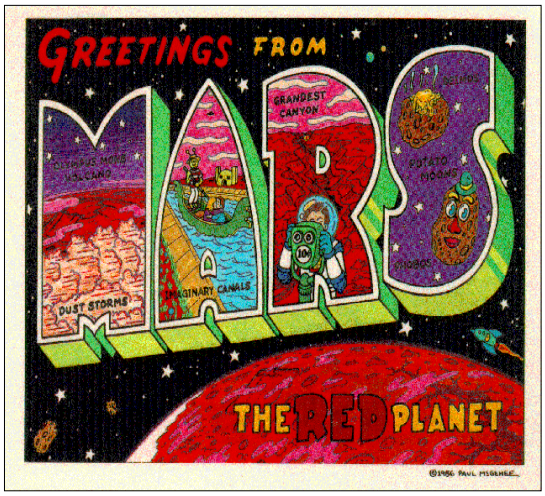


Next PAS Meeting 7:00PM
Thursday, March 4, 2003

Volume 56, Issue 7

PASTIMES

Monthly newsletter of the
Phoenix Astronomical Society
Founded 1948

PAStimes Internet Home Page: http://PASAZ.org
Join our Astronomy discussion group: http://groups.yahoo.com/group/PASAZ
PAS Email: phoenixastronomy@yahoo.com

MISSION TO MARS

EUROPEANS REVEAL PLAN TO LAND HUMANS ON MARS IN 3 DECADES

by Janet Wardell
received from Leah Sapir

European scientists set out plans for manned missions to Mars that aim to land astronauts on the Red Planet within 30 years. Like President Bush's proposed mission to Mars, the outline put forward by the European Space Agency involves a "steppingstone" approach that includes robotic missions and a manned trip to the moon first. "We need to go back to the moon before we go to Mars. We need to walk before we run," Dr. Franco Ongaro, who heads the agency's Aurora program for long-term exploration of the solar system, said at a meeting of Aurora scientists in London. "These are our stones. They will pave the way for our human explorers." The agency has planned two flagship missions to Mars - ExoMars would land a rover on the planet in 2009, and Mars Sample Return would bring back a sample of the Martian surface in 2011-14. Other test missions will include an unmanned version of the flight that eventually would carry astronauts to Mars to demonstrate aerobraking, solar electric propulsion and soft-landing technologies. A human mission to the moon, proposed for 2024, would demonstrate key life-support and habitation technologies, as well as aspects of crew performance and adaptation to long-distance spaceflight. The program is expected to cost $1.13 billion over the next five years. Colin Pillinger, the British scientist behind the recent ill-fated Beagle 2 expedition, said it is important to determine whether life exists on Mars before pressing ahead with a manned mission. "Would it be right for us to tamper with the ecology on another body?" he asked. "My opinion is that it probably wouldn't." The ExoMars rover would use solar arrays to generate electricity and travel several miles on the surface of Mars. It would have onboard software enabling it to operate autonomously and, like Beagle 2, a set of scientific instruments designed to search for signs of past or present life. Mars Sample Return would be a more complex mission requiring five spacecraft: an interplanetary transfer stage, a Mars orbiter, a descent module, an ascent module and an Earth re-entry vehicle. Scientists hope the expedition has a better outcome than Beagle 2. The British-built lander, due to land on Mars on Christmas Day, has not been heard from since it separated from the agency's mother ship, Mars Express, in mid-December, despite several efforts to contact it. Mars Express itself has functioned as intended, orbiting the planet. Agency scientists said last month that it found the most direct evidence yet of water in the form of ice on Mars, detecting molecules vaporizing from the Red Planet's south pole.***

SUMMER WORKSHOP - EXPLORING MARS FROM EARTH

Interested in investigating Mars geology but travel opportunities to the Red Planet are a little too far in the future? The Lunar and Planetary Institute invites you to join an Earth-bound exploration of Mars on July 10-17, 2004! Floods and Flows: Exploring Mars Geology on Earth is a NASA-sponsored training workshop for middle-and high-school science teachers. At field sites in Montana and Idaho participants will examine the effects of planetary events like catastrophic flooding, volcanic eruption, sedimentation, glaciation, and earthquake faulting. This hands-on, real-world experience will enhance classroom teaching about earth and space science, especially about the Mars Exploration Rover missions and the search for possible ancient life. Planetary scientists will lead the field and laboratory experiences, helping to connect the field observations to the geology of Mars (and other planets) through discussions and proven, hands-on, standards-based classroom and laboratory activities that are ready to share with students! For more information and to access the on-line application, please visit: http://www.lpi.usra.edu/education/fieldtrips/2004/home.html
Applications Due: 1 March***

