

East Valley Astronomy Club

December 1999

www.eastvalleyastronomy.org

Scottsdale, Arizona

EVAC Xmas Party

Don't forget the Xmas party at Martin Bonadio's house on Sat Dec 18th - this promises to be a fun time. A new idea that I would like to try out is a white elephant gift exchange (no laughter, please!). This would involve each of us all bringing along a gift(s) of very dubious value (that Martin would have to find room for!) and then we would all be issued raffle tickets - the tickets drawn from the hat would have the lucky (?) members go to the gifts table to choose from the stockpiled gifts - obviously the first tickets picked would get the better gifts while the last tickets picked would get the not so good gifts!

What gifts to bring? Well, nothing at all fancy - I intend to bring a small pot-pourri box containing four shower caps (for solid tube Dob dust covers), two eye patches (to preserve dark adaptation), a cardboard planisphere, and a few other low value items! And they need not be Astronomy related. The whole idea is to have some fun - absolutely nothing serious! See you at Martin's on Dec 18th

Newsletter Library Online

by Robert Kerwin

The EVAC newsletter is now available for download from the EVAC website:
www.eastvalleyastronomy.org

All issues from June 1999 onward are available. To access the newsletter library, just click the newsletter library link from the main page. The newsletter page also has a link for downloading Adobe Acrobat.

At the November meeting, there was some confusion concerning e-mail address updates. Since e-mail addresses are part of the address database which is

currently maintained by our newsletter editor, Martin Bonadio, all e-mail address changes or additions should go to Martin (mabastro@aol.com). Martin will be sending me regular updates of the e-mail directory for posting to the web site.

December Speaker

By Pedro Jane'

Our main speaker for Dec. 8, 1999 will be Dr. Jack Farmer. Dr. Farmer received degrees in geology from Cal. State, Chico, University of Kansas and U.C. Davis. He has accepted a tenured faculty position at A.S.U. with the Dept. of Geology and assumed the leadership for the NASA funded Astrobiology program.

Dr. Farmer's topic will be "Exploring for Life on Mars". It will include a 50-minute slide show followed by a question and answer period. This will prove to be one of the most interesting lectures of the year. Also, be sure to check out his fantastic website at <http://geology.asu.edu/~jfarmer/>

EVAC & Other Events: 1999

	New Moon	Mtng	Local	Deep Sky	Other
Mar	17	10	13*	20	13: Messier Marathon*
Apr	16	14	10	17*	17: Sentinel Star Gaze*
May	15	12	8	15	9-16: Texas Star Party 28-31: Riverside TMC
Jun	13	9	5	12	12-19: Gr Canyon SP
July	13	14	3	10	1-7: Universe '99
Aug	11	11	7	14	13-14: Stellafane
Sep	9	8	4	11	10-11: N AZ Star Party 17-19: Astrofest
Oct	9	13	2 nd & 30 th	9*	9: All-AZ Star Party* 4-10: Okie-Tex SP 8-10: Starry Nights Fst
Nov	8	10	(oct)	6	Elections
Dec	7	8	11	4	Christmas Party - 18 th

President's Message

By Silvio Jaconelli

We now have a new set of Officers and Board members installed for the new year - I would like to thank the outgoing officers for all their help and efforts in 1999, and I would like to thank the new volunteers in advance for their help in the year coming up.

What did we accomplish last year? Well, we played catch-up with our status as an incorporated organization - we were a few years behind on this. We tried to include more observing articles in our newsletter - I think that this is a very important facet of our club since observing is what our hobby really means. We took various surveys during the year. One was on potential observing sites - the conclusion was to keep the local star parties at the corral.

Then we tried to get the feelings of our members' likes/dislikes; one of the myriad of conclusions - the guest speaker was the number one like at the monthly meetings; as a consequence of this survey we now have the guest speaker on at the midpoint rather than at the end of our meetings. Finally, the Board composition slowly began to migrate to where each Board member would take formal responsibility for certain key areas of club administration; we also appointed an 'events co-ordinator' to oversee the organization of non-recurring events. What is in store for next year? Well, several things are in motion.

Firstly, Martin Bonadio, our new newsletter editor will be attempting to take us into a leading edge communications environment. Around 60% of the club expenses are used in the 'snail-mail' of our newsletter to our members. Snail-mail will always continue to be an option, but if we can get more members to utilize the efficiencies of electronic newsletters, then not only would they get their newsletters far earlier, but the club will be able to halt the degradation in our finances (see next paragraph). Thanks, Martin, for your efforts here.

Secondly, we will be focusing more on Finances. DeeAnn Zacher, the new Treasurer, will be presenting quarterly financial updates. A preview of her first presentation will deal with how reduced paid star party income and increased expenses has caused our funds to diminish somewhat. But all is well - the Board will be deciding on a year 2000 budget in January, which will show stabilization in our financial position. Thanks in advance to DeeAnn for her help here.

Next, the new Vice President Chuck Crawford is resurrecting an old custom of club field trips - Lowell and Kitt Peak trips are on the drawing board; and Chuck has already arranged a trip to the ASU planetarium in January - fast work for a new officer - thanks Chuck.

