

YR	MN	DY	HR	J.D.(ET)	R.A.J2000.0	DEC.	DRA	VAR	DDEC	DELTA R	POSANG	THETA	BETA	GLONG	GLAT	AZ1	AL1	AZ2	AL2	Tmag
1996	3	20	.0	2450162.5	14 53.38	-00 22.3	-5.97	-85.8	.20	1.15	270.6	136.4	36.6	221.0	15.5	226.8	43.7	72.6	-23.6	1.7
1996	3	21	.0	2450163.5	14 52.25	+05 04.1	-6.43	-109.3	.18	1.13	264.1	137.3	36.7	218.9	20.6	232.7	47.4	69.1	-19.0	1.3
1996	3	22	.0	2450164.5	14 51.58	+12 33.3	-6.82	-147.5	.15	1.11	255.1	137.3	37.0	217.0	24.0	24	5.0	64.7	0.0	.8
1996	3	23	.0	2450165.	14 50.99	+2 2.2	-7.44	-19.6	.13	1.19	243.7	14.8	40.8	20.0	36.8	25.2	5.1	5.7	1.9	.4
1996	3	24	.0	2450166.	14 50.62	-6.3 1	-7.92	-24.1	.11	1.07	224.5	4.9	40.0	26.5	34.4	48.8	5.7	.0	.2	.0
1996	3	25	.0	2450167.	14 50.99	-20.0	-8.14	-34.7	.10	1.05	219	17.4	51.6	11.2	62.6	31.6	5.9	36.1	1.2	.2
1996	3	26	.0	2450168.5	14 51.07	+71 53.8	-7.06	-41.6	.10	1.03	208	103.7	1.7	19.1	69.9	31.2	5.3	15.5	10.9	.3
1996	3	27	.0	2450169.5	10 32.54	+86 11.0	13.21	-16.1	.10	1.01	156.0	99.7	2.6	68.3	34.0	36.5	64.3	53.1	37.8	.1
1996	3	28	.0	2450170.5	04 04.77	+78 42.0	50.08	-413.4	.14	.98	55.1	80.4	91.8	80.2	56.2	4.0	24.4	348.0	41.4	.1
1996	3	29	.0	2450171.5	03 32.31	+69 56.7	50.98	-324.0	.16	.96	47.8	72.7	98.3	71.7	48.8	9.6	17.0	335.8	42.2	.3
1996	3	30	.0	2450172.5	03 21.88	+63 27.5	49.17	-244.3	.19	.94	46.1	66.9	102.7	67.0	43.1	13.6	11.6	326.9	41.6	.6
1996	3	31	.0	2450173.5	03 16.70	+58 36.4	46.26	-173.4	.21	.92	45.6	62.4	105.8	64.0	38.8	16.6	7.7	320.5	40.4	.6
1996	4	1	.0	2450174.5	03 13.54	+54 53.4	42.59	-112.5	.24	.90	45.5	58.7	107.9	62.0	35.4	18.9	4.7	315.8	39.0	1.0
1996	4	2	.0	2450175.5	03 11.35	+51 58.0	38.41	-63.6	.27	.88	45.5	55.7	109.3	60.5	32.7	20.9	2.5	312.4	37.4	1.1

SJAA EPHemeris

Eye on Everything by Lew Kurtz

At the July meeting the proposed by-laws were approved by the membership. Bob Garfinkle then gave a great talk on Lunar Nomenclature. Bob talked about who were some of the first people to name lunar features, which names stuck, as well as more recent naming issues, like what to name all of the far side lunar features.

SJAA needs a good slide projector and screen. We have imposed on Jack Peterson for far too long. If you have a slide projector or screen that you would like to donate to the club, please call any board member.

The Amateur Astronomers of Northern California's annual star-b-q is Aug. 10 at Fremont Peak state park. SJAA is a member of AANC. AANC provides the burgers and dogs, you provide a side dish and your own drinks. Be sure to bring your lawn chair for observing the Perseid Meteor shower!

SJAA's Observatory Committee has \$6,500 and needs members. If you are interested, please contact any board member (phone numbers on page 7).

