



SJAA EPHEMERIS

Anti-Vibration Pads

Bill Arnett

I did a little experiment with Celestron vibration-damping footpads at a recent star party at Fremont Peak.

I had heard a lot of hype about these things but I had also heard they don't help much with the giant Meade tripod. I put in a high power eyepiece and focused on the pole on the top of the Peak. A sharp one-finger tap on the fork arm produced a wiggle that lasted for maybe two seconds before damping out.

Then I borrowed a set of the vibration pads from Robin Casady. The same tap now damped out in less than a second! (In fact, I didn't actually time it; the difference was way too obvious to be worth quantifying.)

Conclusion: the pads really do do what they're supposed to. If my brain wasn't so cold, maybe I would have thought to check to see if they helped with wind induced vibration, too. We certainly had ample opportunity for the experiment that night!



Mystery Dome At Houge

Timocharis

Beause seeing and public interest were in rare conjunction, we did some "real" moon observing at Houge Park on May 16.

Even the visitors wanted to play!

It all got started when Jack Zeiders set up his 17" dob near my C8. We traded views via "LipNet," and spotted some interesting things. This was the "hook" at the great moon sideshow.



continued on page 3, see **Moon**

SJAA Activities Calendar

July

- 5 Star parties at Henry Coe and Fremont Peak. Sunset 8:30 pm, 2% moon sets 9:06 pm.
- 11 Houge park star party. Sunset 8:30 pm, 43% moonset 12:28 am.
- 12 Beginning Astronomy Class, Craig Wandke's introductory moon talk. 8pm at Houge Park.
- 19 General meeting at Houge Park 8pm; Ernie Piini will describe his Mongolian eclipse trip. Open board meeting 6:30 pm.
- 25 Houge park star party. Sunset 8:21 pm, 57% moonrise 12:15 am.

August

- 2 Star parties at Henry Coe and Fremont Peak. Sunset 8:12 pm, moon absent. AANC Star-B-Que at Peak. SJAA and other clubs can participate.
- 8 Houge park star party. Sunset 8:08 pm, 28% moonset 11:01 am.
- 9 Beginning Astronomy Class thoroughly covers use of Charts and Software. 8pm at Houge Park.
- 16 General meeting 8pm, Bob Fingerhut on Photography. Open board meeting 6:30 pm.
- 22 Houge star party. Sunset 7:50 pm, 71% moonrise 11:34 am.
- 30 Star parties at Fremont Peak, Coe. Sunset 7:37 pm, 3% moonrise 5:26 am.

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

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

Monocentric Eyepieces

Jay Freeman

At Fremont Peak State Park, near San Juan Bautista, California, on the evening of 31 May, 1997, several of us had planned an informal series of eyepiece comparison tests.

Joe Sunseri brought an eyepiece I was most curious about. The unit was a 12 mm monocentric, made by the Russian company, Intes. Monocentrics have the reputation of small fields, superb correction, and extremely low scattered light -- qualities that might make them valuable specialized eyepieces for the dedicated observer of planets or double stars. I had never seen one, and was anxious to see whether the claims were true.

Strictly, "monocentric" is a technical term, not an eyepiece name -- it means that all the lens surfaces involved in the design have their centers of curvature at the same physical location, or very nearly so.

One specific design, the Steinheil monocentric, uses several extremely thick pieces of glass cemented together; the resulting assembly is much thicker than its diameter. Others merely resemble fairly thick multi-element magnifying glasses, such as Hastings triplets.

The unit Joe had was not a Steinheil (yes, I took it apart). It appeared to be a cemented triplet, with nicely blackened edges and very odd-colored coatings, almost the blue-green of a nice, fat, house fly. The designers had worked hard at eliminating stray light. The triplet was mounted between front and back retaining surfaces, with some 5 or 10 mm of clearance between its edges



continued on page 2, see **Monocentric**

and the metal parts of the housing. Those parts were also well blackened, and threaded, too. All this, plus only two air/glass interfaces, gave the prospect of good performance.

I dropped the eyepiece into my Intes, and pointed it at Vega. The field of view was indeed narrow: No port-hole on the universe this, the vista was more like looking up from the sewer through an open manhole. Apparent field was only about 30 degrees.

