HST Deep Fred Away

East Valley Astronomy Club

June 1998 www.goodnet.com/~rkerwin/evac/evac.html Scottsdale, Arizona

Caribbean Eclipse Feb '98—Ya Mon!

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Enticed by the glowing reports that followed the 1991 Total Solar Eclipse in Baja, Mexico, and knowing that the prospects for clear weather appeared excellent for the southern Caribbean, I resolved not to miss the 1998 event. I let my $20 deposit on an Aruba hotel slide after joining a group booking on the Dawn Princess Cruise Liner for my wife and I. Steve Coe of the Saguaro Astronomy Club (SAC) led the effort to secure a block of cabins, inviting EVAC and SAC members to share the experience. With Jannet anticipating a Southern Caribbean cruise, I for my first totality, and in the company of friends, it all but promised to be a once-in-a-lifetime memory waiting to happen. I felt that way throughout the cruise until the morning of Feb. 26th as our cruise ship headed squarely into a bank of clouds, pelting us with wind and drizzle just hours before first contact.

A cruise ship heading 20-something knots into thickening overcast skies plays with your faith in the judgment of the crew. SAC member Tom Mozdzen and I took cover inside to find solace in a pizza, as we watched final preparations to a large eclipse celebration cake in the atrium which seemed to mock us. How could this be happening to us? My personal low point came on the way back to the upper deck—a guy in the elevator with his photo equipment wrapped for protection from the rain, apparently giving up and heading back to his cabin.

However, when we emerged onto the outer deck the steel drum band was playing and the sun was shining. Now I understood...the guy in the elevator had been on his way *out* to the deck. The ship had cut through the squall and emerged under clear blue skies. A sun-splashed deck never looked so inviting. Gloom was instantly replaced with renewed anticipation as, all around, tripods sprouted and equipment preparation shifted into high gear. I had only a pair of 7x50 binoculars and a video camera which would be mounted on a tripod during totality. Perched on the highest level above the pool deck, I intended to capture the crowd reaction on video. Tom and his wife Barb set up their 11x80 binoculars on a tripod nearby. As with the Mozdzen's, most of my attention would be directed at the display in the sky, I thought, not on my equipment.

As if to confirm this, I missed the moment of first contact as I strolled the ship with my video camera. I was enjoying the moment too much to notice. Everywhere were sunbathers with the eclipse glasses on, watching the notch eat away at the sun. A number of the SAC members who had stayed aboard to watch the eclipse were positioned in our nighttime observing area known as "10 Forward", 10th level all the way forward on the ship. After positioning the ship onto the centerline, the captain's pre-eclipse plan was to head towards the sun, effectively downwind. 10 Forward was figured to be a good viewpoint. Soon on the loudspeaker the notice came that we were right on the centerline, which drew a cheer. I withdrew my thoughts of mutiny (oh, me of little faith) as it sank in that we wouldn't

EVAC & Other Events: 1998

	Mtng	Local	DS	Other
Jan	14	17	24	
Feb	11	21	28	
Mar	11	21*	28*	21: EVAC Cookout*
				28: Messier Marathon*
Apr	8	18	25*	19-26: Texas Star Party
				25: Sentinel Star Gaze*
May	13	16	23	2: Astronomy Day
				22-25: Riverside TMC
June	10	20	27	13-20: Grand Canyon SP
				19-20: Verde Valley AF
				27-28: Universe '98
July	8	18	25	24-25: Stellafane
Aug	12	15	22	
Sep	9	12	19	11-13: Astrofest
				18-19: N AZ Star Party
Oct	14	10	17*	17: All-AZ Star Party*
Nov	11	14	21	
Dec	9	12	19	

miss this one after all. As the ship slowed and turned, the sea and air calmed and steadied. The sun was further engulfed, the reflected glare was noticeably diminished, and the sky color softened. Having experienced 80% partial eclipses, I had seen this effect before. As the crescent sun continued to wane, my wife exclaimed that the view through the filter was totally awesome. From what I understood, *totality* would be totally awesome, this was only partially awesome.

Tom first pointed out Venus while the sky was still relatively bright (about 10 minutes before 2nd contact). From that point on until totality, it would appear brighter to me every time I glanced at it. Now, even the casual sunbathers on deck were starting to take notice in the changes around them. It was obvious that the temperature had dropped, maybe 3-4 degrees already. The change in intensity of the sun and overall sky darkening were unmistakable, and appeared to get everyone's attention. With the sun >90% covered, crowd anticipation was clearly audible. I made final adjustments to the video camera and let it run, pointed at the crowd. I recall announcing the extent of the solar arc as it shrunk to 60 degrees, then 30, then 20. The scene reminded me of a clear sky just after sunset with the earth shadow rising—in all directions. I felt as if I were in a planetarium with the lights slowly dialed down. The lighting change was dramatic during the last few seconds of partial—as if a dark cloud had just covered the sun. I watched with the Mylar filter until the sun was an arc of less than 10 degrees, then couldn't stand it—I was compelled to witness the onset of totality naked eye.

A lot of stimulus—visual and otherwise—occurred almost simultaneously. It came on dramatically, silently, and instantly. From a glaring ridge of blinding light, to a wide diamond ring, slowly diminishing until it suddenly blinked out, transforming into a surreal spectacle—an absolutely black circle, surrounded by a delicate pearly white, iridescent, glowing halo in a deep blue twilight sky. Where moments ago a blinding ridge of light existed, now held a beautiful, alien object in it's place, something that not only compelled you to stare in awe at it, but blocked the blinding glare with what appeared to be a supernatural force. I could see how the celestial-mechanically challenged could easily develop a radical reaction to this sight. Knowing what it was—but nonetheless overwhelmed—I was struck with the thought that I had but few precious minutes to behold this rare and delicate alignment of celestial spheres. The polar "brushes" were obvious to the naked eye. And the planets! Appearing just as suddenly were two brilliant white beacons straddling the black "hole," Mercury at about 10 O'clock and Jupiter about 5.