Well, you've seen the ads. This month's issue has two reviews of the new Meade ETX, one on the other side of page one, and the other on page five. Find out what you're waiting for...

The September Ephemeris may be a little late. I am going on vacation from August 10 through 17. Since this is when I would normally put the newsletter together, if I don't get it done early, it will almost certainly be a couple of days late.

One final note. All of the articles in this month's Ephemeris were written by SJAA members.

C/1996 B2 (Hyakutake)																				
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Activities Calendar

August

- 3 General meeting, 8:00pm, speaker TBA. Board meeting, 6:30 pm is open to all.
- 10 Star-B-Q at Fremont Peak state park. Sun set 8:02 pm, 9% Moon rises 4:07 am.
- 14-17 SJAA Mt. Lassen star party.
- 17 Star party at Henry Coe state park. Sun set 7:55 pm, 13% Moon set 9:40 pm.
- 23 Hough park star party. Sun set 7:49 pm, 72% Moon set 1:59 am.
- 24 Observational Astronomy Class, Hough Park, 8 pm.

September

- 7 Star party at Fremont Peak state park. Sun set 7:25pm, 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 Hough 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, Hough Park, 8 pm.

October

- 5 Star party at Fremont Peak state park. Sun set 6:43pm, 35% Moon rises 1:59 am.
- 24 hour News and Information:
- SJAA Hotline: 408-559-1221
- Home page url <http://www.rahal.net/resource/sjaa>

Meade ETX Review by Bill Cooke

Some things never change. Take Meade Instruments for example. Meade's ad in S&T heralding their new 90mm ETX Maksutov is full of the marketing puffery we've come to expect in a good Meade product description. Meade beguiles us with promises of "the finest optical images -bar none-ever made available in an ultraportable telescope" and "optical performance and resolution warranted to equal or exceed any Maksutov optics of similar aperture ever manufactured." Not content with this bold broadside at Questar, Meade assures us that this wonder telescope even "consistently outperforms many telescopes of larger apertures".

Flush with cash from some equipment sales, I decided to abandon restraint and breathlessly called Lumicon to place my order. And then I waited, for six weeks. After reading that the Nature Company stores were receiving the ETX in truckloads, I called the local Nature Company store, and sure enough they had three in stock! I cancelled my order with Lumicon and headed for the Nature Company. As I arrived at the Nature Company, they were taking delivery of four more ETXs! I could not believe my good fortune!

For three hours that morning, I optically and mechanically inspected all seven scopes, and with growing concern wondered if I'd be able to find even one scope of the seven I could live with.

Optical testing was performed using a favorably placed "artificial star" in another store some distance away in the mall, and nothing disturbed the extra-focal diffraction patterns other

continued on page 2, see ETX

than the occasional troublesome shopper who got in the way. Optically, most of the seven scopes seemed slightly under- or overcorrected. There were some minor differences in the diffraction rings inside and outside of focus, and the black center spot wasn't quite the same size at equal distances on either side of focus. But in focus, they seemed more or less ok. One scope was very bad, with an obvious bright zone on one side of focus and a dark or missing zone on the other. In focus this scope had the brightest, fattest first diffraction ring I've ever seen in a telescope, probably caused by light from the zone being thrown out into the ring. Many of the scopes seemed slightly out of collimation and a couple had secondary light baffles that were clearly not centered correctly over the aluminized secondary spot. Also, two or three scopes had plastic shavings from the secondary baffle protruding into the light path.

The only way to sum up my tests of the fork mount drive bases is to ask "what do you want for an extra \$100 over the cost of the spotting scope?" Four of the seven drive bases had declination slow motion knobs that were so tight they could barely be turned. It was difficult to figure out why, since the inside of the fork arms are covered with a metal plate that obscures the tangent arm and drive screw connection. The dec slow motion on the remaining drive bases varied from very smooth to rather coarse, with some play in each (the knob could be turned for a bit before the tangent arm moved). RA slow motion smoothness also varied, ranging from stiff but sort of ok to very stiff and jerky. In one drive base the RA slow motion seemed to be stripped and didn't turn the scope at all! Meade's advertising promises slow motion controls that "permit smooth manual tracking"; maybe so, but it all depends on which drive base you happen to get. As Clint Eastwood says, "Do you feel lucky?"

