 30.6	-13 10 37	14.3p	4.2"	2	
PNG 27.3-3.4, Abell49, PK27-3.1	18 53 28.8	-06 28 53	16.7p	35.0"	21.0	2c
PNG 27.4-3.5, SA2-372, PK27-3.2, VYSSOTSKY1-4	18 54 01.9	-06 26 21	13.5p	15.0"	15.6	1
PNG 25.3-4.6, SA2-374, KOH4-8, PK25-4.1	18 54 20.0	-08 53 32	14.2p	---	---	
PNG 25.4-4.7, IC1295, PK25-4.2	18 54 37.0	-08 49 37	15.0p	90.0"	15.5	3b+2
PNG 28.2-4.0, SA2-377, PK28-4.1, PEREK1-20	18 57 17.2	-05 59 41	16.3p	6.4"	4	
PNG 24.2-5.2, Minkowski 4-11, SA2-373, PK24-5.1	18 54 17.3	-10 05 11	14.9p	21.0"	18.7	2
PNG 28.7-3.9, SA3-150, PK28-3.1, PEREK1-21	18 57 50.0	-05 27 37	16.9p	8.6"	4	

* Mag of central star, if known and/or present

** Class:

1. Stellar image
2. Smooth disk (a, brighter toward center; b, uniform brightness; c, traces of ring structure)
3. Irregular disk (a, very irregular brightness distribution; b, traces of ring structure)
4. Ring structure
5. Irregular form similar to a diffuse nebula.
6. Anomalous form.

More complex structure is characterized by combinations of codes, such as "4+2 (ring and disk), or "4+4" (two rings).

Class descriptions provided by Sky Catalogue 2000.0. Copyright Sky Publishing Corp.

Fremont Peak, 15 June 1996
by Jay Freeman

I was at Fremont Peak on June 15-16, accompanied by six friends who were interested newcomers, including two from the comet-hunting expedition that prompted my "owls and dragons" writeup. It is always interesting to see what appeals to beginners.

There was some possibility that more than six were going to show up, so I was well prepared. I brought a car chock full of telescopes. I had three small refractors -- my 90 mm f/9 Vixen fluorite on a driven Super Polaris mounting, the "Scotch Tape" 60 mm f/11.7 on an altazimuth mount (so named because it is a Modified Monolux (with Meade objective), which makes it "3-M"), and my 63 mm f/5.6 "Baby Brandon" on a photo tripod. I also had three binoculars, but did not use them at all.

I had the Vixen and the 60 mm set up before dusk and spent a while explaining their operation. The clutches, slow-motions, drive-engagement knob and focuser of the Vixen were a little bewildering to some, but the rather simpler arrangement of the 60 mm (which does have clutches and slow motions on both axes) was easier to understand. I have to sympathize -- the Super Polaris bewilders me often enough.

"Star light, star bright, first star I see tonight..." On spotting Arcturus, I brought it into a 25x field on the Vixen and let people stare at it, just to learn what a plain vanilla star looked like, and to get some experience focusing. By the time everybody had looked, it was dark enough to spot Mizar, and a 25x view showed what double stars were about and gave the opportunity to look at a pair that (at 25x) took a little staring to be sure you were seeing it. Then I put in some more magnification and we looked at some other doubles -- epsilon Bootes was pretty in the 90 mm at 202x, and everybody could see color, while epsilon Lyra was a little more demanding but still resolvable.

I had put a 41x eyepiece in the 60mm and made it available for free use, and was glad to see that at least one of the group was trying it out. He didn't know any constellations, and did

not have an atlas, but nonetheless was able to find small naked-eye asterisms and what-not for himself. I was glad I had remembered to line up the finder. After a while he remarked "I can see how this could get to be addicting." Heh, heh, heh, little does he know...

After epsilon Lyra we looked at M13 and the Ring Nebula, with lower magnification. Most everybody could see the hole in the ring, and were wowed by the celestial swarm of bees of the big globular cluster. For a larger "cluster", I swung the telescope toward Coma Bernices, still high in the west, and found NGC 4565. The needle-like line of the edge-on spiral was obvious to me, with central bulge, star-like nucleus, and dark dust lane, and some of my friends could see the detail as well. Then I turned them around and pointed out a naked-eye edge-on spiral, our own Milky Way, rising in the east, with dark lane and nuclear bulge prominently visible. That's usually good for an "ooh".