Chuck Crawford and myself will also be looking at ways to help newcomers to our hobby. I have already volunteered to Chuck to devote one evening a month to having three or four inexperienced members over to my backyard in Gilbert for a late afternoon hardware session followed by some lunar and other observing. I am trying to get other experienced members to offer similar facilities, and Chuck is also mulling over having larger sessions at Lost Dutchman park out past Apache Junction. Nothing has been agreed to yet - it's all wet clay at this point but something will definitely happen. Thanks to Chuck for taking the lead here.

I walked into work a few weeks ago to be greeted by "I saw you on the television last night"; this was in connection with a Channel 12 NEWS article concerning the sale of mercury vapor lights in Arizona. The news station was trying to explain that the installation of these was illegal in Arizona, and yet they are freely available for purchase right here in the valley. This was another contribution from me in the battle against light pollution, and I would encourage each and every member to get involved in this in some form or fashion.

Finally, don't forget the EVAC Xmas party at Martin Bonadio's house on Sat December 18th - this should be a fun event. And at the expense of letting the cat out of the bag, I will also mention that Martin will be showing DVD movies after the party for those members who wish to stay a little longer. Thanks, Martin.

Busy schedule - huh? Well, what's life without challenges!!

EVAC Meeting Highlights

Tom Polakis (polakis@sprintmail.com)
EVAC Secretary

November 10, 1999

Vice-president Pedro Jane' presided over the November meeting, which was attended by about 70 people. Upcoming events include a local star party on

December 11 and the club Christmas party, to be held the following Saturday, December 18. The potluck party will take place at the home of Martin Bonadio. If you plan to attend, Martin would like to know what dish you plan to bring.

Tom Polakis announced that the subscription rate to the electronic version of the club newsletter is disappointingly low. The newsletter can be received as an Adobe Acrobat file, which is displayed via their free reader. Tom created four copies of Adobe Acrobat 4.0 for club distribution, and will bring them to meetings in the future.

Following this announcement, elections were held. Silvio Jaconelli will return as president, and Chuck Crawford will be vice-president. Tom Mozdzen will be next year's secretary, Dee Ann Zacher will be Treasurer, and Martin Bonadio will become the newsletter editor.

Sam Herchak spoke about the situation with Home Base selling and installing illegal Mercury vapor lamps. After going to the Attorney General, Better Business Bureau, and the Department of Environmental Quality with his complaint, Sam turned to the only force that matters: Channel 12. The following Wednesday, C.J. Ward did an investigative story that included club members Silvio Jaconelli and Bill Peters. Home base no longer installs Mercury vapor lamps. Sam's message was to join the International Dark-Sky Association.

Treasurer Dee Ann Zacher is encouraging members to renew memberships before the January crunch. This newsletter includes a membership form.

Sheri Cahn announced that EVAC member Bill Smith is in ill health, and strongly encourages members who know Bill to pay him a visit.

Diana Jane' displayed the new collection of handsome EVAC shirts. Many more of these were sold at the meeting. She and Anne Beeby are in charge of sales of the shirts.

The "guest speaker" was the club, as this was a show-and-tell night. Tom Polakis spoke about a recent trip to Harquahala Solar Observatory, and showed versions of a panoramic photograph taken at the top. He also spoke about how bright the average star is relative to our sun.

Laurice Dee gave a presentation about Galileo's Io flybys. One flyby was as close as 380 miles from the surface of the satellite of Jupiter. She promises to

talk more about this at an upcoming meeting. Visit <http://www.jpl.nasa.gov/galileo> for further details.

Chris Schur showed pretty pictures of objects found in the winter sky. These included magnificent images of NGC 2359, the Duck Nebula, planetary nebula Abell 21, and NGC 1499, the California Nebula.

Jim Weisenberger's talk was about a Time magazine photograph from an issue that celebrated Apollo 11. While Jim knows that our moon shots are a reality, the studio-like appearance of the lead photograph could raise doubts.

Rick Scott showed very nice photographs taken with a standard lens setup. These included slides of constellations with scenery and an eclipse.

SCC Star Party

By Sean Page

Every year, as a way of saying "thank you" to Steve Mutz, the astronomy professor at SCC, for allowing us to use his classroom for our monthly meetings, EVAC holds a special star party just off the SCC campus for the benefit of his astronomy class. Six club members volunteered their time and their telescopes to come out and make this year's event a success.

They were (in alphabetical order) Joe Goss, Jason Nelson, Sean Page, Dave Rainey, Rick Scott, and Don Wrigley.

The scopes were all set up by 7:15, but with 15 minutes before the class would arrive, there was plenty of time to get some quick sightings on some of the more readily visible objects in the northeastern and eastern skies. Jupiter and Saturn were bright and clear, and the Pleiades stood out well against the gray sky, even though they were almost on the horizon.

The double-cluster in Cassiopeia was a little dimmer than usual, but not more so than can be expected with 200 halogen parking lot lights less than 500 feet away!

The Andromeda galaxy was quite dim, and the disk was almost invisible in the washed out sky. These few objects make a good barometer as to how viewing will be for various types of objects, and they are all currently in the same section of the sky.