NOTE TO THE EDITORS

by Nancy J Leon

There has been so much excitement about our recent NASA events -- first with the Stardust comet approach, and now with the Mars rover. We gave you a column on the Stardust encounter just before it happened. Now, on the Mars rovers, there has been so much popular press on them that lots of information has been available. We want to be able to interview the team that is so very busy right now -- and to give you all an angle that has not already been covered. So look for a column on that in the months ahead -- but enjoy the current column this month on a series of earth observing satellites working together! But we know that you may get lots of interest in Mars (and Stardust) so please do keep in mind some great places to send kids

See EDITORS, p. 2

EDITORS, cont'd. from p. 1
(and adults who like to play like kids!) "Blast off to a Mars Adventure" at http://spaceplace.nasa.gov/mars_rocket.htm & "Tails of Wonder" (Stardust) at http://spaceplace.nasa.gov/stardust/index.shtml***

FLYING IN FORMATION

by Patrick L. Barry

You can almost see the tabloid headlines now: "Mid-west farmer spies UFO squadron flying in formation!" "First signs of imminent alien invasion," the subtitle will read. If only this fictional farmer had been keeping up with NASA's Space Place column, he would have known better. The string of white dots moving in formation across the pre-dawn sky were satellites, not alien spaceships. Beginning next year, a series of challenging, high-precision launches will insert four satellites into orbits with just the right altitude, position, and orbital inclination to follow in lock-step behind NASA's Aqua satellite (launched in May 2002). Scientists have dubbed this squadron of satellites the "A-Train." Along with Aqua, the celestial parade will include Cloudsat, CALIPSO, PARASOL, and Aura. In April 2004, NASA will launch CloudSat, an Earth-observing satellite with unique cloud-measurement abilities. These measurements will fill an important role in our understanding of global climate change, making long-term climate change scenarios more accurate and dependable. So why bother flying in formation? By passing over the same swath of land within seconds or minutes of each other, the satellites will give scientists snapshots of essentially the same scene using a total of 14 different measuring instruments. CloudSat alone carries only one: a millimeter-wavelength radar sounder. This sounder-the first of its kind put into orbit-lets scientists see a vertical "slice" of the atmosphere that shows clouds, water, and ice between the ground and 30 km altitude, with a vertical resolution of 0.5 km. Even by itself, this instrument would provide an important and unique view of Earth's atmosphere, since the accurate portrayal of clouds is one of the glaring weaknesses with current simulations of climate change. But this cloud data is even more valuable when combined with measurements from the other satellites in the A-Train-for example, air temperature, trace gases, and radiation into and out of the atmosphere. Scientists can then see connections between, say, temperature and the resulting behavior of clouds. A better understanding of these connections is one of the most sought-after goals of climate research, because changes to global cloud cover would, in turn, have a feedback effect on global temperatures. The real story of this satellite squadron may not make the tabloid headlines, but at least there's evidence that the imminent threat of climate change is real, which is a lot more than you can say for alien invaders! Learn more about CloudSat and the A-Train at cloudsat.atmos.colostate.edu . Kids (and grownups) can do interactive cloud picture scrambles and learn "Cloudspeak" (the names of different kinds of clouds) at The Space Place, spaceplace.nasa.gov/cloudsat_puz.htm .

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.****

LOWELL OBSERVATORY ANNOUNCES 2ND ANNUAL STAR PARTY

June 17-20, 2004

Lowell Observatory, 1400 W. Mars Hill Road, Flagstaff

The Lowell Observatory Star Party II unfolds from June 17-20 at the Observatory's Mars Hill campus with observing at nearby Arizona Snowbowl. Highlights include Clark Telescope observing, tours of the U.S. Naval Observatory and Lowell Observatory Anderson Mesa dark sky research site, special talks by astronomers, an astronomy marketplace, and Lowell's spectacular multimedia show. Kenneth Herkenhoff from USGS will present "Mars Rovers," with the latest from Spirit and Opportunity, by a U.S. Geological Survey scientist directly involved. Among talks by Lowell astronomers: "Recent Comets," includes two 2004 comets by expert David Schleicher; "Killer Asteroids," by Brian Skiff, an update on the productive Lowell Observatory Near-Earth Asteroid Search; "Our Variable Sun," an introduction to the seething world behind our Sun's steady light by Jeffrey Hall; and "Big Stars in Small Galaxies," by Deidre Hunter, with current research on effects of massive stars on dwarf galaxies. Project manager Thomas Sebring will present "The Discovery Channel Telescope," a behind-the-scenes look at building the new 4.3-meter, $30,000,000 versatile instrument. Detailed information is available at http://kraken.lowell.edu or contact Steele Wotkyns, Lowell Observatory (928) 774-3358. Mark your calendar, and plan to attend.***