By this time, they were starting off to look at some of the other telescopes set up. Since it was a good dark night, we probably had fifty, up to and including the 30-inch Challenger Telescope in the observatory. The largest portable (ahem) was a 22-inch Dobson, having first light. So I looked at other things on my own for a while.

Yet people liked the Vixen, and kept coming back to it. When I was chasing double stars in Coma Bernices, one of my group wandered by and asked what I was looking at. I hadn't found the double yet, but I took the opportunity to show a very demanding object well. I had two globular clusters -- M53 and NGC 5053 -- in the same low-power field. M53 is a fairly bright Messier object, but 5053 is much fainter even though it is the same angular size. It is one of the most intrinsically faint globulars known, with total brightness of only about 16000 times the Sun. Many globulars are over a million. But I could see it (90 mm, 25x), and so could he.

Later in the evening, with the Milky Way well up, we found some more stuff. Jupiter was very nice, with several belts and lots of detail at 202x. At lower power, I showed the Lagoon Nebula and talked about star formation from

dust and gas. We looked at the Trifid, and several could detect color contrast between the two lobes, but weren't sure what it was. The vote favored warm-color/cool-color for the two lobes which photograph red and blue -- not bad for 90mm and 25x. I found comets Hale-Bopp and Kopff, both in eastern Sagittarius, and told my friends to come back in nine or ten months and maybe we would have something just as spectacular as Hyakutake.

After they had left or gone to bed, I packed the telescopes and wandered around. Joe Sunseri had a newly-acquired 10-inch Cave Cassegrain, a 1960s-vintage instrument with optics allegedly by A. Herring. It was massive enough to make Joe's 10-inch Russian Maksutov look petite, with lots of heavy castings, all chrome plated. I thought it needed tail fins and a hood ornament. The Cave was under mounted, on a Cave mount that should have been restricted to smaller apertures, so we couldn't test the optics very well.

Behind the ranger's house were so many telescopes you could scarcely turn around. There were at least three fluorite refractors, up to a five-inch Takahashi, and 5- and 6-inch Astrophysics ED triplets. Kevin Medlock had a prototype Celestron Ultima 2000 -- I teased him about getting hold of one four years before the shipping date. The Takahashi 5-inch was equipped with a Zeiss binocular viewer, which gave a nice view of Jupiter, though I am not convinced there was any benefit to spitting the light between two eyes. I had brought with me my 63 mm Brandon on its light tripod, with a 17 mm Plossl eyepiece. It drew several compliments for portability (I demonstrated picking up the whole thing with one fingertip) and for wide-angle views crisp across the field.

It was a good night.

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A Night with the Sky Wizard

by Bob Madden

It began with a telephone call one afternoon not long ago. The voice on the other end was somewhat hard to understand as it had a southern accent, well actually an Australian accent. It was Roger Davies of Melbourne visiting the USA for the first time asking about the San Jose Astronomical Association. I explained there were several places to visit and when our August general meeting was to take place. Roger was destined to be our featured speaker that night. Roger began by telling us about astronomy "down under", including the Royal Astronomy Society of Australia, the "goings on" around Melbourne and what it was like observing with Australian Opossum (different than ours) running up your back and out your telescope OTA and the lights of 'Roo hunter's auto coming down the road. shades of Crocodile Dundee.

At the end of the meeting I was asked if I had taken Roger to Fremont Peak to see the 30-inch Challenger telescope. I hadn't because Roger or I couldn't find time and I didn't know if there was someone who could open the observatory for us. As it turned out there was an offer for Sunday night, August 4th. We would use the 30-inch if it was available. The details of the trip were settled.

Roger arrived at the predetermined time of 6:00 pm for the 1-1/4 hour drive to the Peak. I had packed, eaten supper and was waiting for him. The drive was interesting with Roger chatting away with more stories of Australia and his observing episodes. We noticed the traffic on 101 was all heading north and it was slow. We whizzed past Gilroy to the San Juan Bastistia turn off and began the climb to the peak. We noticed there was considerable wind and weren't sure what the observing would be like. We were to meet our Sky Wizard around 7:30. The Wizard brought his own 17-inch Dobsonian in case the Challenger was reserved. At the first turn out we could see to the west and Roger's breath was taken in. He was amazed at the view of the fog coming in from the Pacific Ocean and listened to

me tell how the fog blankets the lights of Watsonville and Santa Cruz which can make seeing much better.

