East Valley Astronomy Club

July 2004 www.eastvalleyastronomy.org Scottsdale, Arizona

July 2004

Contents

From the Desk of the President

by

Peter Argenziano

2004 EVAC President

When Albert Einstein said "I never think of the future - it comes soon enough",

he wasn't thinking about running an astronomy club. As we begin the second half of the year it's time to start thinking about next year, and specifically about the 2005 EVAC governing body. Will this be the year you get involved?

The club is governed by a body of thirteen officers, as mandated by our Constitution and Bylaws. The cabinet is comprised of four Executive Officers, four Administrative Officers, and five Board Members. The Executive and Board positions are filled by majority vote, while the Administrative positions are appointed by the Board (as recommended by the President).

A point of clarification is necessary at this juncture as regards term limits. Every position carries with it a one-year commitment to the duties of that office. The Executive and Board positions have a term limit of two years – no one can occupy one of these positions for a period longer than two consecutive years. Administrative positions do not have any such term limit, however any member-in-good-standing may be considered for a position annually. The Board will consider all applicants for Administrative positions. The incoming President will make recommendations and the Board will appoint the Administrative Officers for the following year.

The Executive Offices are the President, Vice President, Secretary and Treasurer.
The Administrative Offices are Events Coordinator, Properties Director, Newsletter Editor, and Webmaster.

Although every position may be contested each year, certain offices must be filled in 2005 due to term limit restrictions: the President and two Board Members represent the minimum 'changing of the guard' for next year.

Next month's newsletter will contain a list of the positions that must be filled for 2005.

If you are interested in participating in running your astronomy club, I encourage you to ask questions. Feel free to contact any current officer so that you may discover the responsibilities entailed in that position.

Keep looking up!

Seven Years, Seventeen Countries, One Planet

by

Peter Argenziano

In the year 1610 Galileo Galilei was the first person to observe Saturn through a telescope. He noted that the orb had a lobe on each side, which looked to him like handles. In 1659 the Dutch astronomer Christiaan Huygens identified Galileo's *handles* as a ring encircling the planet. In 1674 the astronomer Giovanni Cassini identified a gap in this ring (between the A and B rings), which is now known as the Cassini division. The ring system is actually comprised of hundreds of rings.

Saturn is the second largest planet in the solar system. It is the least dense, and the only one lighter than water. A day on Saturn lasts 10 hours and 39 minutes; a year is equal to 29.42 here on Earth. Saturn has 31 moons, 13 being discovered within the last seven years. Titan is the largest of these moons, and is larger than Mercury and Pluto. The planet and ring system serve as a miniature model of the disc of gas and dust surrounding our early Sun that eventually formed the planets. Detailed knowledge of the dynamics of interactions among Saturn's elaborate rings and numerous moons will provide valuable data for understanding how each of the solar system's planets evolved.

More than two decades have passed since a spacecraft last visited Saturn -- NASA's Voyager-2 flew by Saturn in August 1981. On 15 October 1997, the Cassini-Huygens spacecraft was launched from Cape Canaveral Air Force Station, beginning its seven year journey to the ringed planet. This mission represents a partnership between NASA, the European Space Agency (ESA) and the Italian Space Agency (ASI). Cassini-Huygens is one of the largest and most capable spacecraft ever flown, with 18 science instruments on board. The ESA provided the Huygens probe destined for exploration of Saturn's moon Titan. The ASI provided the spacecraft's high-gain antenna, much of the radio system and elements of several science instruments. The mission is managed for NASA by JPL.

The official arrival at Saturn – 1 July 2004 UTC -- is marked by an event named the Saturn Orbit Insertion (SOI). Once arriving at Saturn, Cassini will spend four years touring the Saturnian system. During a series of 76 orbits the spacecraft will experience 52 close encounters with seven of Saturn's 31 known moons. Forty-five of these close encounters will be with Titan. The period of its initial orbit is 116 days, with subsequent orbits ranging in length from 7 to 116 days. Cassini's orbital distance from Saturn will range from 156,858 km to 953,214 km (98,036 to 592,422 miles). The spacecraft's orbital path will vary between equatorial up to an inclination of approximately 70°.
The first close encounter occurred on 11 June when Cassini made its first close-up observation of Phoebe, passing within 2,000 km (1,243 miles).

Cassini is also carrying the ESA's Huygens probe, which will be released from the mother ship on 25 December 2004 UTC (24 December locally). Huygens will glide for three weeks before entering Titan's atmosphere on 14 January 2005 UTC. It is unknown whether Huygens will land on solid ground or in liquid, or if it will even survive the descent. Scientists believe that Titan may resemble a primordial Earth in a state of deep freeze, possibly offering clues to how our own planet may have evolved.

