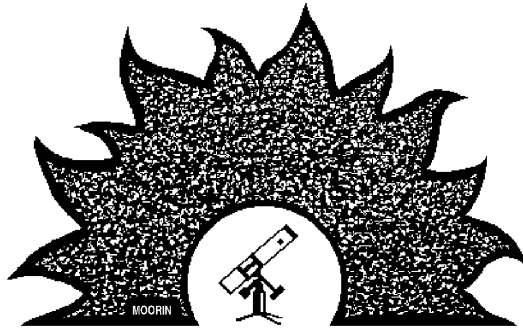




# PAStimes

Newsletter of the  
Phoenix Astronomical Society  
[www.pasaz.org](http://www.pasaz.org)

March 2006  
Volume 58, Issue 7

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PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

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## Next Meeting: Thursday, March 2nd

☞ Note that this month's meeting will be back at our usual PVCC location, in Room E-102 (the Library). Doors open at 7:00 pm, and the meeting will start promptly at 7:30 pm.

Our speaker will be John Reiss, Jr., JPL Solar System Ambassador. He will provide us with updates on the various NASA missions currently underway. Read more about Mr. Reiss inside.

Please note that our April meeting will again be at Foothills Academy to accommodate the schedule of our speaker. It will be on Friday April 14th, a bit later in the month than usual. Mark your calendars now. ★

## Last Meeting: Friday, February 3rd

by Dan Heim

Dr. Paul Schmidtke of ASU spoke on the topic of "Mysterious X-Ray Stars." He began with a review of the discovery of x-rays, and methods used to detect them. His current research centers on the nature of x-ray sources, and their relationships to their binary companions.

Although these stars cannot be imaged directly, at least with current technology, much can be learned by studying periodicities in their signals. This is the crux of Dr. Schmidtke's research.

It was a fascinating lecture, followed by a lively Q&A session that spawned a debate between Mike Maron and Dan Heim on the effects of supernovae.

We thank Dr. Schmidtke for, as always, an excellent presentation on his current research, and look forward to his next visit with PAS.

See more images from this meeting inside. ★

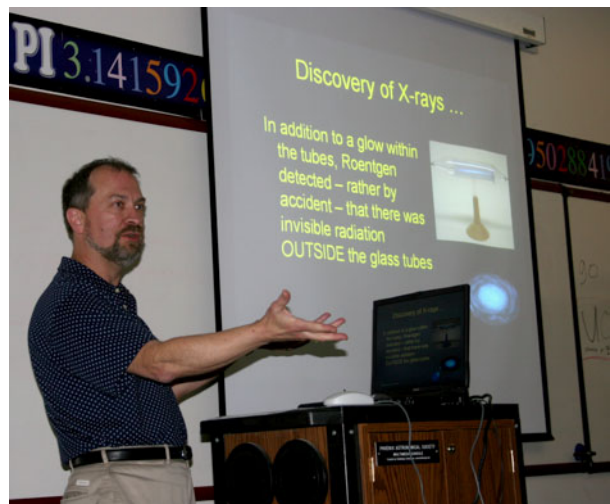
## Report on the Stardust Mission

by Laurice Dee, Ph.D.

Dr. Dee has graciously submitted another article for our use in the newsletter. Space limitations (yes, I know space is infinite, but our paper budget isn't) dictate that we make it available on our website.

The Stardust Mission was designed to collect samples of material from a comet. Did it succeed or not? Read her intriguing analysis of the mission at:

[www.pasaz.org/downloads.html](http://www.pasaz.org/downloads.html). ★



Dr. Schmidtke educates us about the discovery of x-rays, a part of the spectrum essential to research in his area of astronomy — x-ray stars.

## Astro Factoids

Contributed by Bette Wurst

Two explorers recently sent to Saturn were the Cassini spacecraft and the Huygens probe. They were both named for 17th century astronomers. Giovanni Cassini discovered four of Saturn's moons, and Christian Huygens discovered Saturn's largest moon, Titan. Huygens also surmised that Saturn's elongated appearance through telescopes was due to orbiting particles, now known to be Saturn's magnificent ring system. Huygens' hypothesis was finally proven by images from the Pioneer 11 spacecraft in 1979. ★