We hurried on, wanting to arrive in time. As we turned into the drive way to the observatory we saw our host standing there talking to someone. We found that someone did have the Challenger reserved for a high school senior group. We would be welcome, but could not operate it. Because our Sky Wizard brought his telescope we decided we to set up behind the shop. Other than the group at the observatory there was no one else around. Later a ranger and towtruck would show up and leave before dark, but we were essentially alone, the way I like it.

The wind was blowing pretty good and it began to be cool. Jupiter was the first to turn on as we put on light sweaters and jackets. A quick check showed us the telescope only needed a slight tweak of collimation and it was "Lets look at Jupiter to check the viewing." "Humm, it was to low and there was too much disturbance." "It will get better when higher and later on this evening." Next was Alberio. Bingo! We had it in all of it's twin glory. The purpose of this night was to give Roger a tour of the skies he couldn't see at home. We had binoculars and could look into our southern skies all we wanted to, but for him it was the northern skies. We moved on to the Veil Nebula with an O-III filter installed. What a sight! Roger could not keep from saying how beautiful each view was. There were many galaxies to be shown, M101, M81, M82, small ones and big ones up to Andromeda, more nebula interspersed with talk about the southern skies, including the Large and Small Magellenic clouds. As the night progressed the wind calmed to a whisper and warmed a little.

Our Sky Wizard was Jack Zeiders, and he demonstrated his proficiency and knowledge of our skies. It was more fun than a barrel of Australian Opossums. With only three observers Jack would quickly change power, show a view and move on. I enjoyed listening to Jack's and Roger's chatter. I felt I was witnessing an occasion perhaps few had. Jack brought chairs, Peets coffee and cookies. I have no

idea how many times I stood at Jack's eyepiece - 50, 75 times. I am sure Roger will remain in awe of this night.

Around midnight the light from the third quarter moon began to brighten the sky over the observatory. It was time to think about quitting. One last object to see, Hale-Bopp. Roger and I said goodbye to Jack and we started down the hill with Roger still chattering away - "Good, he'll keep me awake." As I turned off of 101 onto Hwy 85, Jack gave us a toot and blink of his lights. Jack had personally given us a wonderful evening. I climbed into bed a little after 2:00 am in the morning and laid awake for at least 1/2-hour thinking about the sights we had seen. It may have been a normal night for Jack, however, for us it was wonderful tour. Thanks, Jack, I'll never be able to repay you. You really are a Sky Wizard.

Shadows in the Dust

By Bill Arnett

Last night (Aug 17/18) the San Jose Astronomical Association had its regular monthly dark sky party at Henry Coe State Park just south of San Jose CA. I brought my 12" LX200...

I got there just after sunset and began to set up. Right away I hear off in the distance: "Is that an LX200? Yeah, it looks like an LX200..." For the next half hour or so I was making slow progress setting up in between talking to the newbies and apologizing for not being able (yet) to show them anything. But what the heck, if I wanted to be alone and bag 100 objects/hour I could have gone up on Thursday night :-)

The site where we set up is being all torn up for some construction (someone said a new house for the ranger). It was incredibly dusty. I hate setting up on dirt and this was worse than usual. I had been at the same site a couple months back and it was OK; dirt but hard-packed. Last night was really yucky, a layer of dust covered the whole area. By the time I got home my tripod, observing chair and accessory power box were all covered with fine dust. There was even some in my com-

continued on page 6, see Shadows 

puter. My optical surfaces seem to have survived, at least. Maybe it will be better when the construction is done. Meanwhile, I'll stick with the parking lot near the campground instead.

Shortly the distant voices started saying: "The Red Spot should be visible about now... Yeah, there it is!" So I decided once again to skip my planned experiments with alignment methods and quickly got my scope pointed at the King of Planets. "Gee, the seeing's pretty good tonight!" I thought, "I'll try jacking up the power." I was able to hold a reasonably clear image at 600x, though I thought it really looked better at 330x. But the GRS was very clearly visible with part of the belt on either side. I thought I could see white spots in the SEB and there were definite dark spots in the edge of the NEB, but no festoons that I could see.