Around 7:30, the students arrived from the campus, and the party was under way. The inevitable "What magnification is that?" was heard from time to time, but also was "What's the focal length of your 'scope?" and "Ooh, look, you can see all the Galilean moons!" Over the course of the next 2 hours, these questions were answered, more were raised, and our guests got their fill of many a stellar body.

Upcoming ASU Planetarium Show

By Chuck Crawford

I have just received confirmation for the ASU planetarium shows. The date of January 19, 2000 is OK and depending upon the numbers signing up two shows, one at 6:30pm and the other at 8:00 pm are OK also. Signup sheets will be available at the November meeting and again at the December meeting.

The planetarium show will be based upon how Melville used the sky to construct the novel Moby Dick. The show will include three examples of the sky to book link not covered in John Birk's book concerning the long sought "blueprint" for Moby Dick, which book will be published later this month. It appears Birk has discovered a hidden allegory that keeps the character and accounts for much of the action in the novel. The hidden allegory is the sky.

This then is the theme of the show that Daniel Matlaga, planetarium director, has prepared for the show. He has suggested that those unfamiliar with the novel Moby Dick might want to rent the 1950's movie prior to the show. Perhaps a word or two in the newsletter would be appropriate for the availability of the program offered for free to members of EVAC and their families.

The Vatican Is Coming? Almost...

By Chuck Crawford, Vice President elect

Great news for the future! Dr. George Coyne has agreed to speak to EVAC in February at our general meeting on the 9th. Dr. Coyne is the Director of the Vatican Observatory and he will be speaking on the subject of "The Vatican Observatory East (Rome) and West (Arizona): Why does it exist? What does it do?"

Quite a busy man is Dr. Coyne as he spends five months of the year in Tucson as adjunct professor in

the University of Arizona Astronomy Department, spends time in Rome and directs the Vatican Observatory on Mt. Graham.

In addition, his research interests rest in polarimetric studies of various subjects including the interstellar medium, stars with extended atmospheres and Seyfert galaxies, which are a group of spiral galaxies with very small and unusually bright star like centers. (Polarimetry is the technique of measuring or analyzing the polarization of light. When light rays exhibit different properties in different directions, the light is said to be polarized). Most recently he has been studying the polarization produced in cataclysmic variables, or interacting binary star systems that give off sudden bursts of intense energy, and dust about young stars.

A bit deep for many of the membership, so, at his suggestion, we shall instead learn of the observatory and why it is here in Arizona and just what purposes it serves in the field of professional astronomy.

Dr. Coyne is an active member of the International Astronomical Union, the American Astronomical Society, the Astronomical Society of the Pacific, the American Physical Society and the Optical Society of America. After many messages back and forth we have been able to secure a date that would fit Dr. Coyne's busy schedule and it is with great pleasure that we welcome him to speak to us. Mark this date on your calendar as a night to attend to listen to one of the noted astronomers here in Arizona.

A Typical Night In My Backyard

By Silvio Jaconelli

As some of you may be aware, I am a big proponent of visual observing from our own suburban backyards. There is a wealth of objects to cover and with 8" of more aperture, countless dark sky objects can be picked out, albeit washed out. I personally really appreciate the convenience of home frills while I observe!

I was out in my backyard last night with a 6" telescope (without any filtration) and here is what I observed:

I started off at 400x, but the seeing was not so good (a storm front was arriving) so I was forced me down to 200x. Focal ratio was f/8 and aperture was 6".

MOON: Armed with Cherrington's 'Exploring the Moon' (thanks to Don Wrigley for this book!), I explored the terminator of an 11 day old Moon. With a longer focal ratio telescope, the detail to see on the Moon is incredible.

I started at crater Plato and the collapsed material on the west crater wall was just incredible - a huge landslide occurred here. I also easily spotted the four bigger craterlets on the Plato's floor. With my 10", I can pick up at least another 4 craterlets (yes, Aperture really helps!). Aristarchus (the brightest spot on the face of the entire Moon) was just emerging from darkness, as was the companion crater Herodotus, and the views of Schroter's Valley and the accompanying 'Asp's Head' rille at this low angle of lighting was just so completely different from any past views that I had observed.

It is a common belief that the Moon provides an inexhaustible supply of observing targets because each object will take on a different appearance as the sun passes over the lunar landscape and the lighting angles continually change.

I then scanned craters Kepler, Encke, Sharp, plus another half a dozen. I also studied several lunar domes - these are volcanic in origin - just off to the southwest of crater Mairan; lunar domes look like huge chunks of rock sitting on the mare floors, and some have very tiny pits on top, where the lava flows erupted.

I ended up down at crater Gassendi - the contrast at 11 days old provided very sharp images of all the rilles on the crater floor; the multiple central peaks stood out very sharply. And I was able to pick out very easily at least 25 craterlets on the floor of neighboring Mare Humorum.

