Next PAS Meeting 7:00PM
Thursday, February 5, 2003

Volume 56, Issue 6

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

THE CHRISTMAS STAR: MYTH OR ASTRONOMICAL PHENOMENON?

365.24219 DAYS A YEAR

borrowed from Travel Almanac 2004 Cracker Barrel

How long is a year? If you answered 365, you'd be a little off. A year is actually 365.24219 days long. To make things easy, we round that number down to 365. The problem is, if we followed this rounding long enough, seasons would begin to fall at different dates from year to year. That extra quarter-day is all it takes to throw off the calendar. So Leap years were invented to make up the difference. Now, we have a Leap Year every year that's divisible by 4 (like 2004) to make up for all the extra quarter-days we skip during Non-Leap Years. But because 0.24219 is not a true quarter-day, we skip the Leap Year on years divisible by 100-unless the year is divisible by 400, then we Leap. Confusing? Yes. But luckily it helps keep us all on track.***

These were both left at the party. The lens caps was found over by the pinball machine. Are they yours? If you lost these items, contact Dan for a return.

EARTH GETS ITS GROOVE BACK

from The Arizona Republic

The Earth is spinning right on schedule for a fifth straight year - and that has scientists scratching their heads. Experts generally agree that the rate at which the Earth spins on its axis has slowed ever so slightly for millennia. To make the world's official time agree with where the Earth actually is, scientists in 1972 started adding a "leap second." For 28 years, scientists repeated the procedure. But in 1999, they discovered that the Earth was no longer lagging. At the National Institute of Standards and Technology in Boulder, CO, spokesman Fred McGehan said scientists aren't sure why the Earth is suddenly on schedule. Possible explanations include the tides, weather and changes in the Earth's core, he said.***

MEETING OF THE MINDS

January 2004

Let's start the new year right. We will be holding our first Meeting of the Minds on Thurs. January 29th at 7pm at the Denny's on I-17 and Dunlap, hopefully in the back room. This is open to everyone (no children unless they are an officer - i.e. J.T.). You need not be a Member of PAS, or an Officer. Come with ideas to share and things you'd like to see improved in the club. We need your input. Bring a Friend or two to share in the fun. We get in some very heated discussions and this time, we want to resolve some of the past ideas. We request that all Officers attend as it is your duty to the club. This is the Thursday prior to the February PAS Meeting. See you there!***

ASTRONOMICAL LEAGUE INCREASING DUES NEXT YEAR

Just as an F.Y.I., the Astronomical League dues are increasing $5 per member next year.***

HAPPY BIRTHDAY TO . . . ?

The Editors of PAStimes Newsletter would like to make this year include YOU in it. How? By asking that all of the current PAS members provide some information. If you are a current PAS member, please let us know…

1) Month and day you were born. You need not disclose the year.
Example: my (Terri's) birthday is September 26

2) What year you joined PAS
I joined --- hmmm I'll have to look that up, but I will find out and post it.

3) one thing you enjoy doing that is astronomy related.
For instance, are you an observer through a telescope person, or maybe you enjoy looking at the really cool photos from NASA and Hubble on line... Explain what one thing you enjoy the most about astronomy. Maybe you think PAS is the neatest group in town and that is the one thing you enjoy. What ever it is, please include it and get it to me. This info will be posted in the Upcoming Events calendar as your birthday approaches. So, if your birthday just passed in January, you will have

See BIRTHDAY, p. 2

BIRTHDAY, cont'd. from p. 1
to wait a year to be it posted. But we do want to include every PAS member in the upcoming listing. Thanks for your cooperation and the information.***

THE PASTIMES NEWSLETTER

borrowed idea from EVAC Newsletter Jan 2004 issue, edited to fit my needs
(Thanks to John Matthews, EVAC Newsletter Editor for the idea)

A newsletter without words and pictures is like a sky without stars, galaxies or planets. Terri & Matt can't write it all! For 2004, we (the Editors) encourage all of you to contribute an article, a picture, a drawing, a bit of club news or "astro humor" -- short or long -- doesn't matter -- we will fit it into YOUR newsletter. ***