There was a sustained chorus of yelps, a lot of wows, and a frenzy of activity (yes, including flash photography). After a minute or so the excitement seemed somewhat muted, like the awe of a tour group inside a Renaissance cathedral. We swapped binoculars to share this extraordinary visual event, while all around shutters clicked. Mars at 2nd magnitude was straight overhead, right at the edge of visibility. There was a ruby-red solar prominence a bit to the right of 12 o'clock. It wasn't dramatic but it was elegant, and showed up well in Tom's 11x80's. The corona reminded

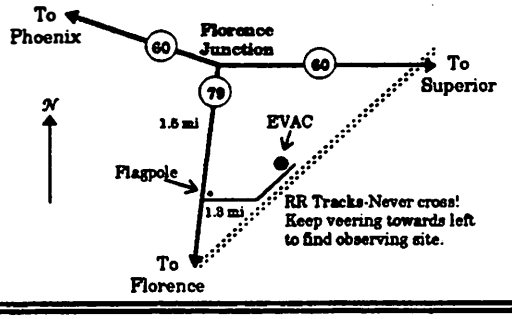
EVAC Star Parties

Local Star Party: Florence Junction Site

General Information: The Florence Junction site is the official site for the East Valley Astronomy Club's Local Star Party, typically held on the Saturday closest to Last Quarter Moon. Florence Junction offers reasonably dark skies within a short drive of most east Valley locations.

Location: N 32° 47' 40" W 111° 20' 16"

How To Get There: Take US 60 east to Florence Junction. At Florence Junction, turn right (south) on SR 79. After 1.5 miles, you will see a tall steel flagpole and a dirt road to the left. Turn left onto the dirt road and continue for another 1.3 miles. Drive with caution as the road is rough in some areas. To the left there will be a large open area.

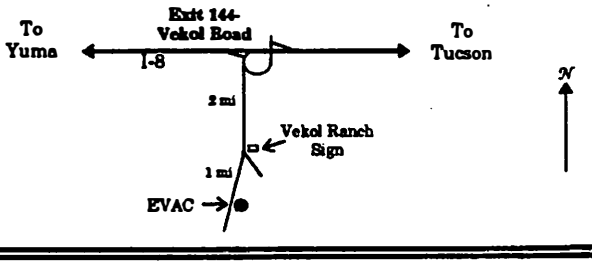


Deep Sky Star Party: Vekol Road Site

General Information: The Vekol Road site is the official site for the East Valley Astronomy Club's Deep Sky Star Party, typically held on the Saturday closest to New Moon. Vekol Road offers dark skies despite prominent skyglow from Phoenix to the north. The site is within 1½ hours drive time from most east Valley locations.

Location: N 32° 47' 55" W 112° 15' 15"

How to Get There: Take I-10 south and exit onto Maricopa Road. Continue through the town of Maricopa to SR 84, about 25 miles from I-10. Turn right on SR 84, after about 5 miles the road merges with I-8. Continue west and exit I-8 at Vekol Road, Exit 144. Turn left and cross the highway overpass. Before looping back onto I-8 take the road to the left. Go south for 2 mi. At the Vekol Ranch sign bear right and continue south for another mile until reaching a large, open area on the left.



June/July 1998

All Times MST

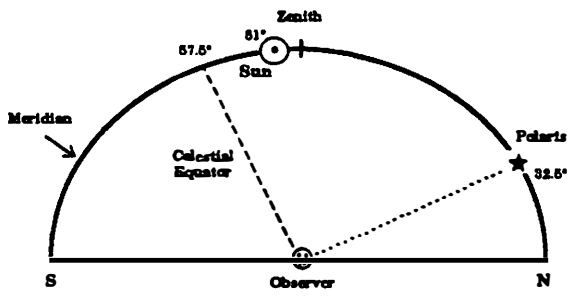
"Doubt thou the stars are fire,
Doubt that the sun doth move,
Doubt truth to be a liar,
But never doubt I love."
-*Hamlet*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7 June Venus and Saturn 10° apart in the morning sky	8 G. Cassini, b. 1625	9 Mercury at Superior Conjunction	10 **EVAC Mtng** Full Moon-10:20 pm	11 June: The month of goddess Juno	12 SAC Mtng Moon near Neptune	13 Moon near Uranus
14	15 Start looking for Mercury in the evening sky	16 Tomorrow: Moon 0.7° SE of Jupiter	17 Last Quarter 4:39 pm	18 Jupiter at West Quadrature	19 Moon 1.9° SE of Saturn	20 **EVAC Local Star Party**
21 Solstice 11:03 am Moon near Venus	22 Moon 0.5° NE of Aldebaran	23 New Moon 9:52 pm	24 *St. John's Day*	25 Moon near Mercury	26 C. Messier, b. 1730	27 **EVAC Deep Sky Star Party**
28 Moon past Regulus	29 G. E. Hale, b. 1868	30 Tunguska Event, 1908	1 July First Quarter 12:42 pm	2 Moon near Spica	3 July: The month of Julius Cæsar	4 Earth at Aphelion
5	6 Newton's *Principia* published, 1687	7	8 **EVAC Mtng** Full Moon-10:03 am	9	10 SAC Mtng	11 "Thou sailest over the zenith, and thy heart rejoices" -*Book of the Dead*

June Solstice

M. Aaron McNeely, Editor

The June Solstice occurs on the 21st this year. This moment of time, when the sun lies at its greatest height above the celestial equator for the year, establishes the beginning of summer in the northern hemisphere and winter in the southern. The sun transits the meridian at a height of 81° from our latitude of approximately 32.5°. To see how I determined this value look at the diagram below.



