



East Valley Astronomy Club

June

Newsletter

1995

EVAC MEETING HIGHLIGHTS

The May meeting again had over fifty members and guests in attendance. Don Wrigley started out talking about star parties. The May 6th Astronomy Day Star Party at Scottsdale Community College was clouded out and a make-up is in the works for **June 10th**. Please contact Don if you can help. A star party produced by "VIP Destinations" is set for the Camelback Inn on September 8th. Food, beverage, and a donation to the Club will be provided. The details and a sign up sheet will be forthcoming.

Several guests were then recognized including a charter EVAC member who has returned to the area—welcome back! More on the membership later in the newsletter.

Spica Graze

This rare event was rapidly approaching and Jerry Rattley of the Saguaro Astronomy Club got up with Gene Lucas to talk about the most recent information, such as the predicted lunar limb profile, directions to the observing site, etc. Jerry's follow-on article will reach you after the June 9th event but contains a lot of information applicable to any occultation.

Club Library

Steve O'Dwyer had a great idea to make our library more meaningful. Many of us have collected information over the years on topics that other members would love to read, such as telescope making. Steve suggested we pick a topic, make copies of the information, and then donate it to the Club's library. He started the program by donating a collection of articles on grinding thin mirrors. I plan to copy and donate my collected articles on Newtonian reflector collimation and diagonal size. You can now research some of these hot topics in our own library. If every member contributed something, we'd have some great reference material. Please join in and help Steve with this project.

High Power Rocket Launch

Jerry Belcher then announced an exciting event over the Fourth of July weekend—Arizona's High Power Rocket Launch (this is somewhat related to Space because some of these rockets can reach 100,000 feet!). On July 1-3, homebuilt rockets will be launched from a special site near Flagstaff with waivers to normal flight restrictions. This allows hobbyist to launch just about anything they can build! Jerry displayed and described one of his 6 foot creations that should reach near supersonic velocity in a matter of seconds—if all goes well. This isn't always the case and he had some great stories about what has happened in the past.

You could make a great weekend of this watching rockets by day and stars by night (New Moon occurs on June 28th). There is lodging in Flagstaff of course, or camping in the nearby National Forests. Don't forget to visit Lowell Observatory while up there.

To get there, drive 20 miles north out of Flagstaff on Highway 89. One mile north of the Wupatki National Monument's north entrance, turn west (left) at Hank's Trading Post. Stay to the left and go another 3 miles and you're there. No admission to watch. Contact Jerry at 938-2932 for additional information.

UPCOMING CLUB EVENTS

EVAC Club Meeting, June 14, 7:30 PM
SCC, Physical Sci. Bldg, Room PS 172

Local Star Parties, June 24, Sunset 7:42 PM
Carefree and Florence Junction Sites Club

Deep Sky Star Party, July 1, Sunset 7:42 PM
Vekol Road

FEATURED PRESENTATION

EVAC was happy to welcome back Dr. Paul Scowen from AZ State's Department of Physics/Astronomy, for news and never released Hubble Space Telescope imagery. Paul and his colleagues are currently trying to develop a model for the physics taking place in H II regions found in many galaxies, including our own Milky Way.

The interstellar regions around young, hot, star clusters typically contain large amounts of hydrogen gas, among other elements. Because of the tremendous amount of energy radiated by the nearby stars, the hydrogen becomes ionized. Areas in space containing ionized hydrogen are called H II regions. These regions often glow at visible wavelengths (broadband image) and we see them as emission nebulae, such as the Orion nebula.

However, to unravel the physics taking place, it is far better to study an object using narrow band imagery (filtered) where only a tiny portion of the electromagnetic spectrum is recorded at a time. Paul had the Hubble take 1,000 second images with its CCD (a chip that registers digital images) using the very narrow emission bands characteristic of ionized hydrogen, oxygen, and sulfur. These separate images were then combined by computer to create a "photo" displaying the location and relative amounts of the three elements mentioned above.

