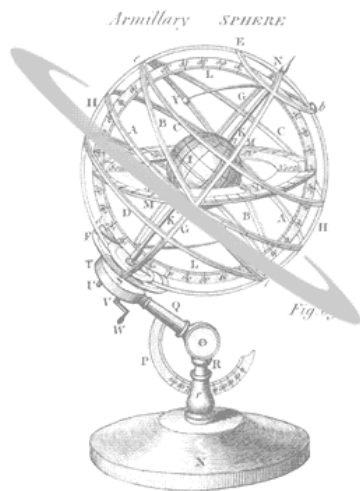




Volume 57, Issue 1

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

WELL WE'RE MOVIN' ON UP, TO THE EAST SIDE

PHOENIX ASTRONOMICAL SOCIETY TO MEET AT FOOTHILLS ACADEMY

received from Dan Heim

Beginning in the fall, the Phoenix Astronomical Society (PAS) will hold their monthly meetings at Foothills Academy College Preparatory. Dan Heim, science lab guru and teacher extraordinaire, is a long time member of PAS and thought of Foothills Academy and our amazing night skies when the organization was considering a new location for its meetings. The meetings will be held on the first Thursday of each month (excluding January) for eight months, beginning September 2nd. Meetings generally run from 7 - 9 p.m. and include socializing, a guest speaker, and time for questions. PAS meetings will be open to the non-member FA community (admin, faculty, parents, and students) and the PAS will be holding an evening "Star Party" at Foothills sometime during the academic year. We're honored to have been selected by this prestigious group of academicians (and amateur stargazers) as their meeting place of choice. (*see map on back page - Ed.*)***

JOHN PULIS - PAS HOST

John Pulis, our current PAS Host, isn't doing well physically. He is deteriorating in mind and body and thus may not be seen at any future PAS Meetings. Anyone wishing to send him or his wife a card or something can contact him at:

John Pulis
509 W. Mohawk
Phoenix AZ 85027
Phone 623-582-9235



He has been a long time PAS member. Your thoughts and prayers are appreciated.***

THE PERKS OF BEING A P.A.S. OFFICER

Have you thought of becoming a PAS Officer and then thought that it might be too much work? Well, you are correct and you are wrong at the same time. Sure, there are times when it can be a bunch of work, but sometimes



STONE SOUP

BY JAN ELIOT

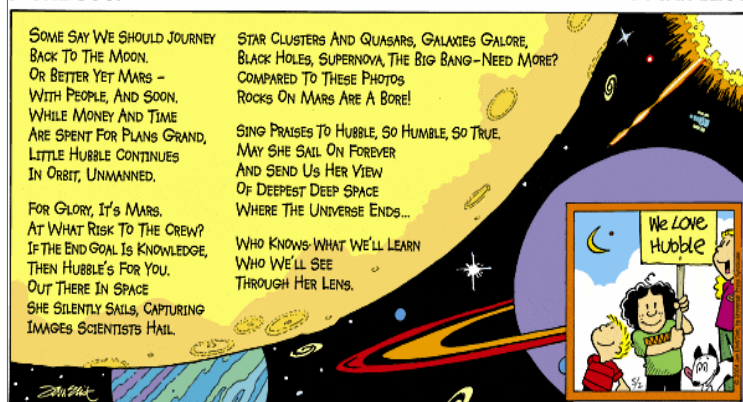
SOME SAY WE SHOULD JOURNEY
BACK TO THE MOON,
OR BETTER YET MARS -
WITH PEOPLE, AND SOON.
WHILE MONEY AND TIME
ARE SPENT FOR PLANS GRAND,
LITTLE HUBBLE CONTINUES
IN ORBIT, UNMANNED.

FOR GLORY, IT'S MARS.
AT WHAT RISK TO THE CREW?
IF THE END GOAL IS KNOWLEDGE,
THEN HUBBLE'S FOR YOU.
OUT THERE IN SPACE
SHE SILENTLY SAILS, CAPTURING
IMAGES SCIENTISTS HAIL.

STAR CLUSTERS AND QUASARS, GALAXIES GALORE,
BLACK HOLES, SUPERNOVA, THE BIG BANG - NEED MORE?
COMPARED TO THESE PHOTOS
ROCKS ON MARS ARE A BORE!

SING PRAISES TO HUBBLE, SO HUMBLE, SO TRUE.
MAY SHE SAIL ON FOREVER
AND SEND US HER VIEW
OF DEEPEST DEEP SPACE
WHERE THE UNIVERSE ENDS...

WHO KNOWS WHAT WE'LL LEARN
WHO WE'LL SEE
THROUGH HER LENS.



that work has its perks. For instance... I can only speak from the experience of being Editor, but I must say that I have enjoyed some of the perks that come along with being an officer. I am the contact person for the club. I get the calls. I get the people who are asking what our club is about, what to expect, when our star parties will be, where they will be, when our next meeting is, what's our web address, etc. And I like it. I like being the source of information. I like being the one people call to find out what's happening where. And I get email like that as well. One perk I really like is when I get compliments. The lady I work with, Nancy Leon, at the NASA Space Place with JPL, is one super lady and she has told me many times how wonderful it is to work with PAS. I of course have told her the same about working with her because she and I get along so well and we have the same goal in mind - educating the public and particularly children in the field of science and space. And she will send me new stuff to try, CD ROMs with stuff on it aimed at kids, to test drive, in a sense and get my feedback. It's really cool that I've made a friend through the means of being editor for the club, and she really looks to me for input on how NASA is doing on their part of the educational space program. It's all teamwork. Another perk is when someone walks up to me and says the newsletter looks great. I know I don't do the layout anymore, but I thank them and my comeback lately has been, "I can't do it without Matt," because some of you know that he is my Layout technician. Without him, the newsletter wouldn't be. My computer gave up doing it quickly a long time ago. In fact, just recently I got a computer, I think it was this past May, that can now do it

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again like it used to. So, I could actually take over as Layout person again, but Matt is doing so good at it, I think I'll let him keep the job. I'll write the articles and find the data, and he can put it all into the newsletter. He is doing an exceptional job and without him we wouldn't have such a nicely laid out newsletter. So, when I get a compliment, I try to make sure they know I'm thankful for the compliment but I also send some of the compliment to the people who help me because I don't do all of this alone. I have quite a few helpers that I really appreciate. Another Perk I like is Dan's business cards. Did you know that if you are an Officer of PAS you get the most AWESOME looking business cards to hand out to people. They are so pretty, I don't want to give them away. And Dan Heim made them so nice! Now that is a special Perk! I bet there isn't another editor around who can say that they have a director of their club who makes business cards as exceptional and special as Dan has made the set that PAS now uses. If you haven't seen ours, ask to see one of the officers business cards. They are really awesome and in color. He did a fantastic job on them. Thanks Dan! In May we will have elections again for our officers. Dan is considering becoming the Editor. Matt and I are dropping the editorship. I would like to become Events Coordinator. I already do the job and would like to continue it with a proper title. William will stay as Webpage designer, although I've been doing the webpage (until recently when our hard drive bit the dust, the whole thing died, we have no record of anything we had - so have been delayed in updating- but we are getting there), and I don't know what position Matt wants to take. I notice that the other clubs have an Events Coordinator, someone who works the star parties, and other events around town, and I do that already, plus I send out the e-mails to everyone telling them what is going on and where we need volunteers, so if I could just keep doing that and turn over my editorship to Dan, that would be great. It is something to think about. So, a coeditor position might be opening up, or some other position you might consider running for. We don't know what May will hold in the way of Elections. Come join the fun and be an officer for a while. The perks are worth it!***

CONSTANT AS THE NORTH STAR? HARDLY

from the Arizona Republic

Astronomers have known for some time that Polaris, the North Star, sitting almost directly over the North Pole, is a Cepheid variable, a type of star that is caught in a cycle of bloating and collapsing because it has exhausted its hydrogen fuel. In this unsettled state, Polaris brightens and dims every four days or so, and over time, its pulsations have been slowing, the period of oscillation lengthening eight seconds a year. At a meeting of the American Astronomical Society in Denver, astronomers reported that Polaris is even unsteadier than they had thought. Even the star's average brightness has not remained the same, reported Edward F. Guinan of Villanova University. Measurements over the past half-century show it has brightened 10 percent. When he and undergraduate Scott Engle checked older records, they found more surprises. In the 1800s, Polaris appeared to be 20 percent less bright. In the 1500s, the astronomer Tycho Brahe recorded an even dimmer value. Ptolemy of Alexandria in

his star catalog of A.D. 140 listed Polaris as a third magnitude star. Magnitude is a scale devised by the Greek astronomer Hipparchus around 120 B.C. ranking stars from bright (1) to dim (6), a system still in use today. Today, Polaris is a second magnitude star. A change of a full magnitude would mean Polaris is 2.5 times as bright as it was 2,000 years ago. "That's unusual," Guinan said. "It shouldn't be changing that fast." Of course, maybe Ptolemy's eyesight was off.***

COMPASS WILL POINT SOUTH SOMEDAY

by William J. Broad, from the New York Times

The collapse of the earth's magnetic field, which both guards the planet and guides many of its creatures, appears to have started in earnest about 150 years ago. The field's strength has waned 10 to 15 percent, and this deterioration has accelerated of late, increasing debate over whether it portends a reversal of the lines of magnetic force that normally envelop Earth. During a reversal, the main field weakens, almost vanishes, and then reappears with opposite polarity. Afterward, compass needles that normally point north would point south, and during the thousands of years of transition much in the heavens and Earth would go askew. A reversal could knock out power grids, hurt astronauts and satellites, widen atmospheric ozone holes, send polar auroras flashing to the Equator and confuse birds, fish and migratory animals that rely on the steadiness of the magnetic field as a navigation aid. But experts said the repercussions would fall short of catastrophic, despite a few proclamations of doom and sketchy evidence of past links between field reversals and species extinctions. Although a total flip may be hundreds or thousands of years away, the rapid decline in magnetic strength is already damaging satellites. The European Space Agency approved the world's largest effort at tracking the field's shifts. A trio of new satellites, called Swarm, are to monitor the collapsing field with far greater precision and help scientists forecast its prospective state. "We want to get some idea of how this would evolve in the near future, just like people trying to predict the weather," said Gauthier Hulot, a French geophysicist working on the satellite plan. "I'm personally quite convinced we should be able to work out the first predictions by the end of the mission." No matter what the new findings, the public has no reason to panic, scientists say. Even if a flip is imminent, it might take 2,000 years to mature. The last one took place 780,000 years ago, when Homo erectus was still learning how to make stone tools.***

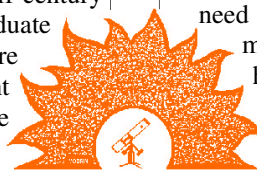
ROUND-ROBIN STORY CONTEST

Do you enjoy writing stories? Would you like to win a prize for doing so? The Round-Robin Story Contest continues. Based on the introduction to the story (May 2004 issue) and the first chapter (below) write chapter 2 (leave it open-ended so we can add more chapters). It should be approximately 600-625 words in length. No need to bother with paragraphs. The deadline is the first of each month. The editors will then choose which one they feel helps move the story along the best and include it in the next newsletter (please don't make us write it ourselves). If you are the winner for that month, you MUST attend

See CONTEST, p. 3



"Know what? There's a dog named Rover on Mars sniffin' around for water."