The figure represents a slice of the sky from the south horizon point, through the zenith, to the north. This line through the sky also represents the celestial meridian. The height of the celestial equator in degrees above the south horizon, also termed the co-latitude, can be easily seen to be 90° - 32.5° = 57.5°.

June 1998

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July 1998

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Lunar Almanac: 1998

	FQ	Full	LQ	New
Jan	5	12	20	27
Feb	3	11	19	26
Mar	5	12	21	27
Apr	3	11	19	26
May	3	11	18	25
June	1	9	17	23
July	1	9	16	23
	31			

	Full	LQ	New	FQ
Aug	7	14	21	30
Sep	6	12	20	28
Oct	5	12	20	28
Nov	3	10	18	26
Dec	3	10	18	26

At the June Solstice the sun lies at a maximum height of 23.5° north of the celestial equator, hence 57.5° + 23.5° = 81°. So, to dispel a popular misconception, the sun can never truly be directly overhead from our latitude in Phoenix. Also notice that the height of Polaris in degrees is the same as your location's latitude.

Midnight Culmination Dates

June 7-July 11

Date	*Constellation*	*Star*
13 June	Hercules	Rasalgethi
30 June	Corona Australis	
1 July	Scutum	
4 July	Lyra	Vega
7 July	Sagittarius	
10 July	Telescopium	

Midnight culmination marks the time of the greatest visibility of an object or constellation, they are at "opposition" with respect to the Sun.

In Astronomical History

June 7-30

June 8, 1625: Giovanni Cassini, b.
June 8, 1918: Appearance of Nova Aquilae, brightest nova to appear at that time since Kepler's Star in 1604.
June 9, 1812: Johann Galle, b.
June 18, 1178: Medieval chronicler Gervase of Canterbury records the possible impact of a body on the Moon.
June 22, 1675: Royal Greenwich Observatory founded.
June 22, 1978: James Christy discovers Pluto's satellite Charon.
June 25, 1894: Hermann Oberth, b.
June 26, 1730: Charles Messier, b.
June 28, 1911: Meteorite fall in Nakhla, Egypt strikes and kills dog.
June 29, 1868: George E. Hale, b.
June 30, 1908: Tunguska Event levels hundreds of miles of Siberian forest.

July 1-11

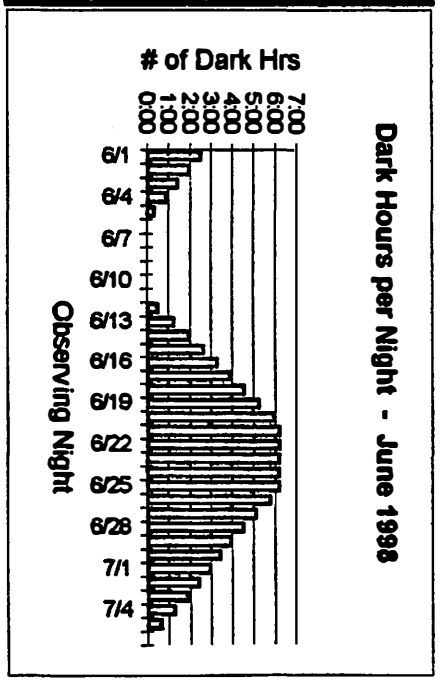
July 4, 1054: Bright supernova that produced the Crab Nebula recorded by Chinese Astronomers.
July 6, 1687: Publication of Newton's *Principia*.
July 11, 1991: Total eclipse of the sun visible from Hawaii to South America. Path of totality passed over Mexico City, pop. 15 million, making this the most observed eclipse in history.

Dark of the Moon Table – June 1998

OBSERVING NIGHT	START OF DARK		END OF DARK		TOTAL DARK
MON/TUES	6/2 1:08 AM	MS	6/2 3:39 AM	SOT	2:30
TUES/WED	6/3 1:40 AM	MS	6/3 3:38 AM	SOT	1:58
WED/THURS	6/4 2:12 AM	MS	6/4 3:37 AM	SOT	1:25
THURS/FRI	6/5 2:44 AM	MS	6/5 3:37 AM	SOT	0:53
FRI/SAT	6/6 3:16 AM	MS	6/6 3:36 AM	SOT	0:20
SAT/SUN	none	-	none	-	-
SUN/MON	none	-	none	-	-
MON/TUES	none	-	none	-	-
TUES/WED	none	-	none	-	-
WED/THURS	none	-	none	-	-
THURS/FRI	none	-	none	-	-
FRI/SAT	none	-	none	-	-
SAT/SUN	6/12 8:21 PM	EOT	6/12 9:50 PM	MR	0:29
SUN/MON	6/13 8:22 PM	EOT	6/13 10:36 PM	MR	1:14
MON/TUES	6/14 8:22 PM	EOT	6/14 11:19 PM	MR	1:57
TUES/WED	6/15 8:23 PM	EOT	6/15 11:59 PM	MR	2:36
WED/THURS	6/16 8:23 PM	EOT	6/17 12:39 AM	MR	3:16
THURS/FRI	6/17 8:24 PM	EOT	6/18 1:17 AM	MR	3:53
FRI/SAT	6/18 8:24 PM	EOT	6/18 1:58 AM	MR	4:32