The first such image Paul presented was near the "star" 30 Doradus in the Tarantula nebula, located about 175,000 light-years (ly) away in one of our neighboring galaxies, the Large Magellanic Cloud (see the June issue of *Sky&Telescope* for a less detailed image). Over time it was discovered this "star" is actually a very compact star cluster. The Hubble imagery now leads astronomers to believe it contains about 3,000 stars! Paul's interest lies in the effects these stars have on the interstellar gas and he explained what the images tell us about this region.

The tremendous energy radiated from hot stars pushes away the interstellar gas and creates somewhat of a "gust front" where all the matter has bunched up. Inside this front, the interstellar space only contains

about one atom per cubic centimeter! This transition zone between the two areas is called the ionization edge, and here is the physics Paul is studying.

The next slides presented brought out the oohs and aahs! These narrow band images, not yet released to the public, were of a small portion of the Eagle nebula (or M16), at a distance of 2,600 ly. Even at this distance the clarity was dramatic, showing photo-evaporation of dense gas structures and detailed structure along the ionization edge with typical sizes around 100 AU (one Astronomical Unit is the distance from Earth to our Sun)! When released in this Fall, these images are sure to create a stir in the astronomical community.

This was an outstanding presentation by Paul. We thank him for his time, patience with questions, and for including us in the forefront of astrophysics.

JUNE GUEST SPEAKER

by Don Wrigley

I will not be able to attend this month's Club meeting, but I understand the guest speaker will be James Jacobs. He is an authority on archeoastronomy, especially as it pertains to Central and North American sites. I have seen him give a two-hour presentation on this topic and found it to be thoroughly absorbing. James has spent a considerable amount of time visiting many of these sites and has amassed an outstanding collection of color slides. Be prepared for some startling and provocative insights into this relatively new and fascinating field of research.

MEMBERSHIP

Although the current roster is slightly smaller than end of last year's, EVAC membership stands at a healthy 97 people. Thanks for everyone's support and a special welcome to those listed below who are new dues paying members this year:

Bob Anderson
Brady & Jan Barnes
Steve Bell
Cliff DeVlieg
Paul Dickson
Stan Ferris
Steve Gifford
Paul Honsinger
Terry & Denise Hutchins
Silvio Jaconelli
Bob & Shawn Kuplin
Warren Kutok
Julie Levin
Paul Lind

Joe Manceau
Alan Ostrowski
Donna Patton
Evan Pomerantz
Dave Porter
David Ricks
Todd Rosen
Bernie Sanden
Mike Sargeant
Nicholas Schmidt
Pierre Schwaar
Rob Smalley
Mike Smith

EVAC OFFICERS

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
Newsletter:	Sam Herchak	924-5981
	Bob Kearney	844-1732
Club Star Parties	Robert Kerwin	837-3971

Please thank Jane Kearney for the idea of this list and Sheri Cahn for putting it together.

The President's Corner
LED Flashlights
by Don Wrigley

In my last article I talked about how easy it is to make your own red LED light for reading charts, setting up and taking down equipment, or any other activity requiring a red light. The process required the builder to begin from scratch, and fabricate certain portions of the mechanical structure. So why not just convert an ordinary flashlight to an LED and eliminate some of the bother? It would be really simple if you could just buy an LED bulb that would fit directly into your flashlight, but to the best of my knowledge they don't come that way. So, what then? You have to make your own, that's all. It can be done by simply soldering the LED bulb (which comes with two wire leads) into the metal part of your own flashlight bulb, thus replacing the ordinary filament with an LED one.

This sounds a lot trickier than it really is, but before I get into the actual technique I would mention that different activities require different intensities of light, and the light that you would use to pack up your equipment would likely be much brighter than you would need to read a star chart. I recommend the use of at least two lights—one with a bright focused beam for general purpose, and another with a dim diffuse beam for reading star charts. Fortunately, Radio Shack sells both varieties, and the process for assembling is the same in each case.