PLANETS: Now it was time to catch Io emerge from an eclipse by parent Jupiter. An eclipse is where a smaller body disappears into the shadow of a larger body; this contrasts with an occultation where a body is physically obscured by another body. Frank Kraljic was over at my place to view the recent Mercury transit and we got into a 'discussion' as to whether a solar eclipse really is an eclipse, or whether it is really an occultation of the sun by the Moon. I will not say which of us had which viewpoint (DeeAnn Zacher had decided to not take sides) but I would invite any members to express their opinions on this hotly debated topic!!

But back to Jupiter - the great red spot was right on the meridian - it looked impressive enough but it does seem to have lost most of its color. I picked out 6 cloud belts, with the northern equatorial belt displaying a lot of festoons a several white spots. And by now the four moons were in a perfect plain, Io to the east and the other three on the left. I was saddened to see vignetting on the east side of the planet - a sure indication that we are now well past opposition; the planet is now separating away from us, until eventually it will disappear into the solar glare - the end of this season's Jovian apparition.

But not so Saturn - we are still very close to opposition, so close that there is just no back shadow of the planet on the backside of the rings. However, the views were very crisp. For some reason, Saturn seems to handle high magnification a lot better than Jupiter. I was able to see four different ring systems - the outer ring separated into two components by the Cassini division, the inner ring transitioning to a darker ring, and then the dusky inner crepe ring; I tried for the Enke gap, and for a split second or so on a few occasions I might have seen it, but for now I am going to keep that on my list of 'not found'. Is there anyone out there who has seen Enke, and if so, what equipment was used? The reddish cloud zone on the south side of the disk was very obvious. And I counted 5 Saturnian moons.

DEEP SKY: Being totally oblivious to the passage of time, I decided to swing over to Cassiopeia and my first target was the open cluster M103. Although not as impressive as a 13" out at Florence Junction, it was still a pretty sight from my suburban backyard through the 6". It is a triangle shape with the brightest stars forming one side of the triangle. The most northern star of this bright line is a triple star with magnitudes 7, 10 and 12. So even with an 11-day-old Moon, a hazy sky, suburban light pollution, and 6" aperture, I was able to easily pick up M106 and easily split a triple star down to magnitude 11!!

I decided to go 'deeper' with open cluster NGC 663 - again easily spotted, and a pretty cluster. There are 3 double stars in this cluster; two are easy, but the third pair has a 12th (?) magnitude companion that I could only spot with averted vision.

By 'practicing' in the backyard, you can really enhance the experience of dark sky observing - you

will know what is worth looking at, where to look for it, and get teased into what extra detail to look for at a

dark site. I find it fun to compare the views from both locations.

Next target was Iota Cassiopeiae, a very pretty triple pointed out to me by Bill Dellinges. This star is part of a three star asterism, and the amazing thing is that the triple itself is an exact miniature replica of the bigger asterism - really weird!!!! Please look this one up - you will be amused. The components are magnitudes 5, 7 and 8 with separations of 3 and 7 arc seconds. I did try 400x, but the seeing was really getting worse and I was forced to go back down to 200x. But it was still easily split at this magnification, though by this time the star images were getting mushy.

THE END? So four hours later (time does fly when you are having fun) I decided to stop, but rather than break down the telescope I decided to leave it up so that I could get in some views of Venus and sun spots in the morning. A wonderful nights observing from the comforts of my backyard!

THE PROLOGUE: Next morning. Venus was a mess - bubbling and boiling 40 degrees high. The planet was showing about 60% illumination. I must confess that Venus is probably the most disappointing telescopic object for me personally. The brightness is so alluring and full of promise, but the image through a telescope is just so bland. Apart from the phases, I see nothing at all. But the Sun was different - glorious sun spot groups as we approach solar maximum. I use a Mylar filter, which is inexpensive and I have no complaints on the quality of the image. But I have already covered the Sun in an earlier article.

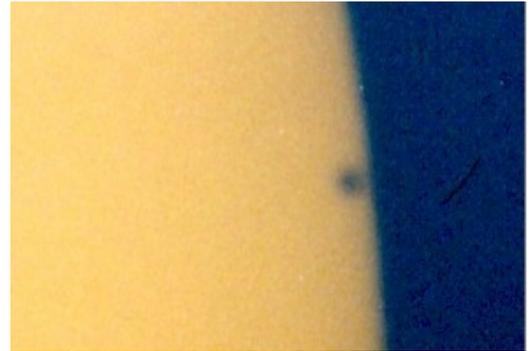
Mercury Transit

By Randy Peterson

The passage of Mercury in front of the Sun's disc was touted as being so rare that I couldn't resist purchasing a full aperture solar filter to watch it. After reading the review of solar filters in Sky & Telescope, an Orion filter was chosen, primarily because of it showing a more natural color than some of the others reviewed. Since I have never owned nor used a solar filter before, a large investment did not seem prudent at this time, so since it is also among the least expensive glass filters helped sway the decision too.

Since I would be at work during the transit, a quick set-up and takedown of the telescope was deemed necessary, and my 4.5" reflector satisfies that requirement much better than a larger scope would. A 20mm eyepiece fills the view with the Moon's disc,

which of course is the same size as the Sun's disc. Since I wasn't planning on doing any precision timing or photography, that is the eyepiece that was used.



