

East Valley Astronomy Club

July

Newsletter

1997

EVAC MEETING HIGHLIGHTS

by Aaron McNeely, Secretary

President Sheri Cahn started the meeting at 7:30 pm. Including the main speaker, there were 80 persons present, 70 members and 10 guests. Sheri discussed the following events:

Local Star Party: June 28 at Vekol Road.
Deep Sky Star Party: July 5 at Vekol Road.
EVAC Meeting: July 9 at SCC.

Old Business

Status of Florence Junction Site - Bob Kearney announced that the State has erected a "No Trespassing" sign at the entrance of the new Florence Junction site. Howard Anderson, a new member of EVAC, has performed some research into this matter. Evidently, we need to apply for a yearly permit with a state agency at the cost of approximately \$50 per year. In the interim, all of the EVAC star parties will be held at the Vekol Road site.

New EVAC "Honer Loner 'Scope" - Frank Honer has refurbished some optics donated to EVAC into a 6-inch, f/8 Dobsonian telescope. Frank had received a donated mirror and homemade eyepieces, he provided materials and labor for the final product. EVAC can loan the telescope to new members for one month of use. The 'scope will be left with Properties Manager Ken Spruell.

All Arizona Star Party - The All-Arizona Star Party will be held on the nights of October 3-4 with a porta-john present for the second evening (Saturday). We will have maps and directions at next month's EVAC meeting (July 9).

Name Tags - EVAC Treasurer Silvio Jaconelli will order individual name tags for \$7. The new name tags display a metallic sheen with the smaller, unpretentious EVAC logo.

EVAC Copy Machine - The new copier has continued to work without difficulty and has provided substantial savings for the Club with publishing the newsletter.

New Business

Saguaro Astronomy Club (SAC) Newsletter - Not to be confused with the above, Paul Dickson spoke about the SAC Newsletter and has been providing free copies for EVAC members at our meetings. Anyone can subscribe to the SAC Newsletter for \$14 per year. Surprisingly, there is very little overlap in content between the EVAC and SAC newsletters. Paul also announced Steve Coe's Astronomy Novice Meeting for June 12.

Arizona Museum for Youth Star Party - Don Wrigley has arranged this event for Friday, July 11 for which EVAC will receive a \$75 stipend. Don has requested that EVAC members volunteer to help with this event.

Asteroid Occultations - Bill Peters announced that some upcoming asteroid occultations may be observable from the Southwest. He also stated that the data collected by the Hipparcos satellite has enabled researchers to predict the viewing areas for these events to a ten mile accuracy. Bill directed any further queries to the International Occultation Timing Association's webpage at anomalies.com.

Member Show & Tell - There were no presentations at this EVAC meeting.

UPCOMING EVENTS

- Local Star Party, June 28, Sunset -7:41 pm
Vekol Road site
- Deep Sky Star Party, July 5, Sunset -7:41 pm
Vekol Road site
- EVAC Club Meeting, July 9, 7:30 pm
SCC, Physical Science Bldg., Room 172
- Local Star Party, July 26, Sunset -7:32 pm
Vekol Road site
- Deep Sky Star Party, Aug. 2, Sunset -7:27 pm
Vekol Road site
- EVAC Club Meeting, August 13, 7:30 pm
SCC, Physical Science Bldg., Room 172

Featured Presentation

Dr. Peter Wehinger of ASU is one of the top comet researchers in the world. He obtained his master's degree in astronomy from Indiana University and his Ph.D. degree in astronomy from Case Western Reserve University in Cleveland. Dr. Wehinger spoke concerning his efforts to establish an ASU Student Observatory.

Dr. Wehinger envisions the construction of a white fiberglass domed observatory hosting a 16-inch, Ritchey-Chrétien reflector on an equatorial mount. The telescope will be used by ASU undergraduate and graduate students who wish to pursue CCD imaging and spectroscopy. The observatory is being supported by a grant from the National Science Foundation and will pursue an outreach program with the Maricopa Community Colleges. The observatory has a webpage at the following URL: <http://accept.la.asu.edu>.

The equatorial mount for the telescope has been commissioned from Optomechanics Research, Inc.. It will consist of a permanent concrete pier able to support 150-200 lbs. of equipment. The entire equatorial mount assembly will weigh on the order of 550-600 lbs. The mount will also feature a PC interface to calculate celestial coordinates. The PC interface will also feature the use of "flexure mapping" software (Software Bisque) that will take into account the stresses placed on the mount during use by its various appendages. Utilizing this software, the telescope will be able to pointed with an accuracy of 1 second of arc. The control software the Dr. Wehinger envisions using is the PC-TCS, version 4.x/DCS. This software will provide multiple tracking rates: sidereal, solar, cometary, asteroidal, etc. The computer will also calculate the precessional shifts of coordinates from different epochs.

The observatory dome, commissioned from Technical Innovations will be fiberglass. The dome will stay cooler in comparison with the outside temperature due to a coating of heat resistant titanium dioxide paint. This paint reflects 99% of sunlight. Dr. Wehinger visited a 10-foot dome of similar constitution in Tempe and recounted how the interior temperature was about 15° cooler than the outside temperature.

