



# East Valley Astronomy Club

January

Newsletter

1994

## IT'S TIME TO RENEW!

Not only does January mark the beginning of a new year, it also means that it's time to renew your membership in EVAC. At only \$20 per year, a membership in EVAC is one of the best astronomy investments you can make. For less than the cost of a subscription to *Astronomy* or *Sky and Telescope* you'll receive these great benefits:

- The opportunity to fellowship with amateur astronomers in the east valley and throughout the Phoenix area.
- Exciting guest speakers and programs at the monthly business meeting.
- Local and deep-sky star parties.
- An informative monthly newsletter.
- A library of books and software that members can check out.
- A discount on subscriptions to *Astronomy* and *Sky and Telescope*, as well as a 10% discount on other Sky Publishing items.
- Knowledgeable people that are willing to help you with all aspects of telescopes and observing.
- The chance to share some of the things you have learned with others.
- The opportunity to share your interest in astronomy through participation in public star parties.

So don't miss out on all these great benefits--renew today! Check the membership list printed in this newsletter. If your name is not on the list, we have not received your membership dues for 1994. You may send your dues to our treasurer, Bill Smith or come to our meeting on Wednesday, January 26th. We look forward to your participation in the club. 1994 promises to be an exciting year for EVAC!

## EVAC HIGHLIGHTS

On December 1, 1993 a board meeting was held to make plans for the new year. Some of the topics discussed were:

- A new meeting room will be reserved by Dick Simmon in the spring.
- On April 16th and May 7th a public star party will be held at SCC for the school (dates are tentative).
- A training program to teach new and old members the basics of astronomy will be held in the near future.
- Some possible club field trips such as an upcoming meteorite hunt in the spring, trips to Mt. Graham Observatory, Lowell Observatory and Kitt Peak Observatory and the Tucson mirror making lab. A trip down to southeastern Arizona for the May 10th annular eclipse of the sun was also discussed.

Another board meeting will be held before this month's meeting to firm up plans for the various activities.

The EVAC meeting held on December 1st focused primarily on the total lunar eclipse, which was still fresh in everyone's minds. Due to a change of plans, the scheduled speaker was unable to attend. Tom Polakis gave a slide presentation on the lunar eclipse. He photographed the eclipse using several different focal lengths and the results were fascinating. He was followed by Dick Simmon and Joe Murray who showed videos they took of the lunar eclipse. The meeting then continued with Michael Janes and Leon *continued on the next page*

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## UPCOMING EVENTS

**EVAC Business Meeting**  
January 26, SCC Room PS172, 7:30pm

**Local Star Party**  
February 5, Florence Junction Site

**Deep Sky Star Party**  
February 12, Vekol Road Site - map in this newsletter

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## EVAC HIGHLIGHTS

*continued from page one*

Knott who spoke on the history of astronomy. The meeting ended with Rick Blakely who talked briefly about a method he invented for testing telescope optics.

At December's local star party, Frank Honer unleashed his newly built 15 inch Dobsonian and everyone who looked through it was impressed. The weather refused to cooperate at January's deep sky party, but it was not a total loss. Seven (very optimistic) observers attended. Some highlights of the party were a good view of M1 through Frank Honer's fifteen-inch reflector showing faint filaments around the outside edges, a spectacular view of Saturn through a six-inch Astrophysics refractor and the Orion Nebula through the fifteen-inch.

## JANUARY'S SPEAKER

Our guest speaker for the January 26th meeting will be Kelly Bender, a planetary imaging specialist who will talk about the Magellan and Galileo missions and will show some fascinating slides.

## NOVA CASSIOPEIAE

Nova Cassiopeiae was discovered on December 7, 1993 by Kazuyoshi Kanatsu. At the time of discovery, the star was at magnitude 6.5. The nova is located about four degrees southwest of Beta Cassiopeiae at 2000 coordinates right ascension 23h 42m, declination +57° 5.