HUBBLE DETECTS OXYGEN, CARBON NEAR DISTANT PLANET

from CNN.com
received from Steven Saline

The Hubble Space Telescope has detected oxygen and carbon in the atmosphere of a distant planet, the first time these elements have been found around a world outside our solar system, scientists said. Unlike Earth, the planet is a hot, gassy orb very close to its sun-like star, and the oxygen and carbon are not signs of any sort of life, Hubble scientists said in a statement. Still, astronomers said Hubble's findings show that the chemical composition of atmospheres of planets many light-years away can be measured. The planet -- known as HD 209458b or Osiris -- is orbiting a star 150 light-years from Earth. A light-year is about 6 trillion miles (10 trillion km), the distance light travels in a year. Osiris is only 4.3 million miles (6.92 million km) from its star -- compared with Earth's 93 million miles (150 million km) from the sun -- and whips around in an orbit of less than four days. It belongs to a class of planets called "hot Jupiters," whose upper atmosphere is so hot it boils hydrogen off into space.***

COMET T-7 IS ALREADY PUTTING ON A MINI SHOW

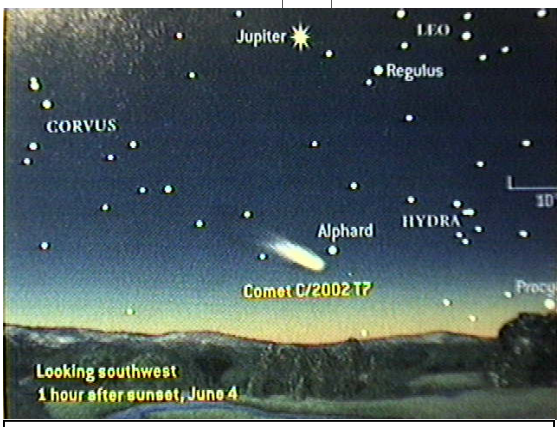
by Dennis Young

Quite easily seen in my small 3.5in refractor as a diffuse glow. Recent reports also show it having already up to 2 degree tail. The nucleus is well defined with a large fan shape tail. Last estimates put this comet at 6.9mag. If you wish to see a daily account of this and other comets I have attached the (Comet Page) below where you can obtain info and exact location on daily basis. Right now it is just east of the bottom eastern most star of the great square of Pegasus.

See COMET, p. 3

COMET, cont'd. from p. 2

This comet will become 1st to 2nd mag. by May 20th with it's counterpart (Comet 2001- Q4) also gracing the sky around same time and same magnitude. It will be great to show a nice comet for Grand Canyon party. It has been brought to my attention that ...true we will lose sight of Comet T-7 by early March (so this it the time to watch it), however, though this comet is better situated for southern hemisphere observers at it's best showing, we here in northern hemisphere will get the tail end (no pun intended) in the first two weeks of June as it continues to rise from the southern skies. - Shining at around 4 mag. and appearing low in west to southwest as darkness falls. Happy comet hunting!!! www.cometography.com/current_comets.html***



View of Comet T7 on June 4th (taken shamelessly from Astronomy Magazine - Explore the Universe) *received from Dennis Young*

MEETING OF THE MINDS REVIEW

January 29: It was a good turn out. I am very pleased with the number of folk who showed up for the meeting. I didn't have anyone sign in but I estimate we had 12 people total. That's a wonderful turn out for our meeting. Anyway, it started with a Treasurer's report from Adam. He took care of paying those who did the last PAStimes Star Tour job, and wrote a check to Dan for the A/V Console. He then announced some star parties that are coming up that we may wish to attend. If anyone has any astronomy events coming up that you'd like PAS members to attend, send them my way so they make it in the newsletter. Then we moved to Terri handing out pages of info, for which the people at the February PAS meeting get to have as well. These are upcoming events that we need volunteers for, so watch for the list in the upcoming newsletters if you missed the Meeting of the Minds or the PAS meeting for February. We had a good discussion on things that need to be improved, and other items of interest. Jerry came up with a great idea, for which we will schedule in the next several months, after the clouds leave the sky and the air warms up so we don't need jackets in mid day or early evening. What Jerry wants to do, and I love the idea, is take a photo of several different scopes. Maybe have Richard with his 10", Me with my 8", Mark with his refractor, include Adam with his Dob because that is a good thing to have, we need Don with his 4", and maybe Jerry with his huge 22". We pose, in the desert, under good lighting, with a Saguaro in the background, and mountains, and have all scopes face center, with their owners next to them. The idea is that this will become a postcard we create and give out to resorts as a way to advertise us. It is similar to the Flyer Idea I have already made, but the difference is that it would be a picture of PAS, and with is we will include contact info (probably mine), the name PAS and PAStimes Star Tours, and give it out where ever we go, to promote PAStimes Star Tours. The trouble with this is to set up the date that all the people who have different scopes from anyone else, could be there. William can shoot the photo digitally, which means we can view it right then, decide if it was good, or do it again. Digital doesn't cost much compared to regular film. I figure we can spend about 2 hours taking the photo, fussing over it and then I can take it down and have post cards made of it that we can pass out. Get 1000 or so made.... Club can pay for it. Incase you didn't know, the PAStimes Star Tours was started for a couple reasons. Some of us more energetic types want to go out and show the night sky, and make money doing it. Some of the others want to make money for the club, so we devised a way to do that. A percentage of all income from the PAStimes Star Tours going out to show the sky, goes to PAS, thus PAS makes a small amount of money off the effort. That keeps the club going and the participants happy. If you have a scope, and aren't on the list to join us when there is a job, call or contact Terri right away and give her your name, phone where you can be contacted the easiest, and the size scope you can bring to the job. The rest is just to have fun and make money doing it. Anyway, we have to set up that date, so those who are involved in the photo, need to be in touch with Terri and find a date to do this. Another topic that was brought up by Jerry is the MDA week that David Levy does in Pinetop. We can't remember where, Anyway, I will contact David and see if we can't get involved in that event to help out. We discussed a field trip to Kitt Peak and Lowell, and the Mirror Making Lap in Tucson, and the Challenger Space Center. Oh, and we discussed that if you need your PAS membership card and you receive your newsletter via the internet, please make an attempt to come pick up your PAS Membership card at a future PAS Meeting. We've picked a tentative date for the Phoenix Children's Hospital star party for in April. More info will be provided as we get it. Jerry wants to do Sentinel Star Parties for three of our Deep Sky Lake Pleasant Dates. Instead of going to Lake Pleasant, we'd go down to Sentinel and borrow their darker skies. Those dates are April 24, May 22, and June 19. That will be in the newsletter with the map. A lot was discussed, and I may not have reviewed all of it, but if you need to discuss something club related, or money related, come to the next meeting and see if we can't resolve some of our issues and get everything done that the club needs. Your ideas are welcome. Next Meeting of the Minds is February 26. Bring a list of things to discuss. See you there!