Dr. Wehinger chose an f10, Ritchey-Chrétien design for the telescope optics to provide a wider, flatter field for use in spectroscopy. The optical design is similar to the Schmidt-Cassegrain, but without a front correcting plate of glass. The secondary mirror will be motor driven, toward and away from the primary mirror, for focusing and will be suspended from a four-vein spider. The light path emerges through a hole drilled in the center of the primary mirror just as in a Schmidt Cassegrain design. The telescope and optics are being manufactured by Torus Precision Optics. Dr. Wehinger spoke of how he contacted a well known telescope firm, one that always presents multiple-page ads in Sky &

Telescope magazine, and was offended by the haughty manner of their telephone representative.

The observatory hopes to offer two CCD cameras for student use. One will be a scientific quality Kodak CCD composed of an array of 512x768 pixels, and the other will be an Apogee Instruments, "AM Series" CCD composed of an array of 1000x1600 pixels. These devices will be coupled with a filter wheel to help combat the emissions of high-pressure sodium and mercury vapor street lights.

Currently, ASU uses the roof of their Physics building for student astronomical observation. The building vibrates from air conditioning and features 3 arc second seeing due to the buildup of daytime heat. Due to these adverse conditions, Dr. Wehinger has envisioned the student observatory detailed above. His next concern is the location. Dr. Wehinger has looked at many different places, some near, some distant from the campus. His best option is the Karsten Golf Course located on the ASU campus. The golf course will provide an area free of heat-absorbing concrete and excessive outdoor lighting. The site is located at the end of a long strip of land between the golf course and the grounds of the campus Physical Plant. Dr. Wehinger's next hurdle is dealing with the "Bulgarian bureaucracy" of the university that dictates the addition of \$45,000 worth of extra facilities such as a road, parking lot, and streetlights! This extra financial burden has overtaxed the limits of the NSF grant, and Dr. Wehinger is looking for extra donors. The manager of the golf course suggested that the dome of the observatory could be painted with spots to obtain the endorsement of a golf ball manufacturer!

Dr. Wehinger provided an interesting overview of this project. The ASU Student Observatory will be a welcome asset to the University and community at large. Dr. Wehinger even suggested that he could set up an open house for EVAC members.

GETTING STARTED IN ASTRONOMY

by Sheri Cahn, President

1. Look in the phone book for astronomy shops or camera shops that sell telescopes. Ask about any clubs they may know of and try to get a newsletter or a name & phone number of someone that belongs to a club.
2. Go to your local library or large bookstore and ask for the astronomy section. There they should have a good selection of books to choose from. Look for titles that mention beginner or amateur. Read through the table of contents and the first chapter to make sure you understand the level the book is written on.
3. Check with a local community college for beginning classes in astronomy. This will teach you more about

astronomy as a whole rather than observing the night sky, but it will give you a good solid foundation for understanding the objects you will eventually be observing.

4. Check with a local science center or nearby planetarium. They can usually answer questions you may have and occasionally the local astronomy clubs may hold public star parties at these places. Public star parties are good place to hook up with an active club.

5. If you have computer network capabilities like the Internet and can access the World Wide Web you will find thousands of astronomy clubs around the world. This is a good way to communicate with clubs you may want to visit when you are vacationing in other cities.

6. Begin to learn the night sky with the naked eye on your own. Check in drugstores or bookstores for astronomy magazines such as "Sky & Telescope" or "Astronomy." These contain current star charts of the night sky with directions on how to compare the charts with the actual night sky. The more amateur charts will generally contain mostly the constellations and brightest stars. Some may show a few of the better known deep sky objects, but the simpler the chart the easier it is to compare to the actual sky.

7. Start with binoculars - don't rush to buy a telescope. A pair of binoculars is the ideal way to start observing the night sky. They have a much wider field than a telescope, making it easier to find your way around. They also show you the image right-side-up and in front of you, which makes chart comparison easier. Binoculars are also much less expensive and will generally show you at least half of what a telescope will. Look for binoculars that are 7- to 10-power, 50 mm in diameter and make sure that they are not field glasses.

8. Before buying a telescope, visit some local star parties, make the rounds and look through everyone's telescope. Don't be shy - ask lots of questions (What do they like about their scope? What don't they like about their scope? What would they do differently next time (if anything)? Approximately how much would a scope like theirs cost?). Anything you may think of, most amateurs will be happy to give you their opinion.