## NEWSLETTER ARTICLES

The editors of the EVAC newsletter enthusiastically welcome articles from club members. Articles of all types on all aspects of amateur astronomy are needed. Remember, this is *your* newsletter. Without your input, EVAC cannot have a first-rate newsletter. You may submit your articles in one of

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### EVAC Officers

President	Bob Kelley	451-7319
Vice-President	Don Wrigley	982-2428
Treasurer	Bill Smith	831-1520
Secretary	Frank Kraljic	991-5105
Newsletter	Don Wrigley	982-2428
	Robert Kerwin	945-8161

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several ways:

1. **"Camera ready" copy.** If you have a laser or other high-quality printer, you can submit your article as-is. Be sure your article fits evenly on a page (or two, or three...).
2. **Hand- or typewritten copy.** No, we're not afraid of a little typing--just be sure your handwriting is legible!
3. **Diskette.** If it works in an IBM or compatible computer, it works for us! We can use both 5.25" and 3.5" high- or low-density diskettes. We can convert files from most major word processors (such as WordPerfect and Microsoft Word). If all else fails, plain old text files are acceptable. If you have any compatibility questions, please call one of the editors.

Please submit your articles at least two weeks before the next EVAC meeting. Just send it to one of the editors (listed below). Writing an article is not difficult and you can be sure that there are lots of people out there ready to hear what *you* have to say. So, be creative! Let your mind and pen run wild--and send us some of the results.

EVAC Newsletter Editors:

Don Wrigley	Robert Kerwin
423 W. 5th Ave.	1406 N. 85th Place #117
Apache Junction, AZ 85251	Scottsdale, AZ 85257

## COMING CELESTIAL ATTRACTIONS

Early February is a good time to look for Mercury, low in the southwest after sunset. This is the best of Mercury's apparitions this year. On February 2nd, Mercury and Saturn will be only 1.3° apart and on the 11th, Mercury and the Moon will be only 2° apart. A pair of binoculars will help you spot Mercury in the twilight glow.

February is also a good month to look for the zodiacal light. The zodiacal light is a slender, cone-shaped glow that appears in the west after the end of evening twilight or in the east before the start of morning twilight. It is caused by sunlight scattering on dust and debris in the plane of the solar system (the ecliptic). Since the ecliptic angles almost vertically from the horizon during February, the zodiacal light is more prominent. Look for it after evening twilight (around 7-7:30pm) from a dark site. See how far you can trace the glow across the sky.

# **METAMORPHOSE OF AN AMATEUR ASTRONOMER**

by Don Farley

I can remember, when I was a child, being outside at night and in awe of the night sky. Back then you could even see the Milky Way from any back yard in the city. Light pollution never seemed a problem. As I grew older, I would enjoy laying out in the desert looking at the star-filled sky.

Given this background, it may not be hard to understand that on more than one occasion I found myself with runaway imagination. There was the time I was on the way back to Phoenix after a week on the road. (I was at that time a traveling salesman). It was late at night when the following aberration occurred.

I was on the highway between Gila Bend and Buckeye and as I topped the hill, the lights of the big city were shining in the distance and the sky was crystal clear. Leaning back to enjoy the sights, I applied a little backward pressure on the steering wheel. The sensation of lifting was felt. This startled me, so I relaxed the pressure and felt the car settle down on the road again. This seemed to be an interesting phenomenon.

Again I leaned back and this time gently pulled the steering wheel back. It moved ever so slightly. The car responded and gently lifted. I continued the pressure and, to my amazement, the car rose until I found myself looking down on the road I was driving on just moments ago. I turned the wheel to the left and then to the right and the car responded. Slight inward pressure, and the car would gently lower. I AM FLYING!!!

This is my chance, the chance I have only dreamed about. The chance to rise above this earth bound existence and rise to the stars. I gently pulled the wheel back and accelerated. UP, UP, and upward I went, passing the light haze that had been high in the sky that night.

As I watched the Moon get closer and closer, I remembered the night as a child wondering what that cheese ball really was. Now I would be able to know. Wow!! I don't know what that was but it passed by so close I could almost feel the heat. All of a sudden I felt the car shoot out as though the rubber band broke and propelled me like a sling shot into the blackness.