*(Meeting of the Minds is held every Last Thursday of the month at Denny's on I-17 and Dunlap at 7pm in the Backroom and everyone is welcome to join us for some good discussion)****

ALUMINUM ON THE RUN

In December, Matt and I went to the recycling center and brought back some cash for PAS and tallied up who gave us what in the way of aluminum to recycle. I didn't get a chance to write about the status of the contest for whom will win the Free 2005 PAS Membership. Thus, here are the results. Remember, you have until the September PAS meeting to get those aluminum cans in to Terri for recycling, and possibly winning the membership. We may run this contest again for another 2 year stretch to see who can win another membership for 2007. In the mean time, we have these results. You already read what was accomplished in the February issue, so here are the running totals: Starting from lowest amount donated to highest amount, and believe me, with 9 months left to turn in cans (any time you can) one

See ALUMINUM, p. 4

ALUMINUM, cont'd. from p. 3
can certainly beat the current person in the lead. Kevin Harcey and Ed Garbero are tied with 1/4 pound of aluminum. Next we have Kevin Gray with 1/2 a pound. We move up the scale to Adam who has 1 pound. Bruce Wurst has 10.5 pounds, then Tim Steelman has 11.5 pounds, and Don Boyd has 15 pounds. We have Ted Finch with 27 pounds, William Finch with 29 pounds 10 ounces and Matt Kohl with 87 pounds. Taking first place, but not beat till September 2004 PAS Meeting is Mike Marron with 95 pounds turned in thus far. The race is on.... will Matt or Mike take the lead by September 2004? Or, maybe you wish to get in on this fun and get aluminum of any kind donated to PAS. It raises money for PAS and you might win a free PAS Membership for it. Don't give up now. Compete to the very end! See you at the March PAS meeting with more aluminum than your car can carry. Give it all to Terri. If it is aluminum cans, I prefer but do not demand, that the cans be rinsed, bagged and crushed. At least crushed & bagged helps me put more bags of cans into my car at one time. Thanks so much! And thank you to those who are competing to win the membership.***

PAS YAHOO GROUPS

Do you belong? Yes, actually you do. You belong in one or more of these groups and I will tell you why. Also, if you aren't currently in these groups and you know you fit the category, please e-mail coeditormatt@yahoo.com and get invited. You will need a Yahoo ID (that means you need to go to Yahoo.Com and make an account prior to getting into the group and being able to participate - membership into Yahoo is free and the email system is very easy to use).

PASAZ - If you are a member of PAS or NOT, please join this group to discuss current issues with PAS and other astronomy related things. Everyone, around the world is welcome to join this group. And you do not need to be approved to be a member of this group.

PASAZ-Members - Based on the name, I am sure you can figure out that this is strictly for the PAS Membership to discuss PAS Issues. If you are a current member of PAS, please join this group and you do need to be authorized to get in.

PASAZ-NL - This group is for the PAS Members to receive their monthly Newsletter. Guests may join the group for 2 months for free to get the newsletter. After 2 months, they will be asked to join PAS Or be removed from the list. If you wish to get the newsletter and try out PAS for free for 2 months, send in your request.

PASAZ-Project Discussion - Yes, PAS does projects, lots of them, year around, and they require brain power. This list is open to everyone within the general Phoenix area who wishes to share their ideas to help PAS make the best displays, do the best presentations, etc... We would like to have your input.