9. When you finally decide to purchase your own telescope, spend time searching for exactly what you want. Don't buy the first thing that comes along just for the sake of owning a scope. It may take only a few days to find the perfect scope or it may take 3 to 6 months. If you plan to buy a used telescope from a club member, make sure they are active and well known - this person probably won't stick you with a lemon. If the scope you are looking at is used and at a camera shop or an astronomy shop, make sure the shop is reputable and

will put 30 day, money back guarantee on the scope. This way you should be able to take it out at least once to make sure it sets up OK and have the opportunity to test out the optics. Have other club members look through it and give you their opinions. If you prefer to purchase a brand new telescope, you will have the option of buying it through a local shop or ordering it through the company mail order catalog. Which ever way you choose, a new scope should have full warranties on everything. However, if you buy it from a local shop and there is a problem, usually they will take care of it for you, but with a mail order, if there is a problem, you will have to take care of shipping it back to the company yourself. Just remember - don't scrimp on price. Those cheap "department store" telescope won't show you a thing. Can't afford it now - save up until you can. Or consider building the scope yourself. Many clubs can help you do this.

STAR-HOPPING IN CORVUS THE CROW

by Silvio Jaconelli, Treasurer

When the Moon is in the sky, most observing is limited to the Moon and planets; I also like to look at double stars and asterisms (unique star patterns). All that is needed apart from a telescope is any quality star chart and any pair of binoculars. And since the Moon has already degraded the sky quality, this kind of observing is very suited to being done from the back-yard. This is also a great way to learn your way around the sky so that you can optimize your observing time when you do make it to a dark sky site.

Below is a tour thru the Corvus region. Corvus is a roughly trapezoid shaped constellation that lies due south in late spring. It looks like this;

* * *

* * *

Let's start the tour.

* The top left hand corner is a visual double about half a degree apart. The brighter star of the two - Delta - is itself a double; the components are magnitudes 3 and 8, and lie 24" apart. The co-ordinates are 12h 30m, -16.5° S. I found this to be an extremely easy split at 60x.

* The next object is M68, an 8th magnitude globular cluster. Globular clusters are best observed under dark

skies but they are visible in light polluted skies. Start at Delta (previous object) and draw a line down to Beta (the bottom left hand star of the trapezoid); extend this line another 50% of the way below Corvus and you will find M68. It is small and bright, located at 12h 40m, -27°. I was not able to find it in binoculars from my back-yard, but it was easily seen at 60x.

* Now here is a challenge, unlike Delta. Its a 6th magnitude double star ADS 6812 located 0.6° to the southwest of M68, and visible in the same field of view as M68 when using a widefield eyepiece; it is easy to find it as it is the brightest star in the vicinity. The companion is 12th magnitude and is 1.3" away - I was not able to split it and I would like to hear from anyone who was successful.

* While this far south. check out Zeta, located just a couple of degrees from the middle of the base of the trapezoid; it is a 5th magnitude star with a 6th magnitude companion .2° apart. They are easily resolved with binoculars, and look blazing white at 60x. It made up for not being able to resolve ADS 6812!

Now for an interesting journey! Use binoculars to find Gamma, the top right hand star of the trapezoid. Then trace a path of 4 bright stars heading north-east each about 1° apart. This path then ends with an arrowhead shaped triangle located 3° due north of Delta. let's start with this arrowhead.

* The star at the left side of the base of the triangle (12h 30m, -13.5°) is a tough 5th magnitude double, the companion being 8th magnitude only 2" apart. I had to use 270x to resolve this double!

* The tip of the triangle (the point of the arrowhead) points to a most interesting asterism at 12h 36m, -12.0° - it is a pattern of 6 stars in the shape of a small triangle within a larger triangle. A very interesting sight! This asterism is easy at 60x except for one star in the inner triangle that required 160x to show it clearly.

* Let the star field drift thru the eyepiece for about 3 or 4 minutes and a 10 star grouping will drift into the field of view of a wide angle eyepiece. We are now at 12h 38m, -11.5°. The three brightest stars of this group are very close together in a straight line which points east to M104, the famous Sombrero Galaxy. The Sombrero is a huge 8th magnitude edge on spiral galaxy easily visible as a faint smudge from my back yard. I reckon that about 120x is the optimum magnification. From a dark sky, this is an impressive sight - the galaxy plane is tilted only 6° from our line of sight, and there is an obvious central dust lane. This is one not to be missed.

* Now for a real tough double star. Continue the line from the three bright pointer stars from two paragraphs

ago, thru the Sombrero and on for a further 1.2°. You will find a 6th magnitude star with an 11th magnitude companion 9" apart. From my back-yard, I had to use averted vision at 280x to pick up the companion, but getting it sure felt good! The location is 12 hrs 44 min, 12.0° S.

* Finally, point 1.25° to the southwest at 12h 41m, -13° to pick up a real nice easy double - a pair of 6th magnitude stars 5" apart which blazed brightly in the eyepiece at 90x. Very nice! They are real easy to locate as they outshine all other stars in the vicinity.

Happy gazing !

OBSERVING SZ HERCULIS

by Tom Polakis, Vice President

The June issue of "Sky & Telescope" contains an article entitled "SZ Hercules: A Fast Eclipsing Binary." It is a very well written and organized piece, typical of Alan MacRobert's work. The article describes an eclipsing binary system with a period of under one day, whose combined light dims from magnitude 10.2 to 12.0 in only 90 minutes. A table shows the minima for the months of May through August. I would bet if anybody here used S&T's article to observe this star in action, it wasn't done with digital setting circles!

