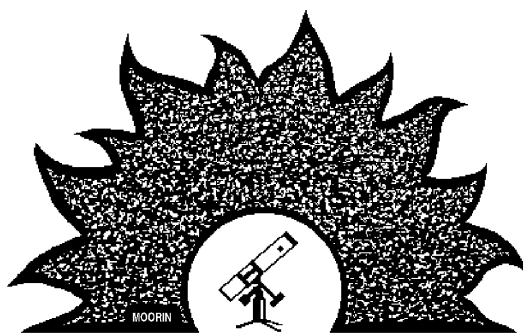




PAStimes

Newsletter of the
Phoenix Astronomical Society
www.pasaz.org

April 2006
Volume 58, Issue 8

PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

Next Meeting: Friday, April 14th (Note this is not the usual first Thursday of the month.)

☞ Note also, this month's meeting will be at Foothills Academy, in East Wing Room 104 (map provided on last page of newsletter). Doors open at 7:00 pm, and the meeting will start promptly at 7:30 pm.

This special date and venue is needed to accommodate the schedule of our speaker, the illustrious Dr. Jeff Hester of ASU. His topic is "From the Big Bang to Big Brains." You can read more about Dr. Hester on page 2.

Please note that our May meeting, featuring Meteorite Man Bob Holmes, will be back at PVCC. The date for that meeting is May 4th, on our usual "first Thursday of the month." This is also the meeting at which we hold our Officer elections for 2006-2007, and thus your opportunity to run, vote, and shape the future of PAS. ★

Last Meeting: Thursday, March 2nd

by Dan Heim

Our scheduled speaker, John Reiss, Jr., JPL Solar System Ambassador, was out of country and unable to return in time for this engagement. We hope to have him back at a future meeting.

Filling in with a fascinating presentation (as usual) was Dennis Young of the Sirius Lookers Astronomy Club of Sedona. Dennis' presentation was "Tips on Using Eyepieces."

He explained how it was possible to get a "Barlow effect" by properly combining field flatteners with spacers. According to his tests, there was no visual difference between a true Barlow and his system, even though there was more glass between the object and the eye. Fascinating idea, and a cheaper way to get more focal lengths out of a given set of eyepieces.

He also took this opportunity to demonstrate a new high-power green laser that has recently become available. Whereas standard green lasers are in the 1-5 mW range, these are rated at 15 mW. They are intense enough to light a match or burst a balloon at close range, and easily visible in the night sky even when pointing at the Full Moon. They are available at www.megalasers.com and other outlets.

Of course, one must handle such lasers with great care, and never point them at a person or vehicle.

See more images from this meeting inside. ★



Dennis demonstrates the fine points of properly connecting multiple optical components. Check out his website at: www.sedonastarlight.com.

Astro Factoids

Contributed by Bette Wurst

In order to equal the amount of energy transmitted each day from the Sun to the Earth, it would be necessary to burn 550 billion tons of coal – more than could be mined in 1000 years.

All of the gas giant planets (Jupiter, Saturn, Uranus, Neptune) have rings, but Saturn's are by far the largest. Although only about one-half mile thick, they extend about three-fourths the distance from the Earth to the moon, or approximately 175,000 miles. ★

April Events:

- 4/1: PAS public star party @ Anthem, volunteers needed, setup 5 pm, viewing 6-10 pm.
- 4/6: PAS/PVCC public star party @ PVCC, volunteers needed, 6-10 pm
- 4/7: PAS Adult Night Out Shallow Sky Public Star Party @ ASC, volunteers needed, 6-9 pm, Dr. John Black of ASU speaks on "The Amazing Human Vision System."
- 4/7: PAS/Phoenix Parks star party @ Cesar Chavez Park, 7858 S. 35th Ave, 7-10:30 pm snacks provided, volunteers needed, 50-60 6th-8th graders expected, RSVP Terri
- 4/9: PAS instructional telescope workshop @ Bookman's Backroom, 8034 N. 19th Ave., meet on Track Field, volunteers needed, 4:30-6:30 pm class, 6:30-9:30 pm viewing.
- 4/13: PAS public star party @ Dreamy Draw Park, 6-9:30, volunteers needed, RSVP Terri
- 4/14: PAS lecture meeting @ Foothills Academy, Dr. Jeff Hester speaks on the topic of "From the Big Bang to Big Brains." 7-9 pm.
- 4/21: Astronomy Day prize bad assembly at the Finch residence, followed by a movie, BYO snacks, drinks provided, RSVP to Terri, 7 pm
- 4/22: SAC potluck star party @ StoneHaven, sundown to ?, for a map and details, email Steve Dodder at: SDodder@hotmail.com
- 4/27: PAS Meeting of the Minds @ PVCC Room G-147, 7:30 pm, 5 pm dinner prior to the meeting @ Deer Valley Airport Restaurant, 702 W. Deer Valley Road, RSVP to Terri by Tuesday. No children please.
- 4/28: PAS/Phoenix Parks star party & campout, 7-10:30 pm, snacks provided, volunteers needed, same kids as 4/7, RSVP Terri
- 4/29: PAS deep sky star party @ High Desert Park in BCC, sundown to ?, \$2/car donation requested, RSVP Barbara by Friday noon.