OBSERVING NIGHT	START OF DARK		END OF DARK		TOTAL DARK
FRI/SAT	6/19 9:24 PM	EOT	6/20 2:37 AM	MR	5:13
SAT/SUN	6/20 9:24 PM	EOT	6/21 3:22 AM	MR	5:58
SUN/MON	6/21 9:25 PM	EOT	6/22 3:36 AM	SOT	6:11
MON/TUES	6/22 9:25 PM	EOT	6/23 3:36 AM	SOT	6:11
TUES/WED	6/23 9:25 PM	EOT	6/24 3:36 AM	SOT	6:11
WED/THURS	6/24 9:26 PM	EOT	6/25 3:37 AM	SOT	6:12
THURS/FRI	6/25 9:25 PM	EOT	6/26 3:37 AM	SOT	6:12
FRI/SAT	6/26 9:51 PM	MS	6/27 3:37 AM	SOT	5:46
SAT/SUN	6/27 10:31 PM	MS	6/28 3:38 AM	SOT	5:07
SUN/MON	6/28 11:07 PM	MS	6/29 3:38 AM	SOT	4:31
MON/TUES	6/29 11:41 PM	MS	6/30 3:38 AM	SOT	3:57
TUES/WED	7/1 12:13 AM	MS	7/1 3:39 AM	SOT	3:26
WED/THURS	7/2 12:44 AM	MS	7/2 3:40 AM	SOT	2:56
THURS/FRI	7/3 1:16 AM	MS	7/3 3:40 AM	SOT	2:24
FRI/SAT	7/4 1:49 AM	MS	7/4 3:41 AM	SOT	1:52
SAT/SUN	7/5 2:26 AM	MS	7/5 3:42 AM	SOT	1:16
SUN/MON	7/6 3:05 AM	MS	7/6 3:42 AM	SOT	0:37
MON/TUES	none	-	none	-	-

EOT = End of Astronomical Twilight MR = Moonrise SOT = Start of Twilight MS = Moonset NOTE: Applies to Phoenix area (Mtn Std Time)



Bernie Bandon 6/97

me a bit of the northern lights, appearing to shimmer eerily, iridescent, but without the obvious motion. Now I understood the difficulty others have of describing the view. I grabbed the video and did a quick shot of the sky all around. Tom's wife Barb commented on the red color (prominences, chromosphere?) now appearing at the bottom edge. As I took a look through the binocs, the color appeared only fleetingly, as Bailey's Beads began to form. Suddenly a brilliant spot of sunlight grew in brightness at the 6 o'clock position to form a classic and beautiful diamond ring. It seemed to last over five seconds, spreading along the lower rim. Within seconds, the sunlight streamed out the bottom of a "crack" in the black hole and the observing deck was once again bathed in sunshine. Shadows returned, our dusk-adapted eyes once again squinting to get a last glance, and after a few seconds, a spontaneous applause went up. The celebration was tempered with the reality that it was over (so quickly!). I was visibly shaking from the experience (pent up relief/anticipation?). Whatever it was, it had a physical effect on me that stayed for maybe a half-hour.

As the event completed, and aware that I had witnessed a very special event, I didn't immediately feel compelled to chase future eclipses, as others sometimes do. I certainly felt it was as impressive as any of the other awe-inspiring celestial observations I have been fortunate enough to witness, but to me it was a lifelong goal achieved. I had one more experience I could call my own and one more priceless memory to share, and that was plenty. My wife, however, feels compelled to experience another cruise or two.

My First Total Eclipse

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This was my first total eclipse in over twenty years as an active amateur astronomer. I'm not hooked on eclipses and don't plan to chase them, but I was as impressed as anybody by the spectacle. Not much of what I have to say here will sound particularly new to seasoned eclipse chasers. Still, I feel the need to throw in my two cents.

A group of five of us set up on Aruba. Actually, the location was Sonesta Island, a 500 m by 50 m reef just off the main island owned by the Sonesta Resort. Palm trees provided shelter from the incessant 20-mph east winds. Less than a hundred folks were in our little alcove, so it was hardly crowded.

Weather became a concern early. Just before first contact, the sky was completely overcast with low cumulus, and a few sprinkles fell. The sky situation gradually improved, and the lighting became very interesting when the sun was more than 75% covered. At 95% coverage, the green of the water and palm trees was beyond belief, and the sky took on a muted appearance that was especially pronounced near the sun. From this time through totality, and for an hour afterward, our sky was 25% to 50% covered by racing cumulus clouds. I understand the sky was clear from Baby Beach to the southeast. The nicer locale was some consolation, though, and I was content not to be constantly reminded of the world's second largest oil refinery a couple miles away on the beach horizon.

I started out very rationally, making descriptions of the lighting all the way to the Diamond Ring. It lasted for 10 or 15 seconds, but it's hard to say when the Diamond Ring officially begins. Most impressive during second contact was one prominent lunar mountain that broke the arc of the photosphere during the latter stages of second contact. I went from not-too-rational to completely ga-ga when the big 'dimmer knob' on the sun was so rapidly turned down. It really took that last tiny bit of the photosphere to be hidden for the color of the palm trees and the shadows to finally go away. And it wasn't until totality that those magnificent planets became visible! This framing of the corona remains my favorite aspect of the entire event. I learned later that Mercury was at -1.6 magnitude—at nearly Full phase behind the sun and about as bright as it gets.