The night of June 9 presented a great opportunity for observers across the U.S. to view an eclipse. The circumstances couldn't have been better for me, since the minimum was to occur at 11 p.m. with the star not having yet crossed the meridian. That's important for those of us with German equatorial mounts. Armed with my ST-7 and 13-inch Newtonian, I had great plans to make a time lapse movie of the eclipse.

Since my backyard is depressingly bright, I no longer star hop to find CCD targets. Instead, I use an NGC-MAX computer attached to the encoders on an Astro-Physics 1200 mount. I've been happy to always get within a quarter degree with this method, and then compare MegaStar charts to 2 second exposures with the ST-7 to home in on the target. To their credit, S&T provided a good series of star maps of increasing scale. Not to their credit, though, was a small error in the coordinates that led to a big waste of time on my part.

The article says, "SZ Hercules is located at right ascension 17h 29.6m, declination +32° 56'; 2000 coordinates." When I got to that field, it looked nothing like the charts in the magazine. It was time for the eclipse to begin, so I began my first of twenty exposures to be spaced every six minutes. Check MegaStar on the laptop. Ugh! The location showed no stars. Check TheSky and Voyager II in the office. Again, no stars. SZ Hercules is in a strip about 1/2 degree wide by 5 degrees long with no Hubble Guide Star Catalog

coverage.. Check it on your favorite desktop planetarium program. It became a routine. Take the image. Frantically search through charts for six minutes. Take another image. Download the POSS image for six minutes. Take another image. Wonder why the field looks wrong. Take another image and so on.

It only took a few minutes after the full sequence of twenty images was done to calm down and look for SZ Herculis in TheSky. There it was at +32° 56', and 17h 39.6m. Dammit, _thirty_nine. The lesson: Do your homework beforehand. A simple check before I started the sequence would have set things straight. Also, don't blindly trust everything that appears in print. Fortunately, errors such as this are few and far between in the pages of "Sky & Telescope."

It's probably a few weeks tops until the monsoon makes it's observing-ending entry into Arizona, so I hope to get another chance to do this sequence correctly soon.

For the record, there were no stars being eclipsed, asteroids, or Saturn-like objects in a 16'x11' field centered on 17h 29.6m, +32° 56' at 6h UT on June 10.

EVAC BOARD OF DIRECTORS MEETING

May 29, 1997

Attendees: Sheri Cahn, Paul Dickson, Frank Honer, Silvio Jaconelli, Bob Kearney, Robert Kerwin, Aaron McNeely, Tom Polakis, Bernie Sanden, Ken Spruell, and Don Wrigley.

President Sheri Cahn directed the meeting at Tom Polakis' home and called the meeting to order at a little past 6:30 pm.

Old Business

Status of Florence Junction Site - The State has erected a "No Trespassing" sign at the entrance of the new Florence Junction site. Howard Anderson, a new member of EVAC, has performed some research into this matter. Evidently, we need to apply for a yearly permit with a state agency at the cost of approximately \$50 per year. As of the meeting, the Board had insufficient information to make any concrete decisions, and Bob Kearney volunteered to research the matter further. In the interim, all of the EVAC star parties will be held at the Vekol Road site.

Arizona Science Center - The Board felt that it would be nice to sponsor an observing event in conjunction with the new Arizona Science Center. The Center has just opened a modern planetarium facility, something that a major metropolitan area such as Phoenix was lacking. Tom Polakis has met the planetarium director and has

agreed to look into this further.

All-Arizona Star Party - The All-Arizona Star Party will take place on October 4 at the Arizona City site. We need to give notice to Ray Farnsworth about renewing our liability insurance, it has lapsed since April 10. This insurance is necessary in case somebody decides to sue the Club for any injuries suffered at one of our observing events. We discussed whether EVAC should join the Astronomical League. The AL offers an umbrella insurance policy for all members, but we felt that the cost was prohibitive at the yearly rate of \$2/person and \$20/club. Paul Dickson stated that the Saguaro Astronomy Club has a good policy, and he agreed to inquire about getting the same coverage for EVAC. Don Wrigley will make arrangements for 1-2 porta johns for Saturday night of the event. The next Board meeting will be held in September so that we can finalize our preparations.

EVAC Party Line - Robert Kerwin has administered this phone line (602/837-3971) for members who wish to arrange observing time with other members. Robert has agreed to continue with this position.

Honorarium - The Board decided to retain the same honorarium amounts for EVAC guest speakers. The amounts are \$25 for in-town speakers and \$50 for out-of-town speakers.

New Business

EVAC T-Shirts - The shirts will be printed by the same people who created the Riverside Telescope Makers Conference T-Shirts of recent years. Tom cautioned that the designer of the shirts may change the EVAC logo for aesthetic reasons. We will take orders and money in advance at two successive Club meetings before ordering.