Profile: Dr. Jeff Hester

By Dan Heim

Jeff Hester, well known for (among other things) his HST images of the Eagle Nebula, lists his research interests as: formation of low-mass stars in massive star-forming environments, structure and dynamics of the Crab Synchrotron Nebula, H II region structure, and various ionization phenomena.

His presentation to PAS will be "From the Big Bang to Big Brains." It follows the evolution of structure in the universe, from the primordial "quark soup" to the complex neural networks in our brains that allow us to discuss such ideas. I had the privilege of seeing this presentation at the Scottsdale Arts Center last year, and can assure you this is one lecture you do not want to miss. His lecture is accompanied by an outstanding multimedia selection.

Dr. Hester is a professor of astronomy at ASU, and is currently teaching course AST 112 "Introduction

to Stars, Galaxies, and the Universe."

He is an avid scuba diver, and co-author (first listed with six colleagues) of "21st Century Astronomy," a new text aimed at astronomy undergrads. A quote from the text:

"One of the most exciting things about Astronomy is that sometimes you get up in the morning and discover that we know fundamental things about the Universe that we didn't know the day before. The recent release of the results from the Wilkinson Microwave Anisotropy Probe (WMAP) satellite observatory are one of those historical moments."

You can read more about Dr. Hester's research at his (extremely interesting) web page:

<http://eagle.la.asu.edu/hester/> ★



Dr. Jeff Hester of ASU, our April speaker.

Saturday Night with Saturn

Contributed by Laurice Dee, Ph.D.

"I arrived at the Wind Cave trailhead after completing my hike on Saturday evening, 28 January 2006. I decided to hang around, so that I could enjoy the evening twilight. Saturn, reaching opposition (opposite the Sun in our sky) the evening before, rose from the east not too long after the Sun set. While the ringed planet hung right above the Usery Pass mountain (the location of the Wind Cave trail), it was becoming a little more visible as the evening sky got a little darker."

The preceding is the start of yet another excellent article, this time on the Cassini mission to Saturn, by Dr. Dee. Read the rest of it at:

www.pasaz.org/downloads.html. ★

Captain's Log

By Terri Finch

I'd like to take a short moment & truly thank those PAS folk who are doing a superb job of keeping PAS together. If you haven't attended a MOM recently, you might want to come, find out what we are doing, what are we planning, & how you can be of assistance, if you wish to be. Disa has taken on the wonderful job of contacting companies to find out if we can get donations for prizes for our Essay Contest. Essay Contest? Yes, those who have been attending the Meeting of the Minds on the last Thursday of each month know what PAS is doing. Come join the fun.

I have been working on contacting LOST members. I have all the paperwork & supplies in hand, but haven't had time to put it together to get it mailed out. But, once I do, I'll update the group on the progress.

Then we have Leah, Wow.... what a lady! Leah has been helping not only in making millions of copies of handouts for the next several really cool public PAS Events, but also helping design the PAS puzzle page for the Astronomy Day Treasure Hunt happening May 6 at ASC. She has been so into it, & doing a spectacular job. I know what she is doing because I used to do the puzzles for the newsletter. Remember those? They took hours, & then we didn't have anyone do them. I was disappointed, but I did have fun making them.