In the end, to get an acceptable scope, I took several scopes apart and combined the best optical tube as-

sembly with the best drive base. Even then I got burned, as we will see. I left the store with very mixed feelings: on one hand I was happy to get my scope, but otherwise felt a great deal of discomfort over the level of quality I found in a large sample of seven telescopes.

I've used the scope several times since I got it, but I'll report some observation results so far. My first night out, Bob Brauer stopped by with his Meade 2045D SC to compare with the ETX. We looked at several bright stars, M13, M57, and Epsilon Lyra. Of the two scopes, the 2045D gives a brighter image. I attribute this to several factors: the slightly larger aperture (4" vs. 3.5") and the lower magnification of the 2045 for a given eyepiece. But the ETX was definitely sharper; Epsilon Lyra was clearly resolved at 119x with dark sky between and nice Airy disks. The first quarter moon was very sharp indeed even at 179x with a 7mm Nagler. All is not perfect, though. Bob and I discovered that the secondary light baffle on my optical tube isn't centered correctly and the scope appears slightly out of collimation. I don't know for sure, but I think the off-center baffle shows up in the image as the apparent collimation problem.

The ETX is a bit awkward to use, and has a number of weak points in its overall design. The RA slow motion is rather stiff and jerky, making centering a bit difficult at anything other than low power. The finder scope is higher than the eyepiece holder, and I keep bumping it with my face when trying to use short focal length eyepieces. Focusing has a slightly coarse feel, and at medium to higher powers causes the image to jiggle more than Anna Nicole Smith. I wish I could tell you how well the drive worked, but mine doesn't, so I can't. Even though I was careful in selecting the drive base, I still got a bad one, and had to send it back to Meade for repair.

My overall opinion of this scope is mixed: it's probably about all you can expect for \$500, and it does give reasonable images. But it is not a Questar! Quality varies considerably from unit to unit; some are very good and may almost justify Meade's grandiose per-

formance claims, while others will suffer from one or more problems serious enough to impair functionality. I had seven to choose from, picked the best, and still had problems. What bothered me most as I inspected these scopes was the carelessness I found: most of the problems could have been spotted had the assembler taken a few moments to double check his work. If you buy a Meade ETX, be prepared to do the QC for them.

ETX Update

Bill Cooke

I sent my drive base back to Meade for repair, and it returned about two weeks later, as they promised. The RA drive works now, but the way it works is quite frustrating. According to Meade's ETX manual, there is supposed to be a one minute delay after the drive is turned on before the scope actually begins tracking. As I tested my drive base, I found it almost impossible to center Jupiter in my 7mm Nagler (178x), and have it stay centered as the scope tracked. In the end, I had to place Jupiter outside the field of view, engage the drive, wait a minute as Jupiter drifted into view and hope the scope would begin tracking as Jupiter approached the center. I spent 30 minutes on this and in the end decided I just wouldn't use the drive at all.

I've now decided to send the optical back to Meade. The plastic secondary light baffle isn't centered on the aluminum spot, and even though my scope delivers a very good image, I wonder how much light I'm losing due

continued on page 5, see Update



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
San Jose, CA 95111-1846

Bino Mount Plans Work!

By Ernie Piini

My daughter, Elaine, has become quite interested in astronomy, in particular, the Messier Objects and comets. She owns a pair of binoculars but there are times when she is not sure of seeing the correct object. In order to help her locate her target I decided a bino mount would be a big help to her.

Having remembered seeing plans for building a bino mount in Astronomy Magazine several issues back, I decided to research them and build her a mount as my birthday present to her.

I found the plans for "Build a Universal Tripod" by M. Leon Knott, August 1992, and "Make a Bino Mount" by David Rogers. August 1995. Their basic design was good and easy to follow. I did make a few design changes that would help handling and add some safety precautions as well.

Instead of using a combination of 3/4-inch plywood and oak wood, I used plywood only.