Most non-threaded flashlight bulbs have a fairly large glass bulb that can be easily loosened by wiggling it back and forth with the thumb and forefinger. It will seem stiff at first, but after a few pushes it will begin to loosen and then can be removed by simply twisting it out of the socket. A 16th inch drill can then be used to make a small hole through the lead contact at the bottom of the socket. The longer of the two wires on the LED bulb (which is the positive wire) can then be inserted out through the bottom of the hole, but first be sure to bend the shorter of the two wires back, so that it will be sticking out the top of the metal socket when the LED is lowered into the socket. Lower the LED bulb into the socket, allowing the positive wire to stick out through the drilled hole. Adjust the LED bulb so that it is approximately at the same position as the filament in the original bulb, and solder the positive wire to the lead base of the socket, being careful not to overheat the joint and melt the lead base away. The shorter wire can then be bent down to touch the metal casing of the socket and soldered in place. Use wire cutters to trim off any excess wire from the soldered joints, and it should be ready to put back into the flashlight.

Threaded bulbs are not so easy to loosen by hand, and might have to be broken by setting the glass portion on its side and tapping it lightly with a small hammer. If

you have access to a Dremel tool, you can remove the glass with the small cutting wheel. You will still have to remove the glass from the inside of the socket, and that is not always so easy. Trying to pry it out with a pointed object is somewhat hazardous, and is not recommended. Try gently squeezing the threaded portion of the socket with pliers until the glass shatters, then drill the 16th inch hole through the lead base and complete the process as before.

Sometimes the insulation around the lead base will break away, leaving a gaping hole in the bottom of the socket. If this should happen just reverse the order in which you solder the wires in place; that is, solder the shorter wire to the side of the casing first. That will lock the LED bulb in place. There is nothing to solder the long wire to because the lead base is gone. No problem! Replace the missing insulation by mixing up a small batch of epoxy and filling the base of the socket all around the wire. When the epoxy hardens, trim off the excess wire and solder a small drop of lead to the bottom of the wire. The bulb will then be ready for use. If you want a bright light, use the super-bright LED (Cat. No. 276-087). This bulb, in a small "AA" flashlight, will produce about the same amount of light as one of those military style flashlights with a red filter, and it will get a lot more mileage out of the batteries. For a dimmer, more diffuse light use the red LED Cat. No. 276-041. This bulb works better if you remove the flashlight's silvered reflector or spray paint it white.

So there you have it: For under two dollars you can convert your flashlight into a highly efficient red LED light that produces a much purer color than any filtered white light. If you don't have the required equipment, or have doubts about your soldering skills, pick up the LED bulb you want from Radio Shack and get it over to me, along with the original bulb. And don't throw away those burned out bulbs! They are perfect for converting to LED, and I don't have to feel funny about ruining a perfectly good bulb!

GRAND CANYON STAR PARTY

Anyone participating in the GCSP (June 17-24) who has not told Dean Ketelsen and/or received the park entrance fee waiver, please contact Sam Herchak (924-5981).

KITT PEAK TOUR

The August 12th EVAC tour of Kitt Peak and the Steward Observatory Mirror Lab has about twenty spaces available at this point. These will soon be opened up to other astronomy clubs, so if you intend to make this private tour, sign up with Tom Polakis today before it's sold out. A registration form with all the details is found at the back of this newsletter.

JUNE SPICA GRAZE
by Gerry Rattley
Saguaro Astronomy Club

As previously noted, this event has already occurred but the article contains detailed information useful in timing any graze/occultation.

This will be the last article about this spectacular graze before the event. This is the final graze/occultation of Spica in this current series. It occurs on Thursday evening/Friday morning, June 8-9, at 12:11 AM MST. This is the central graze time at Gila Bend. For each station, graze events will begin from one to three minutes before this time and last until one to three minutes after. The length of the graze depends on how deep your station is into the lunar profile.