There was a family there with a brand new LX50 which had a very strange tripod that they called "a Tuthill" (I guess they bought it from Roger W. Tuthill Co.). It had two long wooden legs and one short adjustable aluminum one. It managed to get the scope approximately polar aligned by simply scooting the legs around to the right azimuth and adjusting the short leg for latitude. Nice idea, but I wouldn't want to rely on it for photography -- I doubt it would be possible to get perfectly aligned. But its probably find for visual work and appeared to be just as easy to set up as an LX200 in altaz mode (and a whole lot cheaper!).

A first for me was seeing real differences between the Galilean moons. Callisto looked definitely darker, Ganymede was clearly larger and Europa clearly smaller. Next time the seeing is that good, I'll try identifying them without first checking my computer :-). Based on what I saw, it should be possible.

Saturn was sporting its usual retinue of faint moons plus Titan. My computer's batteries had died so I'm not quite sure which was which but at least 5 were visible. Jim Van Nuland and I were unsure about Mimas, it would seemingly appear for a moment and

then hide for a while. The seeing had deteriorated badly during the evening but Saturn is always a treat :-)

M31 was amazing. For the first time, I was able to see clearly some dark lanes. And I was able to trace the outer reaches of the disk out much farther than I previously had. M32 and "M110" were very plain, visible even with 8x56 binoculars.

M33 was easy, too. I was able (again, for the first time for me) to see structure in it, too. I suspect it would have been visible naked eye for someone with better eyesight. Too bad the newbies and the younger club members had gone home by then :-)

At about 4am Venus appeared. Its so amazingly bright when up in a dark sky! It makes giant Jupiter look pale. As I was sitting talking to Jim, I though I could see shadows. I held one hand up to the other and sure enough I could clearly see a shadow cast by Venus! I didn't dare point my scope at it for fear of retinal damage :-). (I did peek at it later as the dawn came up; it is about 1/2 phase now. Its too bad Venus has all those clouds, it would be a nice sight if we could see the surface.)

Finally, just before dawn, we got a shot at Orion for the first time since winter. M42 was its usual glorious self. Jim made my day after looking at it with his 8" and my 12" by saying, "Aperture does have its virtues." I paid a lot for those extra square inches. They make a difference when looking for faint fuzzies but pay off pretty big on the easy stuff, too. NGC 1973/75/77 (which is often mistaken for M43) was pretty easy, too.

All in all, a nice night. Good fellowship, some good seeing, happy newbies, (too much dust), and Cytherian shadows. Amateur astronomy is a cool hobby -- there's always something new!

-- A Smokin Good Star Party! -- by Mark Wagner

The 3rd Annual Mount Lassen Dark Sky Star Party rewarded those who had patience. Although early on there was plenty of room for doubt, the seeing was at times absolutely spectacular.

Perseverance, or just survival instinct was my frame of reference for this year's trip. On the way to Lassen, we lost the radiator in our truck. Can you imagine 4pm, 112° F just south of Redding, the vehicle packed to the roof, and my wife, two kids and sister-in law inside? Fortunately, we had left one day early, so spending a night in Redding and obtaining a new radiator the next morning was only a matter of money and ultimately a minor inconvenience.

So, instead, we arrived in camp early Wednesday. Jim Bartolini and John Hales were already there. Hales had spent the prior night at Lassen, and was doing what I had been... watching the thunderstorms rain lightning bolts to the north and west, illuminating the entire sky. This, of course, triggered many fires. The largest sent a huge plume of smoke above Lake County to our west, which gradually drifted to our skies. But, back to the observing and rest of the trip...

Wednesday night, we all assembled at Devastated Area for observing. The seeing was soft, with smoke on the horizons and thin layers overhead. Most of us were tired from the drive, setting up camp and enjoying Hales' (Brewer John) home-made ale. John has quite a knack for brewing! So between midnight and 1 am, I would guess most of the crew turned in.

continued on page 7, see Smokin



ASTRONOMY Magazine Subscriptions

If you want to get Astronomy magazine at club rates (only \$20) send a check to Jim Van Nuland (make the check out to Jim). Send along your renewal notice or your mailing label if

you currently subscribe. New subscriptions just need a check and a mailing address. If you have a private subscription that will expire during 1997, you may convert to the club rate.

