

East Valley Astronomy Club

April

Newsletter

1995

EVAC MEETING HIGHLIGHTS

The meeting started at 7:30 PM with about 50 members and several guests in attendance.

EVAC Cookout/Public Star Party

As coordinator for the April 8th event, Don Farley gave us details and said to expect a large crowd. As it turned out, there were about 30 EVAC members there for the cookout by Ted Heckens and the Board of Directors meeting. Both were great successes—many thanks to those who brought sodas or a salad. The star party was well organized and the Club set up twenty or so telescopes but the expected crowd didn't materialize, perhaps due to the high clouds in the Phoenix area all day. The next opportunity to get involved with the public is coming soon on May 6th, which is **Astronomy Day**. Don Wrigley is organizing a public star party that night at Scottsdale Community College. Please contact Don or sign up at the upcoming meeting if you can help.

Home Videos

Pierre Schwaar showed about 10 minutes of video taken through his telescopes of Mars and the occultation of Spica earlier this year. Seasonal change was clearly evident in the footage of Mars and the occultation was quite dramatic.

Featured Presentation

Dr. Brian Skiff from Lowell Observatory spent an hour going over the creation of the Hubble Space Telescope *Guide Star Catalog (GSC)* and some of the follow-on catalogs in the works. The information covered would fill the entire newsletter. I will try and summarize as many of the main points as I can.

The true field of view in Hubble's sensors is quite small. The three pointing/tracking sensors need at least two guide stars in their even smaller fields of view. In star poor regions of our sky (near the Galactic

poles in Coma Berenices and Sculptor) the catalog would have to go down to at least 14.5 magnitude to fill the two star requirement. Not so in star rich areas of the sky. The original plan was to create target star fields for each object to be studied and transmit the data up as necessary. This would require a lot of manpower and was scrapped when extra time was created by the Challenger setback.

It was then decided to digitally scan all the sky survey plates for star positions and magnitude and create a database for the entire sky. A second, more up-to-date survey of the northern sky was then done by the Palomar Schmidt and used with the southern sky survey taken with UK Schmidt Telescope in Australia. The result was 250 gigabytes of data! Even so the GSC is incomplete.

The digital scans classified any elongated objects detected (such as close binary stars) as non-stellar. In terms of the GSC, they are not stars! This itself eliminates about 20% of the stars on the plates. Then in star rich regions of the sky, stars unnecessary for pointing/tracking were thrown out. The result is the GSC is far from complete below 12th magnitude or so.

As expected, plates had overlapping areas and the dual scans of objects were compared. Sometimes magnitudes differed by 1.0 magnitude! When compared to more accurate photometric measurements, the GSC has no better than 0.4 magnitude accuracy. With variable>

UPCOMING CLUB EVENTS

EVAC Club Meeting, Apr. 19, 7:30 PM
SCC, Physical Sci. Bldg, Room PS 172

Local Star Parties, Apr. 22, Sunset 7:01 PM
Carefree and Florence Junction Sites

Deep Sky Star Party, Apr. 29, Sunset 7:06 PM
Sentinel, AZ

stars, the magnitude values are simply the intensity existing at the time of the plate!

The star's position is the far more important element to Hubble though. Even here, the analysis used on the curved plates resulted in position inaccuracies of 2 arc seconds compared to more accurate transit telescopes. Because stars are not permanently fixed in space, further error is added by "proper motion" of stars as time goes on. Nevertheless, the GSC was still good enough and a big improvement over outdated catalogs such as the *Smithsonian Astrophysical Observatory (SAO) Catalog*. The GSC as now used contains 16 million stars, a million "non-stars," and another million galaxies, etc.

Brian then went on to describe at least five more recent catalogs and a possible update of the GSC. Questions and answers were followed by a cake from Sheri Cahn (that was devoured in record time) and soft drinks.

APRIL GUEST SPEAKER

The speaker for the April 19th meeting will be Ken Edgett, a planetary geologist at ASU. His presentation is entitled "Exploring the Sands of Mars." In his presentation, Dr. Edgett will detail some of his own research about the sand dunes of Mars as well as other wind-generated surface features. He will also update us on some of the future missions to the Red Planet.

RECORD SETTING MARATHON!

By Sam Herchak

This year's Messier Marathon sponsored by the Saguaro Astronomy Club (SAC) was a huge success by any standards. At sunset, fifty-eight telescopes of all types and up to 20" aperture were set up at Arizona City. At dawn, thirty or so still remained.

AJ Crayon, the event coordinator promised M74 would be a difficult object low in the west at sunset but didn't mention clouds! After a terrific clear day, clouds moved in at sunset obscuring M74, 77, 31, 32, and 110 for most observers. As the night progressed, the clouds crept higher and produced a splendid display of the Zodiacal light beaming up from behind. By 8:30 PM,

many people including myself had given up on the sky and were telling stories. Then conditions improved slightly and some people went back to work. I had my doubts but by 9:30 PM, we had beautiful, dark skies that got better as the night went on. Many observers were able to make up M31 and 32 in the pre-dawn sky but the other evening objects were lost.

Thirty people officially participated in the Marathon with 13 from EVAC, 8 from SAC, 7 from the University of Arizona, and 4 from the Tucson Amateur Astronomical Association. Two participants even came from the White Mountain Astronomy Group. The most impressive statistic however, is that twenty-two people logged over 100 M objects on this one night.

The highest number observed was 107 by three different individuals; Adam Block and Stephanie Garko from the U of A, and Paul Lind of SAC, all of whom used 8" Newtonian reflectors. The highest tally for an EVAC member goes to Don Farley with 106. Equally impressive are first time marathoners Sheri Cahn, Jane Kearney, and Bill Smith. Although a newcomer to observing the sky, Jane found 21 objects with her 20X80 binoculars. Sheri netted 62 before the Virgo Cluster and fatigue took its toll while Bill Smith still managed 79 between his helpful visits to other observers. Congratulations to these winners, the Saguaro Astronomy Club, AJ Crayon, and all the participants who made this a record star party for Arizona.