For a first eclipse, it turned out to be wise to only photograph through one camera, and it was a low-maintenance fisheye view (Three mediocre pictures at www.psiaz.com/polakis/ecl98/ecl98.html—this is not a competition!). Equipment was hardly in my way. I viewed through a 80 mm finderscope at 20x while clicking a cable release and turning the shutter dial without even looking at the camera.

I have to admit that my fascination with the corona caused me to miss some of the prominence detail that everybody else seemed to catch. I only remember a lot of pink beads around the disk of the moon naked eye that probably needed more magnification that my little scope provided. But that corona! As has been mentioned, the glowing aspect just doesn't come out in even the best photographs. Also, it may have been just excitement, but there sure seemed to be a multitude of polar brush "bristles". The equatorial coronal streamers reminded me of a natural gas flame. This was apparent even at 1x with the naked eye.

Taking time to look around at the surrounding scene was worthwhile. The twilight appearance of the western horizon was brighter than I'd anticipated. It looked like only 20 to 30 minutes after sunset. It was against all experience that the sky should be darkest near the sun, and I estimated that the darkness way up there was similar to the zenith 45 minutes after sunset. Amazingly, an airplane landed on Aruba *during totality*, and this is captured on my fisheye shots. Venus popped out from behind a large cloud just before third contact, and was unimpressive against a bright sky.

The second Diamond Ring was equally impressive. I needed to pull my eye away from that eyepiece at that time, as the corona was still plainly visible on the opposite limb while the sun shone through the lunar valleys.

I've mentioned to some folks' disappointment that I'm not hooked on eclipse chasing. In fact, my next week-long trip may well be yet another Southern Hemisphere deep-sky viewing expedition. My first of four to date (Brisbane twice, Chile, and Sydney) was in 1988. Now the southern sky is something I'm hooked on! For a three minutes of euphoric observing, you can't beat a total eclipse, but for a week or two of real enjoyment, I'll take 47 Tuc, the Tarantula Nebula, and NGC 2808 anytime.

RTMC '98

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Tony Ortega and I commuted to the Riverside Telescope Makers Conference for the third straight year. On the drive over, Tony referred often to getting stories, much as he does in his work for the Phoenix *New Times*. This year's RTMC was rich with stories.

Upon arriving Friday, we were quickly whisked away from the conference by Patti Kurtz and Andrea Gianopolous from *Astronomy* magazine. In two months, Patti will be the *former* Photo Editor of *Astronomy* magazine, a job that will somehow be picked up on an interim basis by Dave Eicher. Patti can't take Wisconsin any longer, and is returning to her home in Denver. Andrea is *Astronomy* magazine's newest editor, and is responsible for the hobby well, including my observing articles. They took us and about twenty others, mostly photographers, into Big Bear City for dinner. Tony and I found ourselves in the company of Tony Hallas, Bill Fletcher, Chris Schur, Jean Mueller, Charles Morris, and Jack Newton. "We're among astronomical royalty," Tony told me.

We arrived back at Camp Oakes long after dark. We'd missed out on the Friday night show-and-tell, which culminated in Bob Yen's presentation about the trials and tribulations of setting up his twelve-ring circus of camera equipment for February's solar eclipse in Curacao. Somehow, every piece of equipment ran flawlessly, and he came home with results that should have required a dozen people. Later, he would tell Patti and I about experiences on the wrong end of guns in the California desert. A day in the life of Bob Yen. I told Patti, "He's got a million of 'em."

Never before have I experienced as little down time at a Riverside meeting. With clear skies being the rule, it was difficult to catch the needed afternoon nap. Although it is still dubbed a telescope makers' conference, the talks could consume any free time not spent perusing the swap tables and meeting old friends.

Bob Bell led off Saturday's talks with a discussion of early results with an adaptive optics unit for the SBIG ST-7 and ST-8 CCD cameras. He noted that in order to get 20 Hz corrections of the seeing conditions, guide stars need to be several magnitudes brighter than the usual two-second guiding corrections. Despite the impressive results in the starry fields of M1 and M42, the 1/20 second exposures all but eliminate the chances of planting guide stars on a 4'x3' chip when photographing galaxies away from the Milky Way. I thanked him for saving me a lot of money!

David Chandler followed by describing his observations of cometary orbital streams. Chandler pointed out that these extremely faint remains of comets criss-cross the entire sky, and showed how they can be plotted using his software. An anti-tail is one such stream viewed from its plane. He claims to have viewed these repeatedly in his 13-inch Coulter. His observations have been met with some disdain by the amateur and professional community, including CBAT's Dan Green, whose terse reply all but shut Chandler down from

their viewpoint. After a set of lightweight questions from the crowd, JPL's Charles Morris blasted Chandler by arguing that they aren't confirmed by anybody, and don't show up on the Palomar Sky Survey. "It's not science," Morris grumbled as he sat down from his rant. Chandler invited observers to see for themselves on the field that night. Stay tuned, as this subject is not yet closed.

John Dobson called his talk "The Dark Matter", which as he said, allowed him to talk about pretty much anything. He explained redshift with the usual comparison to a freight train. "The reason you hear the pitch change from high to low is that the train did not hit you."

Kelly Beatty's talk was about the loss of youth in amateur astronomy, as revealed by *Sky & Telescope* magazine's surveys of readership. He outlined what we can do about it, not the least of which is to support the International Dark-Sky Association. Dennis di Cicco showed how he goes about discovering asteroids, and how rare it is for him *not* to discover them. Any competent individual with an 8-inch telescope and a CCD camera should be able to reproduce his success given the time. The fact that so few other people are discovering asteroids may relate to Beatty's subject. With other things to do, I missed presentations by Paul Chodas and Eleanor Helin.