Dan, the Man! Newsletter.... it's looking great, sounding great, & on time. Thanks Dan!

Mike, the wonderful Treasurer. I do hope Mike stays on for another term with PAS as Treasurer because he has been right there, helping, assisting, reimbursing, taking in dues, & keeping it all straight.

Barbara, have you seen her website. Yes, she & I don't always agree on the upcoming events list, but for the most part, the way it is, looks awesome. The layout & the content. In fact, I've had quite a few really nice compliments come in to me, via email, saying how wonderful & easily navigatable our site is. Dan deserves thanks for that too for creating it.

I may not have mentioned everyone in this brief but important THANK YOU, but I do wish to send many thanks to all the PAS Team who are actively involved in our projects & PAS.

Each month we have a really cool collection of PAS members who go out of their way to enhance the

life of children & adults with views of the night sky or information about it. Here's a few examples of how the Telescope Team really made a difference this past month. These are the events YOU should have been involved in.

Sally Ride Festival – The stars of this event were Jeff Hopkins and Chet Schuler who brought their telescopes & shared the Sun with the girls who visited. We also had John Pulis with his telescopes on display. Meena Shankar helped out along with Bette, Ed & Bruce Wurst, Mike Marron & Finches.

We had an awesome display, & we were told there were 950 participants. A participant is a girl from 5th - 8th grade, & could be accompanied by their parents. Dawn Mullan (Space Artist) was also at the festival & was set up right next to our display. The team was given breakfast & lunch. Tracy, our contact for the Festival sends her thanks:

Greetings Festival Exhibitors! We want to thank all of you for making the ASU Festival such a great success! We had a great turn-out & I am sure you were all quite busy interacting with the girls! All of your booths looked absolutely fantastic & I am sure the girls had a blast visiting (exploring!) all of them. We hope that you enjoyed the day & were able to get a lot of exposure for your organization. If you have any feedback or suggestions (good or bad!) please feel free to send me an email. Best of luck to you in the future & we hope to see you again at next year's ASU Festival! Many, many thanks!

— Tracy

Thank you Team! ★

Astro Factoids

Contributed by Bette Wurst

Triton is the largest moon of Neptune. Triton is also the coldest place in the Solar System, with a temperature of -393° Fahrenheit.

Coronal mass ejections, a.k.a. CME's, are large clouds of plasma, measuring in the billions of kilograms, that are blasted from the Sun and sent out into space. When these plasma clouds collide with Earth's magnetosphere they generate large auroral displays, disrupt communications, expose astronauts to dangerous levels of radiation, expand the atmosphere creating drag that can decay satellites in low orbits, and cause power surges in the grid that can blow transformers. Back in 1989, most of Quebec lost power for 9 hours due to just such a surge. Mr. Sun is not always nice to us. ★

Images from our March Meeting:



PAS was back at PVCC for this event. As always, members snack and socialize before the lecture. We had about 30 people in attendance that night.



Dennis sets up his multimedia. Mike is snacking. Hard to see, but there's the usual tray of cookies and other snacks on the table behind him. Dave and Ed (our gracious PVCC hosts) usually provide a nice selection of goodies for these events.



Terri opens the meeting, and provides information on a really nice space calendar available to PAS.



Jerry Belcher, past President and current Rocketry Liaison, provided an update on a recent launch. Pictures of this event are on the next page.



Dennis is attempting to burst a balloon with his new high-power green laser, while simultaneously shielding his eyes. Bruce holds the target. Note the bright glow on the balloon. He didn't burst the balloon, but was able to light a match!



After the lecture, Dennis entertained questions from the audience. Thanks Dennis for a great lecture!

Images from AHPRA Rocket Launch:

[photos by Jeff Hopkins]



The “Gila Monster,” a 21’ tall rocket with 5 motors is brought to the pad by an entourage of 9 rocket scientists. A custom trailer is required to transport it. Will it fly or flounder? It has been known to do both. Only time will tell ...



Here it is launched ... successfully! It’s powerful motors carry it to such great heights that an FAA clearance is required before each launch. Gila’s maximum altitude is classified, but if it could hit an airplane, you know it’s gotta be up there!