SENTINEL STAR GAZE

Saguaro Astronomy Club

The Sentinel Star Gaze is sponsored by the Deep Sky Group of SAC. The fourth annual event takes place on April 29th. There is no registration fee to attend, just show up and enjoy the night sky. In the past, folks have arrived on Friday for two nights of observing. The site is just a large flat area in the middle of the desert so it gets both hot and cold. Be prepared. With our wet winter, there is also a possibility of flying insects. It is likely that a Port-a-John will be in place Saturday for everyone's convenience.

Editor's Note: EVAC has scheduled its monthly deep sky star party to coincide with this event and encourages everyone to attend. Sentinel is a premier dark sky site, yet can be reached from Phoenix in two hours. It is so good, amateurs from other states often attend. Serious observing and photography takes place so please review the observing session guidelines that follow. Members will also find a map to Sentinel in their newsletter.

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 Party Line	Lika Romney	952-0988

EVAC BOARD OF DIRECTORS MEETING MINUTES

April 8, 1995

The meeting was held during the Club Cookout at Salt River Recreation and convened at 5:35 PM. About thirty people were present with one Officer and one Board member absent. Ted Heckens cooked dinner for everyone on his grill!

MINUTES FROM LAST MEETING:

- Minutes were reviewed from memory.

TREASURER'S REPORT:

- Unavailable.

OLD BUSINESS:

- Club business cards, answering machine, and dedicated phone line—Generic business cards with the EVAC logo and a short message will be created by Dick Simmon. No phone numbers will be printed as a Club phone line would cost over \$200.00 per year and Club Officers change every year. Anyone handing out a card will be expected to write an appropriate phone number on the back. There will not be a Club answering machine either.
- Incorporation—Bob Kelley has apparently drafted the required paperwork that now awaits Don Wrigley's signature. Bob is out of town for most of April.

NEW BUSINESS:

1. GROUPS:

- Membership—John Durham has put together a two-page handout for those amateurs who express an interest in EVAC. Any prospective members should contact John to obtain this informative handout. They will also be distributed at public star parties.
- Star Party Coordinator—Robert Kerwin will be the point of contact for Club star parties during the summer months when Lika Romney is unavailable. An effort will be made to emphasize this service.

2. ACTIVITIES:

- Kitt Peak Field Trip—Tom Polakis reports a Club field trip to Kitt Peak will happen on August 12th. Cost will be about \$20.00/person. Details to follow.
- All Arizona Star Party Site—An effort to locate a better site in the Arizona City area is being made. Don Wrigley will follow-up on a resident there who offered the use of his land. Any ideas are welcomed.

3. FUNDS:

- John Durham obtained \$300,000 of liability only insurance for the Club through his business contacts. It was required for the Forest Service to issue the Club a special use permit for the Salt River Recreation site. It covers all Club events and was very reasonable for a whole year's coverage. The

board voted to reimburse John for the insurance and the cost of the permit.

- Port-a-John—Paul Dickson brought up the question of splitting the cost of a Port-a-John for the Saguario Astronomy Club's Sentinel event. The consensus was these are important for a number of good reasons and the Board voted to split the cost of one for one night. SAC in turn will split costs with EVAC for the All Arizona Star Party in October.

4. MISC:

- Privacy Issues—Membership lists and Club site maps will only be mailed out to active members so as not to be displayed in local astronomy shops, etc. If people do not want a phone number on the list, they should indicate such to Bill Smith. Non-members wishing to visit a star party should contact a Club official for information.
- Club Logo and Maps—Bill Smith (Macs) and Robert Kerwin (PCs) will attempt to make a collection available on disk so that these may be faxed when it is too late to use the postal service.
- Internet Imagery—Jim Waters has downloaded 45 MB of images that now resides on 60 floppies for PCs. He plans to catalog these and put them in the Club library. Thank you Jim!

CLOSE: The meeting adjourned at 6:15 PM as the public star party followed at 7:00 PM.

A DIMMER BETELGEUSE

March 25th Sky & Telescope Online News
via Compuserve

Two astronomers at Villanova University report that Alpha Orionis, the gleaming red supergiant more widely known as Betelgeuse, has dimmed in brightness by 0.4 magnitude since September and now stands at +0.8. The star has been recognized as a semiregular variable since the time of John Herschel, and on occasion it can swing through a full magnitude. The variations last hundreds of days and are thought to be due to the gradual expansion and contraction of the star's surface.

JOHN DOBSON TO VISIT ARIZONA

This from Paul Dickson. Dean Ketelsen, who organizes the Grand Canyon Star Party, advises that John Dobson and the San Francisco Sidewalk Astronomers will be joining us on the rim of the Canyon this year. What are you waiting for! Make your plans to participate, mingle with history, and hike some history. Details on the June event are in the February EVAC newsletter.

NOW FOR THE REST OF THE STORY—STORY

by Art Zarkos

As you probably remember from last month's EVAC Newsletter, I explained how my 10" Dobsonian got blown over by the wind and ended up in a heap on the kitchen table. So with diligence, perseverance, and whole lot of common sense, I straightened out the bent spider arms and replaced the few bolts that were bent. Then during reassembly, made a few measurements across the diameter of the main tube and adjusted the spider to get the secondary mirror (the diagonal) as close to the center of the tube as possible.

Next came the primary mirror cell. There are many different types and configurations, so use those words again, common sense, and fit your mirror into the cell and make it as concentric with the inside of the tube as possible. This adjustment can be done on the work bench or table. Fasten the mirror and cell as a unit to the bottom of the tube with those big heavy bolts, washers and nuts. Basically you've got it back together as I just did, so what next?