Astronomy Outreach for the Navajo and Hopi - Ken Spruell spoke with Amanda Bosh of Lowell Observatory, the EVAC May '97 Main Speaker, concerning this outreach program. It was once funded by NASA, and Ken asked whether EVAC would be willing to use some of its savings for philanthropy? Ken prefaced this query by stating that Amanda was in no way solicitous towards the Club, Ken had led her to express these concerns. The Board agreed that the donation of specific items, such as solar filters and eyepieces, would be preferable to just giving money. The Board concluded that the participants in the Lowell program should create a Wish List for our consideration.

EVAC Financial State - Silvio stated that the Club's bank account has increased to just over \$5700 dollars. This is mainly due to Ken's acquisition of a copy machine and the Phoenician Resort star party-for pay. We have also experienced an increase in Club

membership that Silvio attributes to the EVAC Internet web page hosted by Tom. EVAC membership has gradually increased each year from 69 in 1993 to 136 in 1997.

Newsletter Postage & Submissions - Robert is working on an email version of the EVAC newsletter to be sent to the interested. The Board generally agreed that most members like to receive a hardcopy of the Newsletter, a more tangible reward for their yearly dues. The total monthly postage is around \$40 for a six-page newsletter. There was discussion of using the bulk postage rate offered by the post office for +200 pieces of mail. This may become an option if we continue to grow in membership. Bob Kearney asked for more members to contribute original articles. Bob reluctantly publishes NASA Press Releases when there is not enough original writing from Club members.

Beginners Outreach & Club Telescope - This topic provoked a lively discussion with no clear outcome as to a specific approach. Ken Spruell suggested that we host a beginners segment for the meeting and newsletter. Silvio suggested that we set up a Buddy/Mentor Program. We generally agreed that members should write articles oriented towards beginners such as "how to purchase a telescope" to be placed in the newsletter and web page. We also felt that Sheri should acknowledge the Club officers during meetings and state that we are available to help the new members. Frank Honer has built a 6-inch, f8 Dobsonian that we can utilize as a "loaner 'scope" for beginners. He needs someone to donate one or more eyepieces and will bring the telescope to the next meeting.

New Meeting Facility - Tom Polakis has found a possible meeting facility that is larger than our current building. The new facility is the Pyle Center in Tempe, and it can hold approximately 300 people. We are still low on the list to gain access, and Tom has agreed to work to try to make the arrangements. He is concerned that our current space is insufficient for the number of members that attend each month, and that this circumstance could act to discourage attendance.

High Altitude Observing Site - Tom Polakis is looking for a high altitude site for some of our future star parties. He stressed the dramatic increase in favorable observing conditions that is attendant to high altitude locations.

Next Board of Directors Meeting - The next Board of Directors Meeting is tentatively scheduled for Thursday, September 18.

DICHOTOMY

by M. Aaron McNeely, Secretary

I conjecture that there are two universes available to our understanding, the actual universe and the

universe of the mind.

The actual universe is the universe of direct perception. It is what an observer actually sees in the sky. The sun, moon, and naked eye stars appear to be fixed to the inner surface of a hollow sphere. This celestial sphere is centered upon the earth and appears to revolve around the Earth in approximately 24 hours. This view is essentially geocentric or Ptolemaic, actually it is Tychonic. The planets Venus and Mercury appear to be associated with the Sun, they are its attendants or followers. This universe of direct perception, this sensual universe, is what I will term romantic.

The universe of the mind lives in our imaginations. It is the universe of orthodox science, of modern astronomy, of cosmology, of NASA spacecraft images. It is the universe that exists beyond our direct perception. This is the heliocentric view, the view that results from logic and which is not readily perceptible. This mental or cognitive universe, that which we know but that lies beyond the immediate experience, is what I will term classical.

The romantic universe is largely the realm of the amateur astronomer, the lover of the skies. The amateur astronomer enjoys the appearance of the heavens and represents an incarnation of the naturalist. The modern astronomer, or physicist, is concerned with the underlying form rather than the appearance. Many amateur and professional astronomers, being real and complex human personalities, exist in both realms.

Does objective, scientific knowledge ruin one's sense of wonder at the observable universe? I conjecture that it depends upon your personality. In his introduction to *Rainbows, Halos, and Glories*, author Robert Greenler, referring to Keats' poem *Lamia*, writes:

"The beginning of my interest lies in my childhood awe of the beauty of the rainbow... trying to understand their origins is one of my forms of personal participation. Keats, in his poem *Lamia*, has dealt with the relationship between such understanding and the capacity to appreciate:

There was an awful rainbow once in heaven:
We know her woof, her texture; she is given
In the dull catalogue of common things.
Philosophy will clip an Angel's wings,
Conquer all mysteries by rule and line,
Empty the haunted air, and gnomed mine...

He states, beautifully, an attitude with which I most strongly disagree. For me, understanding enhances the sense of appreciation and wonder."