Another rocket at that same launch leaves a dark exhaust trail against the blue sky. A variety of fuels are used, mostly solid chemical mixtures. Some use off-the-shelf engines, others mix their own custom fuels, and some even experiment with the more hazardous liquid fuel options. Whatever they burn, if it works, they’re happy. Talk to Jerry for more information about AHPRA (Arizona High Power Rocketry Association).



The “launch pad” is a dry lake in Nevada. This is a good place to experiment in case anything goes wrong (as it sometimes does). Civilization is miles away and there’s not too much there to burn.

Images from the ASU Sally Ride Science Festival:
[photos by Terri Finch]



PAS had a table set up for the Festival providing astronomy info and activities. Bruce and Bette are seen here dispensing the goods.



Seen from the other direction, William comes into view, along with many of our visitors. There were many young women in attendance for Sally Ride's presentation and other workshop activities.



Chet Schuler had his solar observation system set up and attracted many curious onlookers.



Jeff Hopkins was assisting with his telescope and usual expert tips on observing the night sky.

The Sally Ride Science Festival is held in many venues around the country throughout the year. It's purpose is to provide support to young women interested in science careers. Sally Ride is no longer on NASA's "active" list of astronauts, but works in their outreach program to popularize science. Ms. Ride was the first women in space, and is a role model for her gender. She gave an outstanding talk to the group, no doubt motivating many in her audience to pursue their dreams of a career in science or other technical fields. Bravo Sally! We'll see you next year.

Dawn Mullan, local Space Artist (and Cassandra), had a table adjacent to PAS. Dawn was our guest speaker at the December meeting this season.

A Call to Action from the IDA

by Keith Kreuger

Many people I've met at star parties are concerned about light pollution, but don't know what they can do about it. Are you one of them?

Fighting light pollution is easier than you might imagine. Thanks to many years of hard work by IDA members and others, thousands of districts now have codes governing outdoor lighting at every level of jurisdiction.

However, lighting laws are only as good as their enforcement. Too often they are not enforced, or are enforced only when people complain about violations. Since amateur astronomers are adversely affected by poor lighting, we should be among the first to seek enforcement of lighting laws.

The first step you can take to fight light pollution is to become familiar with your district's lighting codes. Request a copy of your district's lighting code from the code enforcement division of its building or planning department.

When requesting enforcement, be courteous but firm. Focus your efforts on a few of the worst offenders closest to your house, and work from there. Follow up your enforcement requests with phone calls and letters. Compliance can take months, but your persistence will be rewarded.

If your district has no code, urge your community to adopt one. See IDA's Model Lighting Ordinance.

Your next step in fighting light pollution is to learn about lighting on IDA's Web site. Your knowledge will be invaluable when you discuss lighting with people at your city hall. (If you run into any politicians, mention that Texas was the first state in the U.S. to enact a statewide light pollution law, and that the law was signed by then-governor George W. Bush. Lighting codes have bipartisan appeal!)

But perhaps the most important step you can take to fight light pollution is to join IDA. Membership begins at \$30 per year, and as a certain white-haired astronomer once said, \$30 is great insurance for the thousands you've invested in telescopes and equipment. You can easily renew or upgrade your membership from the IDA Web site.

No amateur astronomer in the world is unfamiliar with light pollution, but those who know how to fight it are rare. By taking the steps I've outlined, you'll join those few.

Are you thankful to previous generations for preserving the natural wonders of the Earth? Return the favor by preserving our view of the Universe for future generations!

New Space Artist in Town

by Dan Heim

Rick Costello from Manchester, Connecticut, is an amateur astronomer and artist, and invites you to check out his website for astronomy paintings. He paints scenes of the Earth and Moon within the spiral arms of the Milky Way Galaxy, striving for exact realism in his images. His website is:

www.CostelloSpaceArt.com.

Rick has sent me some glossy prints of his work which will be available for viewing at our April meeting. I encourage you to check out his website and examine the prints. This young man has some very nice interpretations of astro art, and will likely be a "rising star" in this exclusive field. He would greatly appreciate any support we can provide, and sincerely thanks PAS for this opportunity to showcase his artistic endeavors.