COLLIMATION

This is really not as bad as it sounds, it's just that we don't hear that word very often and we tend to avoid it like the plague! I will only talk about the common Newtonian type telescope; the others will have to wait for another time and place.

Rough collimation begins by removing the eyepiece from the focuser and looking into it (not the eyepiece, the hole it came out of). What you're looking for are several concentric circles made up of reflections of the mirrors. You'll also see your eye reflected in the primary mirror. But chances are the circles will be off center or the diagonal mirror may be just partially visible in the reflection.

To start with, it's important to keep your eye in the center of the tube that holds your eyepiece. A quick way to improvise such a tool is to get an old plastic Kodak 35mm film canister (the newer ones are too big and the Fuji are too small). The cap has a little dimple right in the center and with an ice pick or nail, punch a hole about 2mm in diameter (the size of a pencil lead or slightly larger). Cut off the bottom of the canister and place the assembly into the focuser opening (use with a 1.25" adapter for a 2" focuser). Now when you look into it, you know your eyeball is in the center. Next step is to align the diagonal. Peer into the hole you just made and check to see if the entire diagonal mirror surface is visible. If not you won't capture all the light coming from the primary mirror. Adjust the secondary up or down the telescope tube until the secondary mirror appears centered inside the focuser sleeve.

Now we look at the primary mirror and examine the image to see if it is in the center of the secondary mirror. No part of the primary's reflection should extend off the side of the diagonal mirror's surface. This is why you made that little sighting device, so be sure to save it for future use. If the primary image is not lined up in the center to make those nice concentric circles, adjust the three little screws normally located on the backside of the diagonal where it joins the spider. By trial and error you will see it takes very little adjusting to get the job done. The last rough adjustment will be to center the reflection of the diagonal and spider vanes in the primary mirror. On the back of the primary mirror cell there are usually three more screws for this adjustment. Some scopes have wing nuts to do this. Unless you were born into a family of gorillas and have arms about six feet long, the screws are difficult to get to while looking through the focuser tube. The procedure usually works better if you have a friend (or spouse) to help. While you're looking at the image, tell him or her to tighten or loosen any one of the three screws just slightly, and you will notice the image shift away from or toward the center of the primary mirror. Then adjust one of the other two screws and direct your friend accordingly. Zero in for the kill (this is very high tech stuff eh), get the diagonal's image centered as close as you can, and wala; that's it, no mas, finis....

So now back to the drawing board (sorry bad joke). The next clear night, look at any medium bright star that's high in the sky (like Castor or Pollux for example). Use a high power eyepiece and put the star slightly out of focus and examine the results. You should see the shadow of the diagonal holder superimposed on several concentric rings of light. If all your adjustments were perfect, the rings and shadows should be concentric. But don't despair if they are not, as is usually the case. Go back to the primary mirror adjustment screws and tweak them until the rings and shadows become concentric. Be sure to re-center the star after each adjustment.

When you bring the star image into sharp focus, it should be a beautiful, tiny, round disk with one or two faint diffraction rings (with good optics and steady air). If it has a tail or flare to one side, adjust the primary screws once more and it should disappear. Enjoy browsing the stars; I'm going to bed.

ATM JOURNAL

This e-mail message was forwarded to me by Paul Dickson. Apparently the *Amateur Telescope Makers Journal* hasn't been published lately because it's editor, Bill Cook, has been sick and in the hospital. He has recovered and the *ATMJ* should follow shortly.

The Observer
by Tom Polakis

Alan MacRobert's article "Beating The Seeing," in the April *Sky & Telescope*, was worth the price of that issue. Rarely do you find so much good information packed into four pages. I found myself evaluating personal experiences with seeing in Arizona and comparing them with MacRobert's.

The subject of bringing the mirror to equilibrium comes up often at our star parties—usually inspired by somebody who sets up one of those scopes with a non-ventilated "tailgate" design primary mirror cell. In Summer months, we often commute from a 110-degree desert to the high country, where the ambient temperature just after sunset is in the 40's. I've found that my ventilated primary comes to ambient temperature during the hour and a half duration of twilight, at worst. An observing buddy, who suffers with a full-thickness 12.5-inch primary, usually needs another hour or so until his mirror starts outperforming mine. It's rare, but I've needed to let my primary "heat up" at times, after storage in an air-conditioned 85-degree house, moving it into a 105-degree backyard. Only in Arizona!

MacRobert points out that twinkling is an indication of seeing, but makes the point that steadily shining stars don't always mean good telescopic images. A multicolored and flashing Sirius or Canopus always indicate poor seeing, but the converse is not always true. Winter nights often bring stars that appear absolutely motionless to the naked eye, but a look through the scope shows that "fast" seeing he discusses, in which the scintillation is faster than the eye's reaction time. In these conditions, you can't wait for moments of good seeing, because your eye just won't be quick enough to catch them.

The point that large aperture always wins is well taken. Stopping down my 13-inch, even during poorest seeing always worsens planetary views. I think what is mistaken is that the images in small apertures are more comfortable to view, since the seeing effects are not as well revealed. The full-aperture view may be boiling and shifting, but patient observers will see more detail, even in fast seeing. One of my complaints with stopping down on planets is that it reduces the light gathering, and suppresses small color differences that are key to good planetary views. My best-ever view of Saturn showed very subtly hued cloud bands. I would have missed these in a smaller scope, since the color differences would have been muted.