Cassini's seven year journey to Saturn required two gravity assists from Venus, one from Earth and one from Jupiter, in addition to a deep space maneuver. By the time of SOI it will have traveled 3.5 billion kilometers or 2.2 billion miles since launch.

Cassini is approaching Saturn at an oblique angle to the Sun and from below the ecliptic plane, thus providing a very different view of Saturn than we're accustomed to seeing with Hubble's Earth-centered view. For the first time, astronomers could compare views of equal sharpness of Saturn from two very different perspectives. Cassini has been imaging Saturn for the past two years using either its wide or narrow-angle cameras. The last narrow-angle image of Saturn was taken in March of this year. Since then, Saturn has been larger than this camera's field of view. In May 2004 Cassini was close enough to see the moon Prometheus orbiting inside Saturn's F-ring.

Upon arrival at Saturn, the primary objective is to enter into orbit. In so doing, Cassini will become the first spacecraft to accomplish this feat. Orbit insertion is the most critical phase of the mission since launch. It must be achieved or Cassini will fly by Saturn, never to return. And it must be accomplished autonomously, as the one-way light time is almost 1.5 hours (84 minutes). The first step in achieving orbit insertion requires a 96-minute engine burn to adjust the spacecraft's speed so that it can be captured by Saturn's gravity. The speed is decreased by 626 meters per second (about 1,400 mph). Adding to the drama, Cassini will pass twice through a known gap between the F and G rings, first while ascending shortly before the burn, then while descending shortly after the burn, using its antenna as a shield. There will be periods of time when JPL will not have telemetry and/or a carrier signal from the spacecraft.

The SOI play-by-play unfolds in a sequence of events on 1 July: First, the spacecraft prepares for its ascending ring plane crossing by performing a series of turns to achieve a protective attitude. For a period of 80 minutes all communications are interrupted. As the engine burn continues, the spacecraft crosses the ring plane between the F and G Rings. Communications are again lost when Cassini passes behind the A-Ring, the Cassini division and the B-Ring. At this point Cassini is closer to Saturn than it will be at any point in the mission: 19,980 km (12,400 miles) above the cloud tops. Communications are restored for a period of 25 minutes as the spacecraft passes behind the C-Ring, which is less opaque than A or B. A magnetometer will measure the strength and direction of the magnetic field. Another instrument will provide a record of the dust hits as the spacecraft flies through the ring plane. The remote sensing instruments will assess the rings' composition, temperature, and structure.

The international Cassini-Huygens mission has successfully

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entered orbit around Saturn.
"This is a tribute to the team at NASA and our partners at the European Space Agency and the Italian Space Agency, to accomplish this feat taking place 934 million miles [1.5 billion kilometers] away from Earth," said Dr. Ed Weiler, associate administrator for space science at NASA Headquarters, Washington, D.C. "What Cassini-Huygens will reveal during its tour of Saturn and its many moons, including Titan, will astonish scientists and the public. Everyone is invited to come along for the ride and see all this as it is happening. It truly is a voyage of discovery."

For the latest images and more information about the Cassini-Huygens mission, visit:

http://saturn.jpl.nasa.gov
and
http://www.nasa.gov/cassini

Visiting The RTMC Astronomy Expo

by

Randy Peterson

The Riverside Telescope Makers Conference was held on May 28, 29 and 30 -- the Memorial Day Weekend.

This was the first astronomy gathering that I have been to with many vendors selling stuff plus educational talks during the day. I'll guess there were over 50 vendors. Meade, Celestron and TeleVue had a large presence. Woodland Hills Camera,OPT and many others were there. Many thousands of new and used items for sale.

Recently I have been searching for a simple clock drive for my old 4.5" Tasco reflector, without success. Found one there and bought it. I've also been wanting a 3.3 focal reducer for videoing asteroid occultations, and bought it there new for $10 less than retail, and with no tax or shipping costs! Some of the vendors took plastic, but cash works for all.

Besides meeting David Dunham, president of IOTA (International Occultation and Timing Association), I saw Gene Lucas, Chris & Dawn Schur, David Fredrickson, Tom Polakis, John & Cathy Matthews, Derrick Lim, Dennis Young and probably a couple others I can't remember (sorry if I forgot your name!).