Use of such eyepieces would require a good finder or finding eyepiece, and either a sidereal drive or extremely fidgety fingers with a Dobson. Furthermore, the design had a prominent out-of-focus ghost image.

The ghost was at most an annoyance -- after a few minutes, we all forgot it was there. It would not interfere with observations of planets or double stars -- the drill is simply to set the object in view a hair away from the center of the field. That separates the ghost from the object in view. Yet I don't think this eyepiece would be suitable for lunar work -- all those ghosts superimposed would likely add significant stray light to the image.

Still, the field around bright Vega sure looked dark. The usual soft glow that surrounds the image of any bright star or planet, was obviously much diminished from what I am used to.

It was time for some comparison tests. I swung the telescope to epsilon Lyrae, the double-double, which was bright enough to provide a glow, and which also gave the opportunity to judge contrast in the dark space between each pair of stars. (Seeing was excellent, and the clouds that plagued us during other parts of that evening were not then about.)

I dug out several eyepieces from my own box, and hollared to other observers to bring other interesting units for test. Besides the 12 mm monocentric, we gathered up a Tele Vue 13 mm Plossl, a 12.4 mm Meade Research-Grade Erfle, a 10 mm Vixen Lanthanum, an 8 mm Brandon (of fairly recent vintage), and a 7 mm Meade Research-Grade orthoscopic.

The monocentric out-darked all the others, showing much better contrast in the narrow black space between each close pair of the double, and less soft glow surrounding each of the pairs itself.

Note that we were *not* attempting to judge background sky brightness -- other things being equal, the higher magnifications should have won easily, just by spreading the light out more. Rather, we evaluated the brightness of the ball of light that more closely surrounds each bright image.

We also switched eyepieces back and forth many times, to be sure we were not merely seeing small variations in transparency instead of real variation in eyepiece characteristics.

The monocentric won, and it was no contest. A distinct second was the Meade 7 mm orthoscopic, followed by the 8 mm Brandon, then a tie between the 10 mm Vixen Lanthanum and the 13 mm Tele Vue Plossl, with the Meade 12.4 mm Erfle last. Everybody was quite impressed with the monocentric, and beginning to be a little disappointed with the performance of several standard favorites.

It's not as good a test to compare eyepieces of different focal lengths as ones of the same focal length -- if any of the glow is due to scattering in the atmosphere or off the optics of the rest of the telescope, then short focal-length eyepieces might obtain an edge, by spreading out that scattered light over a wider area. But we had to test what we could find, and note that the monocentric outperformed all the shorter focal-length eyepieces against which we compared it.

(I should say in passing that I have hearsay reports that at different times, Meade sourced its "Research-Grade" series of eyepieces from several different vendors, so that different year's versions of what is nominally the "same model" eyepiece have substantially different performance. The Meade eyepieces used for this test were my own, and were purchased in 1979 or 1980; your mileage may vary.)

Later in the evening, after I had put the Intes away and set up my 98

mm f/6.7 Brandon refractor (yes, 98 mm -- no typo), another observer came by with more eyepieces.

In that instrument, we compared the 12 mm monocentric with a 7.5 mm Takahashi, a 12 mm Brandon, and the Meade 12.4 mm Research-Grade Erfle. Once again the monocentric won handily. The Takahashi was second -- I did not think to pull out the Meade 7 mm orthoscopic again, but I believe that the Takahashi was approximately as good as the Meade 7 mm with respect to darkness of field. The 12 mm Brandon was third, and the 12.4 mm Meade Erfle last.

I had planned to bring my set of Ramsden eyepieces for our eyepiece comparison night, but forgot.

My old Ramsdens are coated, and seem to give quite contrasty views, probably because they are assembled from military surplus lenses, and the military had no-nonsense specifications about quality of polish. I will try to remember to check the monocentric against a 12 mm Ramsden in the future. I have checked a Ramsden against a Takahashi, and found them comparable in contrast, so the monocentric will probably beat the Ramsden, but likely not by much.

Many of us also wondered how the monocentric would stack up against Pentax's high-end eyepieces, or against units by Zeiss or Clave'. Alas, none were handy for testing. Perhaps some other time.