Our graze expedition will go to the old highway north out of Gila Bend. This highway intersects Hwy-85 on the east end of Gila Bend just west of the overpass that cuts south to I-8. There is a sign there pointing you to Arlington. The graze line goes across this highway about 5 miles north of that intersection (Hwy-85 and the old highway) and you will find Gerry Rattley in this area Thursday evening, June 8.

If you've been out to star parties at Buckeye Hills Recreation Area, you can plan your time past there to Gila Bend as an additional 30 minutes. The Buckeye Hills site is about an hour out of Phoenix. Plan to be at the graze site by 10 PM, but no later than 11:00. You'll need at least an hour to get your station assignment, find your station and get your equipment set up and running.

I would encourage anyone interested in astronomy to come out for this event. You don't have to time it, just watching can be fun (both the graze itself as well as the timing efforts.)

You'll need some optics. Tripod mounted binoculars will work, but I don't recommend holding the binoculars by hand (you can do this, but not for timing.) It's too easy for the Moon to slip out of the field of view at the critical moment and miss seeing an event. A camcorder can be used but I am not an expert on this method. Call Gene Lucas, 837-3718, for instruction, hints and tips about this technique if you haven't done this before. Any kind of telescope will be OK for this graze as long as it's not shaky. A Dobsonian should probably be used as a fairly low power unless it moves smoothly and firmly and you are used to tracking objects with it at medium powers. A driven scope can be used at medium power. You won't need higher powers for this event. You can use a neutral density or polarizing filter to knock down the lunar glare if you wish.

If you wish to take timings for this graze, the most popular method is with a WWV radio and a portable tape recorder. The other popular method is with video and you'll have to discuss this method with Gene Lucas. Video is the superior method and has many advantages over visual observing: timings are more accurate, you don't have to pay close attention to the image, and a permanent record is secured, just to name a few.

If you're timing this visually, you can still get useful data. Start your tape recorder and WWV radio about 10 to 15 minutes before the graze. Check them out for a minute or two to be sure they're working. Be at your eyepiece observing Spica as it crawls into the Moon (actually the Moon is creeping up on Spica) between 5 and 10 minutes before the central graze time.

Spica will eventually "pop" out as it goes behind the Moon. It may come back on and go off again several more times as it passes behind lunar mountains and peeks out of lunar valleys until it finally comes back out for good. Call "out, in, flash, blink, D, R" or whatever you will remember meaning as events occur. Strive to react as quickly as you can see something happen. Sometimes people are dumb-struck when such a bright star "pops" out or back on and just mentally freeze. Try not to do this. Say something—anything! If events are slow you can comment on what's happening as the graze progresses. Sometimes events occur so fast you have a panic scene. Do the best you can and make comments on the tape as soon after as you can. You won't remember much the next day, so say it as it happens! Continue observing until about 5 to 7 minutes past central graze time, even if you haven't seen an event for a couple of minutes. If you quit too early you might miss the tip of a high mountain peak. Nothing will happen past the 5 minute mark though.

Be sure to note when you start observing continuously and when you stop. Just say "start observing" and "stop observing" on your tape. These times are part of the data set for your station. I usually start and stop on a WWV minute mark for ease of data reduction later.

If the WWV signal is weak before the graze, start your tape 15 to 20 early and play with the radio for 5 to 10 minutes to try to get a minute mark or two on the tape. Leave the tape running at this point until you can get another minute mark or two on the tape after the graze is over. Let WWV run free during the graze, the signal may clear up. If you have good radio reception during the graze, be thankful, and just let it run in the background. I set my radio about the same distance from my tape recorder as my voice is so that the two don't interfere with each other.

I use a card table next to my scope to set my radio and tape recorder. I can reach out and pick up the radio if the signal is weak without taking my eye from the eyepiece. Don't knock the radio on the ground though. You can use a step ladder, a tail gate or anything else you can set your stuff on.