Met a guy from the Sacramento area who travels to Phoenix several times a year. He cannot see Omega Centauri from where he lives (among other southern treasures), so he is interested in doing some observing with us in the future. He had an 8 hour drive home, while ours was only about 6 hours. Filling up with gas at the Flying J outside of Blythe for $1.99 a gallon felt good, but the $2.39 in California not quite as good.

I attended a number of astronomy talks during the day. Learned a bitmore about CCD imaging, even though that is not in my near-future plans. Gene Lucas and David Dunham conducted separate talks on asteroid occultations that wereboth very interesting (this year's theme was occultations and transits). Chris Schur did a presentation on his robotic camera, but somehow Gene Lucas and I lost track of the time and missed his talk.

It was in the low 30's every night, so glad we had sleeping bags rated for low temps. Having cold weather clothing was a must! Even though the moon was past first quarter, there were still telescopes set up at night. Seeing conditions were marginal at best.

If you want to see inovative telescopes, you won't be dissapointed at RTMC! The popular-vote winner built his own 12" Dob. It ONLY cost him about $6000 and several weeks work. A machinist by trade, his aluminum rocker box and cages were a site to behold!

A bunch of people were tent camping like we did, but there were a smattering of pop-up's, motorhomes, pull-behind trailers, etc. Like the GCSP there were no open fires allowed, but they also had a sign saying "no gasoline stoves", which mine is. I'llhave to invest in a propane stove for next year. Unlike the Grand Canyon, there is no General Store, but the nearest town is only a 10 minute drive away. There was coffee available in the dining room - which after I "brewed" my first cup from 1+ year old instant coffee - I partook of the "real" stuff after that.

There were prize drawings on Saturday and Sunday nights. Must be present towin. The prizes? How about a 14" LX-200, an 11" Nexstar, a JMI 6""binocular" telescope, Nagler eyepieces, and dozens of other astronomical goodies. My son Russell and I both got tickets each night, we didn't win anything however. There were over 1100 tickets given out Saturday night, but only 400 Sunday night. The "big" prizes were awarded Saturday night. The guy who won the 14" LX-200 was sitting right next to me. When he came back to his seat after responding to his number being called, his comment to me was "my last telescope was an Astro-Physics refractor. I've never been fond of SCT telescopes." The next day, I heard at breakfast that he had offered the scope for sale that night, and a guy who peeled off $1300 cash took it off his hands!!! So I guess you could say, there were two grand prize winners that day! I would have paid him more, but he didn't take plastic!

Randy Peterson
IOTA / EVAC

Backyard Astronomer

By Bill Dellinges (5/12/04)

Knowing the Sky, Part two (For beginners)

Last month we learned how the sky appears to move. Let us now discuss the basics of the celestial sphere above us. We need to know this sphere is organized into specific sections using lines to help us find objects and generally give order to the moving dome above us. Think of a world globe with lines of longitude, latitude, and an equator. This system helps you find a place on Earth and keep time. We want to do the same thing to the night sky. In the following description the celestial sphere, it helps to think of it as an artificial dome of stars, as in a planetarium show.

Face south. Imagine a line running from behind you on the northern horizon, up through Polaris, over your head, and down to the due south point on the horizon. This is your **meridian** (Latin = midday**)**. It's an imaginary line that splits the western and eastern half of the sky from each other. Its benefit to you is that when a star or planet, traveling from east to west, crosses it, that object will be at its highest point in the sky. Recall the rising stars moving in great arcs. They rise in the east gaining height in the sky. They will **culminate** (Latin = crowned) as they cross the meridian and then begin to curve down towards the west. Since you're looking through less atmosphere when an object is highest in the sky, it follows this would be the best time to view it in your telescope. Everyone everywhere has his/her own meridian. It does not move with the celestial sphere.

Now imagine Earth's equator being projected out into space and hitting the night sky's "dome" of stars. This will make a line, actually a huge circle running east – west, 57 degrees above your southern horizon. It will set exactly due east and west from you. To determine its height from the horizon, subtract your latitude from 90. Phoenix is at about 33 _ degrees north latitude. Let's call it 33 for simplicity. 90-33 = 57, or 57 degrees. This **celestial equator** splits the northern hemisphere sky from the southern hemisphere sky. If you are at the North Pole (+90 latitude), the celestial equator would circle your horizon (90-90 = 0 = zero height above horizon). If you are on Earth's equator (0 latitude), it runs from due east, over your head, and down to the due west point (90-0 = 90 = 90 degrees above your horizon = overhead).