I participated in two of six "workshops", a new idea for the 1998 RTMC. Wayne Johnson moderated a panel consisting of Billie Chandler, John Gossett, and myself, who were supposed to give pointers about deep-sky observing. Unfortunately the full 45 minutes were consumed by us talking, and little interaction with the audience happened. Lesson learned.

Two of the next day's workshops were much more successful. Chris Schur moderated an astrophotography panel with Dan Schecter, Alberto Levy, Tony Hallas, and Bill Fletcher. Before a standing room only crowd of about 60 people, the panel came off as very relaxed and informative, and Chris kept the discussion moving along nicely. I followed Chris with a panel that discussed star charting software. Tom Bisque, David Chandler, Jeff Medkeff, and Bob Havlen answered questions in a very non-competitive fashion that resulted in a lot of good information for the group. With some modifications, especially setting up a larger room, the workshops should be a highlight of future RTMC's.

Tony Ortega talked about his Robert Burnham story for The *New Times* and *Astronomy* magazine. After Tony's talk, Burnham's sister, Viola Courtney, said a few moving words about her brother. The hour bought some much needed emotion to the conference.

Chris Schur followed with a presentation of digitized astrophotographs. He showed how a slide scanner and digital image processing can enhance emulsion-based images, and pointed to the larger sky coverage offered by film. Jack Newton presented CCD images taken with his 25-inch and its replacement: a Meade 16-inch SCT. Jack disposed of the 25-inch after a severe injury brought on by a ladder incident. He will soon be moving from British Columbia to Florida. I am sorry I missed Jeff Medkeff's talk due not to Jeff, but to saturation with a dark, stuffy room on a gorgeous day.

The nights on the telescope field were enjoyable, but as usual, not filled with new deep-sky views. Once a large scope locks onto M13 or M51, it's there for hours to please a never ending line. The area by the lake provides a much more relaxed observing atmosphere, but again, this ain't TSP. At least the supernova in M96 provided some relief from the same ol' objects. The sky was about as good as it can get from Camp Oakes, appearing unaffected by Mexican smoke by day, and as Gene Lucas pointed out, well sealed from the lights of the basin below by an incredible fog and crud blanket. For Phoenicians, the sky quality was somewhere between that of Dugas and Table Mesa, with a zenith magnitude limit just better than 6.

One unique arrangement worthy of mention was a 10-inch SCT housed in a dome that was retrofitted inside an RV. The owner lives in Bishop, and entertains thousands of school children per year with views in the comfy trailer. Bob Summerfield brought the 36-inch Yard Scope again, but the lines were just too discouraging to bother. The CCD'ers were thankfully all located at the far end of the field, with bright monitors pointed away from observers. Let's hope this trend continues.

Phoenix was again well represented. From the East Valley Astronomy Club were Anne Beeby, Sam Herchak, Silvio Jaconelli, Aaron McNeely, and Steve

Smith among others. Poor Silvio won a 35 mm Panoptic eyepiece as a door prize. And dammit; it's an item he already owned! Now he has a crisis on his hands.

I'll admit that I was reluctant to attend the RTMC under a New Moon. If they continue to be as interesting as this year's conference, I won't think about the moon's phase again.

Occultation of SAO 139602 by 25 Phocaea

Randy Peterson, EVAC
RGP141159@aol.com
May 13, 1998

An occultation is when one celestial body passes in front of another; in this case, an asteroid passing in front of a star. The star has an SAO designation; the asteroid was the 25th discovered. Bill Peters and I enjoy the challenge of trying to observe such a dynamic event; this was Bill's 12th attempt, my 10th, and our try at only a second actual occultation. After checking with Pierre Schwarr and others, and plotting out on an Arizona map the best prediction of the path of the "shadow" of the event, Bill decided that Arizona City, about half-way between Tucson and Phoenix, would be a good observing site. Not only did it lie near the center of the path, but it was a little farther east of the site at Vekol Road, which we thought might give us a slight advantage of a minute or two of earlier sunset. Since the occultation was predicted to happen during evening twilight, we wanted every advantage we could get.

All of our previous attempts at observing an occultation were well after sunset: this was the first during sunset. Since I wasn't sure if I could find the star during evening twilight, I practiced trying to find it on the 11th and 12th from my backyard. I was unsuccessful on the 11th in finding it before 7:53 pm. Since the nearest bright star, Spica, was only about 7° away, I decided to try to adjust my Telrad for the offset. Instead of the finder pointing in the same direction as the main telescope, I adjusted the Telrad so that when it was pointing at Spica, the telescope would be pointing at the SAO star. This seemed like a good thing to do, as Spica became visible well before the dimmer SAO star. On the 12th, I again set up the telescope in the backyard, and aimed the Telrad at Spica, using the settings from the night before. Spica was easily visible by about 7:30 pm, but the SAO star was not in sight in my 10" telescope, even though it was aimed at the right spot. At about 7:48 pm, just 5 minutes before the time of occultation, I still couldn't see the SAO star! It finally came into view as the sky became a little darker at 7:50, just 3 minutes before the next day's time of occultation! So the Telrad offset worked!

The other challenge was taking the telescope to Arizona City and polar aligning it before Polaris was visible. I purchased a cheap compass, lined it up with the northern leg of the telescope tripod, and found that the north leg of my polar aligned scope was actually aimed at 348° to magnetic north. This is how the telescope was set up once we reached our remote site, and it seemed to work OK. It was not aligned well enough for photography, but the clock drive tracked the star field well.