I spent a little time passing by the moon and then onward into the darkness of space. Stars I had only wished on passed by the windows and the Earth was like a little ball below me. How peaceful it looked from here. If only it was as peaceful as it looked. But I was here now and dreams were coming true.

The planets are in range, Mars and Jupiter are spectacular and the jewel of the night time sky is approaching rapidly. Saturn, with all of the rings is like a diamond in the rough. Parts are polished and smooth and yet there are pock marks in the surface where meteors have struck and left their mark.

I felt a slight bump and then another, then a loud noise I recognized as a horn. Could it be that others too had had the same experience as I. No, it was then I came to the realization that I had

been day dreaming or was it night dreaming? The honking was that of the car behind me trying to urge me to move faster. I was glad to have had the dream because, for a time I was there.

This was the prelude to my astronomy experiences. I was doing my normal Saturday garage sale travels, when I saw a sale not far from home. I followed the arrows and located the sale. In the driveway there it was. An old wooden tripod and a small 2.5" refractor with slo-mo controls and a very reasonable price. From this point on I was hooked.

I brought my purchase home and called my friend John. As soon as the sun went down, and the moon came up we gathered in the backyard. Soon after I got set up, the yard was filled with oos and ahs and other sounds of excitement. The moon was bright and the scope did its job. Then a glance at Mars and some inverted imagination.

This scope brought many hours of enjoyment in a short time. Then an ad in the local shopper paper caught my eye. I made a phone call to John and we went to see a ten inch reflector that was for sale. John bought it on the spot and then we spent the rest of the weekend and many other nights in his backyard looking at the exciting world of the stars.

My scope was being used less and less and I was getting spoiled with the sights through the eyepiece of the ten inch Meade. While spending time in one of the local telescope shops, I noticed a computerized scope. At that time in jest, I said there is the one I

want. We joked a bit and went on with the selection of various accessories.

Hours of fun with the EVAC group at star parties and deep sky nights made a believer of this amateur. The vastness of the unknown and the beauty of the sky and the friendship of the other members just boosts the interest level.

One day I got the latest Orion catalogue and I noticed the sale on the Celestron computer scope. I pointed it out to my wife who said, "Why don't you get it. You like astronomy and if that is what you want, get it." "Well," I said, "I need to think about it." It was a major investment so I don't turn loose of the cash easily. I called anyone who would listen to get their opinion of the Celestron and the Meade scopes and finally decided on the Meade LX-200, ten-inch.

I remember the day I ordered it. It was January 20, 1992 and I knew that it would be 10 days before it arrived. I had it shipped to my office so someone would always be there to receive it. Those 10 days dragged on and on. I guess I counted wrong, because on the 10th day it did not arrive. I called them and found out that they meant 10 working days.

The day it arrived I was out of the office, but when I arrived everyone was standing there looking at me. John told me it came in and that ended the day for both of us. It was to be unpacked even before it got home. We set it up on the parking lot. Then took it apart and John and I went to my house.

John went to his house and brought over the sun filter he had so we could look at something other than the cactus on the

mountains. That night the kids and wives all met in the back yard and we slewed to our first object. From that time on I was in heaven with my astronomy. Never again to be out done, or so I thought.

At the star parties, which in that year were few and far apart because of the weather, I was constantly cajoled because of the "coffee grinder." I will say, however, it seemed that everyone came over to MY coffee grinder to find a hard to find object or to check if they were seeing the right thing in their scope.

Schmidt owners can be proud--even Leon Knott says it looks good. So refractor, to reflector, to excellence of the Schmidt with the computer. Now the metamorphose is complete. I am an amateur astronomer. I can fly through the stars any night I want to.

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## THE PEOPLE OF AMATEUR ASTRONOMY ---101

by M Leon Knott

*WARNING.....The following article contains no references to real persons, living or dead. Any similarity to living persons is entirely coincidental and unintended and should not be construed otherwise....*

Good morning class, and welcome to THE PEOPLE OF AMATEUR ASTRONOMY -- 101. Now I realize that, as beginners, you are awed when in the presence of such astronomical luminaries as Carl Sagan, David Levy and myself, but this class isn't about such guys. It's about true amateurs, those dedicated people you can expect to encounter at club sponsored local and deep-sky star parties.