*November 15th, ~2:30pm. Mercury is shown here shortly after 2nd contact.
Photo taken by Martin Bonadio using a 10" SCT and solar filter.*

Some of my customers expressed an interest in viewing this event also. So, on Monday November 15, the telescope was set up in the parking lot by the entrance to the restaurant I manage at about 2:10 p.m. There were a few of us that were waiting for a view, which didn't take long. Within a few minutes, the edge of the Sun showed a slight deformation that was the planet Mercury just beginning it's transit. We took turns looking through the eyepiece, and remarking how it looked like a tiny little piece of the sun was missing as the planet Mercury advanced further into the sun's disc, blocking the light as it went.

After 2:00 in the afternoon is not a particularly busy time for a restaurant, but there were still a number of customers coming and going. I invited all to "take a peek" at the planet Mercury and the Sun. Most did, and all expressed astonishment at being able to see the silhouette of Mercury and the sunspots that were present in abundance. Their comments reminded me of previous times at the EVAC meetings watching Pierre's videos with his audio exclamations! However, there were a few people who wanted to have nothing to do with our setup. Don't know if they were afraid of looking at the sun, or figured they would have to make a donation, but it was their loss!

Most of the employees at the restaurant took turns looking at the transit and the sunspots. We continued watching until about 3:05, at which time the telescope was put away and I got back to my duties. Even though no hard scientific data was recorded, a number of people had looked at the Sun, Mercury and saw sunspots too for the first time, including me!

New Members

During October and November, EVAC gained 9 new club members. EVAC would like to **'Welcome'** the following new members:

Tony Cristofolo
John Daly
Gary Hedges
Adrienne Herzog
John Marshall
Sean Page
Winston Pendleton
Donald Spirk
Walter Whitlow

Thank you all for joining the club. Please feel free to contact any of the officers with questions that you might have...

The Treasury Pen

By DeeAnn Zacher

Membership Renewals

Once again, I feel it is important to remind current members that ALL memberships expire in January. Between the months of October and November, a total of 40 members renewed their membership. This leaves a whopping 130 members that still need to renew! Please renew as soon as possible, to prevent interruptions in delivery of the monthly newsletter.

Month At-A-Glance

During the month of November, my pen has kept very busy with the following: 24 member renewals, 2 new members, 3 member badges, 6 Astronomy Calendars, 10 Sky & Telescope renewals, and 4 Astronomy magazine renewals/

This was a significant increase in last month's numbers: 15 member renewals, 7 new members, 4 member badges, 4 Sky & Telescope renewals, and 5 Astronomy magazine renewals.

Astronomy Calendars

The Astronomy Calendars have arrived, and will be distributed at the December meeting. Ten extra calendars were ordered, and can be purchased for \$7.00 on a first-come-first-serve basis. Calendars have only been reserved for members who have paid in advance.

If it's clear...

by Fulton Wright, Jr.

Prescott Astronomy Club for December 1999

Shamelessly stolen information from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find data.

On Wednesday, December 1, at about 6:30 AM, you can see Mercury. With binoculars or a small (3 inch) telescope look 10 degrees above the east-southeast horizon for the mag 0.5 planet.

On Tuesday, December 7, at about 3:30 AM, you can see the eclipsing binary star in the trapezium at its minimum. See Sky and Telescope, December 1999, p. 115 for details.

On Friday, December 10, in the evening, you can watch the entire transit of one of Jupiter's satellites plus the occultation of another. Here is the schedule:

7:21 PM Europa moves in front of Jupiter
9:28 PM Europa's shadow falls on Jupiter
9:50 PM Europa moves from in front of Jupiter
11:51 PM Io disappears behind Jupiter
11:58 PM Europa's shadow leaves Jupiter

On Sunday, December 12, at 6:18 PM, you can see Io disappear behind Jupiter. 6 minutes later, Europa emerges from Jupiter's shadow on the opposite side of the planet. After watching this through your telescope, direct your binoculars toward the crescent moon (25 degrees above the southwest horizon) for a nice grouping of objects. About 3 degrees down and to the right is Mars (mag 1). One degree above Mars is Theta Capricornus (mag 4). One tenth of a degree left of Theta is Uranus (mag 6).

On Monday, December 13, after about 10 PM, you can see the Geminid meteors. With your unaided eye look 30 degrees above the east horizon for the radiant in Gemini. The meteors may appear anywhere in the sky at the rate of 1 a minute if things go well.

On Saturday, December 18, at about 7 PM, you can see a conjunction of a planet and a star. With binoculars look 25 degrees above the southwest horizon for Mars (mag 1) and Iota Capricornus (mag 4) just 0.2 degrees to the left.

On Sunday, December 26, at about 9 PM, you may see one of Jupiter's moons peak out from behind the planet briefly. This will be a challenge. With a medium (6 inch) or large (12 inch) telescope look 60 degrees above the southwest horizon for Jupiter. At 9:06 PM Europa begins to appear from behind Jupiter's planetary northwest limb. Before it fully

appears it starts to enter Jupiter's shadow. By 9:11 PM it is completely in Jupiter's shadow. Can you spot it during these few minutes?