Jim needs the checks mid September.

Thursday we had our group dinner. At least 40 of us dined on hors d'ouvers, BBQ salmon and london broil, various salads, wine, sparkling cider, home-made breads and cookies for desert. Dinner was very enjoyable. Steve and Yoshiko Deiwert thoughtfully set up a table at the observing area and served hot coffee, tea and cocoa for all. What a treat! Only if the sky was as gracious as the Deiwerts! By midnight, the south sky disappeared. The smoke layer soon blanketed us high above, making the Milky Way look more like views on bad nights at Fremont Peak, instead of the great darkness and transparency of we've had at Lassen. Back to camp early (1 am or so), and yacking and enjoying a few beverages till late, by starlight and the red glow of our flashlights.

Friday. What an experience. My son wanted to go fishing, I know where the locals go, and I had a promise to keep. So, away we drove, over the 10,500 foot summit next to Lassen Peak, south past Bumpass Hell, Sulfur Works, and out of the park. A few miles beyond Mineral, I turned right onto the dirt road that leads to Battle Creek, home of the feistiest trout in the area. But wait... a locked gate! Argh.... another case of litigation ruining access, no doubt!

So, back we drove, to fish in the shallows upstream, without success. Then, driving back into the park, the truck began pouring coolant again. Two hours later, hot and filthy, I knew that it was not the water pump or radiator, which meant a ride in a tow truck and night in Red Bluff for me. A call to the rangers on the other side of the park resulted in SJAA members Haro Schmidt and Pat Connelly rescuing my family and returning them to our campsite. Thanks again guys! Maybe a better choice for the day would have been to go with others on a tour of Hat Creek Radio Observatory, which was organized by Robert Shelton. I heard it was a very interesting and enjoyable trip. Maybe someone will write up that excursion for the Ephemeris?

After spending a Friday night in

the "nightlife capital of Northern California", I found myself Saturday morning at Red Bluff's GM dealer. After hours of searching, a pin-hole was found in the heater line. A quick weld and I was headed back to Lassen again. And, what an arrival! Most of our group was sitting by Ed Erbeck's tent near the road, and stood up cheering as I pulled in. Richard Navarrete was there with an enormous bottle of ice-cold beer for me. Even Jack Zieder's ribbing "what's the leak under your truck?" remark was perversely enjoyable! Then, from in back of the campsite, my wife and daughter came running up to greet me. It felt great to get back with the group and have such a warm reception.

After a good dinner, and that cold refreshment, we headed out one last time to the observing site. We were all looking hopefully at a promisingly clearing sky. This was the night of the public star party. Even before sunset park visitors were pulling into the parking lot and looking over the telescopes. We knew to expect a good crowd, as the rangers had announced the star party at their talks, and our posters were up on park bulletin boards announcing the event.

Once dark set in, the crush of people was unbelievable. I was laughing out loud. I couldn't get my scope off M57! There was no break for a good couple of hours. I had looked in Burnham's to learn a bit about The Ring so I could answer questions, and I can now say, after repeating hundreds of times what I'd read, I now know more about the Ring than any other celestial object. Estimates of crowd size ranged from 300 to 500 people. All were well behaved, considerate and interested. I had another laugh at Alan Nelms, who needed to take a break, after being swamped by the crush of people. This event was great experience in a great location.

What really made it so good was, thankfully, a cooperative sky. And once the crowds went back to their campsites, we, the intrepid remaining members of this year's star party, were rewarded with the best skies I've seen since last year's trip. M33 showed so much structure I could barely take my

eyes off it. Same for M101. Alan and I worked Hershel objects for hours. Dean Linebarger's 20" and John Kuklewicz's 18" were sucking in Hickson clusters. It was intense but enjoyable observing for about three and a half hours. John Gleason was doing astrophotography with his 6" AstroPhysics. Hales was shooting using the JMI 18.