I won't go into how to reduce your data from the tape yet. Concentrate on getting the data on the tape for now. You can get help reducing your tape later. Gene Lucas and I will take care of your position data: longitude, latitude and elevation. All you have to do is find the station we assign you and set up on our marker (an orange road cone with a letter of the alphabet on it—each station is a different letter).

The information in the previous newsletter is still valid. The *Sky&Telescope* article in the June issue is on page 72-73. If you stay in Phoenix, you can view and/or time a long occultation from about 12:05 to 12:18 AM. If you have questions, want to get more information or get your name on the sign-up list, you can call me, Gerry Rattley at (602) 892-5698 or Gene Lucas at (602) 837-3718.

GOOD TIMES VIRUS HOAX

by Frank Honer
fhoner@indirect.com

Recently I got e-mail warning me about the "Good Times Virus" which was being distributed via e-mail on the Internet and online services. Supposedly, this virus spreads by reading e-mail with the title "Good Times." It's supposed to do nasty things to your hard drive if you read the e-mail. I subscribe to the "comp.virus" news group on the Internet and have learned some things specifically about the "Good Times Virus" and viruses in general that I would like to pass on.

The Good Times Virus is a hoax that has been around the Internet for several years. A virus cannot be spread by casual reading of e-mail. A virus can only be spread by running an executable program. In the IBM world this means you must run a program with a "com or exe" extension (and some other specific files such as "ovl" files which a "com or exe" program uses). Actually, an ovl or overlay file is really an executable program itself. When you read e-mail, gif files, jpg files, spread sheet data files, etc., you are not executing a program. You are merely reading data into a program. A virus could be encoded in an e-mail file for example. But for it to spread you would need to save the file, change the extension to a "com or exe" extension, and then execute the changed file. This is not something many people would be likely to do.

If you download an executable file from the Internet or an online service, you do risk the chance of catching a virus. This means that the e-mail reader or gif image

reader that you downloaded may be infected since both these are executable programs. The risk is usually quite small since most respectable Internet sites and all commercial online services do rigorous virus scans. The greatest risk comes from local bulletin board systems (BBS) which are less likely to do good virus scans.

My advice to reduce the chance of virus infection is:

- 1. Download from a respectable site.
- 2. Use your own virus scanner. "F-prot" posts approximately 6 updates a year to its virus scanning program. This program is one of the recognized industry leaders and is free to noncommercial organizations. The version posted on the Internet is virtually identical to the commercial version but is usually delayed about 2 weeks. Of course, if you like the program and want to pay for it, the company has no problem in that!

Also, make periodic backups to your hard drive. This should be done for two reasons. First, if you get a virus you can usually recover and replace lost or corrupted files with your backup. Secondly, I believe it is not a question of if your hard drive will fail, but **when** your hard drive will fail. Given time, they all do.

UPDATE ON MIR'S VISIBILITY from *Sky&Tel Online* via CompuServe

For those who have *Sky&Telescope's* July issue, here's the update on the visibility of Mir over the U.S. during June. **Changes in Mir's orbit have made the maps on page 69 outdated.** More details will be included next week, but here is an approximate correction that can be applied to the June 12th map: Mir will arrive about 43 minutes earlier than noted on any given track. Because of that, the Earth below will not have rotated quite as far. So, after correcting the times, slide each track eastward about 3/4 inch. For example, instead of passing directly over Houston at 2:11 Universal Time on June 14th, Mir will be seen instead at roughly 1:28 UT over Tallahassee, Florida.

JULY NEWSLETTER

Deadline is July 5th for material to be included in the next newsletter. Look for a detailed Amateur Telescope Maker's (ATM) resource guide. Please submit your thoughts and stories to:

Sam Herchak
145 S. Norfolk Cir
Mesa, AZ 85206-1123
76627.3322@compuserve.com
Faxes welcome with prior notice

The Deep Sky Notebook

by Robert Kerwin

More Sights in Scorpius

As summer approaches, and the splendid summer Milky Way rises out of the haze, Scorpius is one of the first areas I turn to. The distinctive outline and bright, reddish Antares make the constellation easy to spot even for the beginner. Sparkling open clusters, rich star fields and challenging nebulae and globulars await those who want to probe deeper.

