

East Valley Astronomy Club

August

Newsletter

1995

EVAC MEETING HIGHLIGHTS

Robert Kerwin started the meeting at 7:35 PM with approximately 45 people in attendance. Robert asked for visitors and new members to stand and introduce themselves and three braves souls stood up. Tom Polakis then reported there were still 3 seats available to the August 12th Kitt Peak tour. Don Wrigley then arrived and took over the meeting.

EVAC Business Cards

Somewhat generic Club business cards have been obtained for members to pass on to anyone interested in EVAC. They give the location of our meetings and have space for you to write in a name and number to contact for more information. These cards were distributed to those present. If you missed out, catch Don Wrigley or Sam Herchak at another meeting for yours.

All Arizona Star Party Site

EVAC will sponsor this star party on October 21st. It's the last statewide get together of the year and a better site (with less dust) than the current Arizona City location is being sought. Please contact Don Wrigley soon if you have any ideas.

VIP Destinations Star Party

On Friday, September 8th, EVAC will be putting on another star party at the Camelback Inn, from 7 PM until midnight. We need at least 4 telescopes and their operators. You will be treated royally while there and this event will raise \$450 for the club. If you want to help, please call Don Wrigley.

EVAC Print Shop

Club member works for a repair service and can get a refurbished copy machine at a very modest cost. With a copier of our own, we could reduce our printing costs for fliers, newsletters, etc. Servicing the copier will be done

at no charge by Ken Spruell. The only thing stopping us is a place to keep a full sized floor copier! If you have room (even in a garage) that you'd be willing to donate for this cause, please contact Sam Herchak.

Show and Tell

The ever prolific Tom Polakis showed some slides he took with a 15mm f/2.8 fish-eye lens. This lens has a field of view of 150 degrees. There were several atmospheric shots, one showing a rare wave cloud formation. One of the night slides was of the winter sky showing the Winter Circle. He also had some slides from his visit to the Texas Star Party. *Many thanks to Bob Kearney who took these notes in the absence of the Club Secretary.*

Featured Presentation by Bob Kearney

Steve Coe of the Saguaro Astronomy Club gave an entertaining talk on eyepieces. But first he gave a quick report on the Sentinel Star Party; it was clouded out both nights. Steve then returned to the subject at hand. He started with a basic talk of the principles of eyepieces. The function of the eyepiece is to act as a small microscope to magnify the virtual image produced by the telescope. >>

UPCOMING CLUB EVENTS

EVAC Club Meeting, Aug. 9, 7:30 PM (BOD 6:30)
SCC, Physical Sci. Bldg, Room PS 170

Kitt Peak Tour, Aug. 12, 7:00 AM
Valley Fair Shopping Plaza, Tempe

Local Star Party, Aug. 19, Sunset 7:10 PM
Florence Junction Site

Deep Sky Star Party, Aug. 26, Sunset 7:05 PM
Vekol Road Site

There are 3 types of eyepieces; standard field, wide-field, and ultra-wide field. The latter can only be produced with computer assistance in grinding the steep curves of the lens. Some of the new ultra-wides suffer somewhat to the aberration known as the kidney bean effect. It is felt that the effect is caused by the steep angles of the light path through the eyepiece. It varies from person to person.

The ideal magnifications for a set of eyepieces would be 50X, 75X, and 200X. Add to that a 2X Barlow lens and you would cover the useful magnification range of most telescopes. An excellent set of these eyepieces would probably run \$1000. Fortunately, you can get a good set for considerably less. There was a round-table discussion on the best general purpose eyepiece. The consensus was for either a 24 or 32mm Super Plössl.

After the talk, Steve answered questions as we sampled some delicious brownies provided by Sheri Cahn's bakery. Don Wrigley also provided sodas to quench everyone's thirst.

GUEST SPEAKER

IT'S YOU! The August Club Meeting is a "Show and Tell" night, where members with ideas, stories, projects, photographs, and anything else related to the sky can be shared with fellow members. Five to ten minute presentations are ideal. Right now, nobody has called Robert Kerwin to sign up so it might be a very short meeting! Actually people probably just haven't bothered to call him—please pick up the phone now if this is the case. Call Robert Kerwin at 837-3971.