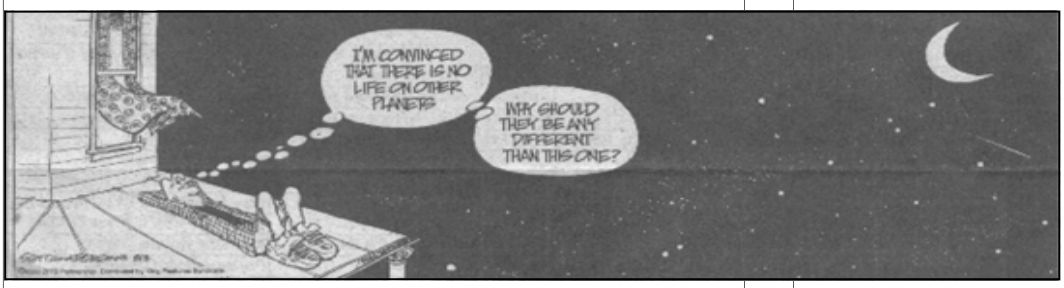
APRIL 16, 2004 STAR PARTY

Volunteers needed: Betty wants us to do another star party for the Girl Scouts out at White Tank Mountains. I need scopes for this night. Those who attended last year know how much fun we had. Join us for some more fun.***

SUPERNOVA, SUN COMBO BLAMED FOR MASS EXTINCTION

from CNN.com
received from Steven Saline

The second-largest extinction in the Earth's history, the killing of two-thirds of all species, may have been caused by ultraviolet radiation from the sun after gamma rays destroyed the Earth's ozone layer. Astronomers are proposing that a supernova exploded



within 10,000 light years of the Earth, destroying the chemistry of the atmosphere and allowing the sun's ultraviolet rays to cook fragile, unprotected life forms. All this happened some 440 million years ago and led to what is known as the Ordovician extinction, the second most severe of the planet's five great periods of extinction. "The prevailing theory for that extinction has been an ice age," said Adrian L. Melott, a University of Kansas astronomer. "We think there is very good circumstantial evidence for a gamma ray burst." Melott is the leader of a team, which includes some astronomers from the National Aeronautics and Space Administration, that presented the theory at the national meeting of the American Astronomical Society. Fossil records for the Ordovician extinction show an abrupt disappearance of two-thirds of all species on the planet. Those records also show that an ice age that lasted more than a half million years started during the same period. Melott said a gamma ray burst would explain both phenomena. He said a gamma ray beam striking the Earth would break up molecules in the stratosphere, causing the formation of nitrous oxide and other chemicals that would destroy the ozone layer and shroud the planet in a brown smog. "The sky would get brown, but there would be intense ultraviolet radiation from the sun striking the surface." he said. The radiation would be at least 50 times above normal, powerful enough to killed exposed life. In a second effect, the brown smog would cause the Earth to cool, triggering an ice age, Melott said. The extinction "could have been a one-two punch," said Bruce S. Lieberman, a paleontologist at the University of Kansas and a co-author of the theory. "Our theory builds on earlier theories" that included an ice age. Before the extinction, the Earth was unusually warm. Melott said climate experts have been unable to find a model that would explain the sudden onset of massive glaciers. "They need something to jump start the ice age," he said. "The gamma ray burst could have done it." Jere H. Lipps, a paleobiologist at the University of California, Berkeley, said gamma rays as a source of the Ordovician extinction should be regarded as only one of several theories. "It is a hypothesis that should be tested," Lipps said. He said the widely-accepted idea that the dinosaurs were wiped out by an asteroid 65 million years ago started out as a "wild idea" but that it gained wide support after other research. Most of the life killed in the Ordovician extinction were primitive sea creatures. Those that lived at or near the surface would be greatest risk from the ultraviolet radiation. Melott the species killed lived in shallow waters or reproduced with larvae that spent part of their lives near the water surface. Animals living in deep water were not harmed. There were only primitive plants living on land, but they, too, would have been affected, he said. Melott said it is almost certain that Earth has been zapped by a gamma rays several times in its 4.5 billion year history. "You can expect a dangerous gamma ray burst every few hundred million years," he said. "It could happen tomorrow or it could be millions of years." Supernovae, the source of gamma rays, usually leave behind remnant clouds of dust, shock waves and black holes that can be detected for millions of years. Melott said there is no known evidence of such a nearby supernova, but that in 440 million years the Milky Way would have rotated almost twice and traces of the explosion could have been moved during that time. The Ordovician was the first of five great extinctions in history. The Devonian, 360 million years ago, killed 60 percent of all species; the Permian-Triassic, 250 million years ago, killed 90 percent of all life; the late Triassic, 220 million years ago, killed half of all species; and the Cretacious-Tertiary event destroyed the dinosaurs and half of all other species about 65 million years ago.***