### March Events:

- 3/2: PAS Lecture Meeting @ PVCC, John Reiss, JPL Solar System Ambassador, updates us on current NASA missions, 7-9 pm.
- 3/3: PAS Adult Night Out @ Arizona Science Center, Dr. Lyle Steadman of ASU speaks on "Evolution of Kinship," volunteers needed, 6-9 pm
- 3/11: PAS Shallow Sky Public Star Party @ Dreamy Draw Park, 6 - 10 pm
- 3/23: PAS/PVCC Public Star Party @ PVCC, meet on Track Field, volunteers needed, 6-10 pm.
- 3/25: Messier Marathon @ Arizona City, event sponsored by SAC (see their website for details at: <http://www.saguaroastro.org>).
- 3/28 Night SKy Network Telecon featuring Dr. Bryan Mendez on the Stardust mission, 7 pm, contact Barb Hartman for access.
- 3/30 PAS Meeting of the Minds @ PVCC, 7:30 pm, prior dinner @ Deer Valley Airport Restaurant, 702 W. Deer Valley Road, 5-7 pm, RSVP to Terri by Tuesday.

### Profile: John Reiss, Solar System Ambassador

When U.S. Army veteran John Reiss Jr. got a request to make a presentation to retired military officers in Yuma, Ariz., he had no idea it would blossom into a two-day, multi-subject event for potentially hundreds of people.

The request came to Reiss because he is a Solar System Ambassador, one of a nationwide network of more than 200 volunteers coordinated by JPL. The ambassadors lead public programs about space exploration.

Retired officer Robert Perrine, program director for the Yuma chapter of the Retired Officers Association, took on the challenge from his colleagues to "spice up" their monthly meetings by suggesting a space presentation. Perrine contacted JPL's Kay Ferrari, coordinator of the Solar System Ambassadors Program, who suggested Reiss.

"We select ambassadors from all across the country to serve as outreach extensions of our missions and John exemplifies what this is by sharing with his local Arizona community," Ferrari said. "It is an especially important time to visit the Marine base and John, as a Vietnam vet, understands this. He is continuing to do this because he understands what military personnel and their families face."

Reiss feels what he described as a "kindred spirit" with the Yuma Marines and their families. As America's leaders call for the country to return to normalcy, Reiss believes this is a step in the right direction and, hopefully, an uplifting and welcome diversion for families of personnel who may be facing deployment overseas.

Ambassador John Reiss, Jr., of Scottsdale, Ariz., continued his job as an international environmental consultant, but recently began substitute teaching for three local school districts. Seeing high-level technology abroad, Reiss feels that "we, as a nation, have to improve our educational system to gain back and excel in this global competition." To make that happen, Reiss looks to JPL for resources to improve science classes in schools. ★



John Reiss, our local Solar System Ambassador

### Astro Factoids

*Contributed by Bette Wurst*

The Sun is the only celestial object whose effects can be seen both day and night. During daylight hours, our star provides a wealth of detail, sunspots & flares, to observers who take the precautions necessary to protect their eyesight. At night, the glow of an aurora is the visible manifestation of solar particles striking the atmosphere.

Discovered by Giovanni Cassini in 1684, Dione, one of Saturn's larger moons, is unique in the solar system. The moon, which is made of rock and water ice, has another moon sharing its orbit. This co-orbital moon is named Helene.

Approximately 70% of the Earth is covered in water — but only 1% of that water is drinkable. ★

## Captain's Log

*By Terri Finch*

OCEANSIDE PHOTO & TELESCOPE The Phoenix Astronomical Society has been given a membership card to OPT. This card gives you 10% off of anything you order from them. Current members can call me for that password. Here is the data that came with the card:

### OPTAS Rewards Program:

- Discounts up to 10% on your favorite astronomy equipment
- Save on thousands of products including telescopes, CCD cameras, binoculars, eyepieces, accessories, and much more
- Discounts can be obtained over the phone, in-store, or online at: [www.optcorp.com](http://www.optcorp.com)

Contact me if you are a PAS member & you want that special number so you can start ordering things from OPT.

### SALLY RIDE VOLUNTEERS ARE STILL NEEDED

If you can come assist at the Sally Ride event on Feb 25, please let me know now. I need to send in a names list so everyone expected to come gets their name tags. Get in touch with me today if you aren't already confirmed for being there. Thanks so much.