Join these groups today for a better PAS tomorrow!***

CLARK PLANETARIUM

In Salt Lake City Utah
Attended 1/16/04

Now, this is an awesome thing. Over the next several issues (as soon as my computer is repaired) I will be including some rather fantastic photos of this awesome planetarium in the newsletter. If you haven't been there, it is worth the trip. We arrived the morning prior, and got our hotel and went to one event having to do with the Business Convention we were there for. We decided to check out the Planetarium the next day when we had a morning to rest and enjoy the area. It was snowing, with the highs around 23 degrees. We walked from our hotel, The Hilton, 4.5 blocks, in the cold, snowing, breezy morning to get to Clark Planetarium. At first glance, one would think there wasn't much to do, but we sure had a blast. We got there around noon, and our planetarium show "The Ultimate Universe" wasn't playing till 2:30. By the time we studied and enjoyed the displays as well as the gift shop, guess what... it was 2:30 and time to go see the show. When you first walk in there are some very cool hands on displays to the left of the check in counter. We played with the Moon display, which was really fascinating. It showed you the Moon in its phases in several different ways, so one could understand which way the light goes across the moon, making it that certain phase. We watched, for a long time, a huge pendulum which swung back and forth, knocking over metal pieces as it got to them. We timed how long it took to knock each one over. About 5 minutes. That was interesting. We went to a really awesome display on how stars explode and create the Nebula we see in the sky. That was awesome as well. Then we headed over to the gift shop and they sure has a wide variety of things to play with there. There was a second floor as well, from which I took lots of pictures of what we saw. After the gift shop we wandered to the second floor, noticed that it was a eating area, and took off up the stairs to the top floor. At the top was a huge display depicting the size ratio of the planets in their proper order. Each planet and the sun, had a huge plaque below it telling all about the planet with stats and other interesting facts. This display had to be about 50 feet long from the Sun to Pluto. Some where near both ends was a computer set up with questions. You could quiz yourself on what you were retaining in information. The first three quizzes were fun and easy. I breezed through them, but when you got to the fourth level, and you missed the answer, you had to start over on the fourth one. We never did master that one prior to going in to the theater. I had the whole crowd of us working on the questions, and we entered Level 4 answers as a group and still missed them. But we had fun. We then went in to the Planetarium show. They also had an IMAX show but the ones that were playing at the time when we were visiting were aimed more towards children, so we didn't attend any of the IMAX shows. In the Planetarium we watched "The Ultimate Universe." This show was a tour of the Solar System and some of the outer items. It was like we were in a ship, and viewing all this really cool stuff, such as the birth of a star, and how the planets were formed, and then we reviewed each planet and they showed actual photos of the planets as well as artists' renditions, like from the planet surface. The show lasted about an hour and it seemed to impress everyone there. I was very pleased with the show. It was very good. On the way out of the Planetarium, we visited the display that had the Mars landscape, with red rocks, good for photos. And the Moon surface, where I had William stand. It even showed the Moon Lander in the background and the Earth up in the sky. Really cool. Around the corner from the Moon area was a space suit in a display case that was cool to see, and then we also saw a Moon Rock in a display case. And just to the other side of that whole area was a weather room. They had a big screen up and one could pretend to do the weather forecast, and see themselves on the TV near by as if they were the Meteorologist. That was a fun trip and in the next few issues, you will see photos from that trip and it might spark an interest. The access to the displays and gift

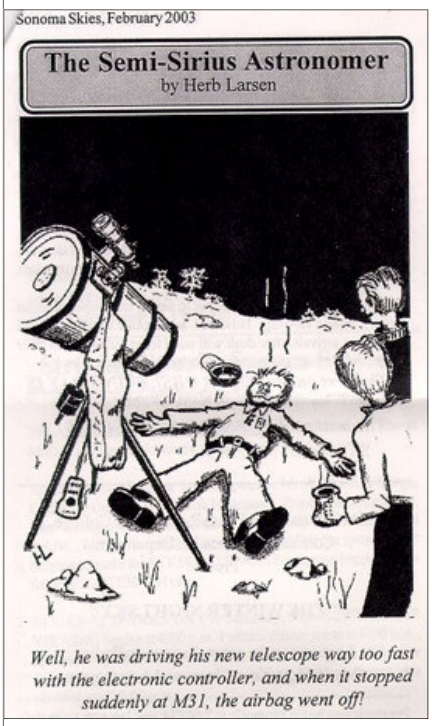
See PLANETARIUM, p. 5

PLANETARIUM, cont'd. from p. 4
shop was free. Parking, which we didn't need but I found on their website, was $1, and the Planetarium show was $6. After we finished enjoying our time there, we hoofed it back in the snow, wind, and cold to our hotel room to get ready to do more Business related stuff at this Business Convention we were attending. Watch for photos labeled Clark Planetarium. As a point of interest, the morning we left, Sunday, the temperature was 14 degrees.***