NASA's Space Place

SO LITTLE TIME, SO MANY GALAXIES

by Dr. Tony Phillips

Fourteen billion years ago, just after the Big Bang, the universe was an expanding fireball, white hot and nearly uniform. All of space was filled with elementary particles and radiation. "Soupy" is how some cosmologists describe it. Today the universe is completely different. It's still expanding-even accelerating-but there the resemblance ends. The universe we live in now is "lumpy." Great cold voids are sprinkled with

See LITTLE, p. 3

LITTLE, cont'd. from p. 2
glowing galaxies. In galaxies, there are stars. Around stars, there are planets. On one planet, at least, there is life. How we got from there to here is a mystery. Finding out is the goal the Galaxy Evolution Explorer, "GALEX" for short, a small NASA spacecraft launched into Earth orbit April 28, 2003. GALEX carries an ultraviolet (UV) telescope for studying galaxies as far away as 10 billion light-years. "GALEX is a time machine," says astronomer Peter Friedman of Caltech. Because light takes time to travel from place to place, pictures of distant galaxies reveal them as they were in the past. "GALEX is investigating the evolution of galaxies over 80% of the history of our universe." The Hubble Space Telescope can see faraway galaxies, too, but GALEX has an advantage: While Hubble looks in great detail at very small regions of the sky, GALEX is surveying the entire sky, cataloging millions of galaxies during its 2-year mission. GALEX is a UV mission for a reason. Friedman explains: "UV radiation is a telltale sign of star birth." Stars are born when knots of gas condense in interstellar clouds. The ones we see best are the big ones-massive stars that burn hot and emit lots of UV radiation. "These stars are short-lived, so they trace recent star formation." Understanding star formation is crucial to studies of galaxy evolution. When galaxies collide, star formation surges. When galaxies run out of interstellar gas, star formation wanes. In galaxies like the Milky Way, spiral arms are outlined by star-forming clouds. The shapes of galaxies, their history and fate Š they're all connected by star formation. Even life hinges on star formation, because stars make heavy elements for planets and organic molecules. "Our measurements of UV radiation will tell us both the rate at which stars are forming in galaxies and the distances of the galaxies," says Friedman. How did we get here? GALEX will show the way. Find out more about GALEX at www.galex.caltech.edu. For children, visit The Space Place at spaceplace.nasa.gov/galex_make1.htm and make a beautiful galactic mobile while learning about some of the different shapes galaxies can take.

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

TO THE EDITORS

Matt & Terri,

I just looked over your newest newsletter. You did a good job of reporting on past and future activities of your club. I think the images help that quite a bit. The added cartoons, especially those oriented to science/astronomy are a good thing too. More than getting a few laughs, they keep the mood from getting too serious to keep most folks' attention.