The **ecliptic** (Greek = leave out; because the Sun gets blotted out there during eclipses) is another great circle inclined to the celestial equator by 23 _ degrees, a result of Earth being tilted by that amount relative to its orbit. It is the path the Sun follows through the year (It can also be seen as Earth's orbit projected on the sky!). The ecliptic is basically the plane of the Solar System. Thus the planets and Moon pretty much stay within 9 degrees either side of it and can always be found somewhere along it. When you see several planets in the evening sky, draw an imaginary line through them and you have the plane of the Solar System depicted before you.

The ecliptic crosses the celestial equator in two places. Due to Earth's revolution around the Sun, the Sun appears to travel eastward along the ecliptic completing one trip in a year. Where it crosses the celestial equator going up we find the **vernal equinox** (Latin = spring, equal night; that is, days and nights are equal in duration ~ March 21st), the beginning of spring in the northern hemisphere, fall in the southern hemisphere. Where it crosses going down lies the **autumnal equinox** (Latin = autumn, equal night), the beginning of fall in the northern hemisphere ~ mid September, and spring in the southern hemisphere.
At two other points we find the ecliptic 23 _ degrees above and below the celestial equator. When the sun reaches its highest point in the sky at noon in mid-June, it is 23 _ degrees above the celestial equator and we say it has reached summer **solstice** (Latin = Sun-stands still). Six months later, on or about December 21st, the Sun at noon is 23 _ degrees below the celestial equator: the winter **solstice**. To avoid confusion between the two opposite hemisphere's seasons, these terms are also referred to as the March and September equinoxes and June and December solstices.

Now for something we can actually use practically. Just as a map with longitude and latitude lines allows us to pinpoint a location on Earth, the celestial sphere has a set of coordinates called **right ascension** (R.A.) and **declination** (DEC.). The latter is easier to understand, as it's analogous to latitude. It begins with zero at the celestial equator and runs to +90 and -90 at the north and south celestial poles. Note it uses + or – rather than "north" or "south" as with latitude. Consider two interesting aspects of DEC: 1) your Dec will always be overhead or at the **zenith**, on the celestial sphere. 2) to determine how far down in DEC you can see, subtract 90 from your latitude: +33 - 90 = -57. DEC -57 should be on your southern horizon. That is as far south as you can see. Recall earlier we determined the celestial equator was 57 degrees high, so we're in agreement. Thus, unless we travel south of Phoenix, there will be 33 degrees of southern DEC sky we'll never see.

R.A. takes the place of longitude. But rather than being measured in degrees (as on a globe) it's measured in TIME. Looking at a star chart, you'll notice vertical lines of right ascension, starting at zero hours in Pisces (by convention, this starting point is the vernal equinox). Note each one hour of time (0h to 1h, 1h to 2h, etc.) is equal to 15 degrees of angular space. Thus 24 hours equals 360 degrees, the entire sky wrapped around you. RA hours increase eastwardly or to your left. It is probably called "right" ascension because this grid is carried west or to your right with the sky's westward movement.
If you timed one complete revolution of this "dome", you'd find only 23 hours, 56 minutes, and 4 seconds had passed because that is the true **sidereal** (Latin = sidus = star) rotational period of Earth, where we time our planets rotation relative to a distant star. If you time it based on the Sun returning to the same place in the sky, you'd get the more familiar 24 hour **synodic** (Greek = synodos – coming together/meeting) period. This is a case where EArth, moving along a curved orbit of 360 degrees in 365 days, needs another 4 minutes of time to rotate just a little more (~1 degree) to get the sun in the same position in the sky where it was the day before. This is also why stars rise 4 minutes earlier each night.

With the RA and DEC scheme of things, every object, such as a galaxy, nebula, star, etc., has an "address" in the sky. For example, the star Vega can be found at R.A. 18 hours, 37 minutes, and DEC +38 degrees, 47 minutes (of arc, not time!) If properly polar aligned, you should be able to find objects by using your telescope's setting circles, though this method is becoming antiquated with the advent of GO-TO computerized telescopes.

contd. on p.5

July Classified Ads.

Free Classified Ads
(Wanted & For Sale)

Noncommercial advertisements for Scopes or Astronomical equipment, books, computers, or software — Wanted or For Sale — will be accepted from current EVAC members.

Ads will be run on a "space available basis" and may be edited slightly to best fit the space. Ads should consist of a brief text description and must include a current member name and an evening phone number. You may include your email address if you wish. Ads will be run until canceled or until they have appeared in three issues of the newsletter (whichever occurs first). **Ads are "tagged" with the first issue in which they appeared.**

Ads can be emailed to: john-cathy@cox.net
(this address may change in the future)
or send by U.S. Mail to:
EVAC PO Box 2202
Mesa, AZ 85214
Please mark the subject line of the email or the envelope, "EVAC Newsletter Ad."