SALLY RIDE SCIENCE FESTIVAL

Volunteers Needed - RSVP with Terri

Sally Ride is hosting her 23rd Science Festival at Barrett Honors College, ASU, March 6, and we would be delighted if the Phoenix Astronomical Society would be represented at the Festival's Street Fair. The Street Fair is a really fun and important aspect of the Festival - it's made up of very cool and hands-on exhibits, from local science centers, astronomical, optical, robotic and Mars societies, and many more. And of course, we encourage them to help promote women as role models. First, some background info on the Festivals. This Festival will be the 22nd in a series of successful events organized around the country to empower girls to become our future engineers and scientists. Because of peer pressure and societal pressure, girls tend to disengage from math and science at about 6th grade. Because we as individuals and businesses rely on technology, we all have a stake in making sure we encourage our future engineers and scientists (especially girls). We have created events, programs and activities like Science Festivals and the Sally Ride Science Club for girls (Grades 5-8) to pique and sustain their scientific interests. Our Community Science Festivals individually draw about a thousand people - girls, parents, teachers and business and community supporters. Although we encourage diverse groups of people, the constituents tend to be concerned about education and interested in finding activities that promote learning. Each festival features a keynote by Sally Ride, a street fair with exhibit booths (eg, from NASA and local science centers, organizations like Girls Inc. and SWE, and corporate sponsors like Ford, HP and Pfizer), and Discovery Workshops led by successful female professionals ranging from aerospace engineers to veterinarians. Our goal is to create an entertaining event that girls can come to with their friends, have a good time, and be exposed to a variety of fascinating topics and engaging role models. Lead sponsor for this Festival is Honeywell, with national sponsors Northrup Grumman and Raytheon, and local sponsors General Dynamacs, Blue Cross Shield of Arizona, SRP and APS. The Festival will run from 11:30am to 4:30pm. Set-up is from 10-10:30. The entire day's schedule is:



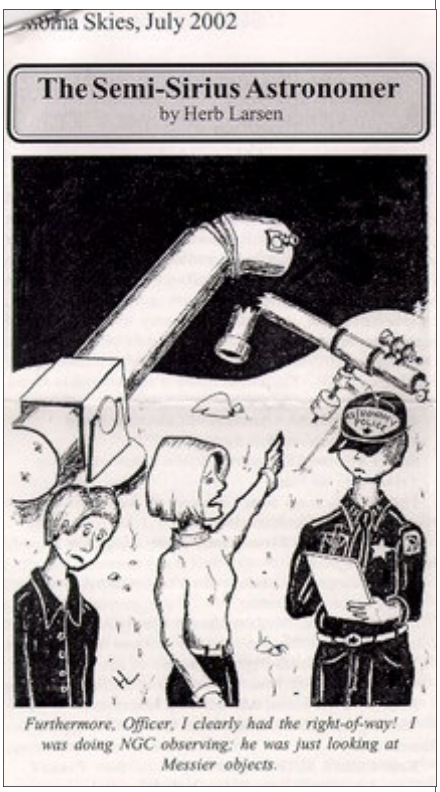
11:30am-12:45pm *Registration, eat lunch, enjoy the Street Fair*
12:45-1:45pm *Keynote with Sally Ride*
1:45-2:00pm *Break (assemble and go to workshops)*
2:00-2:45pm *Discovery Workshop #1*
2:45-3:00pm *Break (assemble and go to workshops)*
3:00-3:45pm *Discovery Workshop #2*
3:45-4:30pm *Street Fair*
We hope you can attend!***

MESSIER MARATHON

The Messier Marathon is coming up. SAC is will be holding their All Arizona Messier Marathon at Arizona City on March 20-21. For more info check out http://www.saguaroastro.org/content/messier.htm ***

VOLUNTEERS NEEDED

When: April 16th sundown set up
Where: White Tanks Mountains Regional Park
Why: Star Party
Who: Girl Scout Troup & their Mothers
Need: Scopes & Experts
Experts = Someone who can talk about what we are going to see in the night sky, and the scopes we are using. This is requested item from our contact - to educate the Gals who will be observing with us that night. I need at least one person who wants to do this. RSVP with me for this event - Today - for both scopes and one presenter (short presentation). ***



VOLUNTEERING AT ASC

by Christine Shupla
ASC Planetarium Director
602-716-2078

For those of you who wanted more info about becoming an astronomy volunteer here, there's finally info on our website: http://www.azscience.org/join/planetvolunteers.pdf In particular, we would like volunteers to usher (and if they would like, eventually to learn) the planetarium shows, 1-2 times a month. If that isn't your particular interest, though, we have other opportunities as well. I should note in advance, based on one objection received, that all volunteers who participate on a regular on-going basis will be asked to be fingerprinted, due to the large number of children that visit here daily. (All staff here are also required to be fingerprinted.) Volunteers that participate on an extremely infrequent basis will not be required to be fingerprinted. We have some exciting projects coming up: a new show