However, since you are a newcomer to the science and art of astronomy, I felt it important to acquaint you with several personality "types" likely to be encountered at astronomical gatherings. And while I'm sure that you, like myself and Will

Rogers, have never met a person you didn't like, some of those mentioned below might bring about a serious re-evaluation of that particular stance. If that does happen, just remember to bear in mind that astronomy is big enough to accept all types and I certainly hope you are as well.

Let's begin with that perennial star party favorite Ol' Eagle Eye. This amateur is the one who always sees just a bit more than anyone else. You see six stars in Orion's Trapezium? No problem, Ol' Eagle Eye sees seven. Don't believe it? Just ask! If you see eight of Saturn's satellites, you can just bet Ol' Eagle Eye will see spokes in the rings, the crepe ring and a couple of Danish pastry

rings as well. Ol' Eagle Eye loves to arrive early at the star party, and when a small group of likewise early arrivers have gathered around, he will spy out and see at least three stars in the summer triangle, WITH THE SUN STILL ABOVE THE HORIZON! And according to this fellow, galaxies and nebulae appear to him in full color rendition. This guy is awesome....Here's how to fix Ol' Eagle Eye. The next time he claims to see Vega, naked eye, at 12:45 p.m. (in the afternoon), on a really cloudy day, just look upward casually, yawn and say, "Oh yeah...and doesn't Epsilon Lyrae split nicely too?"

And next comes the Astrophysicist. This one knows all the underlying cosmological principles behind every single universal reality and a bunch behind universal theory too. He's the kind who, if involved in the study of dinosaurs, would not only know the lineage of the famous Thesaurus, but would know his metabolic rate, heart fibrillation function, blood pressure, bone marrow density, and all the other little details. All of which would be fine if he didn't feel compelled to tell you all about the Thesaurus, the Big Bang, faster than light travel and all the other stuff the regular amateur's nightmares are made of.

Of course, the Astrophysicist's cousin, Mr. Know-it-all, will be in attendance as well. Don't know how to find NGC Thirty-three oughty-ought? No problem, he'll tell you just how to do it. And not only that, he'll tell you how to obtain much better collimation with your optical system at the same time. There's only one way to handle either of these two personality types. Just look up and say to them, "Oh yeah! The club vice-president was looking for you a while ago with some really complicated questions."

Next in line is Mr. Fix-it. Check in this fellow's car or truck and you'll find a complete set of Craftsman hand tools, a portable 12V air compressor and an attaché case full of electronic equipment. Given a good long night of observing and he could rebuild your automobile engine, fix your cranky focuser, re-program your LX-200 computer and stop that funny noise coming out of your SC equatorial mount. In the case of Mr. Fix-it, you might just consider drawing up adoption papers on him, cause he's mighty handy to have around.

You won't have any trouble finding our next personality type at your star party. This is the optical expert, making rounds of the various telescopes, telling the owners just what's wrong with their mirrors or lenses, with some critical observations regarding their low quality eyepieces thrown in for good measure. Now the optical expert has been denied his proper and rightful place in the canon of astronomical personality types. His position should reign supreme, with complete deference paid to his expertise and his willingness to share said expertise. I personally feel that the optical expert should be shown a great deal more respect and I call upon every amateur to dedicate himself to pursuing this honorable goal.

And of course, standing over there by himself, head and heart over heels into his Tirion, Uranometria, Atlas Stellarum and the POSS is Mr. Serious. His quarry is that 16th magnitude galaxy seen so far, by only 14 people on earth and in the history of mankind. He has no time for casual conversation and don't make the mistake of trying. But be on guard. If this guy should condescend, and offer to let you share his experience and knowledge, jump on it! You can bet he knows his stuff.

And be really careful around this next type too. That's the Astrophotographer. Don't get within twenty feet of his scope or you might get tripped up on shutter release cables, tripod legs and other such impedimenta. And keep that light in your pocket! Look for this guy at the next club meeting and you can bet he'll have some awesome astrophotographs to show you and he won't mind doing so. This guy's work doesn't end when he puts his scope up. He still has to develop and print all those great pictures and

admire them at the same time. But who can blame him?