Swap Meet

We will also feature a swap meet at the meeting. Consider bringing those items you haven't used in years to sell or trade while we have refreshments following the presentations.

EVAC BOARD OF DIRECTORS MEETING

BOD members are reminded of the quarterly meeting at 6:30 PM in Room PS 170 at SCC. Please contact Don Wrigley if you have any new business you would like to discuss.

A MID-SUMMER OBSERVING SESSION

by Bob Kearney

Some day, I would like to discover a new comet. It is one of those things that I dream about doing. Recently I came close to realizing that dream. On the evening of July 22, my wife Jane and I decided that we would go stargazing at the Florence Junction site. It wasn't a scheduled star party night, but I called Robert Kerwin and he told me others were planning on being there. With the forecast of clear weather and it being

monsoon season, we weren't going to let this opportunity pass.

While Jane and I were setting up our equipment other members of EVAC began to arrive. Robert was there, along with Frank Horner and after dark, Don Wrigley arrived. All told there were ten of us there. It looked like it was going to be a very good night.

As soon as dusk approached, I started observing Jupiter. Jane started her search for Messier objects with the 20x80 binoculars. When it got dark, I started viewing a number of the summer globular clusters. First was grand M-4, to the right of Antares. From there, on to M-80 and other globular clusters in Ophiuchus.

As the evening progressed, I worked my way from Scorpius to Sagittarius, checking the various Messier objects. With no set itinerary, I checked out M-7 and M-6, the 2 large open clusters at the tail of the scorpion (how appropriate for the desert). Next were the gaseous nebulae in Sagittarius, the Lagoon (M-8), the Trifid (M-20), and the Swan (M-17).

I then went back to observing some of the globular clusters in Sagittarius. The first one I viewed was M-22, one that I always have to check out. It never fails to impress me with its radiant glow. Visually, I feel it is brighter than M-13 in Hercules. The next one that I checked out was M-75; very small and compact. After that, I was sweeping along the bottom of the Teapot, viewing the globulars along the way. I would like to think that as I was moving from M-70 to M-69, I would have glimpsed a small fuzzy glow. But it was not to be, not this time anyway. It was 8 days later that I learned that Comet Hale-Bopp was discovered in that very region, at about the same time I was scanning through! (See following article).

The highlight of the evening was when we saw what I suspect was a bolide, a bright exploding or fragmenting meteor. It lit up the sky and cast shadows. I was looking in the general direction and saw the flash of light. Jane was looking in another direction and saw her shadow. I believe everyone out there either saw the flash or their shadow! It reminded Jane of a plane crash she had witnessed years ago.

While I was looking at M-75, I decided to find Uranus. Since it was just a short distance away, I found it rather easily. I have been viewing Uranus since 1984 and the bluish green disk is very distinct.

As the session was drawing to a close, I looked at a ringless Saturn. The planet looks strange without its rings. It looked like a pale imitation of Jupiter. I was glad the monsoons held off for that weekend. All in all, it was a very good night for observing.

Comet Hale-Bopp

On the morning of July 23rd, two amateurs discovered a new comet just south of the Sagittarius Teapot near the globular cluster M70. Alan Hale in Cloudcroft, NM, and Thomas Bopp near Stanfield, AZ, were both using 16-inch reflectors. They described the comet as a tailless, 11th-magnitude glow. Thanks to hundreds of positional observations, calculations by the IAU's Central Bureau for Astronomical Telegrams now show Comet Hale-Bopp to be a whopping 7 astronomical units from the Sun—well beyond Jupiter, and farther away than any comet discovered by amateurs before. The fact that it can be seen at all suggests it may be experiencing an outburst, which might be making it appear 5 to 10 magnitudes brighter than normal.

Meanwhile, Warren Offutt, a New Mexico neighbor of Hale, used his 24-inch reflector and a CCD to record a "spiral coma," an appearance typical of Comet Schwassmann-Wachmann 1 after its own outburst. Moreover, Offutt says the new comet has shrunk and dimmed a little in the past week. *Sky & Tel* columnist John Bortle notes that when an outburst occurs in a comet, a second outburst sometimes occurs about 30 days later. Bortle was intrigued by the comet's fan-shaped head when he observed it on July 31st.