I think that the bottom line on the monocentric is, that serious observers of double-stars or planets (but not the Moon) should try one. Yet monocentrics are NOT general-purpose eyepieces: The narrow apparent field will impede many uses, and the strong ghost image will bother some.

Notwithstanding, the very low scattered light from sources other than the ghost, will result in noticeably improved ability to detect faint companions of double stars, and to see low-contrast planetary detail.

Intes exports monocentrics in 6, 9 and 12 mm focal lengths. Earth and Sky Adventure Products has them at about \$100 each; perhaps other vendors carry them as well.

Particularly neat was Rimae Ramsden, a crosshatched area in Palus Epidemarius. It was right on the terminator, and very easy and fat. Remarkable detail that had the visitors oohing and ahing that they could see such fine features so easily.

Also, this was the night where Sinus Iridium hangs off into space, with that jet black sky around it and the tops of the peaks lit like a little arc of stars...

Okay, back to "science" (where's my lab coat and clipboard?): while perusing the rich field around Copernicus, appreciating the little craterlet lines and fine rille structures shot throughout, we started noticing the domes as showing particularly well... especially the group of five near Hortensius, one of which is a double dome with only one peak "cratered."

We were easily able to spot the central craters in all of them (save the one that has none), so we went shopping -- and found another group showing well almost directly to the north.

In the process, we also noticed a few wrinkle ridges that seem to end in

small craters, almost like a negative version of Rima Birt or Schroter's Valley. This may be coincidental, or it might be a feature of the Copernican topology.

But another odd thing was these "enormous" domes in the area. One was a little north and west of Milchius, and shows well on the charts. The other, equally well defined, does not show on my charts: it was west and slightly north of Reinhold.

This is interesting in that they are so low and usually (I presume) ill defined as to be a rare event; I wonder if anyone knows if the second large dome (probably about 25x35 miles) is charted anywhere? It was definitely pear shaped, with the narrow end to the south southwest.

Again, even visitors could pick this out with some guidance, and participating in the "hunt" seemed to make folks feel as if they were doing "research" or something; kind of neat to see how excited they would get.

They also seemed interested to compare the extreme high resolution of the large dob (wide open!) to the less turbulent (smaller aperture) C8.

Timocharis is the online alias of the editor's "moon unit."

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.

Activities Through Other Clubs

July

- 2 TAC star party at Montebello or alternate (contact TAC).
- 3 Lassen star party begins.
- 5 HVAG star party at Grant Ranch.
- 6 Lassen star party ends.
- 9 TAC star party at Montebello or alternate.
- 11 PAS meeting at Foothill, Dr. Bruce Fouke on the Chixulub Crater (bring \$2 in quarters for parking!). TAC star party at Fischer Middle School.
- 12 TAC lunar observing at Fremont Peak or Henry Coe.
- 16 TAC lunar observing at Montebello or alternate.
- 23 TAC star party at Montebello or alternate.
- 26 TAC star party at at Fremont Peak or Henry Coe.
- 30 TAC star party at Montebello or alternate.

August

- 2 HVAG and PAS Foothill Park star parties.
- 6 TAC star party at Montebello or alternate.
- 8 TAC star party at Fisher Middle School.
- 9 TAC lunar observing at Fremont Peak or Henry Coe.
- 13 TAC lunar observing at Montebello or alternate.
- 20 TAC star party at Montebello or alternate.
- 23 TAC star party at at Fremont Peak or Henry Coe.
- 27 TAC star party at Montebello or alternate.
- 30 HVAG star party at Grant Ranch.

Periodical Publication Statement

SJAA Ephemeris newsletter of the San Jose Astronomical Association, is published monthly, 12 times a year, January through December.

San Jose Astronomical Association
5380 Pebbletree Way

COMET COMMENTS

Don Machholz

Celestial Calendar - June 1997

Richard Stanton

Comet Hale-Bopp and Periodic Comet Encke are not far apart in early June in the southern sky. They remain visible mainly to those in the equatorial areas and south of the equator.

As observers turned their instruments to observe Comet C/1997 J1 (Mueller), they also picked up a new comet -- unrelated -- but slightly brighter. It is now known as Comet C/1997 J2 (Meunier-Dupouy). This large comet will be closest to the Sun next March at 3.05 astronomical units (AU) when it should reach magnitude 10.