The arm of the bino mount with binocular platform measures 58-inches from tip to tip. This I found a bit long for transporting inside a car. The binocular platform section alone measures 12 inches long and by putting this part on a hinge would make the mount more compact (overall length reduced to 49-inches). The binocular platform may be used in either the folded-back or extended (normal) position although the folded-back position limits the viewing altitude to about 70-degrees whereas the extended position allows viewing the zenith point..

I drilled 3/16-inch holes through the side arm and the hinge arm so that an 3/16 diameter x 2 1/2-inch long cotter pin can be inserted through both members to lock them in place in either position. Also, instead of using the suggested U-clamps to secure the binocular to the platform, I used a 1/2 x 3/4 x 7.5 inch piece of wood for a securing bar with a 1/4-20 x 3 1/2-inch bolt to perform the same function. I lined the top face of the binocular platform with 1/16-inch rubber matting and the bottom part of the securing bar with 1/8th-

inch thick cork material. This helped cushion the binocular in place.

The first time I removed the 7x50 binoculars from the mount I forgot about the 5.5-lb weight hanging on the opposite end. The unbalanced platform quickly bashed me in the chin. I took care of this problem by drilling another 3/16th-inch hole through the two fork-arms and the top arm (in horizontal position) and inserting a 3/16-inch diameter cotter pin to serve as a protective lock until the binocular has been returned to the platform.

The plans made no provisions for securing the Bino Mount to the Universal Tripod. I used a steel 1/4-20 wood insert nut screwed into the top disk of the tripod head and a 1/4-20 x 2-inch long bolt with a 3-prong knob set in between the fork-arms of the Bino Mount to make the connection. The steel wood insert requires drilling a 3/8-inch hole into the wood and then screwed in using a hex wrench. The inserts can be purchased at a hardware store for about 50-cents each. The 3-prong knob can also be purchased at most hardware

stores for around \$1.20 each. They come in two types: male or female. The male knob comes with a 1-inch long bolt attached. The female can be used as a nut or for the inclusion of a bolt of a desired length. In the case of the 3 1/2-inch long bolt used with the securing bar mentioned above, the length was cut from 1/4-20 raw stock then one end of the thread filed flat (approx. 1/2-inch) which takes on a "D" shape when observed end-on. I next drilled and tapped a 6-32 hole one-half way in on the shoulder of the 3-prong knob. The bolt is then screwed into the 3-prong knob and the flat part secured with a 6-32 set screw. I have used this practice on all of my threaded bolts and knob applications and have never had a knob slip.

The mating disks of the Bino Mount and Universal Tripod were lined with Formica secured with Barge glue.

The Bino Mount and Tripod took approximately 16-hours to build and was finished with two coats of Varathane.

Comet Hyakutake made a perfect first target for testing out Elaine's birthday gift.



City Doubles

By Mark Wagner

When the moon is near full, and its too warm to stay indoors (102F here yesterday, July 1), one can cool down and get some observing in by hunting double stars. Unlike the faint fuzzies that require a near absent moon, doubles can be enjoyed even with lunar and city light intrusion.

Here is my list from last night. Hunting these doubles was very enjoyable, and I believe this activity helps sharpen both sky navigation and observing skills.

Location: 37 13' 36" N 121 58' 25" W

Elevation: 411

Date / Time: July 2, 1996 05:15 - 06:15 UT

Limiting visual magnitude: approx. 4.

Instrument: 10" f/5.6 dob

Star	Sep.	Mag	PA	Color	Note
Delta Cygni	2"	2.9	6.4	250	white-blue/green
52 Cygni	6"	4.3	9.2	70	gold
Psi Cygni	3"	4.9	7.4	180	wht/yellow/purp?
Beta Draconis	4"	2.8	11.5	10	golden white
Nu Draconis	62"	5.0	5.0	65	both white
Eta Draconis	6"	2.7	8.7	60	yellow/white
Epsilon Draconis	3"	4.0	7.6	15	both pale gold

Observatory Progress Report

August 14, 1995

by Bell Dellinges

I would like to update club members regarding my observatory project. One of the main reasons for moving to Arizona was the opportunity to have an observatory in my back yard. Now that my wife and I are pretty much moved into our house in Apache Junction, I felt ready to turn my attention to this enterprise.