Thanks, Steve ***

STAR PARTY AT ARIZONA SCIENCE CENTER

Review of 1/9/04 Adult's Night Out

It started with me arriving later than planned. However, that worked out well. We got there and found that Don Boyd, Richard Guthrie and Mike Marron were all there, and set up. Ed Garbero came for the ride with Richard, and Kevin Harcey joined in the ride with William and myself. We arrived a little after 6:30 (having been scheduled for 6 pm but was delayed in traffic due to something going on at the Bank One Ball Park). The night sky was perfect for viewing. We had an awesome time. About 200+ people visited for Adult's Night Out at the Science Center and most of them were treated to a view of Venus, Mars, Saturn, the Moon and Orion Nebula. Ed and Kevin did an awesome job getting our handouts into the people's hands. They walked up to anyone not carrying one of our handouts, explained who we were and invited them to our next meeting and star party. It was an awesome night. Christine came out to see us and told us of a new program that I will be putting into the newsletter soon. She said that anyone who volunteers can earn a membership at ASC by doing 100 hours of volunteer work. That includes the star party time we put in each time we help out. So, everyone who volunteers will be put on a list, hours tracked, and you can get yourself a membership and a few other benefits. Sounds good to me. I'll post that info as soon as Christine sends it our way. The night stayed clear for viewing, and didn't really start to get that cold till we started packing up around 9:45. Mike, Don and the Finches all went to 5 and Diner afterwards for food, as none of us really had time to eat prior to showing up down there. This event was one of 4, each month on the first Friday of the month, there will be an Adult's Night Out and we need volunteers to come. Now, the other thing is, if you volunteered to do this, you also got to go inside and see the Dino exhibit. Chinese Dinosaurs. Christine told me tat anyone who volunteered last night the didn't get to go in and would like to at a later time, could contact her and get a pass to go in. She prefers you do on a weekday afternoon or a Sunday when the center is slower. And I wouldn't mind making it a field trip for some Sunday if you'd like to join me. Let me know. Let's see some Dino's together and let's see more scopes at next month's Adult's Night out!***

CAN DRIVE A SUCCESS

12/19/03 Recycling Center

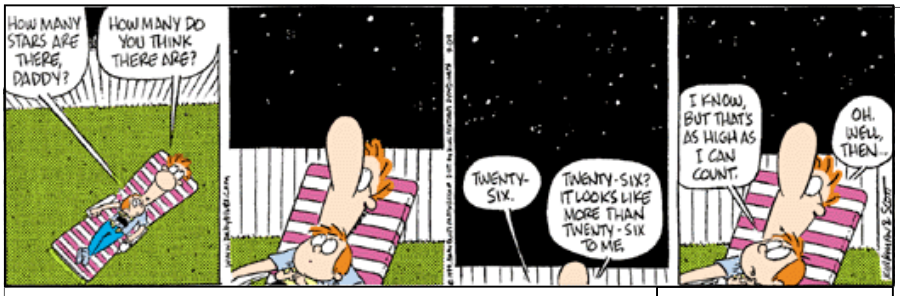
Yes, we did it. We took the cans to the recycling center and here are the results. Mike donated 22 pound this time. Matt donated 19 pounds. William has 9 more to his total and Bruce has 1 pound. We took in a total of $15.20 for the club. Doesn't sound like much but it filled my car (mostly because only Mike - who I thank very much - crushed his cans). The tally of the current Aluminum Can Drive Game will be in the next issue. Don't stop now. The contest ends September of this year, 2004, and the one with the most pounds of cans turned in, gets a free 2005 PAS membership. It looks like Mike is in the lead! Let's see more cans at the next PAS meeting, please. ***

CHALLENGER SPACE CENTER STAR PARTY

December 13, 2003

PAStimes Star Tours went out on a mission. We were hired to do a star party for an insurance company at the challenger Space Center. This was an awesome night. Dan Heim did a presentation on the wall outside the space center on the roof while Richard Guthrie and myself set up our scopes and showed what we could of the night sky. The clouds had it all. We had Venus for a little while, through the scope but not visually. We had one Star, Deneb, and Mars for a little while. Not very impressive. But, the people who checked out what we had to offer were very impressed and slightly drunk, but they had a blast and we had a great time as well. -- If you are interested in becoming part of this group