See VOLUNTEER, p. 6

VOLUNTEER, cont'd. from p. 5

on Saturn and Cassini starts very soon, a show and an exhibit on the International Space Station will be coming this summer, and our astronomy classes and speakers are on-going. If you have any questions, please don't hesitate to contact me off-line. Thanks soooo much!***

ARIZONA SCIENCE CENTER

Adult's Night Out, Feb 6, 2004

Brrrrrr, what a cold night for some of us but we had a great time. I wish to thank Richard Guthrie and Ed Garbero for coming to this star party. Don Boyd and Adam Bloomer were also a welcome site. Oh, and we mustn't forget Mike Marron. Each PAS member who brought a scope or came to help out were just as crazy as I was and it was a cold night, however, we did an awesome job of getting our PAS information into the hands of the public. We must have had about 500+ people look through our scopes. The neat thing is that throughout the night, we were on a different object for each scope. So, most of the night, Richard stayed on the Orion Nebula, which I'm sure was extra beautiful. Don Boyd took the Moon because his scope does an awesome job on it. The Moon was full, so I lent him my Moon filter. Adam was on Saturn for the night. I flitted around. I was on the Moon with a red filter and zoomed into some craters. Being as the Moon was full, the craters weren't too impressive, so I searched the clear but light polluted skies for something else of interest. I put it on the Perseids Double Cluster for a little while and then shifted to Jupiter when it came up. The public loved it. And they loved the fact that each scope had something different to show. We had an awesome time even though it was extremely cold. I would love to see the same and more volunteers at the next event at the Science Center on March 5th, when we do the Adult's Night Out again. See you down there. Christine sends her thanks to all who volunteered that night.***

FEBRUARY PAS MEETING

The meeting was really good this month. Everything went smoothly. We had a bit of socializing to begin, and we even had two new faces at the meeting and one previous face. Rob and Amber Rihr joined us for this meeting. I'd like to welcome Jesse and David to the meeting. I met David at a previous ASC event for Adult's Night Out, and Jesse contacted me via email. Things were good. Mark opened the meeting, then turned it to Jerry who gave a very good, interesting account of the upcoming star parties, as well as what to expect at the Next High Power Rocket Launch which is a two day event, coming up very soon. He had a rocket there as an example. Several of us are planning to attend that event, so if you wish to go down there as a group, please let Terri know ASAP. Thanks. Then Mark gave the floor over to Terri who had a TON AND A HALF of announcements this time. I'm looking for volunteers for many events. Please look at the upcoming list and see if you can't volunteer for something out there. Thanks. RSVP those options to me today. Then Dan Heim took the floor and did the presentation. The topic was about the possibilities of what could have been the Christmas Star: the Star of Bethlehem. Dan did an awesome job showing us many options and why one item could be and another couldn't be what was proposed to be the star. Everyone involved themselves in the Q & A afterwards. It was really awesome, very active. When the meeting closed, Terri called a mini meeting. We got an update at that meeting on some things that were in progress. We have Richard Guthrie putting together a lit sign to help draw people over to public viewing events. We have Kevin Harcey and Mike Marron searching for resorts to hire us. Terri provided the Flyer and Brochure for the resorts, and they took off with them. We need more volunteers to take Flyers and Brochures to other resorts and get the PAStimes Star Tours some jobs. I appreciate all the help we can get. It was a very good meeting, Dan did an awesome job, as he usually does. And everyone seemed very interested and active in the presentation.***

STAR TALES

received from Bette Wurst

The Martian south polar cap, which is composed of dry ice (solid carbon dioxide), is slowly evaporating. Enough dry ice has evaporated since 1999 that some small hills have disappeared.***

An astronomer was asked about flying saucers and replied, "No comet."

This is how you get to the Arizona High Power Rocketry Association's launch site, y'know, just in case you wanted to see Jerry's rocket blow up. =)

UPCOMING EVENTS

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
FEB. 8 Jupiter 3° S of Moon	**9** Gibbous Moon occults Mag 2.8 star gamma Virginis (disappears behind bright side 12.25am MST, reappears from dark side 1:24am) high in SE	**10**	**11** David Levy star party at ASU Tempe, Hayden Lawn, 7-10 pm	**12**	**13**	**14** ***Lake Pleasant Shallow Sky Party*** - See map; Valentine's Day
15	**16**	**17**	**18** Neptune 5° N of Moon; David Levy lecture at ASU Tempe, Katzin Concert Hall, 7 pm, free but need tickets	**19**	**20**	**21** ***Lake Pleasant Deep Sky Party*** - See map; Venus 4° N of Moon
22	**23** Venus 4° to lower R of crescent Moon in W/SW after sunset	**24**	**25** Mars 1° to upper R of crescent Moon high in W after sunset	**26** ***Meeting of the Minds*** - 7 pm @ Denny's, I-17 & Dunlap, back room. Please RSVP with Terri	**27**	**28** High Power Rocket Launch Big 2 Day Event - ask Jerry for details
29 *See Feb. 28*	**MAR. 1** ***Submission deadline*** for April newsletter; Saturn 5° S of Moon	**2**	**3**	**4** ***PAS Meeting*** - 7 pm Speaker: AJ Crayon Topic: Messier Marathon	**5** ASC Adult Night Out & Evening Viewing Session - Volunteers needed - RSVP with Terri	**6** Jupiter 3° S of Moon; ***PAS***: Sally Ride Festival at ASU Tempe - Volunteers needed
7 Full Moon rises almost straight E in twilight at 7:32pm	**8**	**9**	**10** Gibbous Moon occults Mag 2.3 star delta Scorpii (disappears behind bright side 12:32AM MST, reappears from dark side 1:11AM) Low in SE	**11**	**12**	**13** ***Lake Pleasant Shallow Sky Party*** - See map