In May, a contractor poured the 12'x12' slab and pier. The pier is 35" high (to match the C-14 tripod height) and 18" in diameter. It was poured into a sonotube isolated from the floor. In July, I hired a carpenter to build the four 6' high walls and an "outrigger" section of 4x4s to support the roof when it's rolled back. Though there is no roof at this writing, the entire structure seems to be very sturdy. Because I chose 6' high walls, the entry door clearance is only 5'4" - so watch you head! (I've already been painfully reminded of this fact several times and can see that some kind of rubber guard will have to be installed to prevent becoming a subject of "Rescue 911".)

A 1' x 6' slat on the south wall will allow me to point the telescope to the horizon in that direction.

Because of the summer heat, my wife and I have gotten up at 5:00am on three occasions to paint the building. I'm currently waiting on a machine shop to fabricate the wheel and track system on which the roof will rest. Next on the agenda will be to obtain several bids for the roof construction. I need to look at the cost/weight aspects before deciding on a metal or wood roof...

I hope to see "Desert Sky Observatory" operational for Fall viewing. Club members are welcome to drop by and take a look at my facility. My home is two road miles north of US 60 off Mountainview Road (Which you pass going to the Florence Junction star party site).

[Bill's address is:

6130 E. 16th Ave.

Apache Junction, Az, 85219

phone: 602-983-6651]

Desert Sky Observatory Completed

December 15, 1995

by Bill Dellinges

I'm pleased to say that my observatory is operational! In the November club newsletter (actually in the column to the right, -Ed) I had a brief article reporting on its status. At that point everything but the roof was complete. In considering wood versus a metal roof, I found it difficult to talk local shed builders into fabricating a metal roof to sit on the wheel and track system I had prepared. Meanwhile, my brother-in-law, who's a carpenter, talked me into letting him build the roof. So over two days and about \$300 worth of wood and shingles, I had a roof. A roofer who I met in the Home Depot parking lot while loading the shingles agreed to install them for \$50.

The track system is from an idea I "borrowed" from Paul Cicchetti, who had an article in Sky and Telescope (Nov 94, p 91) on drawing lunar features. What caught my eye was the picture of him standing in a roll off roof observatory. Through letters, he was most helpful by supplying me with rough drawings of his system and numerous tips. Basically, he used 4" Genie garage door pulleys mounted in assemblies made at a machine shop. They're bolted onto the bottom of the three 2x4s which are glued and screwed together for strength. Two of these set-ups on either side of the building support the roof, which I estimate weighs 1300 pounds. I used four wheels per side for my 12' x 12' structure while Mr. Cicchetti used three per side for his 10' x 10' facility -- I wanted to insure that the wheels could take the weight (since they're really pulleys, not true wheels). Twenty four feet of 2" quarter inch thick angle iron were laid along the top of the west and east walls extending out to the 4x4 frame work which accommodates the roof when it's rolled back. Though somewhat massive, I can push the roof back with one hand. The four wheel housings nearest the corners have holes drilled through them to allow insertion of tie down pins which run through the housing and angle iron tracks. I use DC-10

aircraft nose gear pins for this purpose (including their "Remove Before Flight" red streamers!).

It's wonderful to simply go out to the observatory, roll back the roof, and in a minute or two be observing with my C-14. The days of dragging that monster to a mountain top 50 miles away are, happily, now only a memory.

And the project's total cost? about \$3500.

[Bill actually sent me these two articles in December 1995, but I lost them until today. Sorry Bill - Ed]

Fremont Peak, July 7

by Mark Wagner

After a night of clear sky observing until around 1 am, an impromptu wine tasting, then some limited sleep, Rich (Neuschaefer) came and woke me at 5 am. I awakened my daughter Mimi and Dean Linebarger. We stood together with John Gleason half-way up the path to the observatory. It was a gorgeous sight... the observatory was open with the 30" Challenger (telescope) pointed skyward and illuminated in preparation for a photo of the Shuttle Columbia streaking across the dawn behind it. The sky was red and golden in the east as the sun approached. Almost directly crossing the zenith was a clearly delineated terminator, separating night from day. It was a dream-like moment as I looked down at the fog covered valleys, the scene above, and with the anticipation of what I was to witness. Then, after a few minutes, far in the west through some trees we could see a brilliant silver-red arc light begin to ascend in a low trajectory, rising quickly leaving a grey-blue trail, then descending just as quickly to meet the sunrise in the east.