Well now...here's a telescope and owner really glad to have you stop by and look. He's the Elitist, with the best telescope (probably a refractor, certainly not a Schmidt-Cassegrain), the finest eyepieces, the best flashlights, eyepiece cases, filters and so on. You probably won't see it, but you can bet that somewhere behind this guy is a great, high paying job and a wife several bricks shy of a full load. He's the reason new eyepieces are always being offered by the biggies and the motivation behind those old telescopes being given new, sexily astronomical names. Unless you've got lots of money, don't get into any kind of equipment race with this fellow. You'll lose.

Of course, one neat way to deal with the elitist is to become a Mr. I-built-it-myself. How does having money compare to that? The satisfaction of going out and mining the aluminum and steel, of refining the low-grade ore, of casting telescope parts, doing the optical fabrication, the machining and all the rest must be exhilarating. So what if it takes 14 years to complete your Magnum Telescopeus? Oh yeah...in order to do this, you've got to have a good bit of Mr. Fix-it, Mr. Know-it-all and Mr. Serious in you as well. Better watch out....

And oh no! Here comes our last personality type, The Kid...with his jam box low slung across his shoulder, practicing Klingon curses and walking with that jaunty astronomical shuffle. The Kid, amateur astronomy's great hope, the life of tomorrow, lifeline to our colonizing the stars. The Kid, full of great astronomical potential and embodying, at that tender age, some vestige of all the personality traits named above.

# The Deep Sky Notebook

by Robert Kerwin

## Reflection Nebulae in the Winter Sky

Reflection nebulae are probably one of the least observed types of objects in the sky. Most observers would be hard-pressed to name five reflection nebulae they have seen. The Pleiades nebulosity and perhaps M78 would top the list, but filling in the rest of the list would take some time and searching. On the other hand, most observers could quite easily rattle off the names of five open clusters, galaxies or emission nebulae they have seen. In fact, the major difficulty here would be stopping the list at only five!

One of the primary reasons reflection nebulae are not as well observed as some other types of objects is that reflection nebulae, by their very nature, present the observer with certain stubborn challenges. As their name implies, reflection nebulae shine by reflecting the light of a nearby star. Therefore, by definition, reflection nebulae almost always have a relatively bright star involved. The light from the star can easily overwhelm the feeble glow of the nebula. In addition, the nebula's surface brightness increases toward the illuminating star--and so does the difficulty of seeing the glow. In many respects, a reflection nebula resembles the haze around bright stars caused by

dust or dew on the optics. Clean, high-contrast optics are therefore essential. Finally, since the glow of the nebula is merely a reflection of the illuminating star, there are no emission lines in the nebula's spectrum as there are in emission nebulae. Therefore, nebula filters generally do not help improve the contrast of reflection nebulae.

In spite of these difficulties, there are some fairly easy reflection nebulae in the winter sky. Our first object is **NGC 1333**, a bright nebula in southern Perseus. NGC 1333 is located about five degrees west of third-magnitude  $\zeta$  Persei. In medium-size telescopes, this object is faint, but not too difficult, appearing as a fan-shaped glow surrounding a magnitude 10.5 star. The nebula is about eight arc-minutes long and fans out toward the northeast. Farther to the east and also in Perseus is **NGC 1579**. NGC 1579 is located about six degrees east of  $\xi$  Persei. This nebula is about five arc-minutes in diameter and elongated approximately north-south. The glow is brighter toward the center and fades slowly to the background. Just to the northeast is another fainter nebula with a few faint stars involved.

One of the most famous reflection

nebulae is **M78**, in Orion. Though overshadowed by the famous Orion Nebula, M78 is nevertheless bright and easy to find. It is located about three degrees northeast of  $\zeta$  Orionis. The nebula appears as a bright, comet-shaped glow that is brighter to the north. Two stars are involved (magnitudes 10.2 and 10.6), and the overall size is about six arc-minutes. A third, much fainter star (magnitude 13.5) is on the south edge of the nebula. Only 15 arc-minutes to the north is a fainter nebula, **NGC 2071**. This nebula appears as a faint glow surrounding a tenth-magnitude star.