According to Marsden the comet will reach perihelion in March or April of 1997, just inside the Earth's orbit. It will grace the predawn sky for northern observers that spring, but how bright it will get is still anybody's guess. For now it's magnitude 10 or 11 and crossing Sagittarius. Here are Hale-Bopp's 2000 coordinates for 0 hours Universal Time:

	R.A.	Dec.
August 1	18h 38.0m	-31d 55'
August 6	18h 34.7m	-31d 46'
August 11	18h 31.7m	-31d 35'

New Satellites of Saturn

When Earth passed through the ring plane of Saturn on May 22nd, observers Amanda Bosh and Andrew Rivkin used the Hubble Space Telescope to detect two, and perhaps four, new satellites of Saturn. These objects are too close to Saturn and too faint to be seen near the bright ring system ordinarily. But the rings' edge-on geometry made their discovery possible. Two of the sightings could be of two known moons, Atlas and Prometheus, but the Hubble locations don't correspond to where their orbits predict they should be. The others, which are 17th and 18th magnitude, are clearly new objects. An image from HST's May 22nd run appears on page 11 of *Sky & Tel's* July issue.

Are you an amateur astronomer? Would you be interested in playing a part in the Hubble Space Telescope (HST) mission? Many amateur astronomers already have. The Space Telescope Science Institute (STScI) is currently considering new projects that could engage amateur astronomers in an diverse range of activities—from educational outreach, to involvement in astronomical research projects.

Amateur astronomers have always played an important and unique role in educating the general public—especially by turning science into something truly fun and exciting for children. The STScI is looking for ways to increase the involvement of amateur astronomers in our educational outreach efforts. This may include giving presentations at school, or helping us host a party for students that may otherwise never get a chance to see the beauty of the universe with their own eyes.

Amateur astronomers have always made important scientific contributions to their field also—more so than is any other field of science. With regards to the HST mission, several amateurs have been awarded observing time, and many others have conducted important supporting observations for other HST users. We would like to set up more amateur observing projects that support the HST research. This will promote more collaboration between amateur and professional astronomers, and could also provide a way for teachers and students to participate in an observing project—a rare and exciting educational opportunity!

If you and/or your astronomy club is capable and interested in working with us, and with science teachers and students at any level, please contact us. To help us prepare such projects, we need your input and enthusiasm. Please contact Max Mulcher at the address listed below, or call (410)-338-1321, or email to multcher@stsci.edu. Don't hesitate to contact us—you may be able to play an important role in the HST mission

Space Telescope Science Institute
3700 San Martin Dr
Baltimore, MD 21218

This notice was sent to the editor by a friend and fellow amateur, Roy Diffrient, who lives in the Baltimore area.

EVAC MAKES THE PAPER!

The July 13th edition of the Mesa Tribune had a story about EVAC and President Don Wrigley. Copies will be available at the Club meeting if you missed it.

The Deep Sky Notebook

by Robert Kerwin

Deep Sky "Doubles" in the Summer Sky

In the February 1995 installment of this column, I pointed out some interesting pairs of deep-sky objects. Of course, the summer sky contains its own share of deep-sky "doubles." In most cases, these pairings are really nothing more than chance alignments of completely unrelated objects. From an observer's standpoint, however, it means two objects for the price of one!

The first pair of objects is probably also the most beautiful. NGC 6520 and Barnard 86 lie just under four degrees directly south of M8. Or, if you prefer, the pair is located about two degrees north of γ Sagittarii, which forms the tip of the teapot's spout. The cluster is about 5 arc-minutes in diameter, with about 40-50 stars visible in an eight-inch telescope. The cluster contains a bright red star near the center which is surrounded by a tiny clump of stars. To the west of the cluster is the dark nebula Barnard 86, which appears as a sharply-defined, roughly oval inky patch. Under good conditions with averted vision, I have traced a chain of dark patches extending from Barnard 86 toward the east and passing just south of the cluster.