Just before tear down, we all went over to Kuklewicz's scope for an astonishing sight. There was the Veil Nebula, with so much detail it was mind boggling. Then, John said.... "that's without an OIII filter." Impossible! It was so contrasty and full of intricate filaments! Then Gleason brought over a 35 Panoptic with an OIII and dropped it in. That sight alone, I'm sure, sold everyone on returning next year. Next, John put in a UHC filter and jumped up to the North American Nebula. It was so thick and detailed that not only was the NA easy, but the Pelican was obvious too. They looked like warm white frosting on a black cake. Navarrete joked about sending Jack Marling a new quote "look, I can see the dolphins in the gulf!"

Back at camp, we had a few drinks, talked about the trip, and looked up overhead at the dark black dust areas north of Cassiopeia. Fingers of black crept into the Milky Way everywhere along the Cygnus Rift. I could follow, naked eye, the dark lane leading from northwest of Deneb back to the location of the Cocoon Nebula. You don't see that at home! What a great night.

The drive back home was easy. Four and a half hours including two short stops.

Thanks to all who came and those helped make this year's trip so much fun: the Rangers and fine staff of Lassen National Park, Dean Linebarger, Terry Kahl, Richard Navarrete, Rich Neuschaefer, Alan Nelms, Ed Erbeck, John Hales, Doug Ferrell, Bruno Beinenfeld, Ray Gralak, John Kuklewicz, Haro Schmidt, Pat Connelly, Robert Shelton, John Gleason, Ken Miura, Jim Bartolini, Kevin Medlock, Jack Zeiders, Gary Papani, Robert Hoyle, Gary Madison and Tony Cirone, and all your wives and children! See you all there next year.

COMET COMMENTS

by Don Machholz

Celestial Calendar - Sep1996

by Richard Stanton

Comet **NEAT**, discovered March 16 by a CCD camera attached to a 39-inch telescope atop Mt. Haleakala in Hawaii, has brightened to a magnitude that is observable in amateur's scopes. NEAT stands for Near-Earth Asteroid Tracking, it was designed to detect earth (orbit) crossing asteroids and comets. The equipment for this project, funded by both JPL and the U.S. Air Force, consists of a CCD camera and electronic scanning software. It is one of several new comet and asteroid discovery systems currently being developed.

Meanwhile Comet **Brewington** remains in our evening western sky while Comet **Kopff** fades in our evening southern sky. Comet **Hale-Bopp**, still some 250 million miles away from us, is visible to many astronomers without optical aid. A telescope shows a coma that is about a quarter-degree in size and a tail nearly a half-degree long. The comet is slowly moving northward; it remains within eight degrees of the equator until early 1997.

C/1995 O1 (Hale-Bopp)

DATE	R.A.	Dec	EL	Sky	Mag	22P/Kopff	R.A.	Dec	EL	Sky	Mag
00 UT 2000						2000					
08-25	17h44.2m	-06°59'	113°	E	5.4	19h42.9m	-24°02'	141°	E	8.2	
08-30	17h40.3m	-06°40'	107°	E	5.4	19h48.3m	-24°10'	138°	E	8.4	
09-04	17h37.0m	-06°22'	102°	E	5.3	19h54.2m	-24°13'	134°	E	8.6	
09-09	17h34.4m	-06°05'	96°	E	5.3	19h00.7m	-24°11'	131°	E	8.9	
09-14	17h32.3m	-05°49'	91°	E	5.2	19h07.6m	-24°03'	127°	E	9.1	
09-19	17h30.9m	-05°33'	86°	E	5.1	19h15.0m	-23°52'	124°	E	9.4	
09-24	17h30.0m	-05°19'	81°	E	5.1	19h22.7m	-23°35'	121°	E	9.6	
09-29	17h29.7m	-05°04'	77°	E	5.0	19h30.6m	-23°15'	118°	E	9.9	
10-04	17h29.9m	-04°50'	72°	E	4.9	19h38.9m	-22°51'	115°	E	10.2	
10-09	17h30.6m	-04°35'	68°	E	4.8	19h47.3m	-22°23'	112°	E	10.4	

C/1996 N1 (Brewington)