Meanwhile, a solar-orbiting satellite named SOHO has picked up 10 new faint comets over the past year. All were imaged only by the satellite as they zoomed in toward the Sun. Most seem to be following the same orbit as the Kreutz sungrazing comets, disappearing as they rounded the Sun. They were magnitude 2 to 8, with most at mag. 7 to 8.

Comet Hunting Notes: Of the 97 visual comet discovery events since January 1, 1975 -- during which 73 comets were found and named -- only four times was the comet found by accident. In early July 1975 Doug Berger and the late Dennis Milon found a comet while observing M2. It had been found the previous day by a comet hunter (Toru Kobayashi of Japan). Then, 20 years later Alan Hale and Thomas Bopp chanced upon a new comet near M70.

Ephemerides -- Epoch 2000, 0h UTC

C/1995 O1 (Hale-Bopp)

Date	R.A.	Dec	EL Sky	Mag
07-01	06h41.3m	-01°37'	25° M	3.6
07-06	06h54.6m	-03°27'	26° M	3.8
07-11	06h54.6m	-05°16'	28° M	3.9
07-16	07h01.0m	-07°05'	30° M	4.1
07-21	07h07.1m	-08°55'	32° M	4.3
07-26	07h13.0m	-10°45'	35° M	4.4
07-31	07h18.8m	-12°36'	37° M	4.6
08-05	07h24.3m	-14°28'	39° M	4.7
08-10	07h29.6m	-16°21'	42° M	4.9

Periodic Comet Encke = 2P/Encke

Date	R.A.	Dec	EL Sky	Mag
07-01	07h48.7m	-36°06'	61° E	6.0
07-06	09h22.3m	-57°51'	86° E	6.3
07-11	12h46.0m	-67°39'	107° E	6.9
07-16	15h18.5m	-61°58'	120° E	7.7
07-21	16h20.2m	-54°40'	126° E	8.5
07-26	16h50.5m	-49°07'	129° E	9.2
07-31	17h09.0m	-45°02'	129° E	9.8
08-05	17h22.2m	-41°58'	127° E	10.4
08-10	17h32.6m	-39°36'	125° E	10.9

Orbital Elements -- Epoch 2000.0

Object:	Hale-Bopp	P/Encke
Peri. Date:	1997 04 01.13800	1997 05 23.59776
Peri. Dist (AU):	0.9141405 AU	0.3313951 AU
Arg/Peri (2000):	130.58915 deg.	186.27201 deg
Asc. Node (2000):	282.47069 deg.	334.72147 deg
Incl (2000):	89.42943 deg.	11.92956 deg
Eccen:	0.9951172	0.8500135
Orbital Period:	~2500 years	3.28 years
Ref:	MPC 29568	MPC 29882
Epoch:	1997 06 01	1997 06 01
Absol. Mag/"n":	-1.0/4.0	9.8/4.0

Lunar Phase	time (pdt)	date	rise	trans	set
NM	11:40	04	06:02	13:14	20:24
FQ	14:44	12	13:19	19:13	00:28
FM	20:20	19	20:03	00:24	05:40
LQ	11:28	26	00:16	06:52	13:35

Mercury	Dist: 1.13 AU			Mag: -1.6	
date	rise	trans	set	RA	Dec
07	06:53	14:12	21:31	08:03.0	+22:20
17	07:43	14:44	21:43	09:17.3	+17:05
27	08:18	14:58	21:36	10:09.6	+11:15

Venus	Dist 1.44 AU				Mag -4.2	
07	07:53	15:00	22:07	08:53.2	+19:13	
17	08:15	15:09	22:02	09:43.1	+15:25	
27	08:36	15:16	21:54	10:27.8	+11:14	

Mars	Dist 1.36 AU				Mag +0.3	
07	12:43	18:36	00:31	12:31.3	-03:22	
17	12:30	18:16	00:04	12:51.1	-05:40	
27	12:19	17:57	23:35	13:10.8	-07:52	