(There are No Ads this month)

Backyard Astronomer

By Bill Dellinges (5/12/04)

contd from p.4

Telescopes track at the sidereal rate. This is 1 degree/ 4 minutes, 15 degrees/ hour, and 360 degrees/ 24 hours (all sidereal time). So as you watch a constellation pass across your meridian, it is doing so at 15 degrees per hour.
The North Star's distance above your northern horizon is always equal to your latitude. Imagine you're at the Equator. Polaris would be on the northern horizon. You walk north 1 degree. Polaris rises 1 degree (because you're walking north on a large ball, getting a better glimpse of it all the time). You get to Phoenix; you've walked north 33 degrees. Polaris has risen 33 degrees – equal to your latitude. Continue walking to the North Pole. Polaris is now overhead at the zenith, 90 degrees up – equal to your latitude, 90 degrees north.
If all this seems a bit overwhelming, don't panic. While it can be fun to gradually familiarize yourself with the celestial sphere, it's probably more important to learn the constellations first. If you have a clear night, access to a star atlas or planisphere, just enjoy tracking down celestial delights by simply star hopping with your binoculars or telescope.
Due to the unexpected length of this discussion, I will detail the summer constellations as promised last month in a separate article.

Grand Canyon Star Party, 2004 (North Rim)

Bill Dellinges

My wife Lora and I made our 9th consecutive trip to the GCSP this year. We have given up on the south rim because other than the star party itself, the crowded conditions there make it difficult to enjoy the canyon's trails and facilities. As the north rim typically gets only about 10% the traffic of humanoids, it's a bit more civilized.
I brought my C-8 and 20x100 binoculars. Deloy and Karen Pierce of Farmington, Utah were there as usual to anchor the event. They bring a 10" Dob and Orion 4" Starblaster for daily solar observation sessions. We usually only get 3 or 4 scopes at this remote location and that was the situation this year. However, one night we had 7 scopes including a 25" Obsession (a guy from Ky.) and an 18" JMI (a guy from s. Ca.). "Jack" and "Margie" from SAC brought a 14.5" Newtonian and Celestron NexStar 8 respectively. We had a large crowd every night (about 100?) that really seemed to enjoy looking through the telescopes. We set up on the lodge veranda overlooking the rim facing south. Around 11 p.m. each night we had green laser pointer "wars" with the south rim gazers.
The view of the stars here, at 8000', is spectacular. We do have to put up with a few lights here and there from the lodge from time to time. But for the most part, the staff tries to keep it dark around us as much as possible. Also, you'll have to carry all your equipment from your car or cabin to the veranda, which involves going down a narrow staircase (there is a small handicap elevator that can be used to avoid carrying heavy stuff down the staircase). Most of us just left our scopes there during our stay, covered with tarps or whatever, to avoid setting up every night. It's a secure situation; I've never heard of any problems in that regard.
Last year all my 5 nights were clear. This year the first 4 nights were clear. The 5th night we were clouded out.
I highly recommend popping into the North Rim sometime for this annual star party. It is a bit further to drive, but I think you'll find it more relaxing and a lot less crazy than the South Rim. Or consider alternating north and south rims like we did for a few years.

This year's banner at the South Rim

2 Month Event Schedule
Prepared
by
Howard Israel

		July Events	
Fri. July 9	Public Star Party	Gilbert Library	7:30 PM Setup
Sat. July 17	Deep Sky Star Party	Vekol Road	Sunset 7:38PM
Wed. July 14	General Meeting	SCC-PS 172	7:30PM Guest Speaker Adam Block Kitt Peak Observing
Sat. July 24	Local Star party	Boyce Thompson Arboretum	Sunset: 7:34PM
		August Events	
Wed. Aug. 11	General Meeting	SCC-PS 172	7:30PM Show & Tell EVAC Members
Fri. Aug. 13	Public Star Party	Gilbert Library	7:30 PM Setup
Sat. Aug. 14	Deep Sky Star Party	Vekol Road	Sunset 7:15PM
Sat. Aug. 21	Local Star party	Boyce Thompson Arboretum	Sunset: 7:07PM

If it's clear...
by Fulton Wright, Jr.
Prescott Astronomy Club -- July 2004

Shamelessly stolen information from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find info.
When gauging distances,remember that the Moon is 1/2 a degree or 30 arc minutes in diameter.
All times are Mountain Standard Time unless otherwise noted.