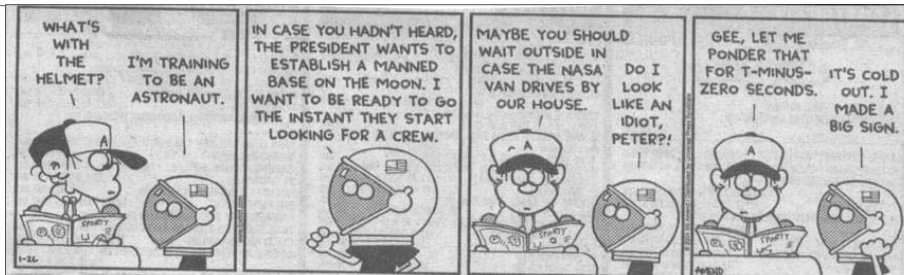


CONTEST, cont'd. from p. 2
the next meeting in order to claim your prize. (Prize may be awarded the following month if your hard-luck story about why you couldn't attend the previous meeting is convincing enough). And now, chapter 1:

HOUSTON, WE HAVE A PROBLEM CHAPTER 1

by Dan Heim, based on an idea by Matt Kohl

My name is Steven Marks. I'm the captain, or maybe I should say, was the captain of a fine ship, the PAS (her name is an acronym for Planetary Atomic Services). I also had a fine crew, the current fate of which is uncertain. We were only a week out from Earth and everything was as it should be. All systems were go. It was a normal mission, as far as dump runs go. We had a full load of spent fuel rods and assorted radioactive waste, and were on an inward orbit to the Sun to drop our load. Ever since 2010, when the Yucca Mountain repository went critical and spewed waste over most of Nevada, we'd been hauling the stuff to the Sun for ultimate incineration. Three or four runs a year was all we needed. And Uncle Sam paid us handsomely for our services - we were in the black from year one. The physicists said it was the safest place to put the waste. And nobody objected, even the environmentalists. Oh sure, there were a few extremist "Save the Sun" groups, but after all, at 9000 kelvins nothing could survive being broken down to into atoms, and once in that gravity well it wasn't coming back out until Sol went Red Giant. At least, that's what the physicists said. We were just inside the orbit of Mercury when the isotopes hit the fan. At first we thought it was a small meteor swarm. Kinda like driving a car through a cloud of insects, but when you're moving at 8 km/s it gets a little loud. We were used to it. Happens a lot this close to the Sun. The titanium shielding always holds, even if it does get dinged up a bit. But this one sounded different ... more like soft rain. That's when the malfunction indicators started lighting up. We opened the viewports and turned on the outside cameras to take a look. What we saw was weird, unprecedented, and downright scary. The entire hull of the ship was coated with small black blobs of some gelatinous substance, each about the size of a basketball. They were everywhere! Outboard sensors and antennae were clogged with the things, which is what set off all the warnings. We had no idea what they were, but we were through the swarm now and one thing was clear ... whatever they were, they needed to be removed. Jerry, our resident rocket scientist, suggested we execute a rapid acceleration to see if we could use their inertia against them. He said that if we could create enough g's, they'd probably all be flung off, like a coffee cup left on top a car when you take the first corner. Sounded good to me. You don't want to argue physics with Jerry. So we decided to give it a try. We sounded the alarm and told the crew to strap in for



"hitchhikers." It took only a few minutes, as this was a well-rehearsed drill for all space travelers. I told William, our pilot, to proceed with the maneuver. The second warning was sounded, and after a 10 second countdown he hit the thrusters. PAS shuddered as her powerful engines lit up. These heavy ion thrusters can put out quite a kick, delivering some 5 mega-newtons each, and we had all three going full bore. We sunk deep into our padded chairs as the g's built up. 1g ... 2g's ... 3 g's ... and the engines continued to roar. We hit 10 g's, about what the old Apollo rockets could do, and held it there for about a minute. Let me tell you, 10 g's is not very easy to take. About a minute is my limit. When the engines cut out the comfort of weightlessness returned. You could hear the collective sigh of the crew. We unstrapped and rushed to the viewports to see if our plan had worked. What we saw was, to say the least, surprising. (to be continued next month)***

MOSQUITO TREATMENT

received from Bette Wurst

This could be considered Astronomy related and save lives at the same time (you can't view the stars through your telescope from within your mosquito free home): Pass this on to anyone who likes sitting out in the evening or when they're having a cook out. So you don't like those pesky mosquitoes, especially now that they have the potential to carry the West Nile Virus? Here's a tip that was given at a recent gardening forum. Put some water in a white dinner plate and add a couple drops of Lemon Fresh Joy dish detergent. Set the dish on your porch, patio, or other outdoor area. Not sure what attracts them, the lemon smell, the white plate color, or what, but mosquitoes flock to it, and drop dead shortly after drinking the Lemon Fresh Joy/water mixture, and usually within about 10 feet of the plate. Check this out---it works just super! May seem trivial, but it may help control mosquitoes around your home, especially in the South and elsewhere where the West Nile virus is reaching epidemic proportions in mosquitoes, birds, and humans. Pass it along!***



ASTRONOMY DAY THANKS

by Christine Shupla, ASC
Planetarium Director
shuplac@azscience.org

Just wanted to say thank you for all that you did to make this Astronomy Day such a success! Sarah says that attendance was 887 people, which is over twice (almost three times) the previous Saturday's attendance. Everyone seemed to have a great time--thank you so much for all of your efforts! I promise that next year we will

See THANKS, p. 4

THANKS, cont'd. from p. 3

avoid new moon and full moon; I think that perhaps 1st quarter would be nice. If you have comments, ideas, or concerns for next year's event, feel free to send them my way for now. Thanks again!!!***

VENUS TRANSIT OBSERVED FROM TEL AVIV, ISRAEL

by Leah Sapir

On June 8, I hadn't expected to be in Israel. I was "supposed to be" in Phoenix, getting ready to drive to the Grand Canyon Star Party.



12:45 p.m., Venus is halfway across. taken by Leah Sapir

But, due to an unusual coincidence of events – a family visit to Israel in May, a slight fracture in my leg that prevented me from participating in the GCSP, a bit of luck that the airline was able to change my return flight at the last minute (and my husband encouraging me to even ask about this when I was sure that such

a last-minute change would be impossible) – and on the day of the Venus transit I was still in Israel, one of the few places where the transit could be viewed from beginning to end. And luckily, it was a bright, clear day. The Tel Aviv University Astronomy Club had prepared a public star party for viewing the transit. On the campus lawn, they had set up about a dozen telescopes with solar filters, all focused on the “main event”. The AstroClub members even arranged a shaded area, covered by an awning, for all the people waiting on line to look through the telescopes. In the nearby building they set up some beautiful exhibits explaining all about the transit, its history, and why it was important; and also other exhibits about the solar system and astronomy in general. And during the day, various professors gave lectures on topics which included: “Historical observations of Venus transits”, “The Sun”, “Planet Venus: Earth's twin?”, and “Mission: Mars”. Since the transit is a very gradual, 6-hr process, during the day I alternated between grabbing glimpses (and photos) of Venus's progress, looking at the exhibits



Exhibit explaining how parallax measurements can be used to determine the Earth-sun distance. taken by Leah Sapir



Scopes and viewers on the TAU campus. taken by Leah Sapir

indoors, and listening to the lectures. I learned that since a transit of Venus across the sun's face can be seen only through a telescope, it had never been observed before the 1600's. The transit of 1631 was predicted by Johannes Kepler, but wasn't visible from anywhere in Europe. And therefore, the transit of



1:57 p.m., Venus is almost at the finish line. taken by Leah Sapir



A member of the TAU AstroClub points out a picture of the Milky Way that was photographed in Arizona. taken by Leah Sapir

“astronomical unit”. So, for example, they knew that Jupiter is about 5 astronomical units from the sun – i.e., 5 times as far from the sun as Earth is; but nobody knew the actual distance in miles of either planet. And so, in 1761 and 1769, astronomers were waiting to watch, measure, and sketch the transits from points all around the world – some of them traveling long and difficult distances to “the middle of nowhere” in order to do so. For example, two British astronomers, Jeremiah Dixon and Charles Mason, observed the transit of 1761 from South Africa. (The two later collaborated on other projects, including a disputed border between



2:10 p.m., Venus starts to exit. taken by Leah Sapir

Pennsylvania and Maryland. That border later became known as the “Mason-Dixon line.”) The Russian astronomer Mikhail Lomonosov noticed a slight halo around Venus as it crossed the edge of the sun in 1761. He was therefore the first to realize that Venus must have an atmosphere. (This was the first discovery of an atmosphere on a planet other than the Earth.) One of the explorers who set out to observe the transit of 1769 was Capt. James Cook, who sailed to the South Pacific and

See TRANSIT, p. 5

TRANSIT, cont'd. from p. 4

observed the transit from Tahiti. (On a later voyage, he also discovered the "Sandwich Islands", which we today call "Hawaii".) But one of the unlucky ones was the French astronomer, Guillaume Le Gentil, who sailed to Pondicherry, India, in 1761, hoping to see the transit from there. Due to a war that was going on at the time between England and France (and the fact that by the time he arrived, Pondicherry had been taken by the British), he was not permitted to observe the transit from on land, but only from his ship, rocking at sea. Not a good place to observe! But after traveling so far, he decided to wait around in the area till 1769, to observe the next transit. By that time, the war had ended, and the French governor of Pondicherry even allowed him to build an observatory there. And when the day finally came - after Le Gentil had traveled thousands of miles and waited 9 years - he was clouded out and wasn't able to see the transit at all. (An interesting and humorous description of these and other expeditions can be found on line at <http://www-astronomy.mps.ohio-state.edu/~pogge/Ast161/Unit4/venussun.html>.) In 1874 and 1882, the new-fangled techniques of photography and spectroscopy were used to preserve the event for the first time in history. And since a transit of Venus happens just twice every 120 years, in pairs that are 8 years apart, there wasn't any transit in the 20th century. Nowadays a transit of Venus isn't necessary for our scientific knowledge - we already know the size of an astronomical unit, and we've sent spacecraft to observe Venus from close up. But, it's interesting to watch the transit if only because it's such a rare event. One of the things that we all wanted to see was the "black drop effect" at the beginning and end of the transit, where the shadow of Venus seems to "spread out" along the edge of the sun. But the "black drop effect" wasn't really obvious this time around, and the theory was - maybe the "seeing" was better this time than it had been in previous centuries. (We'll have to wait till 2012 to find out...) In June 2012, the first part of the next transit (till sunset) will be visible from Arizona. So, let's hope for clear skies for that event!