Back in the summer of 1992, I published an article about some interesting objects in the constellation Scorpius. Well, in the past three years, I have made many more observations in Scorpius and have "discovered" some interesting and rewarding objects for moderate-size telescopes.

Mu (μ) Scorpiae is a good jump-off point for tonight's observing. Approximately $1\frac{1}{2}^\circ$ to the southwest of the star is our first object, NGC 6242. This bright open cluster is somewhat rectangular and contains roughly 50 stars in a five arc-minute area. Small telescopes may have difficulty resolving the cluster, showing the brighter stars superimposed against a grainy haze. The brightest star is 7th magnitude and is just to the south

of the cluster. As in many open clusters, this star appears somewhat reddish. Almost exactly three degrees due east of Mu is another bright cluster, NGC 6281. Unlike NGC 6242, this cluster is fairly easy to resolve. It is eight arc-minutes across and contains about 50 stars. The cluster is roughly triangular and should be a nice sight in any telescope.

Our next object is considerably more challenging and harder to find. NGC 6337 is a planetary nebula that lies about two-thirds of the way from Mu to Q Scorpiae, a 4th magnitude star in the tail of Scorpius. Use a Telrad to get you to the approximate location, then zero in using a finder and Uranometria 2000. I find the object to be easier than its magnitude of 12.3 would imply. The ghostly annulus is about 50 arc-seconds across and very slightly elongated north-south. The northern part of the nebula is slightly brighter and a faint star is superimposed on the northeast part of the ring. A UHC filter will give a good contrast boost that should make the ring structure easier to see.

Now work about 2.5° northward to NGC 6334, a diffuse nebula. You won't find much information about

this object in observing guides, so you might suspect that it is extremely faint. In addition, if you use Tirion Sky Atlas 2000, the symbol used for NGC 6334 is too small. The nebula is actually over half a degree across and should have been plotted actual size. In my eight-inch reflector, I was able to see a faint, formless glow. The surprise came when I inserted the UHC filter. The nebula came alive, showing at least four smooth condensations imbedded in a faint, uneven glow. The brightest part of the nebula was to the southeast surrounding a star. A fascinating and beautiful object!

Just 30 arc-minutes to the northeast of NGC 6334 is a dark, roughly oval void. This is Barnard 257. The southern end of void is better defined. Continue to the northeast, and about one degree past B257 you should see an unmistakable chain of four bright stars running north-south. At the northern end of this chain is our final object, NGC 6357. This diffuse nebula is bright and rectangular shaped. It is about five arc-minutes across and is best seen with a UHC filter. Photographically, it is similar in size and appearance to NGC 6334.

Name	Type	Mag.	Dimensions	Const	SkyAtlas	U2000	R.A.	Dec
NGC 6242	open cl	6.5	9.0'	Sco	22	407	16h 56m	-39° 30'
NGC 6281	open cl	5.4	8.0'	Sco	22	376	17h 05m	-37° 54'
NGC 6337	plan neb	12.3	48"	Sco	22	376	17h 22m	-38° 29'
NGC 6334	diff neb	--	35' x 20'	Sco	22	376	17h 21m	-36° 04'
Barnard 257	dark neb	---	10' x 7'	Sco	22	376	17h 22m	-35° 35'
NGC 6357	diff neb	--	25'	Sco	22	376	17h 25m	-34° 09'