Arizona deep sky observing sites typically have poor seeing. Scope-maker Pierre Schwaar has repeatedly pointed out that his best planetary views come from his backyard near Central and Thomas, in downtown Phoenix. One would think that the steel and concrete would degrade the seeing, but apparently these heat

capacitors actually help. While temperature ranges in the adjacent deserts are 35 degrees F, they're only 25 in central Phoenix. Maybe the lessened temperature drop is what is helping his seeing conditions. Regarding remote sites, we find the best seeing is found away from drainage; out of washes and valleys, and away from mountain slopes. One of our sites has a very predictable cool drainage that comes in the form of a cool southeasterly breeze a few hours after the end of twilight. The seeing goes south for an hour or so before making a comeback. But it's never as good in the morning as it is during the evening hours.

Finally, the article includes a plot of star size vs. altitude. It looks like 30 degrees or so is a good cut-off altitude for both seeing and starlight extinction. Many observers have commented on the low-declination, large-angular-size Mars apparitions showing more detail than the current one. That plot illustrates that even when Mars is in Sagittarius, it should show more detail—it's doubled size will overcome the slightly poorer seeing experienced at low altitudes.

CLUB PARTY LINE

As a reminder, if you plan to attend a Club local or deep sky star party, call the "Party Line" and let your fellow members know about it. Some people don't like being alone in the desert (or want to carpool/caravan) and don't want to drive all the way to Vekol Road to find out no one else showed up. Lika Romney answers the party line during the cooler months and Robert Kerwin keeps track in the summer. So if you are going to attend a local star party on April 22nd or Sentinel on April 29th, call the party line as the date approaches. The number is listed with the Club Officers.

FOR SALE

Tele Vue Panoramic Mount. Ash wood tripod with black anodized aluminum head and brass bearings. \$250.00 (retail \$395). **WANTED:** 32mm or larger Tele Vue eyepiece. Contact Kirk Keating at 839-9352 regarding both items.

MAY NEWSLETTER

by Bob Kearney!

Deadline is May 5th for material to be included in the next newsletter. This one will be put together by Bob "Quasar" Kearney. Please submit your thoughts and stories to:

Bob Kearney
2120 W. 8th Ave
Mesa, AZ 85202
JRKearney@aol.com

The Deep Sky Notebook

by Robert Kerwin

Exploring The "Four Corners" Region

Living in Arizona, most of us are familiar with Four Corners, the only place in the United States where four states meet. Interestingly, the northern springtime sky has its own version of Four Corners. If you look on Tirion Sky Atlas chart 6, you will notice that the constellations Leo, Cancer, Lynx and Leo Minor meet just north of the Sickle of Leo. Unlike its geographical counterpart, however, the celestial Four Corners is not unique. In fact, the sky contains a total of four such intersections. The other three are located....well, I'm not going to ruin the surprise for you—look them up!

Coincidentally, a loose group of galaxies is located near this region and extending to the east. None of the galaxies is very bright, but being close together they are easy to find. Third-magnitude α Lyncis makes the group even easier by providing an excellent starting point.

A trio of galaxies surrounds α Lyncis. The brightest is NGC 2859, located less than a degree east of α Lyncis. It appears as a bright glow elongated approximately north-south. The glow contains a compact, bright nucleus. Overall, the galaxy is about two arc minutes long.

About a degree west of the star is NGC 2793. This is the most difficult of the three galaxies and appears as a faint, round glow with a bright nucleus. NGC 2832 is about a degree to the south of α Lyncis. This galaxy looks similar to NGC 2793, appearing as a round glow with a bright, compact nucleus. NGC 2832 is the brightest galaxy in the galaxy cluster Abell 779. If you have a large telescope, you may wish to try detecting some of the tiny, faint surrounding objects.

We now leave the area of α Lyncis and move to the northeast into Leo Minor. Just east of a little triangle of fifth-magnitude stars (8, 10 and 11 Leo Minoris) is NGC 2955. This galaxy is a fairly challenging object for moderate amateur instruments, though not as challenging as its brightness of magnitude 12.9 might suggest. The faint glow is somewhat elongated north-south and slightly concentrated toward a brighter central area. There is a magnitude 12 star about two arc minutes south. About four degrees directly south in Leo is a close pair of galaxies, NGC 2964 and 2968. NGC 2964 is the brightest of the two and appears as a moderately bright glow elongated east-west. There is little central

brightening. NGC 2968 is only six arc-minutes to the northwest. It is fainter than NGC 2964 and is elongated northeast-southwest. It has a small, bright central region and an outer haze that fades slowly to the background.

Moving about two degrees to the northeast back into Leo Minor we pick up the interesting edge-on spiral galaxy NGC 3003. It appears as a faint streak elongated east-west with a slight brightening toward the center. The galaxy is about four arc-minutes long. Only one degree to the east is NGC 3021. This galaxy is slightly elongated in an east-west direction and slightly brighter to the center. Look for a bright star to the southeast and another very faint star on the eastern edge.

Our final object is NGC 3067, located across the border in Leo, about two degrees southeast of NGC 3021. Look for a moderately bright glow elongated southeast-northwest. The glow intensifies toward a bright, broad, elongated central mass.