BLACK CANYON CITY STAR PARTY REVIEW

June 19, 2004

Wow! Did you say you wanted a dark sky site? Well, PAS has the place for you. Barbara and Scotty have found a wonderful location for our dark sky site and now we have to figure out how to do it for as little cost as possible. This location is just a few more miles than going to our Lake Pleasant site and it is better than the Lake pleasant site. Picture this... for those of you who have been to Lake Pleasant with us: At the Lake Pleasant site you have the



9:19 a.m., Venus starts her trek across the SUN. taken by Leah Sapir



Memorial to the Columbia astronauts. At the bottom of the exhibit is a picture of Israel as seen from space. taken by Leah Sapir

mountains taking away some of the horizon, which is good in the case of blocking out the horizon where the Phoenix glow is, but in the case of the High Desert Park up in Black Canyon City, we don't have anything obstructing our view, and the sky is beautiful. We can see the southern sky, the Milky Way, Sagittarius and Scorpius and all those friends in the sky you haven't seen in years. Yes, this is the site for us. The problem is the cost. Barbara is working on how we will solve that situation. We held a star party, test star party, there in June (date above) and we had Kevin Harcey, Don Boyd, Barbara,

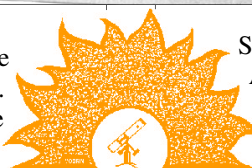
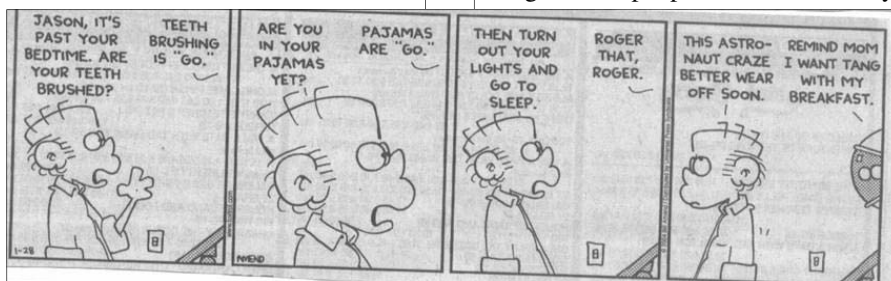
Matt Kohl and the Finches there. We had a potluck and two outsiders joined us. They were very welcome. They only stayed till sundown, which was odd, and didn't return once it got dark??? I don't know why. Anyway, we ate our dinners and then got busy. We viewed some really cool stuff that night and the wind that was chasing our dinner around, stopped bothering us after the sun went away. Venus wasn't around that night but Jupiter was a good view most of the night. The crescent Moon was awesome. There were 4 comets visible that night and Don and Barbara had their attention on them. William and Terri were preoccupied working on something bizarre... yes, we were trying to PUBLIC the Doctor. Some people don't seem to like how the Doctor looks like a Christmas Tree at public events. They say the lights are a bit too bright, especially since they aren't all red. So, from E-bay, the Finches acquired some flashing red lights, and so we were putting them on the Doctor and experimenting with them. Kevin said they were too bright, but then he was judging that on the fact that we were in a super dark location. If we were at the Arizona Science Center, I bet they won't be bright enough. So, we shall see at the next Adult's Night Out. Anyway, after that was

done, many objects were found and viewed. Many thanks goes out to the participants who brought and enjoyed food. Scotty is an excellent cook and his food was greatly appreciated. There was plenty to go around. And thanks to those who brought drinks to share, too. This new location has great potential. We are able to see in all directions with only an occasional car light from a distance. The park closes at 10pm so there wouldn't be any traffic to bother us after that, and so the star party would be private to scope bringers and people who are already there once the park closes.

That would cut down on the interruptions to those who want to do photography and enjoy the many, many beautiful stars. I haven't seen so many bright stars is a very long time. We must have more star parties at that location. Thanks goes to Barbara and

Scotty for finding the location and for doing the research. Also for paying for our first time out there. The charge was \$25 for that night. Anyone wanting to help them with the

See BCC, p. 6



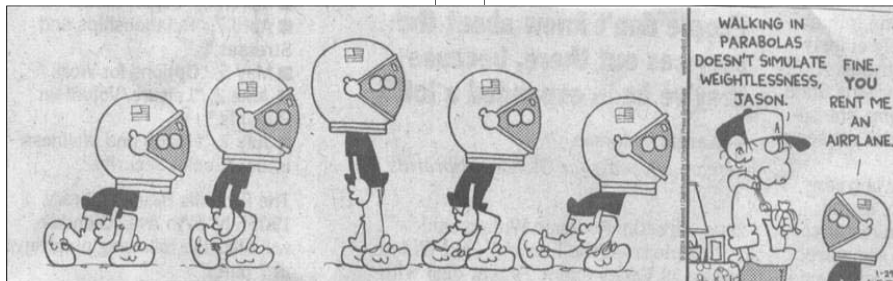
BCC, cont'd. from p. 5

cost of that night can donate directly to them. Now for future star parties, we shall have to see how we can do that because we can't have one person paying for it. We were thinking of doing a public event there to raise funds, but will have to get the permission of the keepers of the park, and raise money for the entire year of dark sky star parties for PAS. Maybe they can give us a good deal or something. Barbara will be researching this and then let us know soon. Thanks again to Barbara and Scotty!***

SPECIAL DEEP SKY OBSERVING SESSION

September 11, 2004, Black Canyon City

PAS has an alternative Dark Sky Observing location. We've visited it one time so far and it was fabulous. It has the sky you always dreamed of, the location is really nice and bathrooms. The weather at that time was fantastic. We had a small group at that time. This time we plan to skip the potluck, as that didn't go over so good, and go right to the viewing. There are a few rules we must follow. This is a public park. There will be NO LITTERING. If you bring it in, you take it out. There are trash cans all over the place. Please, pick up after yourself. Make sure there are no scraps of anything left behind when we leave. This place is spotless when we arrive and must be the same way when we go. Also, we must be quiet. There are Keepers who stay on site the whole time we are there. Noise levels must be kept to a minimum. There are bathrooms and they are nice. Please note (and I am at fault for this so remind me when I get there) the bathroom doors slam. Please try to close them quietly when entering and exiting them. They sure scared me out of my skin the last time. Be sure to bring needed foods, jackets, drinks, chairs, flashlights, the usual... because it does get chilly there. There is plenty of parking available, and plenty of room for more scopes than we had at the last star party. And also note that there will be a charge of \$5 per vehicle to attend this star party. The park charges PAS for the use of the park. They are turning off their lights and their normal closing time is 10pm. For use after 10pm they charge a fee. PAS is paying a fee for this use and we are collecting from each car that arrives, \$5 to cover that fee. So, if you come in a vehicle, pack yourselves in tight and split the fee with your friends. Please pay Terri or Richard when you arrive. The fee is per vehicle whether you bring a scope or not. And since you are paying to be there, please plan to stay a long time. Do note that you park up on the plateau, and you walk yourself and scope down a short hill into the ball park area where we will observe. By doing this, you are cutting out the lights from the freeway and other roads that go by. The viewing is like no other. If you thought our site at Lake Pleasant was awesome, you'll die for this site. It is really, really dark, clear and awesome! It is well worth the \$5 and the time to be there. We will plan a few of these special star parties a year. You won't want to miss them and bring all the friends you can pack in one car, as you can. Oh, this is a public park, there is NO ALCOHOL at all, allowed. And No Loud Kids either. See the map for directions and we hope you can attend this special star party! See you there.***



FAR-OUT IDEAS

by Patrick L. Barry

Ever had a great idea for a new spacecraft propulsion system, or for a new kind of Mars rover? Have you ever wondered how such "dinner napkin sketches" evolve into real hardware flying real missions out in the cold blackness of space? The road to reality for each idea is a unique story, but NASA has defined some common steps and stages that all fledgling space technologies must go through as they're nursed from infancy to ignition and liftoff. Suppose, for example, that you've thought of a new way to shield astronauts from harmful radiation during long space missions. In the first stage, you would simply "flesh out" the idea: Write it down, check the physics, and do some quick experiments to test your assumptions. If the idea still looks good, the next step is to build a "proof of concept." This is the "science fair project" stage, where you put together a nifty demonstration on a low budget—just to show that the idea can work. For your radiation-shielding idea, for example, you might show how a Geiger counter inside a miniature mock-up doesn't start clicking when some radioactive cobalt-60 is held nearby. The shielding really works! Once that hurdle is cleared, development shifts into a higher gear. In this stage, explains Dr. Christopher Stevens of JPL, the challenge isn't just making it work, but making it work in space. "Some conditions of space flight cannot be adequately simulated here on Earth," Stevens says. Cobalt-60 doesn't truly mimic the diverse mixture of radiation in space, for example, and the true microgravity of orbit is needed to test some technologies, such as the delicate unfolding of a vast, gossamer solar sail. Other technologies, such as artificial intelligence control systems, must be flight tested just because they're so radically new that mission commanders won't trust them based solely on lab tests. Stevens is the manager of NASA's New Millennium Program (NMP), which does this sort of testing: Sending things to space and seeing if they work. In recent years the NMP has tested ion engines and autonomous navigation on the Deep Space 1 spacecraft, a new "hyperspectral" imager on the Earth Observing 1 satellite, and dozens of other "high risk" technologies. Thanks to the NMP, lots of dinner napkin sketches have become real, and they're heading for space. You can learn more at the NMP website, nmp.nasa.gov

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



SPACE WEATHER

by Patrick Barry and Tony Phillips

Radiation storms, 250 mile-per-second winds, charged particles raining down from magnetic tempests overhead ... it sounds like the extreme weather of some alien world. But this bizarre weather

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happens right here at Earth. Scientists call it "space weather." It occurs mostly within the gradual boundary between our atmosphere and interplanetary space, where the blast of particles and radiation streaming

from the Sun plows into the protective bubble of Earth's magnetic field. But space weather can also descend to Earth's surface. Because the Earth's magnetic field envelops all of us, vibrations in this springy field caused by space weather reverberate in the room around you and within your body as much as at the edge of space far overhead. In fact, one way to see these "geomagnetic storms" is to suspend a magnetized needle from a thin thread inside of a bottle. When solar storms buffet Earth's magnetic field, you'll see the needle move and swing. If you live at higher latitudes, you can see a more spectacular effect: the aurora borealis and the aurora australis. These colorful light shows happen when charged particles trapped in the outer bands of Earth's magnetic field get "shaken loose" and rain down on Earth's atmosphere. And because a vibrating magnetic field will induce an electric current in a conductor, geomagnetic storms can have a less enjoyable effect: widespread power blackouts. Such a blackout happened in 1989 in Quebec, Canada, during a particularly strong geomagnetic storm. These storms can also induce currents in the metallic bodies of orbiting satellites, knocking the satellite out temporarily, and sometimes permanently. Partly because of these adverse effects, scientists keep close tabs on the space weather forecast. The best way to do this is to watch the Sun. The NASA/ESA SOHO satellite and NOAA's fleet of GOES satellites keep a constant watch on the Sun's activity. If a "coronal hole"--where high-speed solar wind streams out from the Sun's surface--comes into view, it could mean that a strong gust of solar wind is on its way, along with the geomagnetic storms it will trigger. And an explosive ejection of hot plasma toward the Earth--called a "coronal mass ejection"--could mean danger for astronauts in orbit. The advancing front of ejected matter, moving much faster than the solar wind, will accelerate particles in its path to near the speed of light, spawning a radiation storm that can threaten astronauts' health. Look for coming articles for more about space weather and about NOAA's efforts to forecast these celestial storms. Meanwhile, read today's space weather forecast at <http://www.sec.noaa.gov/>. Kids can learn about the geostationary and orbits of the GOES satellites at http://spaceplace.nasa.gov/en/kids/goes/goes_poes_orbits.shtml.