STAR TALES

received from Bette Wurst

Like Earth, Mars has an ionosphere - a layer of ionized gas about 80 miles above the surface. Earth's ionosphere is between 60 and 250 miles above its surface, and is useful for radio communication because it reflects radio waves.***

STAR TALES

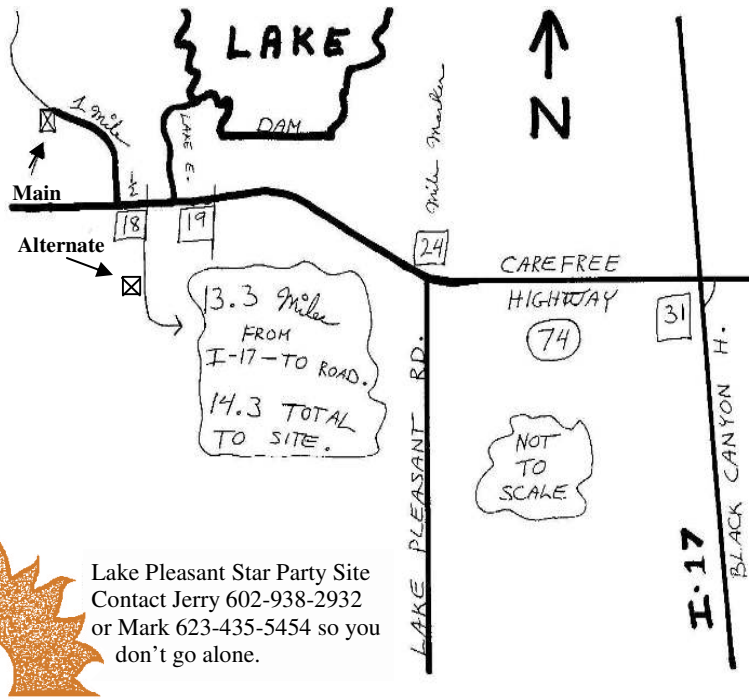
received from Bette Wurst

A variable star is a star with a brightness that varies. One example is a cepheid - a star that pulsates, or expands and contracts. Cepheids in distant galaxies are useful for determining the distance to the galaxy.***

STAR TALES

received from Bette Wurst

There open star clusters, numbers M36, M37, M38 in the Messier catalog, are located in the constellation Auriga, rising in the northeast just after midnight. Each is a group of young stars that formed together from a cloud of gas.***



Lake Pleasant Star Party Site
Contact Jerry 602-938-2932
or Mark 623-435-5454 so you don't go alone.

PHOENIX ASTRONOMICAL SOCIETY

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PAStimes
March 2004 Issue

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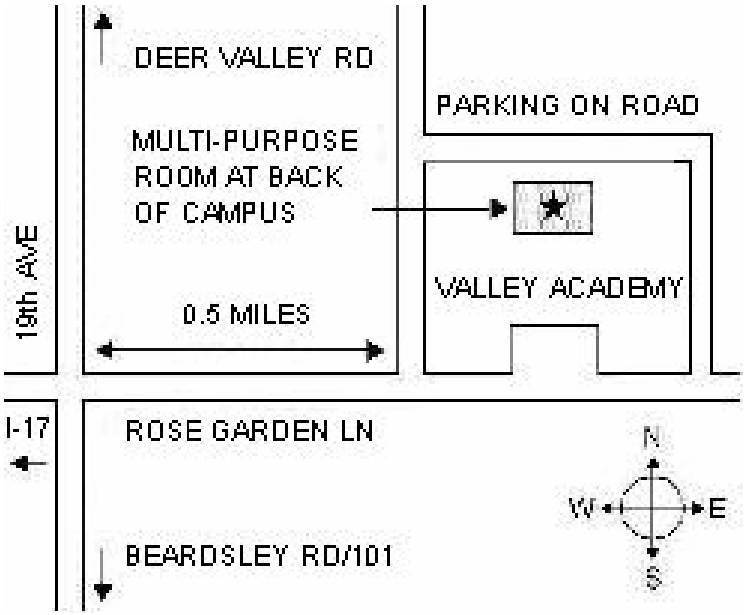

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