Less than two degrees north of  $\beta$  Eridani in the southwest corner of Orion is our final object, **NGC 1788**. This often-overlooked nebula is surprisingly bright. NGC 1788 appears as an approximately 4 x 2 arc-minute glow surrounding two stars. The brightest part of the nebula surrounds the fainter (southeastern) of the two stars. This is a very interesting object that should be visible in almost any telescope.

Name	Type	Mag	Dimensions	Const	SkyAtlas	U2000	R.A.	Dec
NGC 1333	diff neb	---	6' x 3'	Per	4	94	03h 29m	+31° 25'
NGC 1579	diff neb	---	12' x 8'	Per	5	96	04h 30m	+35° 16'
M78	diff neb	---	8' x 6'	Ori	11	226	05h 47m	+00° 03'
NGC 2071	diff neb	---	7' x 5'	Ori	11	226	05h 47m	+00° 18'
NGC 1788	diff neb	---	5' x 3'	Ori	11	225	05h 07m	-03° 21'

## *The Observer*

### Arizona Winter Night by Tom Polakis

Phoenix's amateur astronomers live for days like December 4, 1993. The dew point hangs around in the teens, there's not a breath of wind, and it's warm. Sometimes the anticipation of a beautiful, clear night is as enjoyable as the night itself. With the promise of an EVAC star party, I headed out for the Florence Junction site.

Only 45 minutes from Tempe, this nearby dark site has everything you could ask for; low horizons, no local lights, no traffic, and reasonably dark skies, especially to the East. As I turned onto the dirt road, the Sun was just setting behind a distant peak. There must be an axiom for sunset photographers. If you don't bring your camera, there will be a spectacular green flash at sunset. Sure enough, the last disappearing rim of the Sun shone in a brilliant green hue for a couple seconds. Next time!

A group of us watched while Frank Honer set up his new 15-inch f/4.4 scope. Although Frank had used his newly ground mirror from the city, this would be "first dark sky light" for the instrument. George Palfy assembled his Pirate Instruments 8-inch f/6, a commercial scope that is now the Meade Deep Space Explorer, a pricier version of the same instrument that received rave reviews from the magazines. Leon Knott had his 25x100mm (yes, that's 100mm) binoculars mounted on a hand crafted tripod. They were the last instrument that one would have suspected would give the most exciting view of the night. Lunar expert Don Wrigley's Celestron 8 was set up for some deep, deep sky viewing. Across from Don was Randy Iliff, with his Meade 8-inch f/6.3 and AstroPhysics Starfire 5-inch refractor. With this arsenal of instruments in place, I was happy to have not set up a scope this time.

Some of my first views were through George Palfy's 8-inch. The telescope has a thick plate glass mirror which takes about the length of evening twilight to reach ambient temperature. After this point, however, I could understand the rave reviews. The telescope moved around the sky easily, and gave high resolution images of challenging objects. Globular cluster M5 was cleanly resolved. Gamma Andromedae, a bright orange-blue double star proved that the scope could pass the contrast test.

Wandering over to Leon's binoculars, I realized that these things are addictive! The term "binoculars" conjures up images of sweeping through star fields. In fact, with these, you find yourself fixing your gaze on individual objects. Leon and I agreed that exit pupil is a major reason why these binoculars work so well. The image formed is only 4mm across, rather than the 7mm common to binoculars for astronomy. This means that even bad eyes will show stars as sharp points to the edge of the field. Leon swept up NGC 55, a nearby, southerly galaxy with a cigar shape. Frank Krailic

swept to NGC 300 with Leon's 20x60mm binoculars. This galaxy is another, much fainter Sculptor group member that was grazing the horizon along with NGC 55. NGC 300 shows a classic example of a supernova impostor, a 9th magnitude star on its southern edge.