### DONATIONS

If you would like to donate \$\$, Astronomy items, or art supplies towards the upcoming many events we are working on, please contact Terri with those items. Those donating to the Astronomy Day Event on May 6 will be added to the Sponsor list which will go in every bag we hand out at that event (300 copies are being made). Get your donations to me. Thanks.

If you are part of the Team working on Astronomy Day with PAS to make the event at the Arizona Science Center, Day or Evening event, a great success, be watching for the list of items we have received as donations to the club for this event. This year we are awarding our helpers/Team first, and then what's left goes to the public. The way I am doing this is, as items come in I will be adding them to a list. As we get closer to May I will be sending out this list. You will pick the top three

items you wish to earn for helping that day/night. Then, who ever puts in the most time, into the event, will be awarded first pick of their items. By doing the list, I may not have to have everyone present to pick their prizes. Or, if everyone chooses, & we vote to do it this way, we could hold an after the event meeting, just to give out the prizes. Let me know what you think of these ideas. We got our first package from Edmond Scientific & in it was a few red laser pointer pens & some books. There's more to come! \*

### THE STARS OF P.A.S.

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

PVCC Star Party February 2nd – I wish to thank the many volunteers who made this event a great success. We got off to an unorganized situation but turned it into a success with the help of the Team. Many thanks goes to Leah S., Rod & Sue S., Barbara H., Don B., John P., Mike M., Chet S., Jerry B., and Andrew L., in the on campus dome working the 11" - Bubba. We had a turnout of about 175 kids, adults, teachers, and more. We did the Treasure Hunt and it was a success. After the kids figured out what to do, they seemed to have a great time doing it and they loved the prizes donated by NASA Space Place. Please read below for suggestions for the next public Treasure Hunt.

Chaparral Park Moon Treasure Hunt Feb 11th  
This star party was interesting. Some of us enjoyed it more than the usual rush due to the public wanting to see the objects. I wish to thank those brave soles who stayed with me in the rather cold weather to put on this star party. Jeff, Rod and the Finches were the three scopes. Along with them, we had the scope set up crews, Rod had his family members along, and I had Amanda & Cole who did an awesome job setting up for the event. We had a total of 3 people from the public show up, but because Rod had his new scope (16") we enjoyed playing with it. Jeff introduced me to a bunch of really cool double stars. We enjoyed the night. Thank you Team! ★

## Astro Poetry

STARS

© 2002 John Alexander Jr.

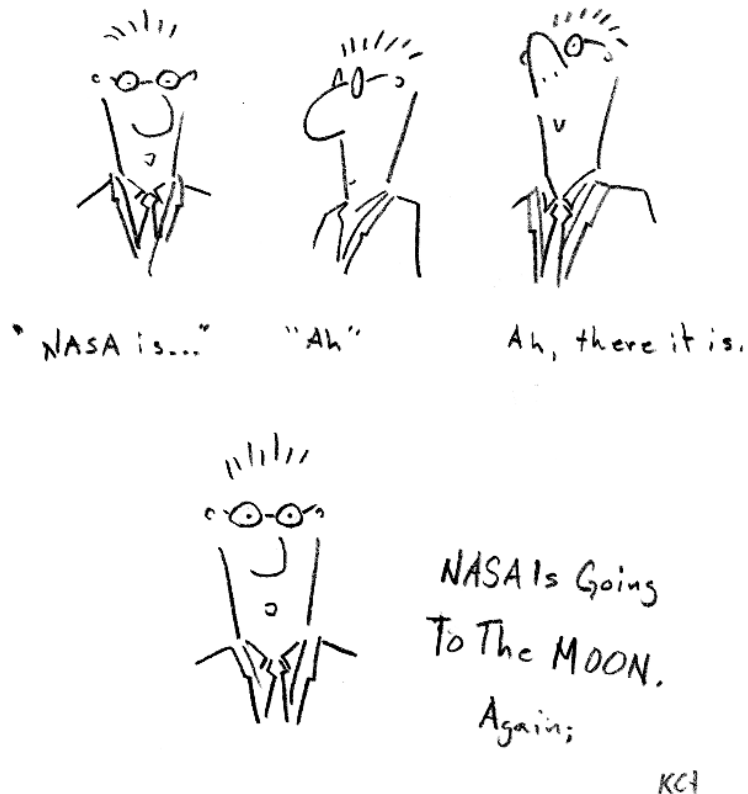
People in the past Looked up and saw their future  
As we look and see what they saw we start to Question what they saw  
Back then they didn't have the ability to see what we are able to  
But they still have one ability over us and that was to see something that we haven't!