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

COORDINATED JUMP WON'T MOVE EARTH

by Clay Thompson, from The Arizona Republic

If everyone in the Northern Hemisphere jumped up at the same time, would it affect the Earth's orbit? Why would



just for the sake of being contrary. But as long as you asked, I have an answer. I found it at <http://www.physlink.com>, which is all about astronomy and physics and is pretty much guaranteed to make your brain hurt. Stuff like Eigen Values. Don't ask. I don't know. Anyway, this is the answer. It comes from some guy at Cambridge University, which I am pretty sure is in England. And I am quoting him directly, mostly because I'm too dumb to paraphrase it without messing it up. "No amount of jumping will alter the Earth's orbit. If everyone in the Northern Hemisphere jumps up at the same time, they exert a downward force on the Earth for a small amount of time (an impulse). "This 'pushes' the Earth down a very, very little bit. However, as soon as they leave the Earth, they are exerting a force on the Earth that is not balanced by the ground pushing up, and, as long as they come down again, the impulse will be equal in size, but opposite in direction to the one they use to push off. Hence, the Earth will not move." This guy also said that if everyone on the Northern Hemisphere jumped around a lot, the heat they generated "would produce a tiny radiation pressure that would give the Earth a minute downward impulse." He didn't say why. Eigen Values, maybe.***

A NEW STUDY

received from Salah Mohammed

Aoccdnrig to a rscheearch at Cmabrigde Uinervtisy, it deosn't mttair in waht oredr the ltteers in a wrod are, the olny iprmoatnt tihng is taht the frist and lsat ltteer be at the rghit pclae. The rset can be a total mses and you can stll raed it wouthit porbelm. Tihs is bcuseae the human mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe.***

DRACO, THE DRAGON IN THE SKIES

Ancient grouping of stars in same region of sky as dippers

by Joe Rao, from Space.com

received from Auther Maldonado



While most folks are familiar with the Big and Little Dipper, in the same region of the sky is a long, winding group of stars which portrays the mythological creature of a dragon named Draco, which during late evening hours is riding high above Polaris, the North Star. Draco is a very ancient grouping. The earliest

Sumerians considered these stars to represent the dragon Tiamat. Later it became one of the creatures that Hercules killed. One of Draco's tasks was to guard the garden of Hesperides and its golden apples that Hercules was supposed to retrieve. In the stars, Draco coils around Polaris and we now see

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DRACO, cont'd. from p. 7

Hercules standing (albeit upside down) on Draco's head. Within Draco is the star Alpha Draconis, better known as Thuban. Interestingly, this third-magnitude star used to be the North Star about 4,500 years ago. In fact, a passage in the Great Pyramid of Giza, constructed about that time, was aligned on that star. Today, of course, the North Pole of the sky is marked by the star Polaris at the end of the handle of the Little Dipper. The location of the celestial poles changes slowly (over a period of about 25,800 years) owing to a movement of the Earth for which the pull of the Moon on our bulging equator is chiefly responsible, a movement similar to the wobbling of a top known as precession. Look halfway between the bowl of the Little Dipper and the star Mizar (where the Big Dipper's handle seems to bend) and there you will find Thuban, the former North Star. The Dragon's head is the most conspicuous part of Draco: an irregular quadrangle, not quite half the size of the Big Dipper's bowl. The brightest star is Eltanin, a second magnitude star, shining with an orange tinge. Interestingly, a number of temples in Ancient Egypt were oriented toward this star. The faintest of the four stars in the quadrangle however is worth looking for: Nu Draconis, a wonderful double star for very small telescopes. The two stars are practically the same brightness, both appearing just a trifle brighter than fifth magnitude and separated by just over one arc minute (or about 1/30th the apparent diameter of a full Moon). They're about 120 light years away, and it is estimated that they are at least 240 billion miles apart – or about 2,300 times the distance of the Sun to the Earth. I first stumbled across Nu as a teenager in the Bronx, using low power on a 4¼-inch Newtonian reflecting telescope. I liken them to a pair of tiny headlights. Check it out for yourself. ***

10 STEPS TO REWARDING STARGAZING

by Joe Rao, from Space.com

Astronomy is the oldest of the sciences, and so amateur astronomy may very well be the oldest of the scientific hobbies. Human fascination with the heavens is timeless, having an incommunicable appeal. Stargazing is intellectual as well as aesthetic. It combines the thrill of exploring new realms of knowledge with the delight of appreciating new spheres of beauty. All this in mind, we present this 10-step guide to help you maximize your skywatching efforts. It is geared to help beginners but offers useful tips for seasoned stargazers, too. Since stargazing is, in many ways, subjective, I've also asked other assiduous amateurs to provide their own thoughts and opinions on what makes watching the sky so enjoyable for them. Several responses came from members of the Amateur Observers' Society of New York (AOS) and the Astronomical Society of Long Island (ASLI). To the question, "Why stargaze?" the responses of many echoed that of Margo Centabar of West Islip, NY: "Stargazing has always been a source of therapy for me. When my children were little and I finally got them all to bed I would go outside for an hour or so with my plainisphere, binoculars and my \$20 cardboard telescope on a wooden mount. All the tiredness and tension of the day would drop off like leaves from a tree."

Step 1 - Find a Suitable Observing Site

Even if you live in an urban area, try to find a location that offers you as wide a view of the sky as possible, free from obstructions such as tall buildings. Of course there is still the problem of light pollution from excessive or misdirected outdoor lighting. Sadly, in many large metropolitan areas, it is becoming increasingly difficult to trace out even a

simple star pattern like the Big Dipper. So city dwellers might improve a night's efforts travelling to a darker location. You might only have to travel 15 or 20 minutes ... or perhaps as much as an hour or two. If you live in a suburban or rural location, you'll still want to find as dark a spot as possible, away from bright lights. Even turning off the back porch light can help. Using a building to block someone else's bright lights can be effective, too. If you're interested in how you can take steps to reduce extra nighttime lighting in your own town and backyard, you might consider joining the International Dark Sky Association (IDA). Founded in 1988, IDA gathers and disseminates light-pollution information and solutions. Indeed, it has played a pivotal role in turning the tide in the war against light pollution.

Step 2 - Dress Warmly

Check the local weather forecast for the expected overnight low temperature, then bundle up more than you might think is necessary. Even in summertime, nights can get surprisingly chilly, so at least have a sweater or light jacket close at hand. In winter especially, protect your head with a woolen pullover cap. And remember that, for the most part, stargazing is a sedentary activity.

Step 3 - Get to Your Observing Site Early

If possible, try to get to your site before it gets dark. "I especially enjoy being all set up well before the Sun disappears," says Harvey Miller of East Meadow, New York. "It's like coming to the theatre, before a play or movie begins, taking your seat and controlling the rush in great anticipation for the expected script." Just about any clear night provides an invitation to go outside and see what's up. Some nights, however, will offer up a special attraction: a meteor shower; a beautiful conjunction between the Moon and a bright star or planet; or even an eclipse of the Moon. Prepare a checklist of the objects you might want to look at. And to this end, how I wish personal computers existed when I was getting started in astronomy over 35 years ago! A planetarium program such as Starry Night can prove invaluable, displaying on monitors any number of sky objects that you might want to look at for any hour of the night, as well as providing you the ability to generate and print your own custom sky chart.

Step 4 - Plan and Pack for Comfort

If you're going to be outside for any length of time, the worst thing you can do is stand and continuously crane your neck upwards. By the next morning, there's a fair chance you'll have a stiff neck or achy shoulders. "I've found that an adjustable observing chair (such as a long lounge chair) can add hours of pain-free enjoyment," says Mike McCormick of Deer Park, New York. At the very least, bring along a small folding chair. If you plan to pack equipment (such as binoculars, telescopes, sky charts) consider also a small folding card table. If the weather is warm, bugs and mosquitoes are likely to be out, so you'll need insect repellent. Lastly, you might like to bring some music to listen to while you're out under the stars. "I always like to bring some instrumental music to help enhance the atmosphere," says Charlie Rullmann of Islip Terrace, NY.

Step 5 - Start Simple: Your Eyes Only

In his classic autobiography "Starlight Nights," Leslie Peltier once noted: "Learning the stars is a pure delight and there are many pleasant ways to do it. No true stargazer will fail to become familiar with the constellations and fortunate is he whose introduction to the skies comes to him through nature's eyes alone and not through any telescope. So few of those who use the eyepiece first ever get to really know the stars." Peltier's

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STEPS, cont'd. from p. 8

point: If you're just getting started in astronomy, the best thing to do is to first spend some time under the stars with just your eyes and get acquainted with the brighter stars and constellations. The best way to do this is to purchase a good sky guide and star chart. Just as you might consult a travel book when sightseeing in an unfamiliar city, a good book on stargazing or a simple finder chart will go a long way to help you familiarize yourself with the night sky. When consulting a sky chart be sure to use a dim red light or a red-filtered flashlight; that way your eyes stay dark-adapted (white light will shrink the pupils of your eyes). Use red cellophane or red plastic across the front of the flashlight lens. Frank Schiralli of Northport, NY suggests subscribing to one of the popular astronomy magazines (such as *Astronomy* or *Sky & Telescope*) so you are alerted to interesting astronomical events. And you can visit SPACE.com each Friday, when notable upcoming events are highlighted. With no optical aids, you can enjoy a wide variety of objects such as the Moon and the five naked-eye planets, not to mention occasional meteor showers and the passage of artificial satellites and even, if you're lucky, the colorful aurora. Naked-eye astronomy is also especially rewarding if you're observing with children, who no doubt will pepper you with questions about the various stars and constellations.

Step 6 - Get Binoculars

I wish I had a nickel for every time somebody said to me they've just gotten interested in astronomy right and off the bat wanted to purchase a telescope. My usual response to this is: "First, spend some quality time under the stars and then, when you think you're ready, go out and purchase a pair of good binoculars." Some might think that binoculars are a bit of a come-down from a telescope, but the fact is that for certain aspects of skywatching they are the best instrument to use. A pair of 7-power binoculars is lightweight and portable. And a quality pair of binoculars can far outrank a poor quality small telescope. Binoculars come in a variety of sizes. Most observers prefer the so-called 7 x 50 "night glasses." The 7 refer to the magnification, while the 50 refer to the diameter of the two objective lenses measured in millimeters. My own personal preference, incidentally, are 7 x 35 "wide-angle" binoculars that provide a much larger field of view (11°) as opposed to most other units. Any good pair of 7-power binoculars, when held steadily, will give you a glimpse of the craters of the Moon, the crescent of Venus and the moons of Jupiter. Should a bright comet come along, there is no better instrument to give you a great overall view of both the head and tail. And by just sweeping along the Milky Way, you'll be treated to a myriad of stars you can't see with your eyes alone.