Telescope for Sale

For Sale: Meade 10 inch Schmidt Cassegrain, circa 1985, 2 inch eyepiece mount, hardly used, excellent condition. No dents, scratches, etc., with all eyepieces including wide angle, off axis guider, Telrad, dew shields, motorized focus. Contact Duane Abata at 928-607-9529, or email:

duane.abata@nau.edu

Best offer accepted, moving to Midwest, must sell.



From the NASA Space Place: Planets in Strange Places

By Trudy E. Bell

Red star, blue star, big star, small star—planets may form around virtually any type or size of star throughout the universe, not just around mid-sized middle-aged yellow stars like the Sun. That's the surprising implication of two recent discoveries from the 0.85-meter-diameter Spitzer Space Telescope, which is exploring the universe from orbit at infrared (heat) wavelengths blocked by the Earth's atmosphere.

At one extreme are two blazing, blue "hypergiant" stars 180,000 light-years away in the Large Magellanic Cloud, one of the two companion galaxies to our Milky Way. The stars, called R 66 and R 126, are respectively 30 and 70 times the mass of the Sun, "about as massive as stars can get," said Joel Kastner, professor of imaging science at the Rochester Institute of Technology in New York. R 126 is so luminous that if it were placed 10 parsecs (32.6 light-years) away—a distance at which the Sun would be one of the dimmest stars visible in the sky—the hypergiant would be as bright as the full moon, "definitely a daytime object," Kastner remarked.

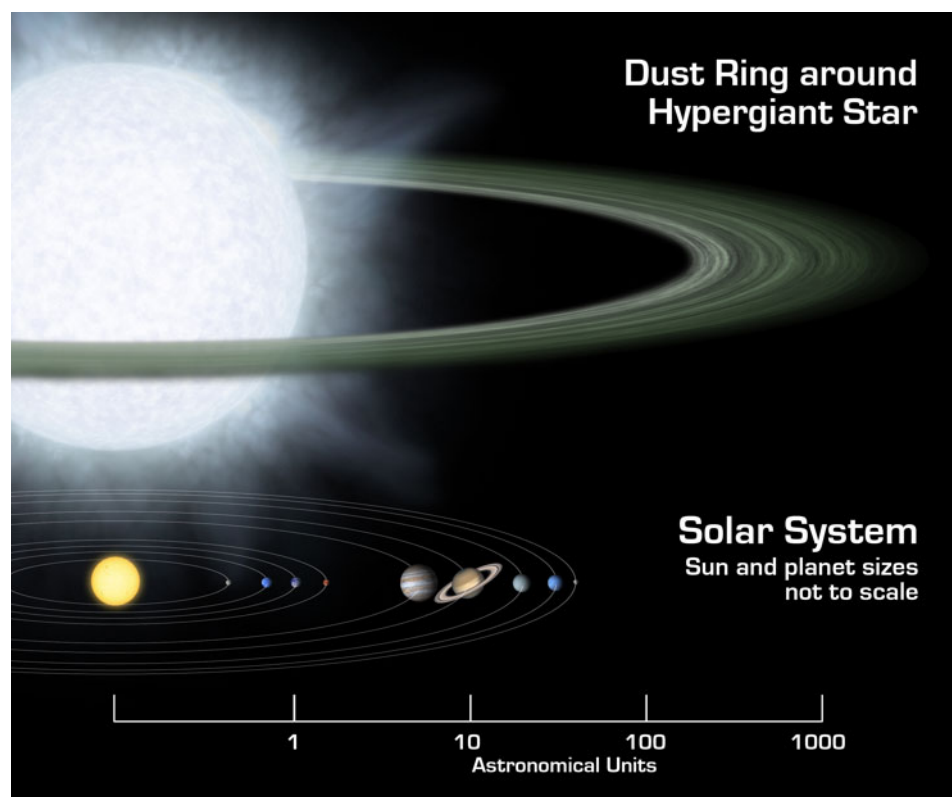
Such hot stars have fierce solar winds, so Kastner and his team are mystified why any dust in the neighborhood hasn't long since been blown away. But there it is: an unmistakable spectral signature that both hypergiants are surrounded by mammoth disks of what might be planet-forming dust and even sand.