On Thursday, December 30, just as midnight approaches, you can see Io and Europa make a 10" 'double star' near Jupiter.

NASA News

by Tom Mozdzen

Bacteria: the Ideal Astronauts?

In August 1996 David McKay and Everett Gibson from NASA JSC stunned the world by publishing a paper in Science magazine that reported evidence of fossilized microorganisms found within the ALH84001 meteorite that came to Earth from Mars.

In the ensuing months and years, interest in life on Mars - and elsewhere - was rekindled.

The notion that rocks could be blasted off of one planet by an asteroid impact and land upon another was not exactly new. But could life be carried within a rock between planets and survive the trip to take root on another world? The trip would not necessarily be all that smooth. Enter *Deinococcus radiodurans*. In an article in today's Science magazine, researchers at The Institute for Genomic Research (TIGR) report that they have determined the entire genetic sequence of this bacterium. *D. radiodurans* can survive gamma radiation exposures of 1.5 million rads which literally blast its DNA apart. It then reassembles its DNA all by itself with no apparent ill effects. This organism can also be completely dried out and then be revived and can survive doses of ultraviolet radiation that would kill most other forms of life.

Sounds like the perfect organisms to send on a long trip inside a rock between planets! Indeed, it is so robust that it is being considered for use in cleaning up radioactive waste dumps.

Mars Polar Lander Touchdown Less Than 2 weeks Away

SpaceRef has put together a special "[Focus on Mars](#)" feature on the Mars Polar Lander (MPL) mission that will touchdown on Mars on December 3rd. Included in this feature is background material on the MPL and DS-2 missions, an enhanced version of our Whole Mars Catalog, and a special search engine we have created that covers Mars Polar Lander information located on NASA's MPL mission websites.

Once the lander has touched down and starts sending back data we will continue to update this search engine every 6 hours during the active data collecting phase of the mission.

Hubble Telescope Placed Into Safe Hold As Gyroscope Fails

NASA's Hubble Space Telescope was placed into a safe hold at approximately 8:30 a.m. EST Saturday morning when gyroscope #1 ceased operation. With only two operational gyros remaining, the science program will be suspended until completion of Servicing Mission 3A, currently scheduled for launch aboard Space Shuttle Discovery on Dec. 6, 1999.

This gyro situation is not expected to impact the upcoming servicing mission. In fact, anticipation that another gyro could fail was the primary reason that Hubble managers scheduled an early repair mission and split the third servicing mission activities into two flights: Servicing Mission-3A (Dec. 6, 1999) and Servicing Mission-3B (Mid-2001).

"This event underscores the wisdom of dividing the third HST Servicing Mission into two parts, with Servicing Mission 3A scheduled for December 1999 -- only 3 weeks of science data will be lost," said Dr. John Campbell.

The safe-hold mode has been thoroughly tested and used twice since Hubble's launch in 1990. The telescope is not at risk. This protective safe mode allows ground control of the telescope, but with only two gyros working, Hubble cannot be aimed with the precision necessary for scientific observations of the sky. The safe mode does not require gyros, so even if another gyro should fail in the next few weeks, HST will remain safe, according to project managers. The aperture door has been closed to protect the optics, and the spacecraft is aligned to the sun to ensure adequate power is received by Hubble's solar panels.

During Servicing Mission 3A, astronauts will replace all the gyroscopes, a fine guidance sensor, a transmitter, a spare solid-state recorder and a high-voltage/temperature kit for protecting batteries from overheating. Additionally, the crew will install an advanced computer. Servicing Mission 3B will be conducted in 2001 to complete the third HST servicing mission activities. Additional information on the mission and Hubble is available at:

<http://hubble.gsfc.nasa.gov/>

Hubble Commemorative Postage Stamps

Information obtained by Dee Ann Zacher

The United States Postal Service has recently announced it will be issuing a commemorative set of postage stamps representing Edwin Powell Hubble and the Hubble Space Telescope. The images will consist of the Eagle Nebula, Ring Nebula, Egg Nebula, Lagoon Nebula, and NGC 1316.



The Astronomical Society of the Pacific (ASP) has been petitioning the US Postal Service for over two years, to develop the Hubble commemorative stamp series. The ASP is the largest general astronomy society in the world. For over 100 years, the ASP has helped explain the 'mysteries of the universe to students, teachers, hobbyists, and the general public. The organization felt it was important to recognize the developments and discoveries made in the field of Astronomy during the last century. Edwin Hubble and the Hubble Space Telescope represent some of the finest achievements during the last 100 years.

The Hubble Space Telescope was named in Edwin Hubble's honor. He determined that galaxies, other than our own (the Milky Way), do exist.; Hubble was also responsible for demonstrating, through his observations, that the universe is expanding, moving galaxies farther and farther away from each other. The Hubble postage series will be issued some time during the year 2000.

Information regarding the Astronomical Society of the Pacific can be found on the Internet at: <http://aspsky.org/>

Shrinking Man, Expanding Mind

By Joe Orman



Photo caption: The Incredible Shrinking Man gazes at the universe through a window screen.