East Valley Astronomy Club

July 1995

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
25 *10:03 and 10:38 PM GMs	26 *4:45 AM Conjunction	27 *12:58, 2:18, and 3:31 AM GMs *5:21 AM Titan Occ	28	29 *5 AM Mercury Elong.	30	1 <div style="border: 1px solid black; border-radius: 15px; padding: 2px; display: inline-block;">Deep Sky S P</div> *Moonset 9:59 PM *ALL MONTH NOTES
2 *Moonset 10:34 PM *Uranus/M75 Conjunction	3 *Moonset 11:08 PM <div style="border: 1px solid black; border-radius: 15px; padding: 2px; display: inline-block; width: 100%;">Sunset 7:42 PM Sunrise 5:23 AM</div>	4 *Moonset 11:42 PM	5 *Moonset next day	6 *Moonset 12:31 AM	7 *Moonset 1:02 AM *6:28 PM Occ-Alpha Librae *7:46 PM Occ	8
9	10	11	12 <div style="border: 1px solid black; border-radius: 15px; padding: 2px; display: inline-block;">7:30 PM EVAC Mtg</div>	13 *4:14 AM Titan Disappears *4:21 AM Occ	14 *7:30 PM SAC Mtg	15 *Germania/M21 Conjunction *9:52 PM Fides near miss
16	17 *Moonrise 11:08 PM <div style="border: 1px solid black; border-radius: 15px; padding: 2px; display: inline-block; width: 100%;">Sunset 7:38 PM Sunrise 5:31 AM</div>	18 *Moonrise 11:43 PM	19 *Moonrise next day	20 *Moonrise 12:20 AM	21 *Moonrise 12:58 AM	22 *Moonrise 1:39 AM *3:38 AM Occ
23 *Moonrise 2:23 AM	24 *Moonrise 3:10 AM *3:58 AM Occ	25	26	27 *Mercury-Sup. Conjunction	28 *2:20 AM Dione Ecl Tethys *5 delta Aquarids	29 <div style="border: 1px solid black; border-radius: 15px; padding: 2px; display: inline-block;">Local S Parties</div> *3:10 AM Titan Disappears
30	31 *Moonset 9:45 PM *12:49 AM Rhea Disappears	1	2	3	4	5

All times are LOCAL - add 7 hrs for Universal Time

Flip over for event details

Date	Start	Title	Description
7/1/95	12:00 AM	ALL MONTH NOTES	<p>CALENDAR NOTES: Due to time constraints, no Galilean Moon events are listed this month. See the "1995 Occultation Predictions for Phoenix" in the Feb EVAC Newsletter for lunar occultation (Occ) details.</p> <p>PLANETS: MERCURY and VENUS are both difficult in the morning sky as they approach conjunction with the Sun. MARS is low in the early evening sky. Now only 5 arc seconds in diameter and +1.2 magnitude. JUPITER dominates the evening sky at -2.5 mag. and is impressive in any telescope. SATURN rises around midnight now but is not conspicuous at +1.0 mag. low in the SE. URANUS and NEPTUNE precede Saturn in the evening sky as does PLUTO. See magazines for findercharts to help locate these dim planets.</p> <p>OBJECTS OF INTEREST: Asteroid Ceres</p> <p>ASTRONOMICAL TWILIGHT TIMES: 1st: 9:25 PM and 3:39 AM 27th: 9:08 PM and 4:00 AM</p> <p>LUNAR LIBRATIONS: Excellent southern libration just after the Full Moon</p>
7/2/95	12:00 AM	Uranus/M75 Conjunction	Uranus passes within 1 degree of the globular cluster M75. In close proximity several nights before and after this date.
7/7/95	6:28 PM	6:28 PM Occ-Alpha Librae	
7/7/95	7:46 PM	7:46 PM Occ	
7/13/95	4:14 AM	4:14 AM Titan Disappears	Satellite Titan disappears in Saturn's shadow. See May S&T.
7/13/95	4:21 AM	4:21 AM Occ	
7/14/95	7:30 PM	7:30 PM SAC Mtg	Saguaro Astronomy Club meeting, Grand Canyon University, Fleming Bldg, Rm 105. Camelback and 33rd Ave.
7/15/95	1:00 AM	Germania/M21 Conjunction	Asteroid 241 Germania passes within 10 arc minutes of the open cluster M21. In close proximity several nights on either side. See July S&T.
7/15/95	9:52 PM	9:52 PM Fides near miss	Asteroid 37 Fides barely misses 7.3 magnitude star SAO 158085. See July S&T.
7/22/95	3:38 AM	3:38 AM Occ	
7/24/95	3:58 AM	3:58 AM Occ	
7/27/95	7:00 PM	Mercury-Sup. Conjunction	Mercury on opposite side of Sun relative to Earth
7/28/95	2:20 AM	2:20 AM Dione Ecl Tethys	One satellite of Saturn eclipses another. See May S&T.
7/28/95	10:00 PM	5 delta Aquarids	5 delta Aquarid meteor shower. Zenith Hourly Rate (ZHR) 20/hour.
7/29/95	3:10 AM	3:10 AM Titan Disappears	Satellite Titan disappears in Saturn's shadow. See May S&T.
7/31/95	12:49 AM	12:49 AM Rhea Disappears	Satellite Rhea disappears in Saturn's shadow. See May S&T.