At the other extreme is a tiny brown dwarf star called Cha 110913-773444, relatively nearby (500 light-years) in the Milky Way. One of the smallest brown dwarfs known, it has less than 1 percent the mass of the Sun. It's not even massive enough to kindle thermonuclear reactions for fusing hydrogen into helium. Yet this miniature "failed star," as brown dwarfs are often called, is also surrounded by a flat disk of dust that may eventually clump into planets. (Note: This brown dwarf discovery was made by a group led by Kevin Luhman of Pennsylvania State University.)

Although actual planets have not been detected (in part because of the stars' great distances), the spectra of the hypergiants show that their dust is composed of forsterite, olivine, aromatic hydrocarbons, and other geological substances found on Earth.

These newfound disks represent "extremes of the environments in which planets might form," Kastner said. "Not what you'd expect if you think our solar system is the rule." Hypergiants and dwarfs? The Milky Way could be crowded with worlds circling every kind of star imaginable — very strange, indeed.

Keep up with the latest findings from the Spitzer at www.spitzer.caltech.edu/. For kids, the Infrared Photo Album at The Space Place (spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml) introduces the electromagnetic spectrum and compares the appearance of common scenes in visible versus infrared light.



This article provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with NASA.

Photo Caption: Artist's rendering compares size of a hypothetical hypergiant star and its surrounding dusty disk to that of our solar system.

Astronomy Quote of the Month

“So far as I know, every such story has alien intelligences which treat humans as approximate equals, either as friends or foes. It is assumed that A-I will either be friends, anxious to communicate and trade, or enemies who will fight and kill, or possibly enslave, the human race. There is another and more humiliating possibility - alien intelligences so superior to us and so indifferent to us as to be almost unaware of us. They do not even covet the surface of the planet where we live - they live in the stratosphere. We do not know whether they evolved here or elsewhere - will never know. Our mightiest engineering formations they regard as coral formations, i.e., seldom noticed and considered of no importance. We aren't even nuisances to them. And they are no threat to us, except that their engineering might occasionally disturb our habitat, as the grading done for a highway disturbs gopher holes. Some few of them might study us casually — or might not.”

— Robert A. Heinlein, “Grumbles from the Grave”

Clay Thompson on Venus

reprinted with the gracious permission of Clay Thompson (who was our opening speaker this season) and called to my attention by Bette Wurst [You can reach Thompson at: thompson@arizonarepublic.com]

Q: We've been getting up early lately and have been noticing Venus in the southeast sky. What makes it shine so brightly?

A: Did you know that when Jimmy Carter was governor of Georgia he once reported Venus to the state police? He thought it was a UFO. Or at least so the story goes. Venus is so bright for two reasons. For one thing, it's the closest planet to Earth. And it is covered with very thick clouds of sulfuric acid that reflect back about 70 percent of the sunlight that hits them.

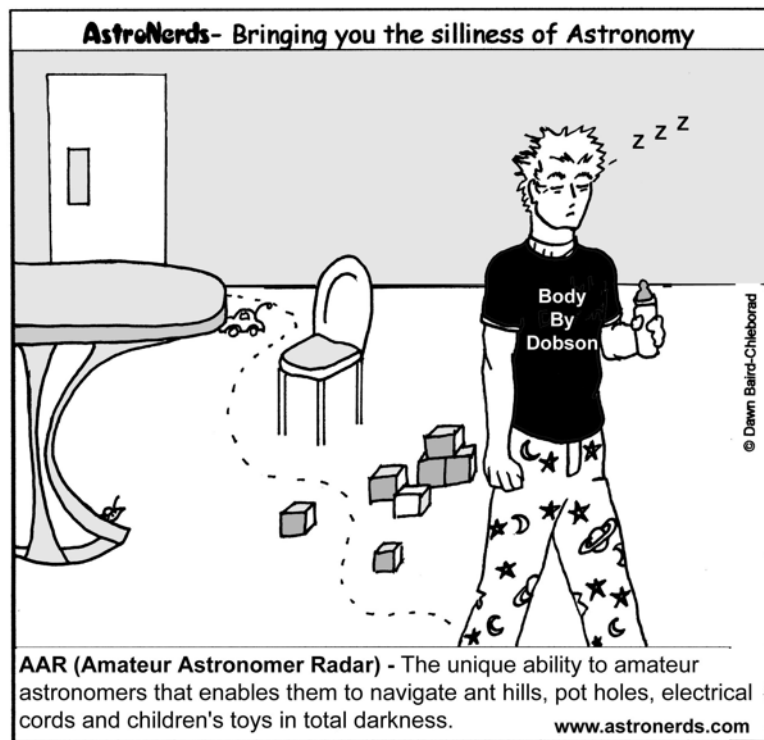
From your Editor

by Dan Heim

I announce here my intentions of not running for Editor next year. If you have desktop publishing skills (and a spell-checker) and would like to help PAS in its mission, this is your chance to be a “star” and have some fun. Consider running for Editor this May!