See CHALLENGER, p. 4



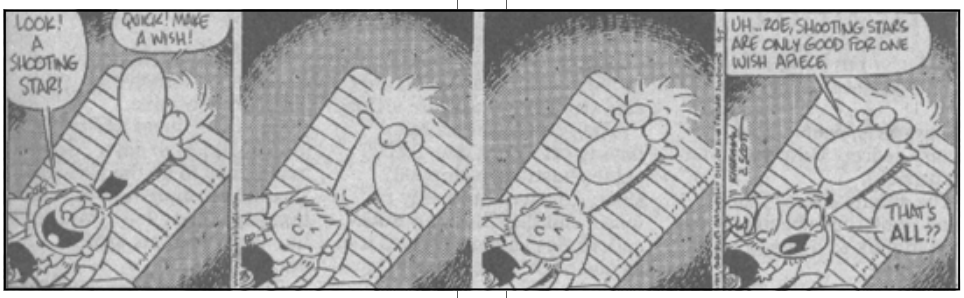
received from Leah Sapir

CHALLENGER, cont'd. from p. 3

(PAStimes Star Tours), contact Terri and make sure you are a current member of PAS, and we will call you when a job comes in. Each of us made some $$ and the club got some as well. Let's have fun with the stars and make some money doing it.***

A THANK YOU FROM OUR NEWEST MEMBER

Hey, Terri! I just wanted to thank you for a wonderful time Saturday. I've shown everyone that would sit still for three seconds my new toy: the check-out-what-constellations-are-up-right-now-device. I absolutely love it! It was so good to get out and just relax a little and everyone in the group was so nice and hospitable. Could you let everyone know how much I appreciate it? I can't wait to see y'all again!! Disa***



HOLIDAY SOCIAL

Heimhenge 1/10/04

Did you miss it? Shame on you, and you know who you are! This was one Social worth attending. Let me just say that this year's event, was a huge success and everyone should have been there. I'd like to thank Missy Luke (not a member YET, but might be some day soon) and our newest member, Disa Holly, for attending as new folk to join in the great FUN we had that night. I'd also like to thank Dan and Sandi Heim for hosting the party. They do an awesome job each year and we really appreciate their home and hospitality. We had 26 in attendance. The night began with eating and socializing. Mike brought meteorites to show off and had Disa's attention for a while. The dart game got underway and I wish to thank Glenn for running it the majority of the night. I didn't have time this year and I do appreciate him filling in for me. The winners of the Dart game got prizes. There were 2 prizes left on the table after the White Dwarf Gift Exchange, and the dart winners were Kevin with 1st place for reaching number 8, and the Glenn got second place by reaching number 7. This is the first year Dan didn't take first place, but he was in third, so he kept us all working hard to reach the goal. After the darts we enjoyed 1/2 of the big screen special presentation of "Destination Moon." Dan stopped it at a most disturbing time, we all moaned when he stopped the movie to do an intermission. Then we did the White Dwarf Gift Exchange. That went over well, but next year I will have a microphone because I felt like no one was listening, at least not enough. But we sure had a good time. We started out, like the rules I set out, choosing a gift from someone (by stealing it) or from the table of gifts. Once everyone had their gifts, which we drew raffle tickets to find out what order that would be in, we then drew tickets again, the same ones, to find out what order the gifts would be opened. Each opened their gifts and when Disa opened hers, the heaviest, it was a joke gift. It said in a note that she had permission to steal from someone or the table, an opened or closed gift, to start the stealing all over again. We had a great laugh with that. The results of the presents were: JT got a book "365 Starry Nights," Vera got a William Shatner book, Sam got a kaleidoscope like tube that tells you what constellations were up, and when, Ed got Glow in the Dark Stars, Glenn got a spinning disk that distorts objects when you stare at it too long, Mark got the same item as Glenn which he then gave to Disa at the end of the night. Kevin got a blue cube which was stolen back by Mark who had donated it to the prizes. Dan got a Star Colonies Book, and Don got something from NASA. Matt got the Pyrotechnics calendar and some fireworks which were set up during the night at different times. Bruce took home a book "Deep Sky Observations," and Q got the Year In Space Calendar. Betty got some sticky eyes and a cool pen (donated by Disa), and I got a book on Planetology. Cindy got a brand new dart set. Now, why did I tell you what everyone got? So you can get an idea of the diversity of items that can be swapped at the Gift Exchange next year. Kevin then ended up with some stars and Frank got a really cool book, "Through the Universe," JT got a Meteorite, Jerry got a Mini Jupiter (an item that has a virtual movement) and William got a similar item but it was called Cosmic Energy. Cindy, which is Glenn's girlfriend, won the main door prize donated by Dan which was the DVD of the movie we were observing that that night, "Destination Moon." Kevin got one of the