**EAST VALLEY ASTRONOMY CLUB
TOUR OF KITT PEAK NATIONAL OBSERVATORY
AND THE STEWARD OBSERVATORY MIRROR LAB**

AUGUST 12, 1995

The East Valley Astronomy Club will be taking a busload of folks (48 people) to Tucson to tour the Steward Observatory Mirror Lab, and then up to Kitt Peak to tour some of the main scopes on the mountain. Here's a rough agenda, subject to slight changes.

Steward Observatory Mirror Lab: This is the spin casting facility under the football stadium at the University of Arizona you've read about. Lightweight mirrors with apertures as large as 6.5m have been produced at the facility.

4m Mayall Telescope: One of the world's classic, large-aperture research telescopes, completed in 1973, when they put such scopes on giant equatorial mounts. Its 187-foot-high dome can be seen easily from Tucson, and even from EVAC's Arizona City observing site.

0.9m Spacewatch Telescope: This is the survey instrument that is making many of the comet and asteroid discoveries today. If you have read about house-sized asteroids narrowly missing our planet, chances are they were discovered by Spacewatch.

3.5m WIYN Telescope: This is the newest instrument on the mountain, and certainly the most high-tech. It packs nearly the same aperture as the Mayall scope into a much smaller package. Compare its mirror, which weighs in at 2 tons, to the Mayall mirror, at 15 tons! The building stands only 51 feet tall. Note that touring WIYN is still contingent upon them having tourguides by August. If not, we may substitute the McMath Solar Telescope.

Cost: The tour will cost you \$20, which will pay for the charter bus fare and tour guide expenses.

Where/When: We will meet at 7:00 a.m. sharp at the Valley Fair Shopping Plaza, on the southeast corner of Mill and Southern, in Tempe. We should get back by 9:00 p.m.

Bring: A sack lunch, for the picnic area atop Kitt Peak.
Warm clothes - it's the monsoon season on a mountaintop.
Money - we'll make a fast food stop on the way back. Can't forget those KPNO souvenirs, either.

Here's how to get on board this trip. Fill in the form below. Write a non-refundable check to "East Valley Astronomy Club" for \$20 per person. Mail your check and this form to:

Tom Polakis
121 W. Alameda Dr.
Tempe, AZ 85282

Name: _____
Number of People: _____
Amount Enclosed (Number of People x \$20): _____
Telephone: _____

EAST VALLEY ASTRONOMY CLUB
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1995 EVAC SCHEDULE OF EVENTS

	Meeting	Local	Deep Sky	New Moon
JUN	14	24	—	28
JUL	12	29	1	27
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:

JUN 17-24	Grand Canyon Star Party
AUG 12	Kitt Peak Tour
OCT 21	*All Arizona Star Party