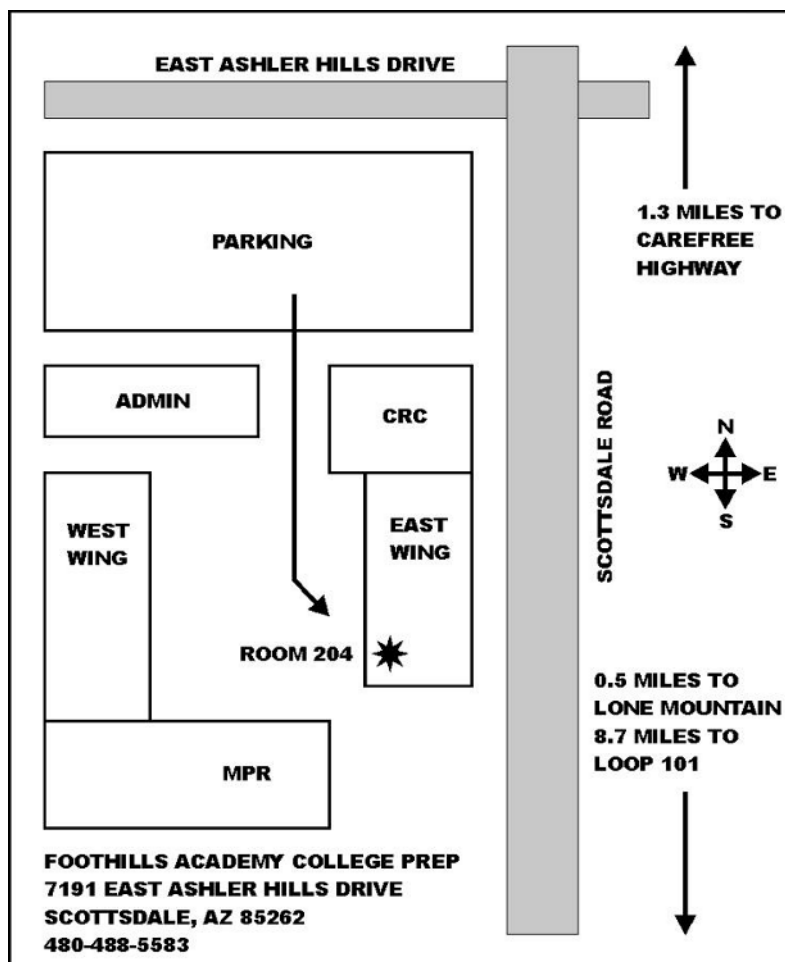
The AstroNerds cartoon you see at right is the last, sad to say. AstroNerds provided these entertaining cartoons, copyright free, to astronomy clubs all around the world. Fortunately, I downloaded several last time I visited their website, which is now closed with no forwarding link. Pity. If anyone knows of other sources for similar cartoons, copyright free, please let me know.

Since our newsletter is posted online, we cannot reproduce copyrighted materials without the author's explicit permission. Thank you. ★



Comic provided gratis by www.astronerds.com

MAP TO OUR MEETING LOCATION



April 2006

Sunset: 7:00 pm

Sunrise: 6:00 am



Q1: Apr 5th



FULL: Apr 13th



Q3: Apr 20th



NEW: Apr 27th

Astro Events:

Mercury at greatest western elongation on April 8th (dawn). Elevation will be 12° at sunrise — not the best view.

The Moon is at apogee on April 9th. Does it appear smaller to you?

The Lyrid meteor shower peaks in the dawn hours of April 22nd. Expect from 10-20 meteors per hour.

Bright Venus will form a beautiful pair with the crescent Moon on the morning of April 24th. This one should be well worth rising early.

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