Our next "pair" could actually be considered a multiple. Just under the teapot of Sagittarius is a faint but graceful semicircle of stars—the constellation Corona Australis. The semicircle culminates in a chain of three fourth-magnitude stars toward the east. About one degree west of the northernmost of these stars (γ Coronae Australis) is the globular cluster NGC 6723. This bright cluster is about ten arc-minutes across and weakly concentrated toward the center. With my eight-inch reflector, I was able to resolve a spray of stars across the image at 180x. A mere 20 arc-minutes southeast of the cluster is NGC 6726-7, a reflection nebula. This nebula appears as a soft, irregular glow surrounding two stars. The glow is roughly four arc-minutes across and actually appears somewhat brighter than NGC 6723. Just to the south is another nebula, NGC 6729. This nebula is comet-shaped, with the tail fanning out to the east. There is a bright star in the head of the comet and another faint star involved in the tail. Further to the southwest is an easy double star (Brisbane 14) with nearly equal components and a separation of 13 arc-seconds. You may also notice that the area surrounding the nebulae is quite

devoid of stars. This is caused by Berkeley 157, a dark nebula that envelops this region.

In the northeast corner of Sagittarius is a challenging pair of objects: the galaxy NGC 6822 and the planetary nebula NGC 6818. The closest bright star to the pair is α Capricorni, about eight degrees to the east. There is a chain of three fifth-magnitude stars to the south of the pair. NGC 6822 is probably the more challenging of the pair. Though having an integrated magnitude of 8.8, this light is spread out over a very large area, making this a rather difficult object. The galaxy is about 15 x 5 arc-minutes and aligned north-south. It appears as a subtle enhancement of the sky background. Interestingly, *The Observing Handbook and Catalog of Deep-Sky Objects* (Luginbuhl and Skiff) notes that this object is more difficult in larger telescopes because of its large size and low surface brightness. Less than one degree to the north is NGC 6818, which, with its small size and high surface brightness, is a study in contrasts to its neighbor. NGC 6818 appears as a smooth, slightly elongated disk with fuzzy edges. I also noticed a slight greenish color, which is typical of small, bright planetaries.

Name	Type	Mag.	Dimensions	Const	SkyAtlas	U2000	R.A.	Dec
NGC 6520	open cl	7.6	6'	Sgr	22	339	18h 03m	-27° 54'
Barnard 86	dark neb	---	5'	Sgr	22	339	18h 03m	-27° 53'
NGC 6723	glob cl	7.2	11'	Sgr	22	378	19h 00m	-36° 38'
NGC 6726-7	diff neb	---	9' x 7'	CrA	22	378	19h 02m	-36° 53'
NGC 6729	diff neb	---	Var.	CrA	22	378	19h 02m	-36° 57'
NGC 6822	galaxy	8.8	19' x 15'	Sgr	16	297	19h 45m	-14° 48'
NGC 6818	plan neb	9.3	22" x 15"	Sgr	16	297	19h 44m	-14° 09'



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27 	28	29 *Moonset 9:01 PM	30 *Moonset 9:42 PM	31 *Moonset 10:27 PM	1 *Moonset 11:19 PM *ALL MONTH NOTES *3:51 AM Tethys Occ Rhea *8:57 PM Occ	2 *Moonset next day
3 *Moonset 12:18 AM *12:53 AM Tethys Occ Dione	4 *Moonset 1:18 AM *8:53 PM Occ Sunset 6:50 PM Sunrise 6:05 AM	5 *Moonset 2:20 AM *9:16 PM Occ	6	7 *3:13 AM Titan's shadow *7:30 PM PAS Mtg	8 *Harvest Moon *7 PM VIP Dest. Star Party *7:10 PM Mercury Elong. *7:30 PM SAC Mtg	9
10	11	12 *Moonrise 8:51 PM *4:55 AM Occ	13 *Moonrise 9:31 PM 7:30 PM EVAC Mtg	14 *Moonrise 10:13 PM *8 AM Saturn at Opposition	15 *Moonrise 10:57 PM	16 *Moonrise 11:44 PM Local S Parties
17 *Moonrise next day	18 *Moonrise 12:36 AM Sunset 6:31 PM Sunrise 6:14 AM	19 *Moonrise 1:28 AM	20 *Moonrise 2:22 AM *4:42 AM Occ	21 *Moonrise 3:18 AM	22	23 *2:19 AM Titan's shadow *5:13 AM Equinox Deep Sky S P
24 *Jupiter Conjunction	25	26	27	28 *Moonset 9:15 PM	29 *Moonset 10:09 PM *7:30 PM Mars Conj.	30 *Moonset 11:08 PM