It is not easy to catch Jupiter moon events this month. Here are a few:
July 3 Europa shadow before 9:23 PM.
July 10 Europa shadow after 9:12 PM.
July 22 Io shadow before 10:00 PM (Jupiter sets).
July 27 Ganymede transit before 8:36 PM.
July 27 Ganymede shadow after 8:45 PM.

On **Saturday, July 3**, after about 10:30 PM you can see the **northeast limb of the Moon** at its best. With a small (3 inch) telescope look 10 degrees above the southeast horizon for the just-past-full Moon. Libration tips the top of the Moon toward us. The later you observe, the higher the Moon will be and the clearer view you will get. The nights before and after this one also offer possibilities.

On **Saturday, July 10,** about 8:15 PM you can see two planets close to each other. With binoculars look 10 degrees above a point slightly north of west on the horizon for **Mercury (mag 0) and Mars (mag 2).** They will be 12 arc minutes apart.

On **Wednesday, July 28,** after about 8:00 PM you can see the **northwest limb of the Moon** at its best. With a small (3 inch) telescope look 20 degrees above the southeast horizon for the almost-full Moon. Libration tips the upper left part of the Moon toward us. The nights before and after this one also offer possibilities.

Summer Deep Sky Objects for beginners

Supplement to "Night Sky 2"

Bill Dellinges (6/7/04)

Here is a crash course for the beginner in attacking seven of the summer's finest deep sky objects. First however, a few words about the magnitude scale and angular terms. The brightest stars are called first magnitude stars. The dimmest stars you can see without optical aid are around sixth magnitude. It was found some first magnitude stars were a tad brighter than others. So a new "number" for those was created: zero magnitude. Two stars were even brighter than zero so -1 was added. Thus the night's brightest star, Sirius, is magnitude -1.4. Each step in magnitude represents a 2.512 brightness difference. Thus a 6th magnitude star is 100 times fainter than a 1st magnitude star (2.512 to the 5th power = 100). **The moon is magnitude -12, and the Sun -27.**

For angular size descriptions we consider the sky to be 180 degrees from one side to the other. There are 60 (arc minutes) in a degree, and 60 (arc seconds) in a minute; thus an arc second is 1/3600th of a degree. It is what a quarter would look like three miles away. For reference, the Moon and Sun are about 1⁄2 degree in diameter (30 arc minutes). Jupiter is usually 45 arc seconds in diameter.

Now on to the stars - let's start with **M13** in Hercules. The hard part here is finding Hercules! It is one of the more difficult constellations to spot with only third magnitude stars and no distinctive shape. The Strongman's torso is called the Keystone because it's shaped like a stone used to support an arch. In this Keystone, one third of the way from Eta Herculis to Zeta Herculis, **an 8x50 finder should easily spot a small nebulous object. An 8" telescope at 100x – 150x will resolve this globular star cluster to its core – a stunning sight.**

Our next object, **M57**, a planetary nebula, lies in Lyra the Lyre. Find the small parallelogram of fourth magnitude stars in Lyra. Put your finder's cross hairs midway between Gamma Lyrae and Beta Lyrae. You will not see it. I can think of only three planetaries that an 8x50 can spot. This isn't one of them. But look in your low power eyepiece; even 50x should detect a small donut. If it's not there pan your scope around slowly till you sweep it up. Once found, magnify the heck out it, these objects usually require high power because most are very small. Even a 4" scope should show a nice smoke ring at 150x.

While in Lyra, check out the famous **"Double-Double" Epsilon Lyrae.** Next to Vega is a fourth magnitude double star with a separation of 3 arc minutes, easily split by your finder. At low power it looks like two stars. At 100x there's a hint that each one of these stars is itself a double star. At this stage each pair may look like a figure "8". At 150x – 200x, a good scope and steady air will resolve this four star system (each of the tight pairs are only 2.5 arc seconds apart).

Hop over to Cygnus the Swan to see what is considered to be the most beautiful double star in the northern sky, **Albireo**. This star is the Swan's head or the base of the Northern Cross. At 34 separation, this gold and blue duo is an easy split with a wonderful color contrast best seen if put slightly out of focus.
In Vulpecula the Fox lurks **M27,** the Dumbbell Nebula. It's both bigger and brighter than M57. Forget about finding Vulpecula, a ridiculously faint constellation. Find Sagitta the Arrow, an easier constellation to the lower left of Cygnus. Then go due north of the tip of the arrow (gamma Sagittae) about three degrees. Go slow while peering into your finder. It will look like the finder view of **M13** but smaller and fainter. Good luck, this one is tricky to find. But when you do, you'll have trouble pulling yourself from the eyepiece.