Name	Type	Mag.	Dimensions	Const	SkyAtlas	U2000	R.A.	Dec
NGC 2859	galaxy	10.9	4.6' x 4.1'	LMi	6	103	09h 24m	+34° 31'
NGC 2793	galaxy	13.1	1.2' x 0.9'	Lyn	6	103	09h 17m	+34° 26'
NGC 2832	galaxy	11.9	3.0' x 2.1'	Lyn	6	103	09h 20m	+33° 44'
NGC 2955	galaxy	12.9	1.4' x 0.7'	LMi	6	103	09h 41m	+35° 53'
NGC 2964	galaxy	11.3	3.2' x 1.8'	Leo	6	104	09h 43m	+31° 51'
NGC 2968	galaxy	11.7	2.2' x 1.6'	Leo	6	104	09h 43m	+31° 56'
NGC 3003	galaxy	11.9	5.2' x 1.6'	LMi	6	104	09h 49m	+33° 25'
NGC 3021	galaxy	12.1	1.4' x 0.8'	LMi	6	104	09h 51m	+33° 33'
NGC 3067	galaxy	12.1	2.0' x 0.7'	Leo	6	104	09h 58m	+32° 22'

UPCOMING PLANETARY MARATHON

by Sam Herchak

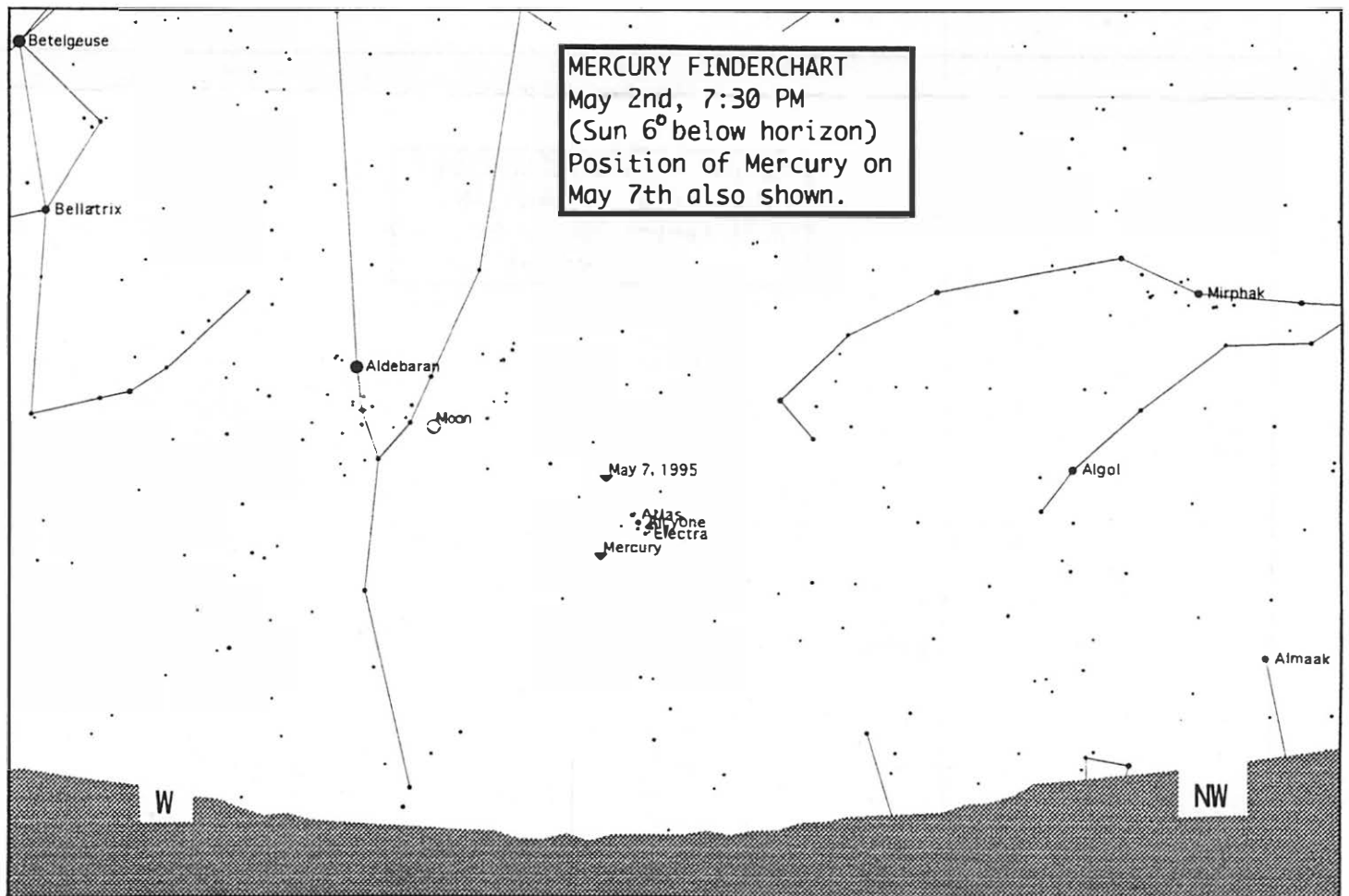
Just as there is a time each year when all the Messier objects can be observed in one night, there is usually a period when all the Major Planets in our Solar System can be viewed. Such a period is approaching in late April and early May.