Jupiter	Dist: 4.12 AU				Mag: -2.8
07 22:22	03:40	08:53	21:34.0	-15:23	
17 21:40	02:57	08:09	21:30.2	-15:43	
27 20:58	02:13	07:24	21:25.9	-16:06	

Saturn		Dist: 9.27 AU		Mag: +0.8	
07	01:02	07:22	13:43	01:17.0	+05:30
17	00:24	06:44	13:05	01:18.4	+05:35
27	23:41	06:06	12:26	01:19.1	+05:37

SOL	Star	Type	G2V	Intelligent	Life in	System ?
07	05:51	13:13	20:34	07:06.2	+22:34	
17	05:58	13:14	20:30	07:46.8	+21:10	
27	06:05	13:14	20:22	08:26.6	+19:11	

Astronomical Twilight		Begin	End
JD 2,450, 636	07	03:59	22:26
	626 17	04:09	22:18
	636 27	04:21	22:06

Sidereal Time		
Transit Right	07	00:00 = 17:53
Ascension at	17	00:00 = 18:32
Local Midnit	27	00:00 = 19:12

Darkest Saturday Night:	05-Jul-1997
Sunset	20:35 PDT
Twilight End	22:27 PDT
Moon Set	21:10 PDT
Dawn Begin	03:57 PDT

Theft in Sacramento

A recent visitor from Oregon had the following items hijacked in Sacramento:

Fujinon 16x70 binoculars, black leatherette case
Orion 10x50 Vista binoculars, no case
Blue Rubbermaid toolcase with:
Celestron binocular viewers
Orion Ultrablock filter
5 Pro-optic planetary filters
12-volt hair dryer
Polar alignment scope for CG-11
Silva compass
Declination extension bar for CG-11
Many other miscellaneous parts

If any of this turns up, contact the Sacramento police at 916-264-5771 case number 97-39263.

Tax Tip

When SJAA members attend public star parties or other public service events, they volunteer their time. Though IRS no longer allows time to be deducted as a charitable contribution, travel distance (car mileage) to and from such events may qualify.

SJAA is a certified nonprofit organization. For active members, this could more than make up for dues.

Astro Ads

...are free to all noncommercial advertisers selling astronomically related products or services. Please send your ad directly to the Editor, (via e-mail to northsjsu@aol.com or a letter to 549 Arleta Ave, San Jose, CA 95128). Ads will run for one month and be automatically deleted unless you request an extension (hasn't sold yet) by the 10th of the previous month.

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 10th will be put in the following month's newsletter. Please include your name and phone number.

Telescope Loaner Program Status

Mike Koop

No.	Scope Description	Borrower	Due Date	
1	4.5" Newt/ P Mount	Nick Tucci	6/2/97	1
3	4" Quantum S/C	Michael Lagae	6/11/97	
4	60mm Refractor	Del Johnson	Indefinite	
6	8" Celestron S/C	Bob Bootz	7/13/97	
7	12.5" Dobson	Available		
8	14" Dobson	Robert Duvall	7/15/97	
9	C-11 Compustar	Paul Barton	Indefinite	
15	8" Dobson	Jack Kellythorne	8/2/97	
16	Solar Scope	Jack Peterson	Indefinite	
18	8" Newt/ P Mount	Ram Saxena	6/12/97	1
19	6" Newt/P Mount	Available		
21	10" Dobson	Available		
23	6" Newt/ P Mount	Bob Hess	8/8/97	
24	60mm Refractor	Ravi Tembhekar	5/24/97	1
26	11" Dobson	Dean Sala	8/6/97	
27	13" Dobson	Lee Courtney	6/5/97	1
28	13" Dobson	Ramin Ghafouri	8/19/97	
29	C8, Astrophotography	Scott Wade	6/28/97	
30	7" f/9 Newt/Pipe Mount	Brian Ambrose	7/1/97	

As of print time, there was no waiting list.

Notes:

1. Please call and tell us how things are going with the scope

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Web Page

Bill Arnett	billa@znet.com
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San Jose Astronomical Association Membership Form

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Membership - \$15

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

Sky and Telescope - add \$27 to membership

(Sky & Tel will not accept multiyear subscriptions)

Make checks payable to "SJAA"

Bring this form to any SJAA Meeting
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Bob Elsberry, Treasurer

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