We left Mesa about 4:45 pm, allowing plenty of time to set up our equipment once we got to the field. Bill led us directly to the site, one that I had not been to before. When we were within a mile of our destination, after traveling for about an hour and a half, we encountered a gate with a sign that read private property, no trespassing! After hesitating for a minute, we decided to go ask permission, which we did. We were fortunate to find Ray Farnsworth at the house, and he was extremely gracious in granting us permission to set up our scope and equipment on his property. We talked with him for a few minutes, and he has an insatiable interest in things astronomical just like us!

The observing site is a little more than ½ mile from the "main" road, and it didn't take very long to set up our equipment—a 10" Newtonian telescope with clock drive, a step stool, binoculars, binoculars tripod, and a roll-up card table where we put a short wave radio tuned to WWV (Coordinated Universal Time signals), a tape recorder, and our finder chart. The anticipation of the coming event made time seem to pass quickly. We were set up an hour before the predicted 7:53 pm time. Since us long-time Valley of the Sun people cannot fathom the weather being cool in May, we did not bring enough warm clothing. As the sun began to set, it started cooling off, so we sat in the car and talked to pass the time.

About 10 minutes before the predicted time, we left the car and started up the short-wave radio and tape recorder and began attending to the eyepiece of the telescope. The wind was blowing so briskly that the telescope was vibrating in the breeze, playing havoc with the star image in the eyepiece. Looking to the west, we saw clouds approaching. The high, thin clouds had already arrived, but so far no thick blanket was obstructing our view of the coming event. Will we be able to see the occultation before the sky clouded up, we wondered? About that time, a vehicle drove up, and, as it approached us, turned its lights off. We began to speculate who it could have been from the club, as who besides another amateur astronomer knows to dim their lights when approaching a "star party?" It turned out to be Ray Farnsworth, who was interested in taking a peek through the scope and talking to us. A very friendly man, Ray was a good conversationalist while we were waiting for the magic moment. About 7:48 pm, I yelled out "I can see the star!!!!!!" The SAO star became visible about a minute earlier than it had the night before from my backyard! We began rejoicing in this, as our fear of not being able to see the star because of the twilight and light cloud cover was unfounded. As the time came up on 7:53 pm, the intensity of observing the SAO star increased. Bill said to Ray, "if we are able to see it, it should happen in the next few seconds." Within a few seconds after that, the star disappeared! I immediately hollered "it's off". The star was not visible for 6.76 seconds. When it re-appeared, we got that on the audio tape too. Our second successful occultation! Bill and I did a "high-five." When you try 10 or more times, and only have one previous success, this is a rare occasion, and we were feeling elated. Ray was still interested in observing, so we spent the next hour looking at double stars, clusters, and talking about astronomy in general. Bill and I finally had to pack up and leave, but the adrenaline high helped keep me awake on the way home. We can't wait to try for our third!

EVAC Meeting Highlights

Robert Kerwin, EVAC
p24493@NAmerica.mot.com
May 13, 1998

EVAC President Sheri Cahn called the meeting to order at 7:40 pm. About 50 people were in attendance with two new members present. After introductions of the board members and officers, Sheri updated us on the following events:

May 18th—Local Star Party at Florence Junction
May 25th—Deep Sky Star Party at Vekol Road
June 10th—Next EVAC Meeting at SCC.

Sheri then called for comments on the Picacho Peak evaluation on the night of April 18th. Most comments were negative and centered around the light pollution from Eloy and truck stops near the I-10/I-8 interchange. After a quick vote, the decision was made to keep the All-Arizona star party at the Farnsworth site for this year.

Silvio Jaconelli updated us on the Adopt-A-Highway cleanup in April. Thirteen people attended and, as usual, some interesting items were found. After the cleanup, the crew went to Village Inn in Apache Junction. Everyone had a great time and Silvio encouraged people to sign up for the next one this fall.

Next, Robert Kerwin presented Bob Anderson with a Messier observing award for observing and submitting observations on all Messier objects. Bob is the second person to receive an EVAC observing award. Robert also mentioned that Bob went down to the Arizona City site on the Friday before the rained-out Messier Marathon in March. Bob logged all 110 objects, but unfortunately the official Marathon was canceled, so he came away empty-handed. Congratulations anyway, Bob!

Finally, Sheri mentioned that the July meeting would be a show and tell night, with possibly a swap meet. If you are interesting in participating, please contact our Vice President, Kathy Doyle.

The show and tell segment was next. Tom Polakis presented some pictures of a beautiful conjunction of Jupiter and Venus, with a nearby crescent moon. Chris Schur followed up with some stunning pictures of galaxies on Tech Pan film and Joe Orman rounded out the show and tell with some nice photos of the Picacho Peak star party, the conjunction, and a few nightscapes.

Our main speaker was Steve Coe, whose topic was meteors with an emphasis on this year's Leonid shower.

Some of the interesting facts presented in his lecture were:

- Only about 5% of all meteors are of the iron-nickel variety, the easiest to find.
- Meteor Crater in northern Arizona, which is over 4000 feet across, was created by a meteorite only 25 feet across.
- Meteors come from comets.
- Of all the meteor showers throughout the year, the Leonids are the most prolific. Previous displays have had rates into the thousands per hour.
- The Leonids peak on November 11th.
- Prospects are good for both 1998 and 1999.
- Make an effort to get out and observe the Leonids!

After Steve's lively and informative lecture, the meeting adjourned and members gathered around for refreshments and socializing.

June's Guest Speaker

Our guest speaker for June is Rogier Windhorst, Professor and Associate Chair of the Department of Physics and Astronomy at ASU. Dr. Windhorst will discuss the most recent discoveries from the Hubble Space Telescope.