For our next beauty, turn your attention to the south. Find Scorpius, then follow the creature's wandering body to the end of the "stinger" (also known as the "Cat's Eyes"). These two stars will take us to **M7,** one of my favorite open star clusters. Use the Cat's Eyes by drawing a line between them and following it east or to your left. It can be seen with the naked eye as a small diffuse blob. Use the lowest power you have to fit the whole thing in your field. Better yet, use binoculars on it. A superb cluster!

Another naked eye object is **M8** in Sagittarius the Archer (NOT the centaur as I blundered last month. He IS a centaur but is known as the Archer, a centaur pulling back on a bow and arrow). North of the Teapot's spout about 5 degrees, the naked eye sees what appears to be a detached piece of Milky Way. This is **M8 the Lagoon Nebula.** Try medium power on this emission nebula, a star forming cloud of hydrogen gas excited to shine by newly minted stars. This is a two for one object. Embedded in the ethereal nebula is the star cluster **NGC 6530,** young stars created in the Lagoon.

This list just scratches the surface of the many splendors to be found in the summer night sky. After observing the above objects, I have no doubt you'll dive into a star atlas to find more of these celestial delights on your own.

Tip for beginners: Sky and Telescope just introduced a new bimonthly magazine for beginning stargazers called **Night Sky**. The subscription rate is $18 a year. I've seen two issues and believe it would be an excellent resource for a budding amateur astronomer.

"My other scope is an 8.4 meter." (True!) Dean Ketelsen at The Grand Canyon Star Party.

Your Tip Counts!

By Martin Bonadio

We have an exciting night planned for our upcoming September 2004 EVAC general meeting. So special, we are calling it the "Night of 100 Tips". And we need your help. Our goal is to put together a presentation that encompasses tips from our members. Those tips will be compiled into a keepsake newsletter article pullout, emblazoned on our club website, and the focus of a presentation during that month's general meeting.

What's exciting is that each of you has the chance to become a featured guest speaker! All we need is your tip. Share with the club one or two observational, planning, telescope, or related item. The more tips the merrier, as everyone will be able to benefit from them. During the presentation numerous tips will be presented along with credit (if desired). We'll try to share as many tips as we can that night! Wow!

We are also making final plans to host a first ever beginners workshop in the SCC planetarium from 6:30 – 7:30pm, September 8th (before the meeting). Once finalized, there will be a sign-up sheet for up to 30 people. At the workshop a presentation on learning the night sky will be followed by host EVAC members sharing with you tips on telescope and eyepiece selection, star charting, and other beginner topics. If successful the beginner's workshop will possibly become a quarterly event for EVAC meetings!

I'm excited about this upcoming meeting, and I hope you will share your tips with us! Everyone's tip counts! You can email your tip to Martin Bonadio at mbonadio@cox.net. A form will soon be placed on the club website where tips can also be submitted electronically. Feel free to attach pictures or diagrams that you think are helpful. You can also fill in the space below and give it to Martin at any meeting between March and August.

Your Name	
Tip Title	
Tip	

East Valley Astronomy Club
Membership Form

Please complete this form and return it to the club treasurer at the next club meeting OR mail to EVAC, P.O. Box 2202, Mesa,AZ 85214, with a check or money order made payable to EVAC.
IMPORTANT: ALL memberships expire on December 31, of each year.

New Member Only - select month joining:
( ) $20.00 January – March
( ) $15.00 April – June
( ) $10.00 July – September
( ) $25.00 October – December & Next Year

Membership Renewals:
( ) $20.00 January – December

Name Badges:
( ) $7.00 each Name: _____

Magazines: if renewal, customer # _____
(New) (Renewal)
( ) ( ) $29.00 /yr Astronomy Magazine
( ) ( ) $32.00 /yr Sky & Telescope

Newsletter delivery option, check one:
( ) Email (saves club printing & postage) ( ) U.S. Mail

Total enclosed $

Name: _____

Address: _____

_____

Phone # ( ) _____

Email: _____

URL: _____

Local Star Party Sites
 # 1: Florence Junction Site

General Information: The Florence Junction site is one of the two official sites for the East Valley Astronomy Club's Local Star Parties, typically held on the Saturday closest to Last Quarter Moon. Florence Junction offers reasonably dark skies within a short drive of most East valley locations. EVAC's Land Use Permit #26-104528 applies to this site.