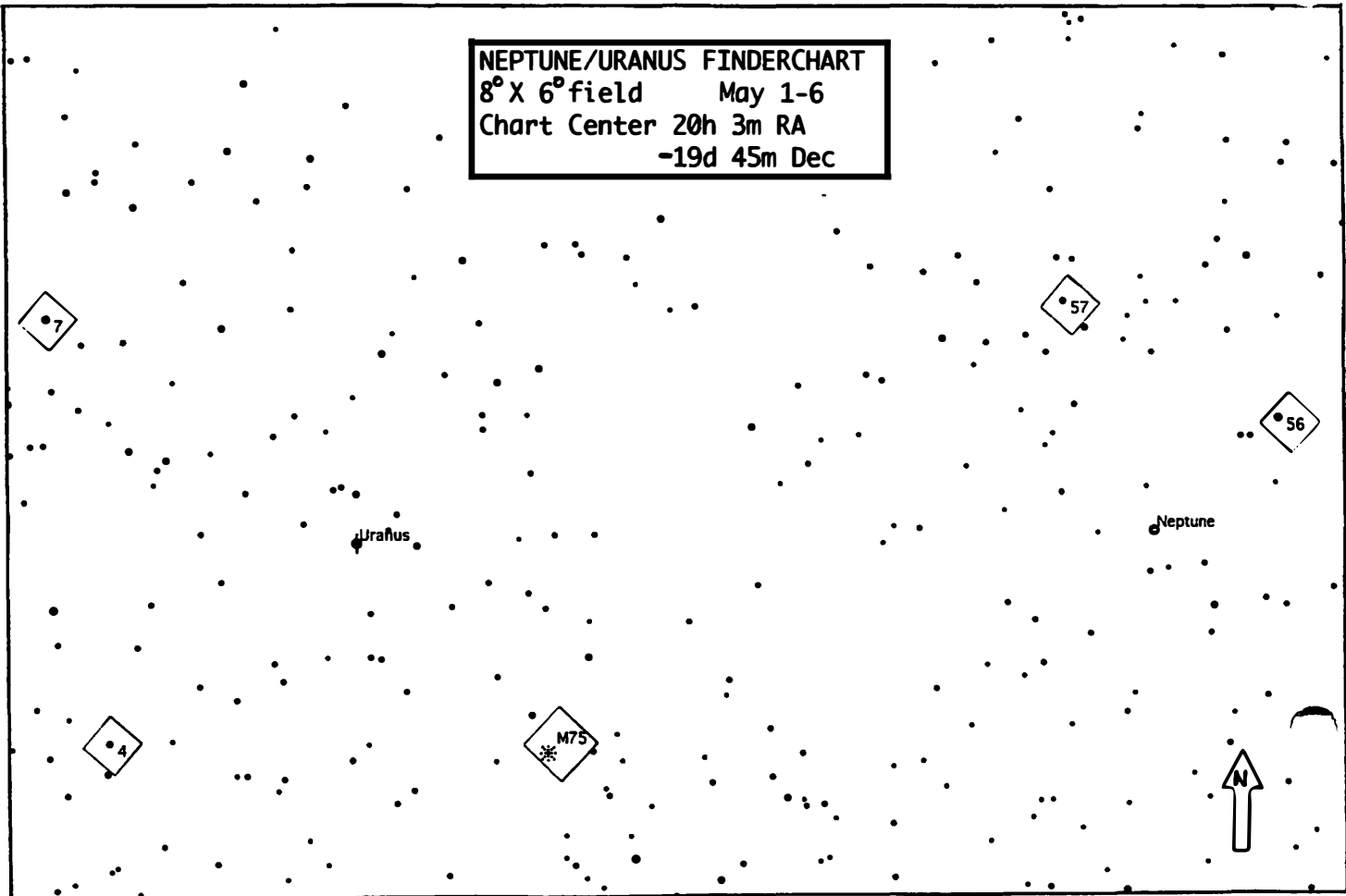
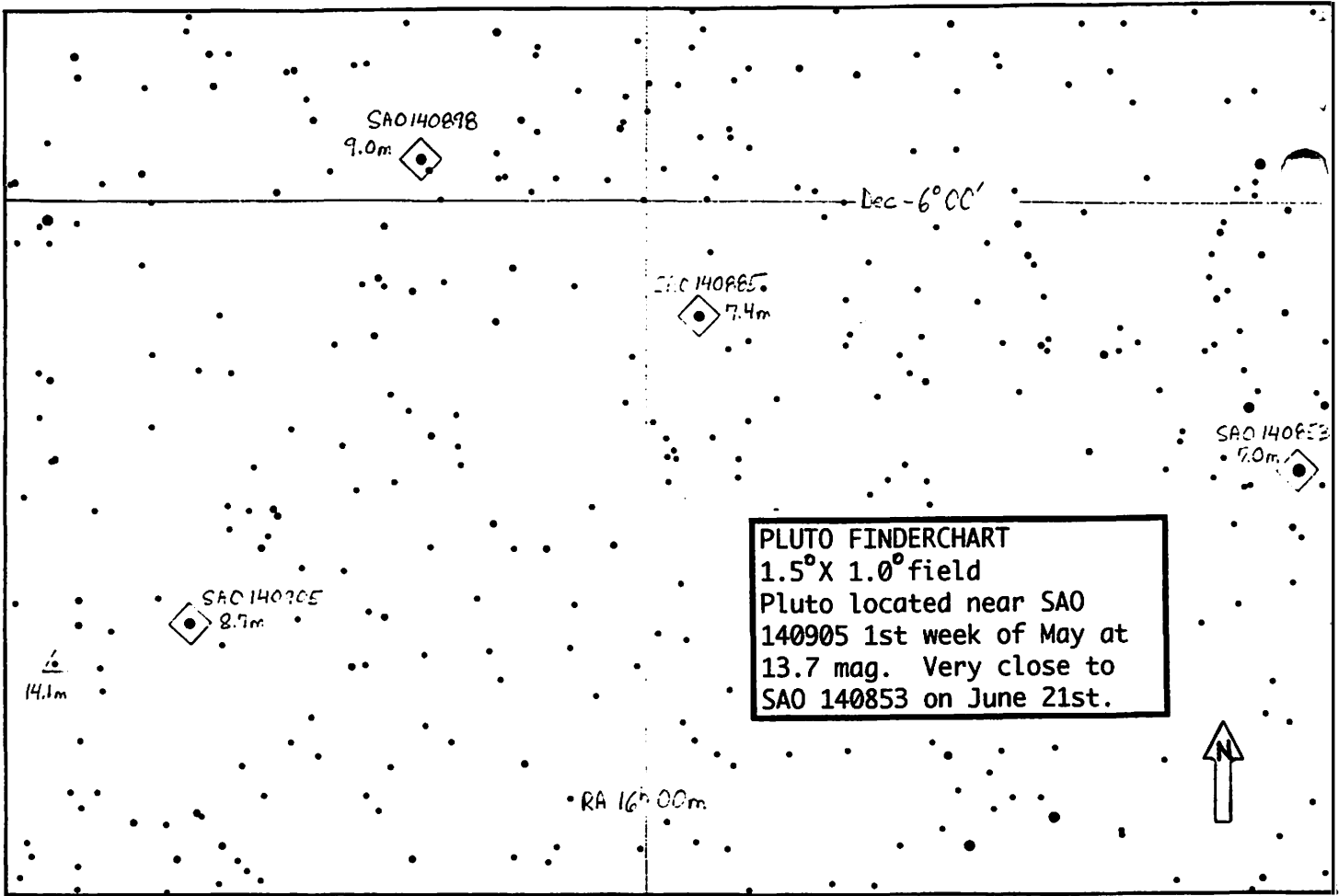
The visibility of the innermost planet Mercury largely determines when a planetary marathon can occur because it spends so much of the year in the glare of the Sun. The Moon can also make it difficult to spot the faint outer planet, Pluto. Between April 29th and May 6th we have adequate placements to spot all nine in one night.