Name Badges

The following EVAC members need to pick up their name badges that they have purchased and ordered:

Bob Erdmann
Patrick Gavin
Evan Pomerantz

Get in touch with Kathy Woodford, the treasurer, or pick them up at the next meeting.

EVAC Web Site Updated

Robert Kerwin, EVAC
p24493@NAmerica.mot.com

I have just completed another round of updates to the EVAC Web site. The changes include the following:

1. The home page has been reformatted and now includes a column for news and events. I suppose that with this new feature comes the obligation to keep it up to date....

2. I have added a page for links to member astronomy sites. If you have a homepage with astronomy content, please send me the URL and I will gladly add a link to this page. Right now there are only two links.

3. I have added a page for "Star Party Etiquette" linked from the star parties page.

4. I have made a couple minor corrections and fixes: The EVAC logo was not displaying on the membership form and the meeting page contained some old information about the room change.

The EVAC Web site is located at: www.goodnet.com/~rkerwin/evac/evac.html. I hope you enjoy your visit to the site. As always, if you experience problems with the site or have suggestions for improving it, please let me know.

Astro-Quiz

What is the largest refracting telescope that has ever been built?*

Editor's Corner

M. Aaron McNeely, Editor
amcneely@primenet.com

I am proud to present an all-EVAC edition of this newsletter and want to thank the following EVAC members for their help and contributions: Kathy Doyle, Joe Goss, Robert Kerwin, Randy Peterson, Tom Polakis, Bernie Sanden, Bill Smith, and Kathy Woodford.

*Astro-Quiz Answer: The great Paris 49.2-inch refractor, first exhibited at the Paris Universal Exhibition of 1900.

East Valley Astronomy Club

Membership Form

Please complete the information on the form and return to the address below along with a check payable to EVAC for the appropriate dues amount. See below:

Kathy Woodford, EVAC Treasurer
PO Box 213
Apache Junction, AZ 85217
Call: 857-3438 evenings

Enclosed:
___$20 annual
___$15 April -Dec.
___$10 July - Dec.
___$ 5 Sept.-Dec.

Please Print

Indicate any information you want kept confidential.

Name _____
Address _____
_____ Zip _____
Phone # _____

Email address _____

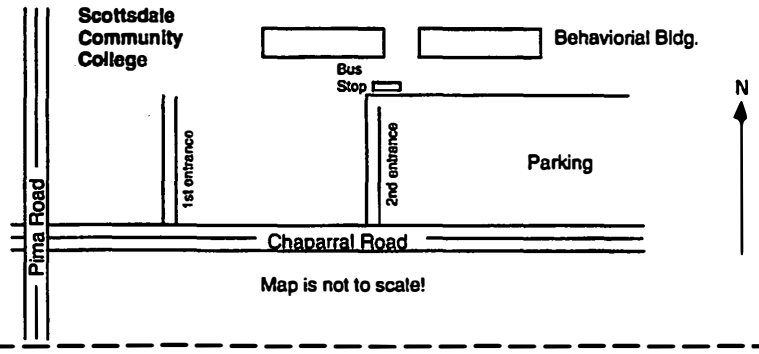
( ) New ( ) Renewal ( ) Change of Address

If you have have a web page or URL, please indicate address _____
How did you hear about the East Valley Astronomy Club? _____

Major area(s) of interest:
( ) General observing
( ) Lunar observing
( ) Planetary observing
( ) Telescope Making
( ) Astrophotography
( ) Deep Sky
( ) CCD/Computer
( ) Other _____

CLIP AND SAVE

Monthly business meetings are on the 2nd Wednesday of each month at 7:30pm.



East Valley Astronomy Club
M. Aaron McNeely, Editor
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Valued member since 3/16/97

Next EVAC Meeting — June 10 7:30 pm

East Valley Astronomy Club—1998

Scottsdale, Arizona

EVAC Homepage—http://www.goodnet.com/~rkerwin/evac/evac.html

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602/953-8184

TREASURER
Kathy Woodford
602/857-3438

SECRETARY
Don Wrigley
602/982-2428

PROPERTIES
Enrico Alvarez
602/837-0486

MEMBERSHIP & SUBSCRIPTIONS: $20 per year, renewed in December. Reduced rates to *Sky & Telescope* and *Astronomy* available. Contact Kathy Woodford, P.O. Box 213, Apache Junction, AZ 85217, 602/857-3438. Email—ariz.kat@juno.com

CLUB MEETINGS: Second Wednesday of every month at the Scottsdale Community College, 7:30 pm. Normally Room PS 170 or 172 in the Physical Sciences Building. See map below.

NEWSLETTER: Mailed out the week before the monthly Club meeting. Send contributions to M. Aaron McNeely, 4402 North 36th Street, #22, Phoenix, AZ 85018, 602/954-3971. Email—amcneely@primenet.com Contributions may be edited for length or clarity.

ADDRESS CHANGES: Contact Bill Smith, 1663 South Sycamore, Mesa, AZ 85202, 602/831-1520. Email—bsmithaz@aol.com

EVAC LIBRARY: The library contains a good assortment of books, downloaded imagery, and helpful guides. Contact Enrico Alvarez for complete details, 602/837-0486.

BOOK DISCOUNTS: Great savings through Kalmbach and Sky Publishing. Contact Don Wrigley, 423 West 5th Avenue, Apache Junction, AZ, 602/982-2428. Email—donwrig@juno.com

EVAC PARTY LINE: Let other members know in advance if you plan to attend a scheduled observing session. Contact Robert Kerwin, 602/837-3971. Email—p24493@email.mct.com