Serious observing prizes donated by Jerry which was a Tent. The idea was that the next time we go observing at Sentinel star party or another, take the tent and spend the night so you can stay out very late and see the really good stuff. Sam got the other serious observing item of a Metal Detector. And then to top it off, we had Jerry present Dan a gift for hosting the Social of a book, and everyone signed it for Dan. I wish to thank Bruce for taking many pictures of everyone and their prizes, while I

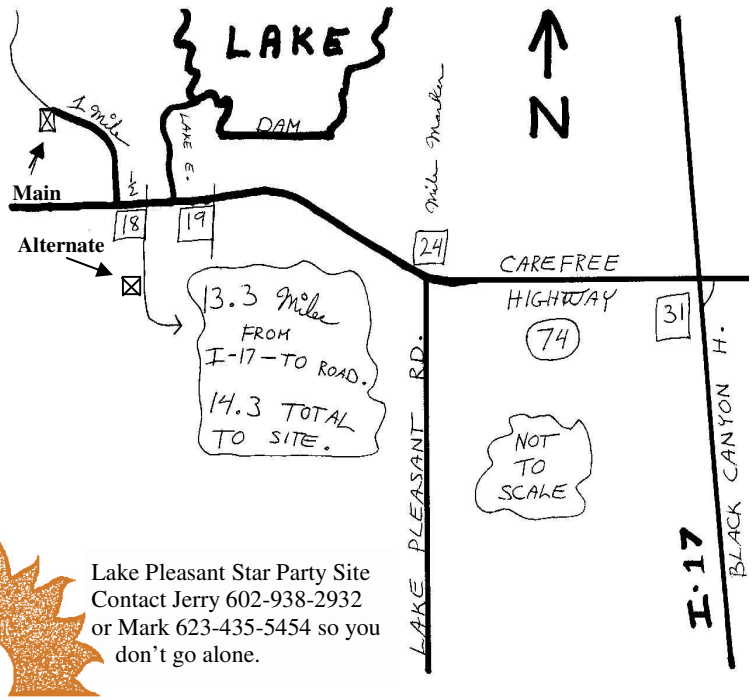
See SOCIAL, p. 5

UPCOMING EVENTS

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JAN. 11	12	13	14	15	16	17 ***Lake Pleasant Shallow Sky Party*** - See map; Mercury at Greatest Elongation
18 Bright star Antares (Mag 1.1) 3° to right of crescent Moon in SE before sunrise	19 Mercury 8° to left of crescent Moon. Low in SE before sunrise	20	21	22 Chinese New Year	23	24 ***Lake Pleasant Deep Sky Party*** - See map; Venus 4° N of Moon
25	26	27	28	29 ***Meeting of the Minds*** - 7 pm @ Denny's, I-17 & Dunlap, back room. Please RSVP with Terri	30	31
FEB. 1 ***Submission deadline*** for March newsletter	2 Groundhog Day	3	4	5 ***PAS Meeting*** - 7 pm Speaker: Dan Heim	6	7