Mercury reaches greatest eastern elongation on May 11th but is high enough in evening twilight to spot a week or so beforehand (see the finderchart provided). Mars is easy, high in the evening sky. Pluto rises at 8:00 PM and is the hardest to identify because it looks like a lot of other 14th

magnitude stars! You'll probably need at least an 8" telescope to spot it. Even then, for positive identification you'll need to annotate a chart (finderchart provided) with its position and then check back several days later to see if it's moved. If it hasn't, you got the wrong "star." Jupiter rises about 9:30 PM and can't be missed. Neptune and Uranus follow at midnight. Uranus is an unmistakable green disk under moderate magnification while Neptune being smaller and blue can be confused with stars (finderchart provided). Saturn and Venus rise just before dawn but shouldn't cause you much trouble. The last planet is a gimme—you're standing on it!

The charts were created with Voyager II (with GSC) for the Macintosh and are intended to supplement those you can find in *Sky&Telescope*, *Astronomy*, *The Observer's Handbook*, etc. I hope you find them helpful. This marathon can be done on the night of your choice. The Sentinel Star Party would be a good night for instance. There is no scorecard to turn in, but let me know if you were successful.





East Valley Astronomy Club

May 1995

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30 *7:15PM Mercury/Young Moon	1 *ALL MONTH NOTES Sunset 7:07 PM	2 *Moonset 9:54 PM *12:22, 1:52, 2:33 AM, 8:53, 11:15, 11:43 PM GMs *4:38 AM RS Sunrise 5:36 AM	3 *Moonset 10:40 PM	4 *Moonset 11:24 PM *9:27, 11:16 PM GMs *7:30 PM PAS Mtg	5 *Moonset next day *1:29, 1:53, 3:54 AM GMs *2:07 AM RS *Eta Aquarid Meteors	6 Astronomy Day *Moonset 12:05 AM
7 *Moonset 12:43 AM	8 *Moonset 1:20 AM *12:24 AM Occ	9 *Moonset 1:55 AM *1:35, 2:07, 3:46, 4:18 AM GMs	10 *Moonset 2:31 AM *1:28, 1:51 AM, 10:14, 10:44 PM GMs *1:14 AM, 9:05 PM RS	11 *9:14, 10:47, 11:42 PM GMs *MERCURY elong.	12 *8:52 PM Occ *7:30 PM SAC Mtg *Ceres/Kappa Leonis	13 *11:19 PM Occ
14	15 Sunset 7:18 PM Sunrise 5:25 AM	16	17 7:30 PM EVAC Mtg *Moonrise 10:30 PM *12:40, 3:12, 4:27 AM GMs *1:59 AM, 9:50 PM RS	18 *Moonrise 11:20 PM *9:38, 10:50, 11:29 PM GMs	19 *Moonrise next day *1:21, 1:57 AM GMs *3:37 AM, 11:28 PM RS	20 Local S Parties *Moonrise 12:06 AM *Pluto at opposition
21 *Moonrise 12:45 AM	22 *Moonrise 1:21 AM *9:10, 10:12, 11:24 PM GMs *1:06 AM, 8:57 PM RS *Ringless SATURN	23 *Moonrise 1:56 AM *12:11 AM GMs *Mars/Regulus conj.	24 *Moonrise 2:29 AM *2:33, 4:55 AM, 11:51 PM GMs *2:44 AM, 10:35 PM RS	25 *Moonrise 3:03 AM *12:02, 2:03, 2:13 AM, 9:02, 11:21 PM GMs	26 *1:24, 1:42, 3:55, 4:11 AM GMs *4:22 AM RS	27 Sentinel S Party *Venus/Moon conj. *156 Xanthippe
28	29 *Ceres/Epsilon Leonis Sunset 7:27 PM Sunrise 5:17 AM	30 *1:08, 1:27, 3:23, 3:29 AM GMs	31	1 	2	3 Local S Parties