Step 7 - Move up to a Telescope

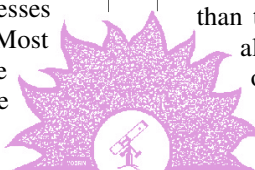
Eventually, there will come that time that you will finally purchase a telescope. But what type of telescope do you prefer? There are three types to consider: A refracting telescope has a convex objective lens at one end and an eyepiece at the other. A reflecting telescope does not use an objective lens, but rather a concave mirror. The mirror (called the "primary") sends light up through the tube where a small flat mirror (called the "secondary") intercepts it and sends it to the eyepiece on the side of the tube. A catadioptric telescope is a special type of reflecting telescope that possesses a correcting lens at the top to form the image. Most catadioptrics are of the Schmidt-Cassegrain design. The light passes through the corrector, it reflects off the primary and then off a curved secondary, finally passing

through a hole in the main mirror and reaching the eyepiece. Unfortunately, space is far too limited here to discuss all the possibilities of a purchase. What I will say here (again), is to keep it simple! If you're just starting out, you might want to consider a 2.4 or 3-inch refractor or a 4 or 6-inch reflector. Make sure that the telescope can be quickly set up, yet has a sturdy mount. A good telescope is virtually useless if you mount it on a shaky or wobbly tripod. Don't fall into the trap of purchasing what some amateurs refer to as a "trash telescope." For the amount of money you might spend for such an instrument, you would be better off investing in a pair of good binoculars. Basically, a trash telescope is one that, along with having a poor mount, has been advertised by the manufacturer as promising "spectacular views" of the Moon or the rings of Saturn at magnifications of, say, 500-power or more. Unfortunately, too many uninitiated amateurs are "power happy." Any telescope will provide you with high magnification, but not only will you be increasing the size of the image, you'll also be increasing the effects of viewing an object through our turbulent atmosphere. A high-power image especially in a small telescope will often turn out quite dim and blurry. A rule of thumb: The maximum amount of magnification for any telescope is 50 power per inch of aperture. So if you intend to buy a 6-inch reflector, 300-power is as high as you should ever attempt to go; the maximum for a 3-inch refractor should be 150 power. In fact, you'll probably be surprised to discover that your most pleasing views will come at much lower powers. Sometimes, however, people get into trouble purchasing even a quality instrument. These folks go right out and purchase a very expensive telescope, bring it home, try setting it up, and in the process get completely confused. One neighbor of mine did just this and ended up visiting me every other week with a "new problem," when it was simply a matter of properly adjusting the finderscope or collimating the mirror. She even queried me about the motor drive (which can be used to take long-exposure photographs): "I thought it would automatically point the telescope to what I wanted to see." In the end, I think she realized that she was far in over her head! So don't waste your money or your time: Learn the sky, get some binoculars, see how much the hobby consumes you, and then make an intelligent telescope purchase.

Step 8 - Join an Astronomy Club

If you have a telescope and don't already belong to an amateur astronomical organization, local or national, you ought to join one - not only to make new friends and swap ideas, but also to get help and advice if you need it, and keep posted on developments in your particular interest in astronomy. By far the largest national organization of amateur astronomers is the Astronomical League whose member clubs hold annual and regional conventions at which amateurs talk shop and exchange useful ideas. The AL is composed of scores of local amateur astronomical clubs and groups, totaling thousands of individuals. Many astronomy clubs often schedule field trips. "What one person lacks in telescope skills is made up by another," says Sam Storch, a long-time Long Island, New York amateur astronomer. "One person might know the sky well and can suggest targets, while another can help with the setup, and so on. Don't go it alone -- the stars offer solitude, to be sure, but observing with another person will, synergistically, often be more than two people observing independently could accomplish. In almost all cases, two heads (or more) are really better than one!" Susan Rose, president of the Amateur Observers' Society of New York, agrees: "One of the best parts of a

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ADS IN PAsTimes

This is the PAS advertising column & is a FREE service to all PAS members, guests, & VIP. Any Astronomy related items (books, scopes, binoculars, services, etc.) may be listed here that are being SOUGHT or SOLD. The item will only be advertised for ONE MONTH, but may be renewed each month (as needed) by contacting the Editor, by the newsletter deadline (the 1st of the month). It is requested that Non-PAS Members please make a small donation for placing your ad in both the PAsTimes newsletter and to my list of 170+ astronomy-loving email contacts. Please make check payable to Phoenix Astronomical Society and send to the return address on this newsletter. We do your advertising in hopes of great returns.

GREEN LASER POINTERS FOR SALE

This top quality green laser pointer makes an immediate impact. Presenters using green lasers are immediately perceived as ahead of the pack in both style and technology. Housed in a plush velvet case, this is a great choice for any purpose. Constant output. Powered by a Sony diode with a lifetime of 3000-5000 hours, it projects a green dot up to an incredible 2 miles away. It is so powerful that the beam itself can be seen for several hundred feet in darkness. That's why astronomers use it to point out constellations and stars in the night sky, the US Army uses it for training exercises, and executives at all levels use it to enhance their prestige. Anyone can use it for fun.



SPECIFICATIONS

Output type: constant
Output Power: <5mW, (Class IIIa)
Wavelength: 532 nm
Polarization: Linear (50:1)
Beam Dia. at Source: 1.1 mm
Output Variance: 10% after 20 min.
Beam Divergence: 1.2 mRad
Dimensions: 5.85 in. long, 0.54 in. dia.
Switch: Push Button
Operating Lifetime: 3000 - 5000 hours
Batteries: 2 X AAA (incl.)
Range: 9,500 ft (2800 m) in darkness
Class: IIIa

Each Laser is \$100 with batteries and carrying case. Members of the Phoenix Astronomical Society get special pricing, call for details. Limited quantity left. To order your Laser, call William at 602-561-5294.

STARGAZING, cont'd. from p. 9

public observing session is helping someone who has a scope but doesn't know how to use it. When finally set up properly, the look on their faces after first light is priceless." If you own a telescope, but are experiencing

problems with it, there is no better place to go than an astronomy club. Besides, there is also the camaraderie of spending time with other people from different walks of life who all share the same love for the nighttime sky.

Step 9 - Bring Refreshments

This is especially true if you plan to make your stargazing session an all-night affair. But make sure you're not eating anything that's greasy and might get onto fingers and then onto eyepieces and other optics. Include warm or cold drinks as appropriate, and avoid alcohol, which is a vasoconstrictor and can reduce your ability to perceive faint objects right at the threshold of your visibility.

Step 10 - Prepare for the Unexpected

Stargazing may be the ultimate getaway, but if you're planning an excursion to a dark-sky site far out in some open countryside, be sure to bring a cell phone and either a car cord or an extra battery. You may need it in an emergency or if you have car trouble. Let somebody know in advance where you are headed, what roads you intend to use, and when you expect to return. If you're close to being the last to leave a site, ask the other person to make sure that your car (and theirs) starts.***

THE 2004 PERSEID METEOR SHOWER

Meteoroids in space since the Civil War will spice up this summer's Perseid meteor shower

by Dr. Tony Phillips, from science.nasa.gov

The annual Perseid meteor shower is coming, and forecasters say it could be unusually good. The shower begins, gently, in mid-July when Earth enters the outskirts of a cloud of debris from Comet Swift-Tuttle. Dust-sized meteoroids hitting the atmosphere will streak across the night sky, at first only a sprinkling, just a few each night, but the rate will build. By August 12th when the shower peaks, sky watchers can expect to see dozens, possibly even hundreds, of meteors per hour. This is a good year for Perseids, for two reasons, explains Bill Cooke of the NASA Marshall Space Flight Center. First, the Moon is new in mid-August; moonlight won't spoil the show. Second, in addition to the usual shower on August 12th, there might be an extra surge of meteors on August 11th caused by a filament of dust newly drifting across Earth's orbit. The filament, like all the rest of the dust in the Perseid cloud, comes from Comet Swift-Tuttle. The difference is, the filament is relatively young. It boiled off the comet during the Civil War, in 1862. Other dust in the cloud is older (perhaps thousands of years old), more dispersed, and responsible for the month-long shower that peaks on August 12th. The filament will eventually disperse, too, but for now it retains some of its original ribbon-shape. If predictions are correct, Earth will plow through the filament on Wednesday, August 11th at 2100 UT (5 p.m. EDT). This will produce a surge of mostly-faint meteors over Europe and Asia. Observers might see "as many as 200 meteors per hour," says Cooke, who recommends getting away from city lights to watch the flurry. (Note: Perseids favor northern latitudes. Because of the way Comet Swift-Tuttle's orbit is tilted, its dust falls on Earth's northern hemisphere. Meteors stream out of the constellation Perseus, which is barely visible south of the equator.) Later that night, observers in North America can see the "traditional Perseid peak" caused by the older dust from Swift-Tuttle. "Expect 40 to 60 meteors per hour, some of them bright," says Cooke. The best time to look for these "traditional Perseids" is during the hours before dawn on Thursday, August 12th. Set your alarm

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SHOWER, cont'd. from p. 10

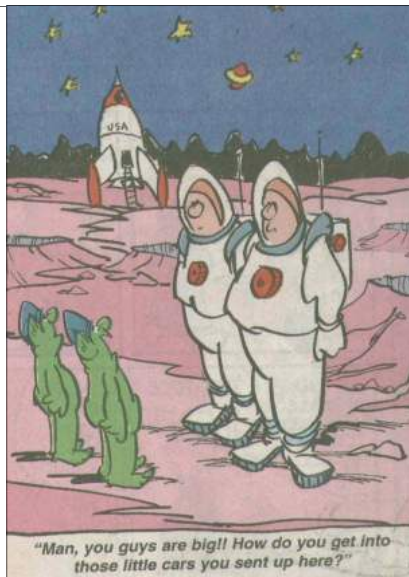
for 2 o'clock in the morning; go outside; lie down on a sleeping bag with your toes pointed northeast. You'll soon see meteors racing along the Milky Way. Can't wake up at 2 a.m.? Try looking around 9 or 10 p.m. on Wednesday, Aug. 11th when Perseus is hanging low in the eastern sky. You won't see many meteors then, but the ones you do see could be memorable. Shooting stars that emerge from the horizon and streak horizontally through the atmosphere are called "Earthgrazers." Slow and colorful Earthgrazers are a good target for city dwellers, because they are so bright. Dust from Comet Swift-Tuttle hits Earth. What about the comet itself? Americans Lewis Swift and Horace Tuttle, working independently, discovered the comet in 1862, and they watched the Aug. 11th filament billow into space. Three years later Giovanni Schiaparelli (of Martian "canali" fame) realized it was the source of the Perseid meteors. He understood that the comet could come close to Earth, but in those days no one worried about such things. The idea that comets and asteroids might threaten our planet was not widely accepted until the 1980s. Then astronomers began to worry. Comet Swift-Tuttle is big, about the same size as the asteroid that wiped out dinosaurs 65 million years ago, and as recently as 1992 it seemed that Swift-Tuttle might strike Earth in the year 2126. New data and calculations show otherwise, though. There's no danger of a collision for at least a millennium and probably much longer. So relax. Enjoy the show. Perseids are harmless ... and beautiful. This is an unusually good year to see for yourself.***