Comet Encke was an obvious target as it was well placed near the Water Jar in Aquarius. A futile search with the binoculars showed nothing. We understood why this was the case when we saw it in Frank Honer's 15-inch telescope. Even with all this aperture, the comet was at best a tiny, uniform haze with no nucleus or tail apparent. A Swan Band "comet filter" was of some help, but Encke wasn't leaping out at anybody. The comet gave a great illustration of the importance of surface brightness for visibility. While this scope will show 17th magnitude stars, the spread-out glow of a comet is difficult at 12th magnitude.

Don Wrigley was viewing some faint galaxies in Fornax that culminate low above the Southern horizon. He promised to bring out his van-sized 8-inch refractor soon. We can all look forward to the spectacle, not only through the scope, but of the scope, as well.

We noticed that the Orion Nebula was about to rise behind a nearby mountain. Our placement couldn't have been better. As the sword of the constellation came up, it was aligned with the slope. M42 had the good taste to rise out of a V-shaped notch where two mountains met to define the Eastern horizon. The view through the big binoculars was outstanding! Here was another example of a picture that you cannot take. We took turns with superlative words as we viewed nebula-rise through the bins.

Randy and Jan Iliff were quietly photographing and observing the rising Winter constellations. Randy's 5-inch refractor made a partial convert out of me. You see, you either like short focus light buckets or refractors. You can't like both. That's like extolling the virtues of Macs and IBM's at the same time. What did the converting for me was the view of the Double Cluster. Light buckets can give you a 1-degree field, half of which is actually sharp. The refractor gave over two sharp degrees of field, framing even the outlying members of the two clusters. Star colors were very apparent and true. On nights of steady air, Randy spoke highly of the scope routinely showing Airy discs to the star images. We light-bucket types leave the subject of Airy discs alone. We have to be comforted by seeing the spiral arms in M33, instead.

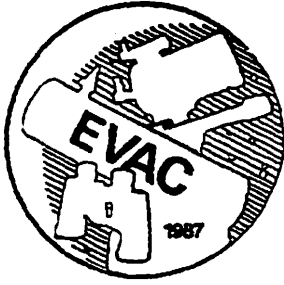
As Randy got halfway through his piggyback telephoto exposure of the belt and sword of Orion, a skyglow like that of Phoenix appeared in the East. Four hours had flown by and the Last Quarter Moon was working its way into the sky. This was a natural way for the observing to end, as nobody appeared to be getting tired. Remembering what happened to the weather in the first two months of this year, we could put up with a few more nights like December 4 in months to come.

EVAC Membership as of January 1994 (Sorted by name)

**N a m e**

Manfred Alber  
Enrico Alvarez  
Alex Beck  
David Brown  
Walter Carruthers  
Don Dorchester  
Saul Fein  
Ted & Brenda Heckens  
Sam Herchak  
Frank Honer  
Robert & Beth Kerwin  
Mel Kirschner  
Leon & Fannie Knott  
Roger Kubeck  
Marc Leichter  
Bob & Lin Leivian  
Gene Lucas  
Gordon MacKay  
Stewart & Matthew Mann  
Joe Murray  
Carl Noble  
George & Peggy Palfy  
Bill & Kajia Peters  
Eric Peterson  
Randy Peterson  
Lika Romney  
Charlie & Paul Santori  
Dick Simmon  
Bill Smith  
Steve Smith  
Scott Strawn  
Richard Stufflebeam  
Jim Waters  
Homer & Ginny Willard  
Don Wrigley  
Art Zarkos





# East Valley Astronomy Club

## Membership Form

Please complete the information on the form and return to the address below along with a check payable to EVAC for \$20.00 annual dues.