All times are LOCAL - add 7 hrs for Universal Time

Flip over for event details

<u>Date</u>	<u>Start</u>	<u>Title</u>	<u>Description</u>
5/1/95	12:00 AM	ALL MONTH NOTES	<p>CALENDAR NOTES: Times for Galilean Moons (GM) refer to eclipses, transits, occultations, etc of Jupiter's four largest satellites. Consult ASTRONOMY (ASTRO), SKY & TELESCOPE (S&T) magazines, or almanacs for the exact event or just go out and watch what happens. Check the "1995 Occultation Predictions for Phoenix" in the Feb EVAC Newsletter for lunar occultation (Occ) details.</p> <p>PLANETS: This is your best chance this year to observe all nine Major Planets in one night. See newsletter for details. MERCURY reaches greatest Eastern elongation on May 11th and will be 10 degrees above the western horizon an hour after sunset. VENUS is getting very low in the Eastern sky at dawn. MARS is high in the evening sky but very small in apparent size. JUPITER rises in mid-evening and is hard to mistake at -2.5 magnitude. URANUS and NEPTUNE rise after midnight while PLUTO comes up about the same time as Jupiter. Consult the April S&T or May ASTRO for findercharts.</p> <p>OBJECTS OF INTEREST: Asteroids Ceres and Xanthippe.</p> <p>ASTRONOMICAL TWILIGHT TIMES: 1st: 8:43 PM and 4:09 AM 29th: 9:11 PM and 3:40 AM</p> <p>LUNAR LIBRATIONS: Good Northern libration during First Quarter and Southern one during Last Quarter.</p>
5/4/95	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.
5/5/95	2:00 AM	Eta Aquarid Meteors	Radiant rises about 2:00 AM. Zenith Hourly Rate (ZHR) of 30 meteors/hour can be expected. A noticeable number of associated meteors can be seen a week before and after May 5th.
5/11/95	7:00 PM	MERCURY elong.	Best chance all year to spot Mercury! Greatest Eastern elongation: 22 degrees from Sun. Look with binoculars low in West after twilight begins about 10 degrees above horizon. Magazines have further details.
5/12/95	7:30 PM	7:30 PM SAC Mtg	Saguaro Astronomy Club meeting, Grand Canyon University, Fleming Bldg, Rm 105. Camelback and 33rd Ave.
5/12/95	9:00 PM	Ceres/Kappa Leonis	Largest of the Minor Planets passes within 15 arc minutes of the star Kappa Leonis. See May ASTRO for details.
5/20/95	10:00 AM	Pluto at opposition	Use findercharts in S&T, ASTRO, and this newsletter to spot the 14th magnitude outer planet.
5/22/95	3:00 AM	Ringless SATURN	Earth passes through Saturn's Ring plane so they appear edge-on and become invisible for almost a week. A more favorable opportunity to observe Saturn in this orientation occurs in August of this year but that's monsoon season.
5/23/95	11:00 PM	Mars/Regulus conj.	Mars makes it's closest approach to the star Regulus this night passing within 1.3 degrees.
5/27/95	5:00 AM	Venus/Moon conj.	Close conjunction, within 1 degree but both objects low in glow of sunrise.
5/27/95	11:00 PM	156 Xanthippe	This 11th magnitude minor planet approaches within 10 arc minutes of Kappa Librae. See May S&T for more info.
5/29/95	9:00 PM	Ceres/Epsilon Leonis	Ceres again closes to only 20 arc minutes of a bright star, this time being Epsilon Leonis. See May ASTRO.

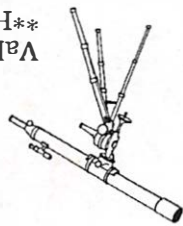
Observing Session Etiquette

by Bob Kelley and others

As with any group activity, there are **Do's** and **Don'ts** of conduct at a star party. The following guidelines are intended to enhance everyone's enjoyment during a star party by maintaining the conditions that the site provides.

- 1) **Members are responsible for their guests.** Please provide a copy of this flyer to your guest before leaving for the site. *Members must accompany their guests and help them understand and follow proper etiquette.* The local star parties may be more appropriate for a casual guest in that less photography or other serious observing is conducted.
- 2) **Use dim red lights after sundown.** Dark light adaptation takes 15 to 20 minutes and can be ruined by even a brief encounter with white light. White light is also very damaging to any astrophotography. A 60 minute exposure can be ruined by the briefest exposure to white light.
Shield or turn off any car door or trunk lights (pull fuses if necessary). Use red flashlights at all times. If you must use white light, please ask first to avoid spoiling someone's evening.
- 3) **Late Arrivals.** Plan to arrive by sunset. If arriving after dark, drive slowly, turn off your headlights and use only your parking lights. Drive slowly, if you cannot see your way, ask someone to walk ahead of you with a red flashlight to guide you. Please plan to leave **On the Hour** if anyone is photographing.
- 4) **Early Departures.** If you are planning on leaving before others, park facing your exit route to avoid engaging Backup Lights. Park close to the entrance / exit. Please plan to leave **On The Hour** if anyone is photographing. As above, if you cannot see your way out, ask for a guide. Turn on your headlights only when far enough down the road that they will not illuminate an unhappy astronomer.
- 5) **Acoustic Environment.** For many observers, the peace and quite of a site enhances the observing experience. Radios, tape players, car horns etc. can disturb others. Please use these items carefully for your own enjoyment but not the distress of others.
- 6) **Personal Safety.** By necessity, our sites are located in the deserts surrounding us. When walking between groups of observers, illuminate your path with a red flashlight and be aware of the danger of snake bite. **Do Not** walk thru tall grass or brush after dark.
- 7) **Leaving Last.** If you are anxious of being left alone at the site, coordinate with the last remaining observers to leave together. The unexpected, such as dead batteries, snake bite, or undesired visitors can happen. The last two observers should make every effort to leave together.

Valued EVAC member since 1/17/92!
 Hope to see you at the next star party



EAST VALLEY ASTRONOMY CLUB
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1995 EVAC SCHEDULE OF EVENTS

	Meeting	Local	Deep Sky	New Moon
APR	19	22	1*&29*	29
MAY	17	20	27	29
JUN	14	3&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: APR 29 *Sentinel Star Party
 MAY 6 Astronomy Day/Public Star Party
 MAY 21-29 Texas Star Party
 MAY 26-29 Riverside Telescope Makers Conference
 JUN 17-24 Grand Canyon Star Party
 OCT 21 *All Arizona Star Party