I have encountered a few other thinkers who seem to agree with Yeats. Walt Whitman wrote (cont'd pg.9):

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29 	30	1 °10:34, 11:53 PM -> 3:03 AM Gal Moons# °ALL MONTH NOTES#	2 °4:15 AM Aldebaran/ Moon Conj. °<1:11 AM SZ Heroulis #	3 °8:30 PM Venus/Beehive Conjunction	4 °10:59, 11:16 PM -> 2:37 AM Gal Moons	5  Deep Sky S Party
6 °<3:22 AM SZ Heroulis °8:30 PM Venus/Moon Conj. °11:00 PM SZ Heroulis	7 Sunset 7:41 PM Sunrise 5:25 AM	8 °10:02, 11:24 PM -> 12:52, 1:46 AM Gal Moons	9  °10:56, 11:40 PM -> 1:14, 1:58 AM Gal Moons	10	11 °<1:10 AM SZ Heroulis °9:00 PM Mars/Moon Conj. °9:47 PM Occ# °11:39 PM -> 2:25, 3:17 AM Gal Moons	12 
13	14	15 °<3:21 AM SZ Heroulis °10:59 PM SZ Heroulis °11:07 PM -> 12:18, 1:59, 3:08, 3:40 AM Gal Moons	16 °9:58 PM -> 12:50, 1:25, 3:09, 3:43 AM gal Moons	17	18 °7:30 PM SAC Mtg#	19 
20 °<1:09 AM SZ Heroulis	21 °Neptune at Opposition Sunset 7:36 PM Sunrise 5:34 AM	22 °8:30 PM Venus/ Regulus Conj. °10:59 PM -> 1:41, 2:33, 4:33 AM Gal Moons	23	24 °<3:20 AM SZ Heroulis °8:30 PM Venus/ Reg/ Mercury Conj. °9:48, 11:44 PM -> 12:03, 2:43 AM Gal Mn °10:58 PM SZ Heroulis	25 °<1:58 AM Io Eclipses Callisto#	26  Local S Party °8:30 PM Mercury/Regulus Conj.
27	28 °11:00 AM S-delta Aquarids#	29 °<1:08 AM SZ Heroulis °<2:16 AM Aldebaran Occ °Uranus at Opposition °9:34 PM -> 2:16, 4:16 AM Gal Moons	30	31 °10:40 PM -> 1:57, 2:00, 4:27 AM Gal Moons	1 °11:08, 11:19 PM -> 1:27, 1:38 AM Gal Moons	2  Local S Party °<3:19 AM SZ Heroulis °9:00 PM Mars/Spica Conj. °10:57 PM SZ Heroulis

Date	Start	Title	Description
------	-------	-------	-------------

7/1/97 12:00 AM ALL MONTH NOTES# **CALENDAR NOTES:** This arrow (<) preceding an event indicates it occurs during the darkness that begins the night before. The Feb 1997 Newsletter (or your new member packet) contain details on "Occ" events. "Gal Moons" refers to at least 3 events of Jupiter's satellites; an arrow (->) indicates the events continue into the next morning. Check Sky&Telescope (S&T) and Astronomy (ASTRO) magazines for more info. Planetary "Marathon" possible late in the month-see all nine planets in one night's observing.

PLANETS: MERCURY slowly gaining altitude in the NW evening sky while VENUS is now conspicuous in NW at sunset. Several conjunctions this month with the two inner planets. MARS sets late evening and has lost its glory for the year. JUPITER rises late evening and dominates the SE sky. SATURN rises in the SE midmorning, but is low even at dawn. URANUS, NEPTUNE and PLUTO are basically up all night. See detailed findercharts in May ASTRO pg74 or May S&T pg 84.

OBJECTS OF INTEREST: Planetary Marathon; Asteroid Pallas (Jul ASTRO, pg 75); SZ Herculls (Jun S&T, pg 76); Mutual events of Galilean Moons (see Jun S&T, pg 78 or Jul ASTRO, pg 73).

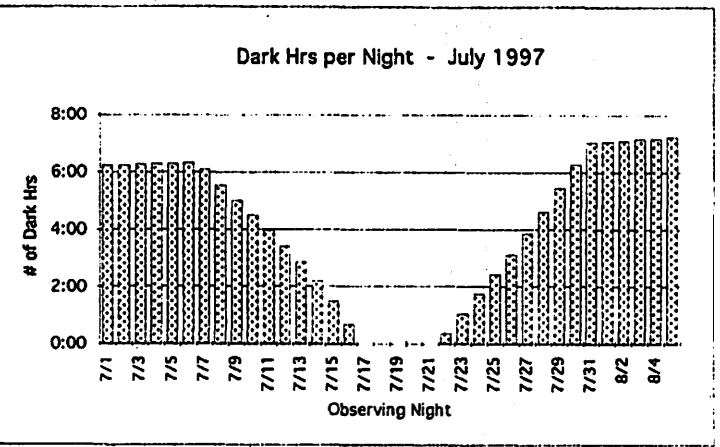
7/18/97 7:30 PM 7:30 PM SAC Mtg# Saguaro Astronomy Club meeting, Grand Canyon University, Fleming Bldg, Rm 105. Camelback and 33rd Ave.
 7/28/97 11:00 AM 11:00 AM S-delta Predicted peak occurs during daylight, but this meteor shower lasts over a week. Max hourly rate expected is about 20. See Observer's Handbook or Jul ASTRO, pg 74 for details.
 Aquarids#