PERSEIDS: AUGUST 11-12, 2004

If you have the chance and don't have to work, or you can take the day off to do this, Jerry would like to have a few people join him at the Lake Pleasant site, see map, to do some viewing of the Perseids Meteor Shower. This Shower happens Wednesday night, Thursday morning. There is no moon, the new moon will be setting as the sun goes down. Get Jerry's number out of the Officer's list and give him a call, or off the Lake Pleasant map. Jerry doesn't answer his phone on the first ring so call his number, wait a few minutes and call it again. If he sees it has rang twice on his caller ID, he will either pick up if he is there, or call you back when he gets in. He wants to go out to the site for sure that night and has taken the next day off from work to do it so if you can go with him, please plan to do so. Plan to take with you an observing chair. What's that? Something to lay back in, like a banana chair, or reclining chair. A jacket or blanket, as it gets chilly out there. You are in the desert. Take toiletries, drinks, snacks, flashlight, a scope if you want to see more than just the meteor shower. Remember, we have changed our normal location from the Mile in site, to the 1/2 mile in site, so use the map to find its location and on your odometer, it is exactly 1/2 mile in on the right, after you turn off of Carefree Hwy. Make sure someone is going out there, do not go out alone. Enjoy!***

SUMMER MEETINGS & EVENTS IN REVIEW

This was one busy summer. We start the summer events with: **April 24 - PAsTimes Star Tours** did a job at the



Challenger Space Center in which we had Richard, Bruce, Finches & Dan. It was prom night, and we could feel the music beating through our feet. Imagine what our scopes saw in the night sky with the floor rumbling to the musical beat below us while we were observing on ceiling of the third floor. We had an awesome time up there and enjoyed it tremendously. We met lots of really cool guys and gals and saw wonderful dresses and talked to tons of people. The **Meeting of the Minds** on **April 29th**. Yes, that wasn't quite the summer but if you think of it, it was the last Meeting of the Minds before the summer started. We discussed the upcoming Astronomy Day event and the needed volunteers. We talked about having an Events Coordinator, of which I volunteered to be but no one liked the idea, or so it seemed. I'll get into that more later on. Dan Heim was at the meeting and gave a big talk on how the jobs of the

officer's didn't seem to be getting done, and that some things were just weighing every on everyone's shoulders, and now was the time to let everyone know it was not a good idea for one officer or 2, to be doing all the work of all the officers. So, we really had a good, productive meeting as far as letting everyone know what was going on and where everyone's place was, as far as the Officer's go. We discussed the Star Tours group, should they have their own T-shirts and Name Tags. The more we get out as "The Star Tours" group, the more some of us feel we should be know as an entity, not just as PAS. And so we were discussing how we should handle this. It wasn't decided at that time. In attendance at that meeting were Dan, Mike Mark, Matt, Disa, Dan, Richard, Ed, and the Finches. Richard Guthrie said he'd take over as Treasurer if no one else wanted the position, because Adam was giving up as Treasurer, so at the May meeting, when the new Officer's were chosen, he'd be elected in. Dan told us of his idea to have a NEW meeting location, which everyone, by now knows is Foothills Academy over in Scottsdale. We all voted on that, and we like it! Then there was the wonderful **Assembly Party** at the Finches on **April 30th**. If you haven't been to an Assembly party at the Finches, you ought to come sometime. First, you get to know what it is that goes into the preparation for these events that PAS holds. This particular event was preparation for the Science Center. So, we had handouts galore to assemble and put into bags. The bags were donated by Salah Mohammed who owns the All In One Store. We had the help of Matt, Don, Barbara, Mark, Kevin and Ed this time. We assembled over 500 bags and there must have been about 25 handouts. What do we put in them? Well, we had stuff from NASA, JPL, Sky and Telescope Mag, Astronomy Mag, some info from U.S.G.S., some info from a lot of other sources, and we included a bunch of flyers about PAS. Yes, we were the ones with the most flyers. Adam seems to think I like to make copies of stuff for the heck of it. No, to correct what Adam thinks, I make copies to promote PAS. And to make sure you all know, and because the event has gone by, I can safely say that all 500 copies of those handouts, all 500+ bags have gone out to the public that exact day, May 15, at the Arizona Science Center. Oh, we also included a raffle ticket in each bag, raffling off a donated telescope donated by Charles Young, and won by Disa Holly. There were tons of things being raffled off that day, but the telescope was the one item everyone seemed

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to be fighting to get that day. Anyway, I appreciate all the help I got in getting those packets assembled. Oh, and let me tell about an assembly party while I have your attention. They consist of a group of people with a purpose. You assemble as quickly as possible, just like an assembly line, you get a particular assignment, do your part quickly, and then get done. Once done, we try to have snacks, movies, something relaxing to do and fun for the rest of the evening. And everyone who helped is so very appreciated. The next item that happened during this summer was the **PAS meeting on May 6th**. This meeting had announcements and elections. We needed volunteers for the Arizona Science Center event on May 15, so I announced that. I also sent around a Thank you card for Betty Duty, my contact for the Girl Scout Troup for the White Tank Mountains Star Party we do every year. WE had tons of snacks this year and Mike Marron was thanked for all he does by being given a duplicate copy of his 2 video series Lecture tape (duplicated by the Finches). This meeting opened with Mark welcoming the people. Adam gave a brief review of the Treasury. Dan Heim is paid off at this time, from purchasing the A/V box. That is good, because PAS doesn't owe anyone at this time. Dan did a presentation to the group on our NEW meeting location. This brought up a bunch of different, mixed feelings. Some good and some bad. Some people liked it idea and others didn't because it would be further to drive. Personally, it will be further for me, but I think the new location will be good for PAS, draw in more people who can afford to help PAS grow and possibly spend more time promoting PAS the way we need to be promoted. So, I think the move will be good thing. We went over the pros and cons of the new meeting location, and distance is the only one that seemed to be everyone's concern. The location seemed to be a pro. The advantage would be that the facility is only 2 years old and that the room we'd be working in is Dan's science room, we'd have easy access, open as late as needed, not have to worry about not having a key to get in when needed. We'd have a broader base of the N. valley people and the kids who go there are grades 6 - 12 and upper level science grades. Plus in the past, at Brophy, Dan would send his kids to the class for extra credit, and could do that again, where as, at Valley Academy, he couldn't do that because it wasn't his school kids. So, that meant he couldn't drum up the interest in what we were doing. Plus, Dan is also the editor of the school's web site, has linked their page to the pasaz.org page, and so the kids parents can research our info and find out who the speakers will be and such, and visit our meetings. It is a darker location and not as light polluted and great for night viewing. PAS get free publicity on the school website. They have a PR department and they run ads in the republic each month which may promote PAS more, as well. The parking lot can hold 50+ cars. We can hold up to 500 people in our presentation room. After Dan's presentation, Adam retired as Treasurer and Richard took over and was voted in as new Treasurer for PAS. Congratulations Richard! Those who weren't in attendance to be changed or voted in or out of office, stayed the same. See officer's list for any further changes. The only other change was the JR Ambassador was dropped for now, till further notice. **May 7** was an **Adult's Night Out** at the Arizona Science Center. This was a good night for observing except for one thing. We had a good turnout of scopes. Barbara, Don, Richard and I were there, but so was the smoke in the sky from the fires. This was the night that the fires up north and some around south Phoenix took over the sky and so "seeing" wasn't good at all, so we fought with

blurry skies. We did our best and called it quits rather early that night. But the people we showed the sky to, enjoyed Jupiter mostly. That was the main object as we had to deal with some clouds as well and they didn't turn out the lights for us that night in Heritage Square. **Astronomy Day** - what a day **May 15**. I was a bit disappointed in the initial set up, as I was told, once I got there, I couldn't setup the way I had it planned, but after a while, and after a bit of adjustment, we made it work. And the day went smoothly. We had enough volunteers to cover the whole day, and I need to thank everyone who helped out. My bag people were especially good. Excellent job at getting those bags out to everyone. Thanks to Luanne and Mark. I had an excellent display done up by Barbara Hartman up in the Telescope display area. Barbara did a sensational job and up there we had Richard to help out and Roger and Scotty and Don. Thank you all for being up there with your telescopes. I had an awesome group from Moon Valley High that came and helped out, and I was even able to let them go as a group into the planetarium during the day and watch some shows. The public slowed down in the afternoon, so they were able to wander around the science center in groups and I had others fill in where needed while they were gone. It really worked out great because they were able to take breaks easier than I had planned initially. So I wish to thank Brianne, Jamie, Laura, Rebekah, Alyssa and Ca'Laurie. Oh, and Dan and Roger had an awesome display. They did a Laser Light show which really attracted attention and had the kids having fun over down the end of our display. I'd love to have that again for next year. That was really something. Thank you both for running that display. Bette, Ed W. and Bruce ran the Raffle tickets, and that was some job. Constantly keeping that thing going. I had drawings going all day, every 15 minutes and someone got a prize all the time. Ed G. did a great job working next to Kevin on the Pendulum display. Matt was an excellent sign in person with name stickers. Mike had his own wonderful display off to the side, but he had it all set up and it worked well for him. I had him over by Bob, Meteorite Man and the two of them conversed all day long working together. What a team. Disa did a great job promoting the crickets. And Susan helped out where ever needed. My team was awesome. Thank you all so very, very much. I really thank you so much. And I thank my telescope group outside that night as well. It was a very long day/night for some of us, but I think it was well worth it! **May 22 - Lake Pleasant Star Party** - In attendance = Don, Darrell, Jim, Tracy, Finches, Dan + Wife, Kids for Slumber Party. Objects being viewed - Jupiter, Saturn, Moon, Venus. Excellent sky, Fun Night, you should have been there! **May 27 - Meeting of the Minds** - This was a Meeting of the Minds you should not have missed. We had a great time. We toured the new meeting location facilities. Dan took us all around Foothills Academy, we met with the people who run the school and we had an awesome meeting. We used the chalk board to write the list of items for discussion and it was a long list. This time we did a random choice of what the topics were to be discussed. We talked about discounts and how PAS could get more companies involved in giving more PAS Members discounts and how the membership cards should print on the back or someplace, the places that do give us discounts. That is in the works. The website will have that as well, over time. We talked about our speaker list for next year, and Mark is working on that. We talked about how we want quality guest speakers and who we are looking for to be speakers for PAS to draw in more people to visit our meetings. Mark had an idea of having a