I was fascinated at the thought of people riding a candle through the dawn. But the best part, for me, was the look of amazement and excitement on the face of my eight year old daughter, standing in her cowgirl boots and pajamas on the mountaintop with that early morning scene unfolding before her. I know she will never forget it.

Another ETX Test Drive

by Bob Brauer

Like many people, I saw the Meade advertisement of the ETX and said to myself, "Wow, how can they do that for \$500?" I took a drive up to Livermore a few weeks ago and bought an ETX from Lumicon. One reason that I ordered it from a local source is that I wanted to "test-drive" the scope before I had to buy it. The guys at the store were more than willing let me check it out before I bought it. My caution stems from the fact that some of the earliest ETX's have been reviewed in the Usenet newsgroup sci.astro.amateur and they have been found to have problems.

Everything was present in the box and there were no loose parts rattling around, so I'm not going to have the worst ETX horror story to post on the Internet. First, I checked for any apparent "play" between the fork arms and the base, which has been found in other ETXs. There was none. The slow motion controls all move without any sticking or excessive slop. The focus is similarly responsive without any noticeable image shift. The Lumicon guys admitted that they have received ETXs with jammed Dec and Focus controls.

I took my 7mm Nagler along in order to check the optical tube at a higher magnification. I took the unit out to the parking lot and set it up on a cement block wall that borders the parking area. I wasn't able to find an ideal reflection to use as a star test, but I did find something close. There were distinct and symmetrical diffraction rings around the reflection. Given the comments on Usenet, I wasn't too worried about the optical performance. The secondary spot baffle is a bit off-center as we have seen in most ETXs, but I could see a ring of silvering all of the way around the baffle, so it's not too far off. The optical surfaces are clean and free of debris. The finder scope was received properly set for focus at infinity.

I also took 3 AA batteries in order to check the drive. I found that I couldn't get the base plate off, even after I took out the three screws that attach it to the base. I had to screw

one of the legs into the center hole and tug hard to get it off. It has a good tight seal around the outer edge. The motor drive ran, but that was all that I could tell in the daylight.

My close inspection of the unit inside the shop had an added benefit for Lumicon. Two of the customers who were curious about the ETX placed orders after seeing it up close. Lumicon was quoting a wait of 10 months! I guess that my wait of 11 weeks is not bad by comparison.

I set out to use the ETX on Saturday night to observe Jupiter. First I tried to mount the scope on a photo tripod by attaching the tripod head to the drive base at the center hole in the base plate. That's when I discovered another design flaw. The location of the electrical switches and rubber feet on the base plate are too close to the threaded holes in the base plate and this poses a problem when attaching it to a large tripod head. The switches and feet get in between the base plate and the tripod head where they can be damaged. Eventually, I managed to bolt it to a plate on my Superpolaris mount. This gave the scope enough of a tilt to get a rough polar alignment.

I star tested the scope on Antares. The collimation is very good and the diffraction patterns are correct on both sides of focus. There does seem to be a slight astigmatism present, but I can still get nice tight points for stars. Jupiter was very good. The 7mm nagler gives about 180X and a good view, but I spent most of the time at 125X with a 10mm plossel. (Note on eyepieces: The scope comes with a "low profile" version of the 26mm meade plossel. My nose bumps the finderscope when I use this eyepiece. It's too low. My normal 26mm meade plossel is a quarter inch higher and my nose is much happier.) Jupiter showed both broad equatorial bands, one thin northern temperate band, and two thin southern bands. Some band edge detail was just barely visible on the equatorial belts. I watched as tiny IO moved out from a transit across the disk of the planet. I can't wait to view the Moon with this scope.