DARKS FOR 1997 BY MONTH

Dark of the Moon Table -- July 1997

OBSERVING NIGHT	START OF DARK	END OF DARK	TOTAL DARK	OBSERVING NIGHT	START OF DARK	END OF DARK	TOTAL DARK
TUES/WED	7/1 9:25 PM EOT	7/2 3:40 AM SOT	6:15	SAT/SUN	none	none	--
WED/THURS	7/2 9:25 PM EOT	7/3 3:40 AM SOT	6:15	SUN/MON	none	none	--
THURS/FRI	7/3 9:24 PM EOT	7/4 3:41 AM SOT	6:17	MON/TUES	none	none	--
FRI/SAT	7/4 9:24 PM EOT	7/5 3:42 AM SOT	6:18	TUES/WED	7/22 9:13 PM EOT	7/22 9:35 PM MR	0:22
SAT/SUN	7/5 9:24 PM EOT	7/6 3:42 AM SOT	6:18	WED/THURS	7/23 9:12 PM EOT	7/23 10:16 PM MR	1:04
SUN/MON	7/6 9:23 PM EOT	7/7 3:43 AM SOT	6:20	THURS/FRI	7/24 9:11 PM EOT	7/24 10:56 PM MR	1:45
MON/TUES	7/7 9:38 PM MS	7/8 3:44 AM SOT	6:06	FRI/SAT	7/25 9:10 PM EOT	7/25 11:36 PM MR	2:26
TUES/WED	7/8 10:12 PM MS	7/9 3:44 AM SOT	5:32	SAT/SUN	7/26 9:09 PM EOT	7/27 12:17 AM MR	3:08
WED/THURS	7/9 10:45 PM MS	7/10 3:45 AM SOT	5:00	SUN/MON	7/27 9:08 PM EOT	7/28 12:59 AM MR	3:51
THURS/FRI	7/10 11:17 PM MS	7/11 3:46 AM SOT	4:29	MON/TUES	7/28 9:07 PM EOT	7/29 1:44 AM MR	4:37
FRI/SAT	7/11 11:49 PM MS	7/12 3:47 AM SOT	3:58	TUES/WED	7/29 9:06 PM EOT	7/30 2:32 AM MR	5:26
SAT/SUN	7/13 12:23 AM MS	7/13 3:48 AM SOT	3:25	WED/THURS	7/30 9:05 PM EOT	7/31 3:22 AM MR	6:17
SUN/MON	7/14 12:58 AM MS	7/14 3:49 AM SOT	2:51	THURS/FRI	7/31 9:04 PM EOT	8/1 4:06 AM SOT	7:02
MON/TUES	7/15 1:37 AM MS	7/15 3:49 AM SOT	2:12	FRI/SAT	8/1 9:03 PM EOT	8/2 4:07 AM SOT	7:04
TUES/WED	7/16 2:21 AM MS	7/16 3:50 AM SOT	1:29	SAT/SUN	8/2 9:02 PM EOT	8/3 4:08 AM SOT	7:06
WED/THURS	7/17 3:10 AM MS	7/17 3:51 AM SOT	0:41	SUN/MON	8/3 9:00 PM EOT	8/4 4:09 AM SOT	7:09
THURS/FRI	none	none	--	MON/TUES	8/4 8:59 PM EOT	8/5 4:10 AM SOT	7:11
FRI/SAT	none	none	--	TUES/WED	8/5 8:58 PM EOT	8/6 4:11 AM SOT	7:13

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



Bernie Sanden

"When I heard the learn'd astronomer
When the proofs, the figures, were ranged in columns
before me,
When I was shown the charts and diagrams, to add,
divide, and measure them,
When I sitting heard the astronomer where he lectured
with much applause in the lecture room
How soon unaccountable I became tired and sick,
Till rising and gliding out I wander'd off by myself,
In the mystical moist night-air, and from time to time,
Look'd up in perfect silence at the stars."

In his, "Field Book of the Skies," William Tyler Olcott seems to lie clearly within the romantic camp. Olcott berates "the so-called astronomers who have such narrow vision that facts and figures are all they can see of the heavens" and goes on to claim:

"They have written books...accurate dry-as-dust text-books...until we have come to believe that astronomy is solely for the advanced mathematician. These books are...as necessary as the book keeping of the finances of a symphony society-but they have as little to do with the enjoyment of astronomy as has botanical dissection to do with the appreciation of the beauty of a rose..."

Olcott, a Connecticut lawyer and founder of the American Association of Variable Star Observers (AAVSO), turned to amateur astronomy at the age of 32 and went on to write six influential popular astronomy books.

In "Astronomy and the Imagination," author Norman Davidson attempts to introduce astronomy through the geocentric view. In discussing the retrograde motion of planets, Davidson writes:

"Seen against the stars, over a period of months, it will perform a loop or similar form. Often the modern person cannot believe at first that exterior planets make such forms before our eyes, until he is shown a heliocentric explanation, but the sense of wonder and the qualitative feeling for the appearance is lost. Mechanical laws here overtake the primal experience."