SOCIAL, cont'd. from p. 4

ran the White Dwarf game. I wish to thank Dan for the movie, the location of the social and all the viewing through his Takahashi scope. We saw Saturn through at scope and it was awesome. He had a light blue filter on the scope and it brought out the Cassini division in the Rings of Saturn. Very impressive and very clear images. The scope and the items we saw impressed Missy and Disa, our two new visitors. Cindy is another new visitor, but I didn't notice if she was looking through the scope or not. It was a night to remember, and if you didn't make this one, you ought to make the next one. There was two late arrivals, Jerry came in later in the night with his presents and such, and then Georg Koester also arrived later, after the Gift exchange. I wish to thank everyone for the delicious foods. Wow, there was more food than everyone was able to eat. And JT brought the most delicious bean casserole. YUMMY! Who ever brought the baked chicken was appreciated because I spent most of the night eating it. The cookies were great and the drinks and we all had such fun. I hated to see the night come to a close. Actually, it was about midnight that we started leaving. The movie had ended after 11. Mostly everyone stuck around to see it to the end. I also want to thank Vera, Sam, Frank, JT, Bette, and Bruce for helping me clean up after the Gift exchange, where we had a mess in the center of the room of wrapping paper and boxes and such. I wish to thank everyone who had brought a gift and for being involved. Next year's event will have similar idea, but I'm sure I'll come up with something more interesting as a twist to the game. You'll have to attend to find out how that works. See you there! Photos for this event will be seen in the next several issues. I couldn't get them edited in time for this issue, and my computer is not working right now, so they are on hold. Watch for them. Everyone was photographed this time, your picture will be included sometime between now and May. Feel free to bring several gifts next year so we have more Dart board prizes and door prizes to give away. Everyone who was there was very special to PAS and we appreciate your attendance and hope to see a lot more of you this year at PAS meetings and events. HAPPY NEW YEAR!***



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

PHOENIX ASTRONOMICAL SOCIETY

Terri & William Finch
PAStimes NL Editor & HP Editors
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PAStimes
Feb. 2004 Issue

BRING A FRIEND

STAMP

TO:

MAILING LABEL

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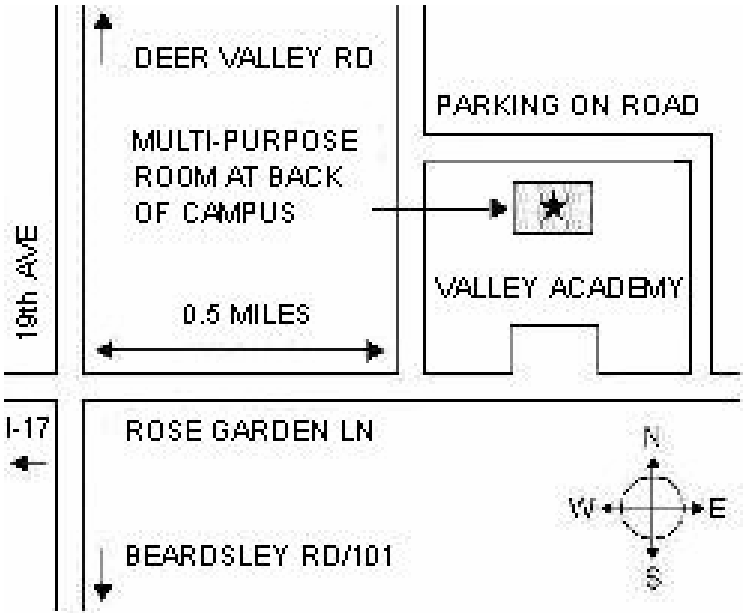
Area code is **602** unless otherwise noted.

P.A.S. Meeting Location
Valley Academy Charter School
1520 W. Rose Garden Ln



Submissions to **PA$time$** should be received no later than the 1st of the month for publication in the next issue. Email submissions received at: **PA$Editor@yahoo.com** or **CoEditorMatt@yahoo.com**. Items arriving too late for an issue will be printed in a future issue (if applicable). PAStimes is produced monthly by Terri & William Finch and Matt Kohl. It is distributed to the members, friends & guests of the **Phoenix Astronomical Society**. It is also circulated to business, teachers, and organizations relating to astronomy. For needed changes to the **PA$ Homepage$** contact William or Terri Finch, or Matt Kohl. **KCH Cartoon** is by Kevin C. Harcey. Extra Editing & Newsletter Layout by Matt Kohl (MK). Meeting & Star Party **photo$** taken & **Editorial** articles written by Terri Finch (Rip). Additional materials from sources as noted. For membership info contact Terri Finch or Adam Bloomer. For newsletter submissions or to get on the mailing list (2 months free) contact Terri Finch. PAS is a nonprofit organization with the purpose of educating the public, and sharing a great hobby! If you receive a duplicate copy of this Newsletter, please pass it on to a friend and inform the Editor. **CLEAR KIE & HAPPY $TAR GAZING!!!**