There seems to be a design problem with the motor drive. When I

center Jupiter in the field of view and lock the RA, the motor takes a minute to "take up the slack" and start proper tracking. After that, the motor drive runs a little fast and the object returns to the center of the field of view in 15 minutes. A variable speed drive could be helpful to compensate for these two problems, but that's a lot to expect from this little unit. I was actually quite happy to let Jupiter drift west 15 arc-minutes when I locked the RA and then got in 15 minutes of observing while the drive caught up. Crisp optics and a useable drive made this small portable scope a lot of fun for some quick backyard observations.

Update, continued from page 2

to the light cone from the primary being vigneted by one side of the baffle. Before I purchased my scope, I had assumed that Meade would use some kind of jig to center this baffle as they glued it to the meniscus corrector, but almost certainly the assemblers are just eye-balling it. If the tube assemblies I've seen are typical, many ETX owners will find the same problem to a greater or lesser degree.

During the month or so I've had my scope, I've wondered how typical my own experience is compared with other ETX owners. Based on the comments I've read on the net, and what I've heard from other sources, most owners seem generally satisfied with their ETXs. But what they often say is something along the lines of "I like my scope, even though it has this problem or that, and besides, it was only \$500". We seem to expect defects in these scopes due to the price, and therefore excuse Meade's sometimes poor design and/or quality control. In my opinion, given Meade's claims for the quality of this scope, we ought to hold them to their word.



COMET COMMENTS
by Don Machholz

Comet C/1996 N1 (Brewington): Howard Brewington discovered this, his fifth comet, on the evening of July 3 from his home in Cloudcroft, New Mexico. Using his 8" reflector, which is mounted on top of his 16" reflector, he visually swept up this comet some 702 search hours (and nearly four years) after his fourth find. This is the longest that Brewington has searched for a comet, his previous four finds took a total of 725 hours.

Comet Hale-Bopp and Periodic Comet Kopff remain in the summer Milky Way. Comet Hale-Bopp continues to brighten as expected, which is good news to cometeers everywhere.

C/1995 O1 (Hale-Bopp)

DATE	R.A.	Dec	EL	Sky	Mag
00 UT	2000				
07-31	18h12.0m	-08°59'	142°	E	5.7
08-05	18h05.5m	-08°32'	136°	E	5.7
08-10	17h59.4m	-08°07'	130°	E	5.6
08-15	17h53.8m	-07°44'	124°	E	5.5
08-20	17h48.7m	-07°21'	118°	E	5.5
08-25	17h44.2m	-07°01'	113°	E	5.4
08-30	17h40.3m	-06°41'	107°	E	5.4

22P/Kopff

DATE	R.A.	Dec	EL	Sky	Mag
00 UT	2000				
07-31	19h26.2m	-22°03'	162°	E	7.3
08-05	19h28.2m	-22°36'	157°	E	7.4
08-10	19h30.8m	-23°05'	153°	E	7.6
08-15	19h34.2m	-23°30'	149°	E	7.8
08-20	19h38.2m	-23°49'	145°	E	8.0
08-25	19h42.9m	-24°02'	141°	E	8.2
08-30	19h48.3m	-24°10'	138°	E	8.4

C/1996 N1 (Brewington)

DATE	R.A.	Dec	EL	Sky	Mag
00 UT	2000				
07-31	12h54.2m	+28°35'	58°	E	9.2
08-05	13h09.7m	+32°34'	58°	E	9.2
08-10	13h25.5m	+36°19'	58°	E	9.3
08-15	13h41.8m	+39°49'	59°	E	9.4
08-20	13h58.8m	+43°04'	60°	E	9.5
08-25	14h16.9m	+46°04'	62°	E	9.7
08-30	14h36.5m	+48°49'	64°	E	9.9

Orbital Elements

Object	Hale-Bopp	Kopff	Brewington
Peri. Date	1997 04 01.14561	1996 07 02.19980	1996 08 03.418
Peri. Dist (AU)	0.9140971	1.5795617	0.92309
Arg/Peri (2000)	130.59227°	162.83487°	044.120°
Asc. Node (2000)	282.47087°	120.91329°	235.119°
Incl (2000)	089.42807 °	004.72143°	051.672°
Eccentricity	0.9950784	0.5440739	1.0
Orbital Period (yrs)	3000	6.45	long period?
Source	MPC 26879 (3-26)	MPC 22032 (1991)	IAU Cir. 6430