The realm of the telescope can serve as a link between the romantic and classical universes. The appearance of a celestial object through a telescope becomes direct experience. In this we are following in the footsteps of Galileo, who smashed the geocentric paradigm with his telescopic observations. We can see the universe more as it exists in classical terms. For example, the Milky Way becomes a vast galactic star system and no longer a mysterious, diffuse band of light arching across the heavens. Facets of heliocentric cosmology, such as the phases of Mercury and Venus, may be glimpsed in the telescopic eyepiece. Norman Davidson claims that "the tube pushes against the celestial sphere and shatters it." Davidson continues:

"The moment one glances through a telescope, the ordinary senses retreat and the mind leaps into theory and speculation. Sky phenomena are no longer encompassed by pure observation but for ever stretch beyond it...This is an entry into another realm. The universe becomes purely physical."

Davidson equates modern astronomy with the shadows in Plato's allegory of the cave.

There are some tools that can help to bridge the romantic and classical realms. One of these is Guy Ottewell's Thousand-Yard Model, an astronomy lesson dealing with the dimensions of solar system. In this model the Sun and planets are represented by various objects, and these objects have been correctly scaled down from their true diameters. The scale is such that the smallest solar system bodies can still be discerned as discrete objects and not infinitely small points. The solar system becomes a walk of 1/2 mile in length, and the participants count out paces corresponding to the orbit of each of the planets. Another tool is the astronomy software Dance of the Planets. With Dance we can manipulate an accurate depiction of the heliocentric solar system of modern astronomy (I think that it would be interesting if the software authors would create a Ptolemaic version of Dance complete with epicycles).

One could even argue that the universe exists only in the mind. My perception of nature is derived from sensory input from my eyes, this input is converted into electrical and chemical signals that travel into my brain where the conception is created. Since all sensory input works this way, how do I know that anything exists outside of what is in my mind? In a sense, the universe does exist only in my mind. This philosophical stance is known as solipsism and is derived from ancient Greece. As you can see, it is not a practical philosophy for everyday existence, and I choose to believe that external things really do exist. I am sure that everyone is grateful.

CLASSIFIEDS

For Sale: TeleVue 19mm Wide Field eyepiece, great condition, \$90. Meade 4mm Research Grade Orthoscopic, 20 years old, but in excellent condition, \$15. Contact Robert Kerwin at 837-3971.(9-97)

For Sale: Olympus OM-1N camera with 50mm f1.4 lens. Mint condition. Asking \$350 O.B.O. Must Sell!! Call 990-1569 eves/wknds Ask for Steve Roquemore.(9-97)

Telescopes for Sale: A 10" f4.5 Coulter Odyssey Dobsonian. Good optics, new rack & pinion focuser, Telrad. No eyepieces. Good condition. \$325 o.b.o. A 6" F5 Newtonian with 2 eyepieces. (12.5mm Meade Ortho, 26mm Sirius Plössl) 1 Yr old - like new, metal focuser, Red with oak stand. \$450 o.b.o. 20" f/4.5 mirror - \$1900. - Pierre Schwaar (256-5533) (10-97)

Valued member since 8/16/97
Next EVAC Meeting — July 9th



IN THIS ISSUE
• GETTING STARTED
• ASU STUDENT OBSERVATORY
• STAR-HOPPING IN CORVUS
• SZ HERCULIS

EAST VALLEY ASTRONOMY CLUB
Robert G. Kearney, Jr., Editor
2120 W. 8th Ave.
Mesa, AZ 85202



EAST VALLEY ASTRONOMY CLUB—1997

EVAC Homepage—<http://www.psi.az.com/polakis/EVAC/evac.html>

President: Sheri Cahn 841-7034	Vice-President: Tom Polakis 967-1658	Treasurer: Silvio Jaconelli 926-8529	Secretary: Aaron McNeely 954-3971	Properties: Ken Spruell 264-5847
---	---	---	--	---

MEMBERSHIP & SUBSCRIPTIONS: \$20.00 per year; renewed in Dec. Reduced rates to *Sky & Telescope* and *Astronomy* available. Contact Silvio Jaconelli, 1700 E. Lakeside Dr. #59, Gilbert, AZ 85234 (602) 926-8529.

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.

NEWSLETTER: Mailed out the week before the monthly Club meeting. Send your thoughts and stories to: Bob Kearney, 2120 W. 8th Ave, Mesa, AZ 85202, (602) 844-1732. Email to—starjb@idt.net

CHANGES: Address, Phone Number, or Email: send to Sam Herchak, 145 S. Norfolk Cir, Mesa, AZ 85206, (602) 924-5981. Email to—76627.3322@compuserve.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 Ken Spruell for complete details, (602) 264-5847.

BOOK DISCOUNTS: Great savings for members through Kalmbach and Sky Publishing. Contact Aaron McNeely, 4402 N. 36th St. #22, Phoenix, AZ 85018, (602) 954-3971. Email to—amcneely@primenet.com

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@email.mot.com