DATE	R.A.	Dec	EL	Sky	Mag	C/1996 E1 (NEAT)	R.A.	Dec	EL	Sky	Mag
00 UT 2000						2000					
08-25	14h16.3m	+45°48'	62°	E	9.7	09h30.9m	+76°27'	66°	M	10.4	
08-30	14h35.7m	+48°31'	64°	E	9.9	10h29.9m	+79°57'	71°	M	10.3	
09-04	14h57.1m	+50°59'	67°	E	10.1	12h32.8m	+82°32'	76°	E	10.3	
09-09	15h20.8m	+53°09'	70°	E	10.3	15h29.7m	+81°44'	81°	E	10.3	
09-14	15h47.2m	+55°01'	73°	E	10.5	17h20.6m	+77°13'	86°	E	10.3	
09-19	16h16.6m	+56°30'	77°	E	10.7	18h14.5m	+70°51'	91°	E	10.3	
09-24	16h48.9m	+57°33'	80°	E	10.9	18h44.8m	+63°36'	95°	E	10.3	
09-29	17h23.7m	+58°06'	84°	E	11.1	19h04.7m	+55°57'	98°	E	10.5	
10-04	17h59.9m	+58°04'	88°	E	11.3	19h19.2m	+48°17'	100°	E	10.6	
10-09	18h36.3m	+57°27'	92°	E	11.5	19h40.6m	+34°12'	99°	E	101.0	

Orbital Elements

Object	Hale-Bopp	Kopff	Brewington	NEAT
Peri. Date	1997	1996	1996	1996
	03 31.86770	07 02.19980	08 03.42997	07 27.36189
Peri. Dist (AU)	0.9170703	1.5795617	0.9257232	1.3585919
Arg/Peri (2000)	130.40061°	162.83487°	043.97835°	81.12936°
Asc. Node (2000)	282.46983°	120.91329°	234.91014°	149.84329°
Incl (2000)	089.38442°	004.72143°	052.13812°	114.47220°
Eccentricity	0.99674010	0.5440739	1.0	1.0005638
Orbital Period (yrs)	4700	6.45	long period	long period
Source	MPC 26879 (3-26)	MPC 22032 (1991)	MPC 27542	MPC 27428

Lunar Phase	time (utc)	date	rise (pdt)	trans	set
LQ	19:07	04	21:45	05:33	13:27
NM	23:07	12	05:04	11:43	18:10
FQ	11:24	20	13:54	18:17	22:42
FM	18:51	26	17:40	23:54	06:21

Mercury				Dist: 0.64AU.	Mag: -1.8	
date	rise	trans	set	RA	Dec	
07	08:15	14:02	19:49	12:04.0	-05:04	
17	06:55	12:55	18:56	11:17.4	-01:03	
27	05:44	12:00	18:18	11:19.7	+04:16	

Venus	Dist: 0.92AU			Mag: -4.7	
07 03:04	10:09	17:14	08:09.3	+18:24	
17 03:16	10:15	17:12	08:52.7	+16:36	
27 03:31	10:20	17:09	09:38.0	+13:57	

Mars	Dist: 2.02AU				Mag: +1.0	
07 02:48	10:03	17:19	08:04.0	+21:20		
17 02:40	09:50	17:00	08:29.2	+20:06		
27 02:31	09:36	16:41	08:54.4	+18:38		

Jupiter	Dist: 4.84AU			Mag: -2.3	
07 15:47	20:32	01:21	18:34.4	-23:24	
17 15:09	19:54	00:43	18:35.6	-23:24	
27 14:32	19:17	00:06	18:38.1	-23:22	

Saturn	Dist: 8.50AU			Mag: +0.7	
07 20:18	02:25	08:27	00:24.2	-00:12	
17 19:37	01:43	07:44	00:21.6	-00:30	
27 18:56	01:01	07:01	00:18.8	-00:49	

SOL	Star	Type	G2V	Intelligent	Life in
System ?					
07	06:42	13:05	19:28	11:06.0	+05:47
17	06:50	13:02	19:13	11:40.6	+02:06
27	06:59	12:58	18:57	12:16.5	-01:47

Astronomical Twilight		Begin	End
JD 2,450,334	07	05:12	20:58
JD 2,450,344	17	05:23	20:40
JD 2,450,354	27	05:32	20:24