Celestial Calendar - August 1996
by Richard Stanton

Lunar Phase	time (utc)	date	rise (pdt)	trans	set
LQ	05:26	06	00:17	07:15	14:18
NM	07:34	14	06:46	13:30	20:08
FQ	03:37	22	14:32	19:48	00:12
FM	17:53	28	19:40	00:41	06:31

Mercury	Dist: 0.98AU	Mag: -1.6
date	rise	trans set
07	08:15	14:45 21:15 10:41.4 +08:32
17	08:41	14:51 21:00 11:49.4 +02:04
27	08:48	14:41 20:34 11:58.1 -03:04

Venus	Dist: 0.68AU	Mag: -5.0
07	02:55	10:03 17:12 06:00.3 +19:23
17	02:52	10:02 17:12 06:38.2 +19:46
27	02:55	10:04 17:13 07:19.6 +19:34

Mars	Dist: 2.18AU	Mag: +1.2
07	03:15	10:39 18:04 06:36.8 +23:43
17	03:06	10:29 17:51 07:05.4 +23:16
27	02:57	10:17 17:37 07:33.3 +22:30

Jupiter	Dist: 4.43AU	Mag: -2.5
07	17:53	22:38 03:28 18:39.3 -23:16
17	17:11	21:56 02:46 18:36.3 -23:20
27	16:30	21:15 02:04 18:34.7 -23:22

Saturn	Dist: 8.73AU	Mag: +0.7
07	22:24	04:33 10:37 00:30.2 -00:33
17	21:44	03:52 09:56 00:28.8 -00:21
27	21:03	03:11 09:14 00:26.9 +00:07

SOL Star Type G2V Intelligent Life in System ?

07	06:15	13:13 20:11 09:10.2 +16:18
17	06:24	13:12 19:59 09:47.9 +13:17
27	06:32	13:09 19:45 10:24.8 +09:55

Astronomical Twilight	Begin	End
JD 2,450,302	07	04:35 21:50
JD 2,450,312	17	04:48 21:34
JD 2,450,322	27	05:00 21:17

Sidreal Time	Transit Right	Ascension at	Local Midnight	August 10
	07	00:00	=	20:08
	17	00:00	=	21:46
	27	00:00	=	03:14



Telescope Loaner Program Status
by Paul Barton

No.	Scope Description	Borrower	Due Date
1	4.5" Newt/P Mount	Albert Chen	available
3	4" Quantum S/C	Albert Yee	8/22/96
6	8" Celestron S/C	Tim Sanstrom	8/11/96
7	12.5" Dobson		9/9/96
8	14" Dobson		available
9	C-11 Compustar	Ed Voss	indefinite
15	8" Dobson	Bob Elsberry	7/9/96
18	8" Newt/P Mount	Jerry Lovelace	6/6/96
19	6" Newt/P Mount	Stephen Shoup	8/8/96
21	10" Dobson	Mark Wagner	9/10/96
23	6" Newt/P mount	Larry Hinkle	9/1/96
24	60mm refractor	Sridhar Lakshmikanthan	8/25/96
26	11" Dobson	John Linthicum	7/14/96
27	13" Dobson	Bob Bart	9/20/96
28	13" Dobson		available

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.

Thank You

On behalf of the Astronomical Society of the Pacific, I would like to thank you for your efforts to round up volunteers for the ASP's 108th annual meeting at the Weston Hotel - Santa Clara.

The volunteers from each club made a big impact on the success of the meeting. I received several comments about how the volunteers created a very friendly atmosphere at the meeting. The Quality of the volunteers and their willingness to help when things got real busy helped make running the meeting a much easier task, and made it all look like a very smooth operation. My thanks to your club members for their efforts to help make the meeting a success.

Again, thank you for your club's support.

Al Stern, ASP Volunteer coordinator.

I gladly publish in the Ephemeris all member articles submitted. Mail your article to me, Lew Kurtz, 1336 Bobolink Circle, Sunnyvale CA, 94087; or fax 720-9726; or email to lewkurtz@aol.com. If you post something to one of the sci.astro newsgroups and think it would be of interest to the club's membership, please cc me.



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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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