Sep 1 - 30, 1995

Date	Start	Title	Description
9/1/95	12:00 AM	ALL MONTH NOTES	<p>CALENDAR NOTES: For Occultation details (Occ), see the "1995 Occultation predictions for Phoenix" in the Feb EVAC Newsletter.</p> <p>PLANETS: MERCURY returns to the evening sky but remains low on the horizon at sunset because of the low angle the ecliptic plane makes with the western horizon at sunset. Best chance to spot Mercury is around the 8th. VENUS is newly past superior conjunction and will appear low in the evening sky at month's end. MARS sets by mid-evening now. JUPITER is bright in the southwest at sunset and sets about 3 hours later. SATURN continues to provide a ringless view and rises shortly after sunset. URANUS, NEPTUNE, and PLUTO can all be found in the evening sky with a good finderchart. See magazines for more details.</p> <p>OBJECTS OF INTEREST: Comets d'Arrest and Hale-Bopp</p> <p>ASTRONOMICAL TWILIGHT TIMES: 1st 8:20 PM and 4:37 AM 24th 7:45 PM and 4:54 AM</p> <p>LUNAR LIBRATIONS: Maximum southern libration on the 5th combines with the maximum eastern libration on the 10th to give an excellent view of the Moon's SE limb area. Similar combination occurs between the 19th and the 23rd exposing the areas normally hidden on the NW limb.</p>
9/1/95	3:51 AM	3:51 AM Tethys Occ Rhea	One of several events involving Saturn's satellites. See magazines for more details.
9/1/95	8:57 PM	8:57 PM Occ	Occultation of star by the Moon. Several listed throughout the month.
9/7/95	7:30 PM	7:30 PM PAS Mtg	Phoenix Astronomical Society meeting, Brophy Prep, 4701 N. Central Ave. Turn off Highland into Main entrance, follow signs upstairs to Physics lab.
9/8/95	7:00 PM	7 PM VIP Dest. Star Party	Public Star Party at Camelback Inn. Contact Don Wrigley to help.
9/8/95	7:10 PM	7:10 PM Mercury Elong.	Mercury at greatest Eastern elongation. 6 degrees above W-SW horizon as twilight begins.
9/8/95	7:30 PM	7:30 PM SAC Mtg	Saguaro Astronomy Club meeting, Grand Canyon University, Fleming Bldg, Rm 105. Camelback and 33rd Ave.
9/23/95	5:13 AM	5:13 AM Equinox	Sun's position in sky crosses celestial equator on its apparent journey southward. Marks first day of Fall in N. Hemisphere.
9/24/95	7:00 PM	Jupiter Conjunction	Jupiter has near-miss with 4th magnitude star Omega Ophiuchi. Closest approach occurs before sunset but watch three of Jupi's satellites pass by during the evening.
9/29/95	7:30 PM	7:30 PM Mars Conj.	Mars comes within 1 degree of Alpha Librae.