Location: N 33° 14' 40" W 111° 20' 16"

 # 2: Boyce Thompson Arboretum Site

General Information: The Boyce Thompson site is still considered the new local site. Only a few Star Party have taken place there as a second local site, although EVAC members have held Star Parties there at the request of the Arboretum on a twice yearly basis. The site has some privacy advantages over the FJ site.

Location: N 33° 16' 52" W 111° 09' 35"

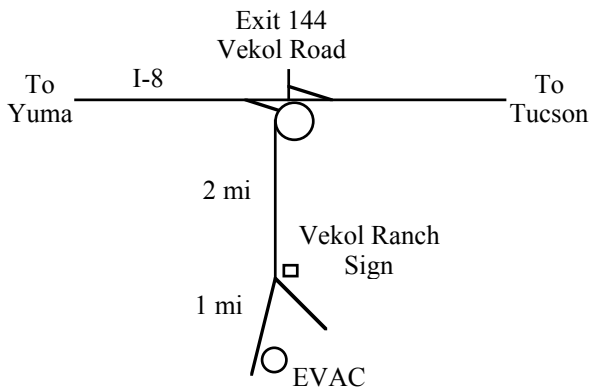
How to get there: Drive East on US 60 past Florence Junction for both sites. About 3.7 miles East of Florence Junction (after crossing railroad tracks) you will see a (second) flagpole on your right. Turning right (South) here and following the dirt road for 0.6 miles you will reach the FJ #1 site (marked by an old corral on your left). Continuing past the flagpole turn-off on US 60 and over Gonzales Pass will bring you to the Boyce Thompson Arboretum just before you enter the town of Superior. The Arboretum is marked with a large brown and white State Park Sign and there is a right turn lane.

Deep Sky Star Party: Vekol Road Site

General Information: The Vekol Road site is the official site for the East Valley Astronomy Club's Deep Sky Star Party, typically held on the Saturday closest to New Moon. Vekol Road offers dark skies despite prominent sky glow from Phoenix to the North. The site is within 90 minutes drive time from most East Valley locations.

Location: N 32° 47' 55" W 112° 15' 15"

How to get there: Take I-10 South and exit onto Maricopa Road. Continue through the town of Maricopa to SR 84, about 25 miles from I-10. Turn right on SR 84, after about 5 miles the road merges with I-8. Continue West and exit I-8 at Vekol Road–Exit #144. Turn left and cross the highway overpass. Before looping back onto I-8 take the small road (now paved) to the left. Go South for 2 miles. At the Vekol Ranch sign bear right and continue South for another mile until reaching a large open area on the left.



EVAC Officers

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SECRETARY
Diane Cook

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Dave Williams

NEWSLETTER
John Matthews
(602) 952-9808

WEB MASTER
Marty Pieczonka

East Valley Astronomy Club
EVAC Homepage: http://www.eastvalleyastronomy.org/

Membership & Subscriptions: $20 per year, renewed in December. Reduced rates to *Sky & Telescope* and *Astronomy* available. Contact the Treasurer:
Jack McEnroe at: keystoneconsulting@earthlink.net

Address Changes: Contact: Jack McEnroe. PO Box 2202 Mesa AZ 85214-2202

Club Meetings: Second Wednesday of every month at the Scottsdale Community College, 7:30 p.m. Meet in Room PS 172 (Physical Science Bldg.).

Newsletter: Email John Matthews at: john-cathy@cox.net The newsletter is mailed out the week before the monthly Club meeting. An electronic version is available in Adobe PDF format in lieu of the printed copy. Please send your contributions to John Matthews at: john-cathy@cox.net Contributions may be edited.

EVAC Library: The library contains a good assortment of books, downloaded imagery, and helpful guides. Contact Dave Williams at: davewilliams@cox.net
Book Discounts: Kalmbach and Sky Publishing offer a 10% discount to EVAC members on books and other items from their catalog. When ordering, notify the person on the phone that you would like the "Club Discount." When ordering by mail, there is a line to subtract the club 10%.

EVAC Star Party Line: Let other members know in advance if you plan to attend a scheduled observing session. Contact Events Coordinator Howard Israel at (480 893 7523).

EVAC
PO Box 2202
Mesa, AZ 85214

EVAC Homepage:
www.eastvalleyastronomy.org

Reminders:

July EVAC Meeting
Wednesday, July 14, 2004
Location: Room PS – 172
Physical Science, (SCC) @ 7:30PM

August EVAC Meeting
Wednesday, Aug. 11, 2004
Location: Room PS – 172
Physical Science, (SCC) @ 7:30PM