Sidereal Time	Transit Right	Ascension at	Local Midnight
07	00:00	=	21:58
17	00:00	=	22:38
27	00:00	=	23:17

Darkest Saturday Night:	September 14
Sunset	18:27
Twilight End	20:45
Moon Set	18:56



Telescope Loaner Program Status
by Paul Barton

No.	Scope Description	Borrower	Due Date
1	4.5" Newt/P Mount	Glenn Yamasaki	10/6/96
3	4" Quantum S/C	Stephen Shoop	9/23/96
6	8" Celestron S/C	Michael Law	10/11/96
7	12.5" Dobson	Tim Sanstrom	10/9/96
8	14" Dobson		available
9	C-11 Compustar		see note 1
15	8" Dobson	Bob Elsberry	due back
16	Solar Scope		see note 2
18	8" Newt/P Mount	Being Upgraded	
19	6" Newt/P Mount	Steve Wurzburg	10/3/96
21	10" Dobson	Mark Wagner	9/10/96
23	6" Newt/P mount	Larry Hinkle	9/1/96
24	60mm refractor	Sridhar Lakshmikanthan	10/25/96
26	11" Dobson	John Linthicum	due back
27	13" Dobson	Bob Bart	10/26/96
28	13" Dobson		available
29	SP-C8 Optical Tube	Jim Bartolini	indefinite

Waiting list: Jim Harford wants 6" Dob

All scopes are available to any SJAA member. Call Paul at 377-0148.

Dick Lee donated a new condition SP-C8 optical tube assembly. The loaner scope program needs a tripod and German Equatorial mount for this tube assembly. If you have one you'd like to donate, please call Paul Barton.

Notes:

- 1). Need an operator for #9, club's C-11. Must be fairly experienced and willing and able to go to most of the public star parties.
- 2). Solar scope is available for special occasions.
- 3). Did you notice how really dark it was Saturday evening (July 10th) when all the power was off?

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No Sprinklers at Houge

By Rich Neuschaefer

This afternoon (July 15, yes the editor is slow sometimes...) I spoke to Mr Martines of the Parks department and he said he has told his people to turn off the sprinklers at Houge park on Fridays.

He said they are trying to work out a problem with their system and until then it will be better just to turn off the sprinklers rather than have them come on after 1am.

Astro Ads

6" f/8 Newtonian reflector, equatorial mount, clock drive, aluminum tube and 27mm eyepiece. Asking \$250.
David 408-732-1489.

10" f/4.5 Newtonian reflector, optical tube assembly (no mount). Fiberglass tube, spider and diagonal. Asking \$250.
David 408-732-1489.

Celestron 5 Telescope: Excellent Celestial Photography, Special Coatings, 12 & 25 mm oculars, tripod, Wedge, Case, Camera Adapter, Spotting Scope. Makes excellent 1300mm Camera lens, paid \$1400 in 1987, Asking \$850.
Rick 408-377-3717

Celestron 5-inch Schmidt Camera w/ mtg rings, including Kevin Medlock's improvements. Firm at \$1000.
Bob Madden 408-264-4488.

Celestron SP102 refractor, (4 inch), Super Polaris mount (no drive), wood legs, 6x30 finder, 20mm eyepiece. Mint condition, \$985. Will consider a good alt-az 60 or 80mm refractor, or a 6 to 8 inch Dobsonian reflector. Joe Goetz, 21548 E. Floral Avenue, Reedley, CA 93654
Joe 209-591-5721.

Astro-Physics 155mm f9 EDT APO, optical tube assembly. Great condition, beautiful images. This is a Super ED triplet APO. Comes with case, 2" and 1 1/4" Astro-Physics adapters.
Rich (w)408-285-0730

Wanted: 10 inch Coulter (must be a Coulter, so base will fit in my car's trunk).
David 510-756-7232

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Members are encouraged to submit articles for publication in the SJAA Ephemeris. Send articles to Lew Kurtz (via e-mail to lewkurtz@aol.com; fax -

720-9726; or a text file on a 3-1/2" diskette; or typed or hand written to 1336 Bobolink Circle, Sunnyvale, CA, 94087). Articles received by the 10th

will be put in the following month's newsletter. Please include your name and phone number.

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