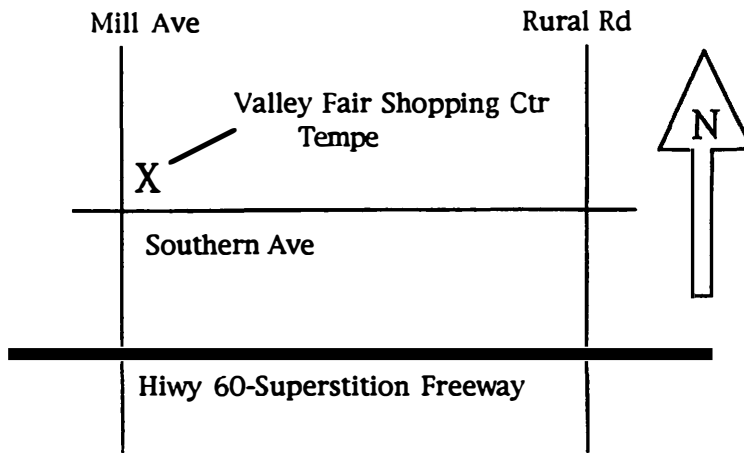


**EVAC TOUR OF KITT PEAK NATIONAL
OBSERVATORY AND THE STEWARD
OBSERVATORY MIRROR LAB**

For those who have signed up with Tom Polakis for this private tour, the time is nearly upon us! As a reminder, don't forget:

- A sack lunch for the picnic atop Kitt Peak.
- Warm clothes. It's monsoon season on a *mountaintop*.
- Money. We'll make a fast food stop on the way back. Can't forget those KPNO souvenirs either.

See Tom at the Club meeting if you have unanswered questions. He can also be reached at 967-1658.



KITT PEAK TOUR BUS STOP

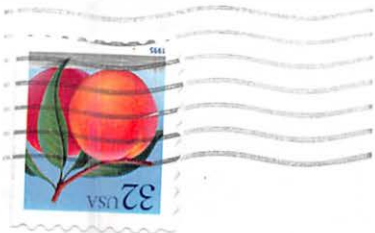
Saturday, August 12th
 Bus Departs 7:00 AM sharp!
 Returns about 9:00 PM
 Meet near Video Power Store

1995 EVAC SCHEDULE OF EVENTS

	Meeting	Local	Deep Sky	New Moon
AUG	9	19	26	26
SEP	13	16	23	24
OCT	11	28	21*	24
NOV	8	25	18	22
DEC	13	16	23	22

Other Events:

AUG 12	Kitt Peak Tour
OCT 21	*All Arizona Star Party
OCT 11	1996 Officer Nominations
NOV 8	1996 Officer Elections



EAST VALLEY ASTRONOMY CLUB
 Sam Herchak, Editor
 145 S. Norfolk Circle
 Mesa, AZ 85206-1123

EAST VALLEY ASTRONOMY CLUB

President: Don Wrigley 982-2428	Vice-President: Robert Kerwin 837-3971	Treasurer: Sheri Cahn 246-4633	Secretary: Sam Herchak 924-5981	Properties: Steve O'Dwyer 926-2028
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MEMBERSHIP&SUBSCRIPTIONS: \$20.00 annually. Reduced rates available to members for *Sky&Telescope* and *Astronomy*. Contact Sheri Cahn, 4220 W. Northern #116, Phoenix, AZ 85051, (602)-246-4633.

CLUB MEETINGS: Second Wednesday of every month at the Scottsdale Community College, 7:30 PM. Normally Room P3 170 or 172 in the Physical Sciences Building.

NEWSLETTER: Published and mailed out the week before the monthly Club meeting. Send your thoughts and stories for publication to: Sam Herchak, 145 S. Norfolk Cir, Mesa, AZ 85206-1123, (602)-924-5981. Email to: 76627.3322@compuserve.com. Faxes welcome with prior notice.

CHANGE OF ADDRESS: Notify Bill Smith, 1663 S. Sycamore, Mesa, AZ 85202, (602)-831-1520. Email to: bsmithaz@aol.com.

EVAC LIBRARY: The library contains a good assortment of books, downloaded imagery, and helpful guides and is usually brought to the Club meetings. Contact Steve O'Dwyer for complete details, (602)-926-2028.

BOOK DISCOUNTS: Great savings for members through Kalmbach and Sky Publishing Companies. Contact Sam Herchak, 145 S. Norfolk Cir, Mesa, AZ 85206-1123, (602)-924-5981.

EVAC PARTY LINE: Let other members know in advance if you plan to attend a scheduled EVAC observing session. Contact Robert Kerwin, (602)-837-3971. Email to: p24493@geppo7.geg.mot.com.