If you have ever seen the 1957 science fiction movie "The Incredible Shrinking Man," you discovered that behind the seemingly exploitative title was a movie of considerable skill and intelligence. There is plenty of action and suspense in the story of a man (played by Grant Williams) who finds himself shrinking due to exposure to an unexplained radiation, becomes trapped in the cellar of his own home, and battles a giant-size cat and spider for survival. But the film's most memorable scene is the final one, in which the hero has shrunk enough to escape from the cellar through a window screen, and gazes up at the night sky from his garden. We see the moon and stars, then, as he shrinks to invisibility, our view expands to take in distant nebula and galaxies. I can still recall the vivid impression this scene and its narration made on me when I first saw it, more than 30 years ago:

"So close -- the infinitesimal and the infinite. But suddenly, I knew they were really the two ends of the same concept. The unbelievably small and the unbelievably vast eventually meet, like the closing of a gigantic circle.

"I looked up, as if somehow I would grasp the heavens ... the universe ... worlds beyond

number ... God's silver tapestry spread across the night. And in that moment, I knew the answer to the riddle of the infinite. I had thought in terms of Man's own limited dimension. I had presumed upon Nature. That existence begins and ends is Man's conception, not Nature's.

"And I felt my body dwindling, melting, becoming nothing. My fears melted away, and in their place came -- acceptance. All this vast majesty of creation -- it had to mean something. And then I meant something too. Yes, smaller than the smallest, I meant something too. To God, there is no zero. I STILL EXIST!"

Although the screenplay is attributed to Richard Matheson (based on his novel "The Shrinking Man"), director Jack Arnold admitted that he wrote the ending speech and added the religious references. Although some may find it overly dramatic, this scene, like the climax of "2001: A Space Odyssey," is one of the most transcendent moments in science fiction film.

The climax of Matheson's novel is much less metaphysical, emphasizing the shrinking man's discovery that the stars still appear the same ("He saw them as any man saw them, and that brought a deep contentment to him. Small he might be, but the earth itself was small compared to this."). Even in a movie with so much questionable science, this makes one wonder: wouldn't our eyes lose their ability to see the stars if they were much smaller?

Ultimately, the questions that the movie really wants us to consider are philosophical ones. How does our relative size affect how we perceive our environment and our place in it? How much does our sense of self-worth depend on physical size and strength, as opposed to intelligence? How do we measure ourselves against a universe of seemingly infinite size? Ultimately, are all of our struggles for existence meaningful on the cosmic scale?

As he dwindles to nothingness, the hero discovers that the answer is one not of despair, but elation. The peace and reassurance that the shrinking man gets from viewing the night sky, is something any astronomer can appreciate.

For Sale

NOTE: Whoever bought Mike Sargeant's 8" Newtonian in October please contact he. He has

another accessory for that scope which he forgot to give to you. Thanks. Mike@480839-3209

8" f/6 Dobsonian: Enhanced coating on primary, 2" JMI focuser, reflex sight, and natural oak finish. Optional - 26mm and 10mm Orion Plossl eyepieces. \$500 with eyepieces, \$450 without eyepieces.

20 years of Astronomy magazine. Most years complete. Several years in binders. All magazines are in excellent condition. \$125. Robert Kerwin @ 480-837-3971 (rkerwin@goodnet.com).

CCD Equipment:

- #416 Meade Pictor CCD
- #616 Color Filter Wheel
- #520 Electronic Relay, OAG base only
- Hard case.

\$2,200, which is below wholesale. Would accept a 14mm Meade Ultra Wide or a 40mm Meade Super Wide or an ETX as partial trade in. Chuck Crawford @ 480-985-8824.

Camera Equipment: I have in excellent condition the following, which would make very good lightweight equipment for a beginner or even a veteran astrophotographer, which I am looking to sell. Have far too many cameras:

- Nikon F 35mm camera body w/ T-Mount
- Nikon Zoom 35-70 Lens (matched to the camera)
- RA Viewfinder and Focus attachment Focusing Screen attachment (rare find)
- Cable Adapter (not the release)
- Sky Light Filter (52mm), Tamrac Bag (new), and complete instructions.

Total price \$ 425 OBO. Would accept a 14mm Meade Ultra Wide or a 40mm Meade Super Wide or an ETX as partial trade in. Chuck Crawford @ 480-985-8824.

Wanted

Telrad (without base) in excellent condition. Will pay \$20. Silvio 602-244-4699 (daytime).

I will pay up to \$300 for a **ShortTube 90mm refractor** and mount. Must be in excellent condition. Please contact Sonny Cave at 602-244-5226 (office) or 602-708-3005 (mobile).