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DVD library. We discussed having a Black Canyon City Star Party. We discussed taking the Star Tour pictures at Mike's house up in Cave Creek, and Mike drew a map and we all agreed to meet up there. Richard reviewed what he found out about the treasury and told us what we needed to know about current insurance and such. We voted on getting that insurance for the club and such. We talked about becoming Incorporated or LLC and how to do it, and research on it, and trouble with it. We talked about how Sky and Telescope Magazine decided to increase their rates, so the dues sheet will have to be altered. Dan told us of how the new lectern will be built and how Roger will help do it make it for the club. We discussed more signs to be made for PAS. We talked about possible SIGS. SIGS = Special Interest Groups such as having groups that meet to talk about Astrophysics lead by Mike Marron, or Faint Fuzzies lead by Barbara Hartman, or Computer Planetariums and Computer & Technology lead by William Finch, or Astro Photography or SideWalk Astronomy or Star Parties... etc. We talked about the Business cards for the officers, and Dan handed out new cards designed by him for Terri, and asked if the officer's liked them and which they liked better, and then he offered to make them for the rest of the officers. We talked about changing the Lake Pleasant location, the mile in location to be the 1/4 mile in location instead, because it is cleaner and less used, and changing the map to show that. We talked about how much money the aluminum can drive is bringing in and is it worth running

the drive for another year? Who will house the project and run the cans to the recycling center for the next 2 years? We talked about a bi-monthly (every other month) photo contest, in the newsletter or at the meeting, where the participants bring with them the photos they wish to enter in the contest, turning in some cash amount, like \$5 or \$10, maybe winning 1/2 the cash that was turned in, the other 1/2 going to the club, anyone not in the contest is the judge of the photos, having this contest maybe 2 X a year, or more, particular months, - ideas are needed. Maybe the September meeting since it is the first of the season and maybe the May meeting and one in between. Format would be 8X10 framed.... need to let Terri know ahead of time you were entering contest, so there are at least 2 participants, something like that. Ideas? Share. Maybe win club membership for year instead of money. Discussed fact that Mark has club library, and library is open to anyone who is member, and items in library should be listed in newsletter. In attendance at this MOM was Kevin, Mike Barb, Don, Finches, Matt, Dan, Richard, & Mark. Thanks for everyone who came and participated in this meeting. **May 29 - PASTimes Star Tours** did a job at Grayhawk with Richard & the Finches for a group of superior young Golfers. They even fed us at this job. We had an awesome viewing session over a lake, with live entertainment and a very wonderful crowd to show the sky to. Awesome evening! **June 24 - Meeting of the Minds** - In attendance were Dan, Richard, Ed, Don, Kevin, Matt and the Finches. Dan opened the meeting with handing out of awesome Business cards. Yes, the officers get the greatest business cards. We got info from Ed that John Pulis isn't doing well. Dan Also told us of Amazing Awards and the new lectern and a plaque that was going to be on the

lectern. He also created a closing letter for our services to Valley Academy for the last 5 years that he is mailing to them. Did you know we were at Valley Academy for 5 years? Jerry couldn't make it to the meeting but while the meeting happened he called in and told me about the Persids meteor shower on the 11th & 12th which peaks between 2 and 3 am, that's a Tuesday Night. He wants to hold a star party at Lake Pleasant that night for the Meteor Shower. Richard went over the insurance and incorporated situations for the club. We talked about having speakers and how much they cost and such. It was a good meeting. **June 26 - Anthem Take 2** - Yes, this



was an interesting night. Since this was Take 2, you know that we were a bit more prepared for things. We came with our 300+ packets, assembled back before Anthem Take 1 occurred, and so we were ready. This time I gave everyone a box to hand out and the idea was to get rid of the handouts, not to hang on to them. And someone was doing an AWESOME JOB of it. Thank you, who ever you are. Maybe it was Dan, Barbara, Don, Richard, I am unsure, but I do want to thank who ever it was. By the time the people got to me, I didn't have to hand them a bag, they had one. Anyway, many thanks goes to Ted, Matt, William for running the PAS table which had many sales this year. Good sales. I'm very glad. And The scopes we had were great. WE didn't need that many and we did great with the ones we had. Thanks to Barbara, Don, Dan, Richard, & Roger. Hopefully next year we won't have to reschedule from the first try. It was a fun, interesting and busy Astronomy related summer.

Thanks to all my volunteers for their help. I hope everyone had as much fun as I did at these events. See you at the future ones!***

THIS IS IT! ALUMINUM CAN DRIVE COMES TO AN END!

Yes, this is the last chance. Do you have aluminum cans sitting around your house getting in your way, just waiting to be turned in for money? And they aren't doing any good in your kitchen, garage, or under the sink. Why not bring them to PAS and donate them to a good cause. Remember, PAS is giving away a FREE PAS membership for the 2005 PAS year to who ever turns in the most pounds of aluminum. Here are the results so far and I know you can beat the current lead person: Mike Marron has the lead with 117 pounds. Ted Finch has 27 pounds, Matt Kohl has 87 pounds, William Finch has 36 pounds, Adam Bloomer has 1 pound, Bruce Wurst has 12 pounds, Don Boyd has 15 pounds, Tim Steelman has 12 pounds, Ed Garbero has 1/4 pound, Kevin Harcey has 1/4 pound and Kevin Gray has 1/2 pound. Who will win that membership to PAS? Only he who has the most pounds turned in by the September PAS meeting will win. So, bring your cans over to the Finches home or to the PAS meeting, because that PAS Meeting is the last chance you have to turn them in. The winner will be announced and awarded at the October PAS meeting. If you have weighed your cans and think you have beat Mike, then hold your dues till October, and compete to win that membership. Otherwise, your dues are due preferably at the September PAS meeting. See you there! Note: Does the amount of aluminum cans turned in have anything to do with the amount of pop one person can drink?***

JULY 29 MEETING OF THE MINDS REVIEW

This was a great meeting. Not many people attended but we sure had a some great discussion. IN attendance were Richard, Ed, Mark, Jerry, the Finches, Mike, & Matt. We made some really tough decisions and had some really hard core discussions. Here are the highlights and decisions that were made. Jerry made some newsletter change ideas. One of his ideas was to change the back page. Now, he has made this suggestion several times and we have tried to accommodate it however, if we make our newsletter look like the newsletter that SAC has, then the editor of SAC should be doing our newsletter, not Matt and I, so we aren't going to accommodate that change... at least not exactly. However, I am going to do a little of that idea, but incorporate it within the newsletter instead. What Jerry wants is lists of dates of when some of the meetings are so that he doesn't have to hunt for the dates of the Meeting of the Minds or the PAS meetings or the Lake Pleasant Star Parties, etc. So, What we will do is make lists and have them in the newsletter in blocks so they can be found quickly in the center of pages and be listed in the table of contents for the ease of locating them. That way, we accommodate Jerry without having to duplicate the SAC newsletter. Another suggestion Jerry had that we have discussed and kinda like is one that may save the club a little postage. At present we mail out about 17 copies of the PASTimes Newsletter. Jerry thinks we should do the newsletter about 2 weeks earlier, bring the next months' issue with us to the meeting, have everyone who receives it via snail mail pick up their copy and the remaining copies get mailed out. Now, that would have to be on the honor system. Those who receive the newsletter via email should NOT be picking it up at the meeting because it wouldn't be fair to those who need a hard copy and can't get it by email. So, we are thinking of implementing this starting in October and seeing how it works. I'll prepare the newsletters, slap a mailing label on those that would be mailed out, and if you are one of those who receive your copy by snail mail, pick it up at the meeting. If you don't make it to the meeting, it will be dropped in the mail a few days later, and you'll get it that way. I'll also bring along a few extra copies for NEW visitors to take a copy, and for NEW joining members. I'd like to see only NEW people and those who need a hard copy taking those copies. I'm not going to make a lot of copies. The club pays for every copy it makes and every time i make a copy, the Treasurer looks at me like I'm nuts for making more copies than needed. So, be honest and if you can get your copy on line, do it, and save the club some money and postage. So, starting October, we will give that a try. If you need your copy in hard copy, I need to know ASAP. Especially if you aren't already getting it in hard copy. Dan made a proposal to move the September PAS meeting a little later (please see the article about this in this issue) and we had a major discussion about this, and we decided it was an excellent idea and voted we do it. I passed out the new Officer's business cards that Dan snail mailed to me so that the Officer's could have their cards. They looked awesome. Mark, Jerry and I had a major discussion about speakers. Mike jumped in and we talked about having Fuvlio, Hartmann, Ross, and a few others, plus whoever Mark could get to come speak. Then we turned our topic to Mirror making. We are thinking of holding a Mirror making class and need to know if there is any interest in that. I'll be sending out a notice about it and need feedback on who is interested. Watch for the notice and reply if you want to attend. We discussed the current dues and what they include. For those of you who aren't aware of what your dues pay for let me

give you a brief in an article. Please read the article - Your Dues and what they doo 4 U. We voted, during that discussion to drop the Sky & Telescope magazine subscription. Let me tell you why. Jerry brought it to our attention that if you subscribe straight from Sky & Telescope for 3 years at a time, you are getting the same rate they give it to us for at the now raised rate of \$33/year. Most of the folk who get Sky & Tele from us, don't seem to realize that they can do that. So, Matt and Terri are composing and adding to October's issue a whole section on all the Astronomy magazines, their addresses, their rates and what's available out there for subscription because we feel that there is more than just Sky & Tele and that that isn't the only magazine you should be looking at. Personally, I prefer Astronomy Magazine and now that Astronomy Mag has come out with that new Beginners mag, I love that one more. It is more observational and suited to the telescope user than either Astronomy Mag or Sky & Tele. Note that a 3 year sub is the same rate as having gotten Sky & Tele through PAS at one year at a time. Plus, our Treasurer has enough to do without all the hassles of sending in the Sky & Tele subscriptions. We thank you for your understanding. Ed & Richard informed us that John Pulis is not doing well at all. John has been a PAS Host for quite some time, and a very big part of PAS. He now lives further away from PAS's meeting location and will probably not be seen at the meetings. Thus, we will be bringing a special card to the September PAS meeting and we want everyone in attendance to sign it so we may mail it over to him and thank him for all he has done for PAS. We want him to continue to feel as part of the group because he means so much to us. Be sure to attend the meeting to sign the card for John. We also discussed making the Black Canyon City site our Deep Sky site location for some of our Deep Sky Star Parties. Thus, we are thinking of having our September 11 Dark Sky Star Party at the Black Canyon City Site. This is not set in stone so watch for any updates or changes. But right now we are discussing it and always check with an officer for changes before driving to any star party site alone. See map for location. When you attend the Black Canyon City Star Party, PAS rents the park, thus we ask that attendants pay PAS \$5/vehicle that comes to the park to cover the cost. The fee is collected by Terri, or if I'm not there, then pay Richard. We will probably not have a potluck at this star party this time. Everyone is welcome to attend. Jerry was telling us of a friend who has a place just NW of Lake Pleasant which is N. Peoria, who has offered for us to have a star party at their place. He is researching if we want to do this or not. He will get back to us on this. And the last two topics of the night had to do with astronomical items. First off, we have an awesome PERSEIDS meteor shower coming up. Jerry wants to hold a Meteor Shower Party at Lake Pleasant. Use the Map, call Jerry at the number on the map to confirm you are going out there, and meet him out there for a great observing session. See the article named Perseids, to find out more about that night. And lastly we have a TOTAL Lunar Eclipse right before Halloween and PAS is thinking of planning a major event at the Phoenix Children's Hospital. You may wish to put this on your calendar. See the article about this called CHILDRENS HOSPITAL for more details. The Meeting of the Minds this month was awesome. You should have been there to give your input. It was very productive and we had some great discussions. I appreciate everyone who came and gave their input and I really appreciate that the discussions stuck to the topics at hand. We didn't have too much chatter that wasn't "at that moment" topic related. There weren't many of us

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but we made some really tough decisions and if you didn't like the decisions we made, you should have been there to sway the final decisions. See you next month at the Meeting of the Minds on August 26 at Denny's on I-17 and Dunlap in the Backroom at 7pm. Don't miss it. The topics only get better and fewer and the discussions get deeper and really thought out. Your input is really needed. Be there! As a point of interest... My reviews are nothing like having been at a meeting. I can't begin to give you all the details that went on, I only touch the surface, and only what was important to me. You have to be there.***

TOTAL ECLIPSE OF THE MOON

Halloween 2004 Children's Hospital

It's a Wednesday night. Jerry is proposing that we hold a special, public star party for this total LUNAR Eclipse at the Phoenix Children's Hospital on October 27, 2004. He will set it up and do all the arrangements. All we need is telescopes and volunteers to make it work. It is a ways off yet, but as you know, I like to be on top of things, so, if you are interested in volunteering, let me know so I can have a head count way before time. And as soon as we have it pinned down and squared away, we will let you know. Jerry will have more details for us soon.***