Bill Smith, EVAC Treasurer  
1663 S. Sycamore  
Mesa, AZ 85202

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Phone # \_\_\_\_\_

*Please*

*Print*

New       Renewal       Change of address

- Major area(s) of interest:
- General observing
  - Lunar observing
  - Planetary observing
  - Telescope Making
  - Astrophotography
  - Other \_\_\_\_\_

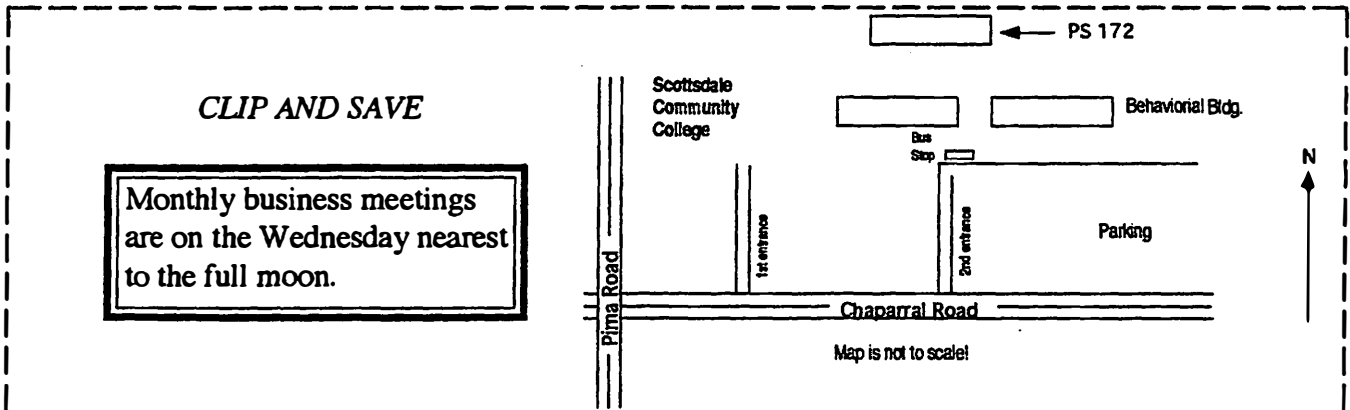
- Enclosed:
- \_\_\_ \$20 annual
  - \_\_\_ \$15 April - Dec.
  - \_\_\_ \$10 July - Dec.

It is not necessary, but do you currently own astronomy equipment?

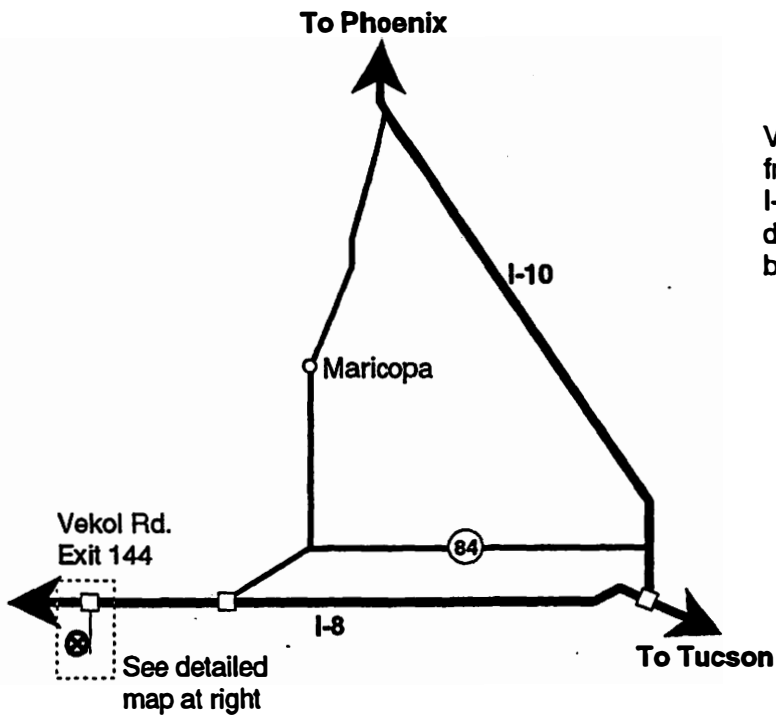
Yes       No

If yes, please describe. \_\_\_\_\_

How did you hear about the East Valley Astronomy Club? \_\_\_\_\_



# Vekol Road Site



Vekol Interchange: Exit freeway, turn left. Take I-8 east onramp. Look for dirt road to the left just before entering the freeway.