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 the appropriate dues amount. Allow 3 mos. leadtime for magazine renewals. See below:

Dee Ann Zacher
 EVAC Treasurer
 2143 E. Farmdale Ave
 Mesa, Arizona 85204
 (480) 545-8769

Enclosed:
 ___ \$20 Annual
 ___ \$10 July—Dec
 ___ \$29.95 *Sky & Telescope*
 ___ \$29 *Astronomy Magazine*
 ___ \$ 7 EVAC Nametag
 ___ Total

Circle: New Member Renewal

Please Print (indicate confidential information)

Name _____
 Address _____
 Phone _____
 Email _____
 URL http:// _____
 Newsletter Mailed or Electronically Delivered? _____

How did you hear about EVAC? _____

Major areas of interest (circle): General observing; Lunar/Planetary;
 Deep Sky; Telescope making; Astrophotography; CCD/Computer;
 Archaeoastronomy; Other: _____

EVAC on the Internet

EVAC Homepage: www.eastvalleyastronomy.org

E-mail Mailing Lists

EVAC-mls is a mailing list for club announcements and quick notification of astronomical events. To join, send E-mail with the "Subject: subscribe" to EVAC-mls@psiaz.com

EVAC-Board is for EVAC business. All club members are welcome to participate. To join, send E-mail with the "Subject: subscribe" to EVAC-Board@psiaz.com

AZ-Observing is a fairly general mailing list about observing in Arizona. Included are star party information, who is going, as well as the latest observations and astronomical events. To join, send E-mail with the "Subject: subscribe" to AZ-Observing-request@psiaz.com

Although EVAC is a private club not open to the public, we do encourage potential new members to initially join us at our club meetings and/or star parties to help them determine the suitability of the club to meet their needs.

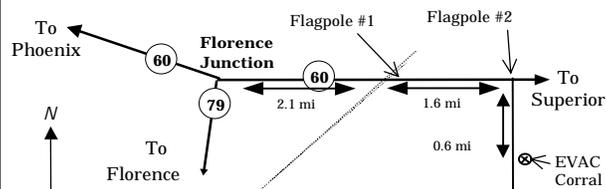
EVAC Star Parties

Local Star Party: Florence Junction Site

General Information: The Florence Junction site is the official site for the East Valley Astronomy Club's Local Star Party, 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. (Report gunfire or illegal activity: 800/352-3796; Land use permit number: 26-104528.)

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

How To Get There: Take US 60 east to Florence Junction. Go past Florence Junction. 2.1 mi past FJ are railroad tracks, and on the right will be a flagpole. Do not turn there. Continue on for another 1.6 miles until you find the second flagpole on the right. This is your turn. Turn right, and continue on the dirt road for 0.6 miles. The corral is on the left right before a gas-line sign.

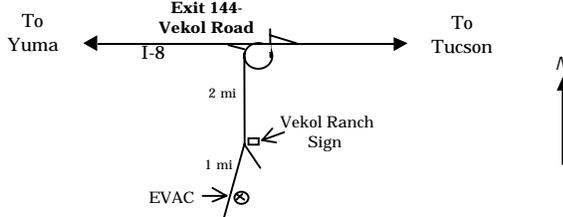


Deep Sky Star Party: Vekol Road Site

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 skyglow from Phoenix to the north. The site is within 1½ hours 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 dirt road 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.



East Valley Astronomy Club—1999

Scottsdale, Arizona

EVAC Homepage—<http://www.eastvalleyastronomy.org>

EVAC Officers

PRESIDENT

Silvio Jaconelli
(480) 926-8529

VICE-PRESIDENT

Pedro Jane'
(602) 833-2002

TREASURER

Dee Ann Zacher
(480) 545-8769

SECRETARY

Tom Polakis
(480) 967-1658

PROPERTIES

Enrico Alvarez
(602) 837-0486

Membership & Subscriptions: \$20 per year, renewed in December. Reduced rates to *Sky & Telescope* and *Astronomy* available. Contact Dee Ann Zacher.,

Email—dazacher@uswest.net

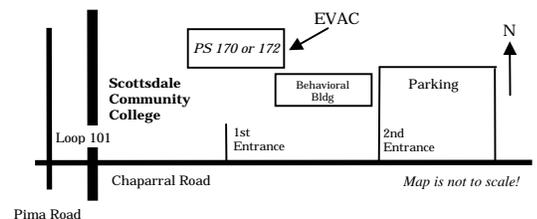
Club Meetings: Second Wednesday of every month at the Scottsdale Community College, 7:30 pm. Normally Room PS 170 or 172 in the Physical Sciences Building. See map below.

Newsletter and Address Changes: Contact Martin Bonadio 921 North Kingston Street, Gilbert, AZ 85233, 480/926-4900. mabastro@aol.com. Contributions may be edited. The Newsletter is mailed out the week before the monthly Club meeting. An electronic version available in Adobe PDF format in lieu of a printed copy. Please contact Martin with delivery your preferences.

EVAC Library: The library contains a good assortment of books, downloaded imagery, and helpful guides. Contact Enrico Alvarez for complete details, 602/837-0486.

Book Discounts: Great savings through Kalmbach and Sky Publishing. Contact Dee Ann Zacher, club treasurer.

EVAC Party Line: Let other members know in advance if you plan to attend a scheduled observing session. Contact Stan Ferris, 602/831-7307.



East Valley Astronomy Club

Martin Bonadio, Editor

921 North Kingston St. Gilbert, AZ 85233

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**Reminder: Next EVAC Meeting
Wednesday, December 8, 1999**