MIRROR MAKING CLASS

Jerry has been trying to get together a mirror making class. We'd like to know what kind of response there is to such an idea. If you are at all interested or know anyone who is, please let us know. RSVP with Terri ASAP. So far we have Mark and Ed who are interested in a class. We would need a few more people to make it a worth while venture. Then we would get the guy from Prescott to get involved in making this class work. Contact Terri today.***

YOUR PAS DUES ARE DUE

It is that time again when the PAS dues are due. The dues are collected in September and October to cover the following year. So this year's dues will be for the 2005 year, January to December. The dues this year have gone up, and if you would like some details on why or what they cover, please see the article, "your dues and what they doo 4 U." We've had a few changes to the dues sheet, please look it over before filling it out. And please download it if you are receiving the newsletter via the internet and mail it in to Richard (address is on the dues sheet). If you have an older copy that has Adam's or Terri's name on it as where to send the dues sheet, these will NOT be accepted. So, please look for Richard Guthrie's name at the bottom of the dues sheet as the current pricing. Also, if you are paid up for next year by some special coincidence, you do not owe anything extra. Roger Scholl is covered for 2005. That's the only one who prepaid 2 years in advance. Thank you Roger, and for that you didn't have to pay the increase for this year. The deadline for the dues to be paid is still October 31. It is preferred that all dues are in by then to make it easier on the Treasurer's book keeping. Thanks to everyone who handles their dues early. You can send the dues directly to Richard, or bring them to the September PAS meeting, or come to the next Meeting of the Minds, or meet us at one of our many other Fun events. Let's make 2005 a very fun, exciting PAS Year for everyone!***



YOUR DUES & WHAT THEY DOO 4 U

Your dues cover quite a bit behind the scenes that you may not be aware of. First off, PAS carries insurance. Yes, incase someone, yourself, a friends, a visitor, or anyone who is anywhere near anything we do at the time when we do it (we = PAS), and they get hurt, PAS has insurance to cover an accident so that the members of PAS are not at fault. This is good, but it is expensive, so it comes out of the dues that you pay towards PAS each year. Your dues also cover a small fee for the membership to belong to the Astronomical League for which you get a quarterly newsletter/magazine. You should receive this every 3 months. If you don't, you need to be sure to contact our Treasurer and be sure you are on the list. As long as your dues are current with PAS, you should receive it. Your dues also cover for PAS to be incorporated. And they cover the supplies for the printing of the flyers and such for advertising the club to the public, such as the handouts that go out every Adult's Night Out at the Science Center. They cover the cost of printing and mailing the newsletter if you receive your newsletter via snail mail. Being a member of PAS has some benefits as well. There are a few businesses who offer discounts to you because you are a PAS member. The All In One Store has a 10% off everything in the store if you show them your PAS membership card. Infini-tees, where we ordered our PAS t-shirts, has 10% off anything ordered from their site for PAS members. So, the next time you think that the newsletter is all you are getting for your dues, please consider that behind the scenes, there may be more than meets the eye, and enjoy what PAS has to offer.***

ARIZONA SCIENCE CENTER ADULT'S NIGHT OUT

Sept. 3, Sex Selection Techniques and Ethics; Speaker: Dr. Randall Craig

Oct. 1, Marking Time: Ancient Southwestern Astronomy Speaker: Todd Bostwick, Ph.D.

Nov. 5, The Complex Society of Insects; Speaker: Jennifer Fewell, Ph.D.

Dec. 3, Mountain Gorillas: Their Lives and Threats to Their Existence; Speaker: Dieter Steklis, Ph.D., Netzin Steklis, M.A. & Dian Fossey, Gorilla Fund International***

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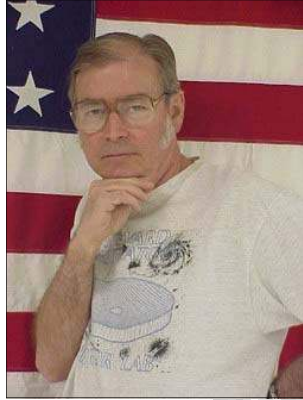
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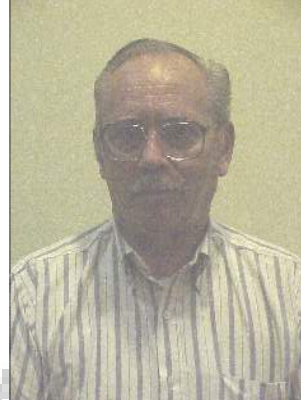
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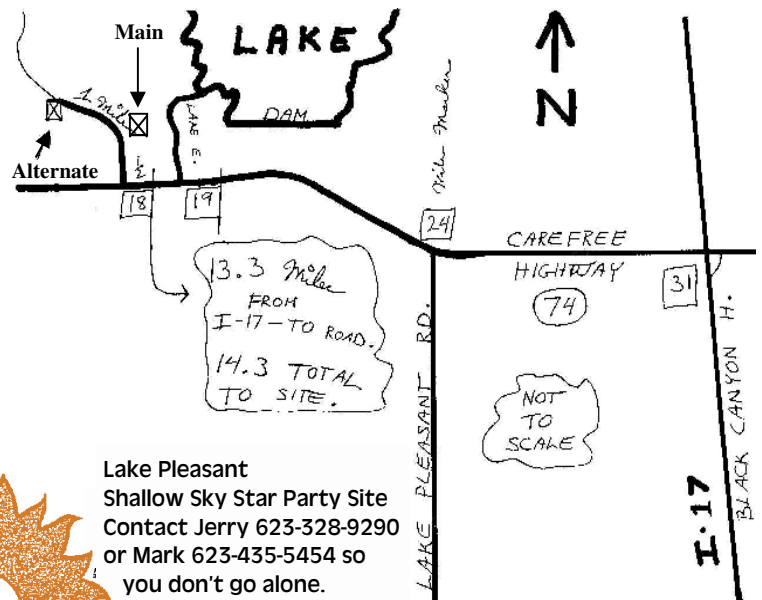
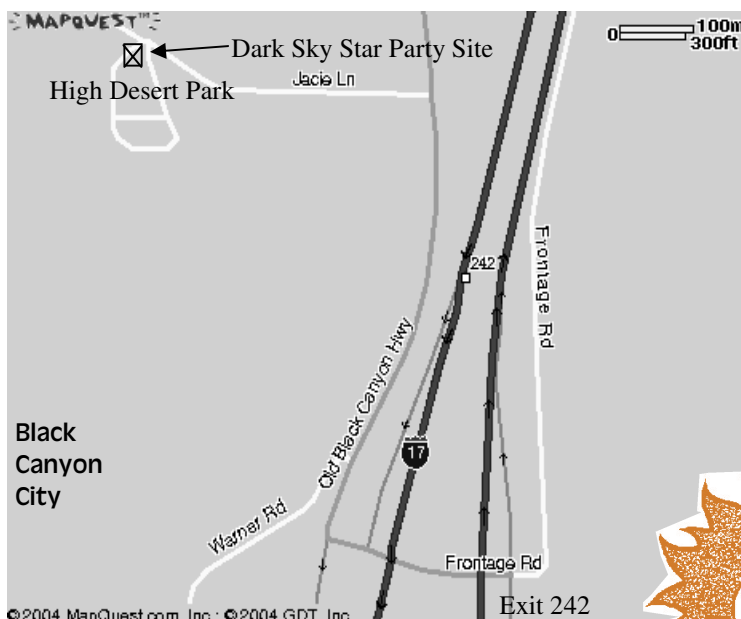


Kevin Harcey
P.R. Dir.

UPCOMING EVENTS

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
AUGUST 8	9	10	11 <i>Kevin Harcey's Birthday</i> (P.R. Director) Perseids meteor shower peak. <i>Lake Pleasant Perseids Star Party</i> - see map (call Jerry if you want to go)	12	13 Saturn 5° S of Moon	14 <i>Lake Pleasant Deep Sky Party</i> - see map
15	16	17 Jupiter 3° to left of thin crescent Moon, very low in W after Sunset; Venus at greatest elongation (46° W)	18 Jupiter 3° S of Moon	19	20 <i>Deadline</i> for submissions to October Newsletter	21
22	23	24	25	26 <i>Meeting of the Minds</i> , 7pm, Denny's, Dunlap + I-17	27	28 Neptune 5° north of Moon
29 Uranus at opposition (visible all night)	30	31 Venus 1.9° S of Saturn	SEPT. 1	2 <i>PAS Meeting</i> , 7pm, Speaker: Dan Heim, Topic: Man On The Moon; Last chance to turn in cans for free 2005 membership	3 <i>Adult Night Out</i> - Arizona Science Center- Volunteers needed 6 - 10pm	4

Saturn 2° to upper left of Venus in E before sunrise



Lake Pleasant
Shallow Sky Star Party Site
Contact Jerry 623-328-9290
or Mark 623-435-5454 so
you don't go alone.



SEPTEMBER 2004

PAStimes

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PHOENIX ASTRONOMICAL SOCIETY

Terri & William Finch
PAStimes NL Editor & HP Editors
10828 N Biltmore Dr #141
Phoenix AZ 85029 USA

PAStimes
Sept. 2004 Issue

STAMP

BRING A FRIEND

SEPTEMBER SPEAKER: Dan Heim
TOPIC: "Man on the Moon"

TO:

MAILING LABEL

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AND MUCH, MUCH MORE!

PAS MEETINGS 2004/2005

Sept. 2, 2004, 7 pm

Oct. 7, 2004, 7 pm

Nov. 4, 2004, 7 pm

Dec. 2, 2004, 7 pm

Feb. 3, 2005, 7 pm

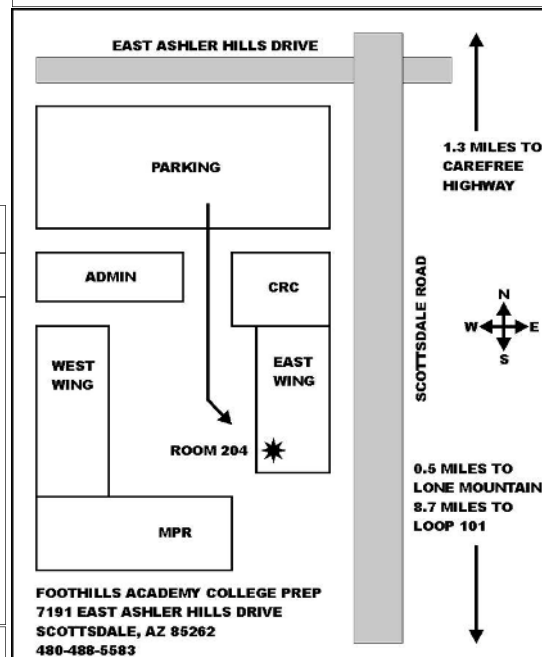
Mar. 3, 2005, 7 pm

Apr. 7, 2005, 7 pm

May 5, 2005, 7 pm

P.A.S. Meeting Location

Foothills Academy College Prep
7191 East Ashler Hills Dr, Rm. 204



2004/2005 P.A.S. OFFICERS

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