We think it's impossible to see are future in the stars the way they did,  
Yet they still saw their future that way,  
We have people now who try to disprove what they saw and yet so far they can't  
Galileo is one for example!

When I look up I see what I was taught  
And if I want to see what they did in the past I'll teach myself how to  
People call me nuts for believing such things  
So what let them think that I've started to see a little results even if it was in a past chance that I may  
have had with someone back then!

So when you decide to look up at the stars try to picture what they saw  
Or Picture what you think is really up there  
Just Never choose to muck the past  
Cause they were pretty smart as they chose to Study the stars!

## KCH Cartoon

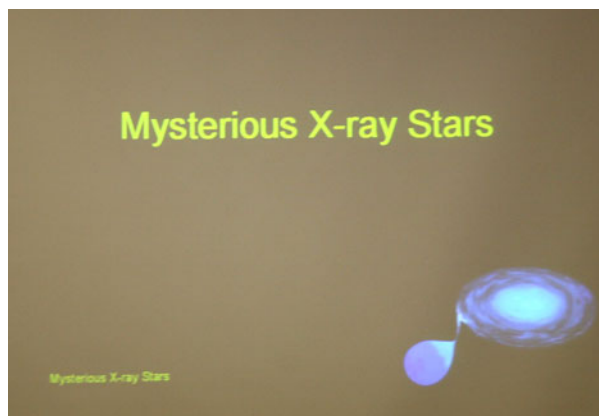


KCH Cartoon is © Kevin Harcey, and may not be reprinted without the explicit permission of the artist.

## Images from our February Meeting



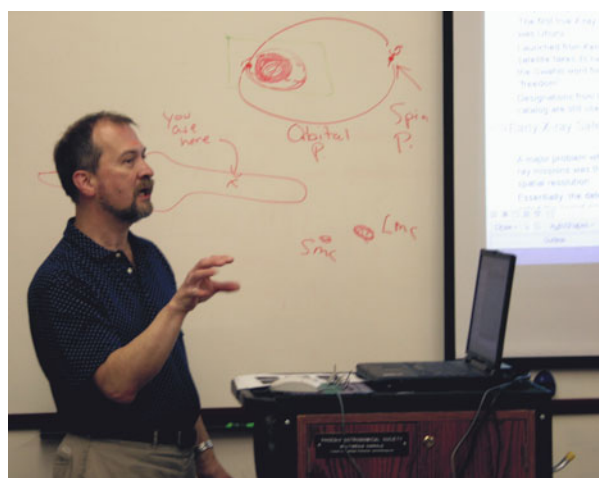
PAS was back at Foothills Academy for this special meeting featuring Dr. Paul Schmidtke. 20+ people were in attendance to hear this presentation about "mysterious x-ray stars."



The first slide of Dr. Schmidtke's presentation said it all ... there are a lot of things we just don't understand about x-ray stars. He did a great job bringing us up to date on his current research.



Terri opened the meeting with a few notes about current and upcoming events.



After the formal lecture we had our usual Q&A time during which Dr. Schmidtke expounded on details and entertained members' questions. The diagrams on the board relate to periodic modulations in the x-ray signals from objects he is modeling.

### Astro Factoids

*Contributed by Bette Wurst*

The Sun is slowing down with age. At 4.5 billion years old, it now spins at the equator only once in 26 days, compared to once in 8 days when it was a much younger star. As the solar wind blows into space, some of its mass is channeled away along its magnetic field lines, acting to slow the Sun down. This process is known as magnetic braking. Rotation near the poles is slower than at the equator, as the Sun is not a solid body. ★



We had a contingent from TerraVita at this meeting, all of whom were most interested in furthering their knowledge of astronomy. Welcome, and we hope to see you as new members in the near future!

## From the NASA Space Place: Micro-sats with Macro-potential

*By Patrick L. Barry*

Future space telescopes might not consist of a single satellite such as Hubble, but a constellation of dozens or even hundreds of small satellites, or "micro-sats," operating in unison. Such a swarm of little satellites could act as one enormous telescope with a mirror as large as the entire constellation, just as arrays of Earth-bound radio telescopes do. It could also last for a long time, because damage to one micro-sat wouldn't ruin the whole space telescope; the rest of the swarm could continue as if nothing had happened.

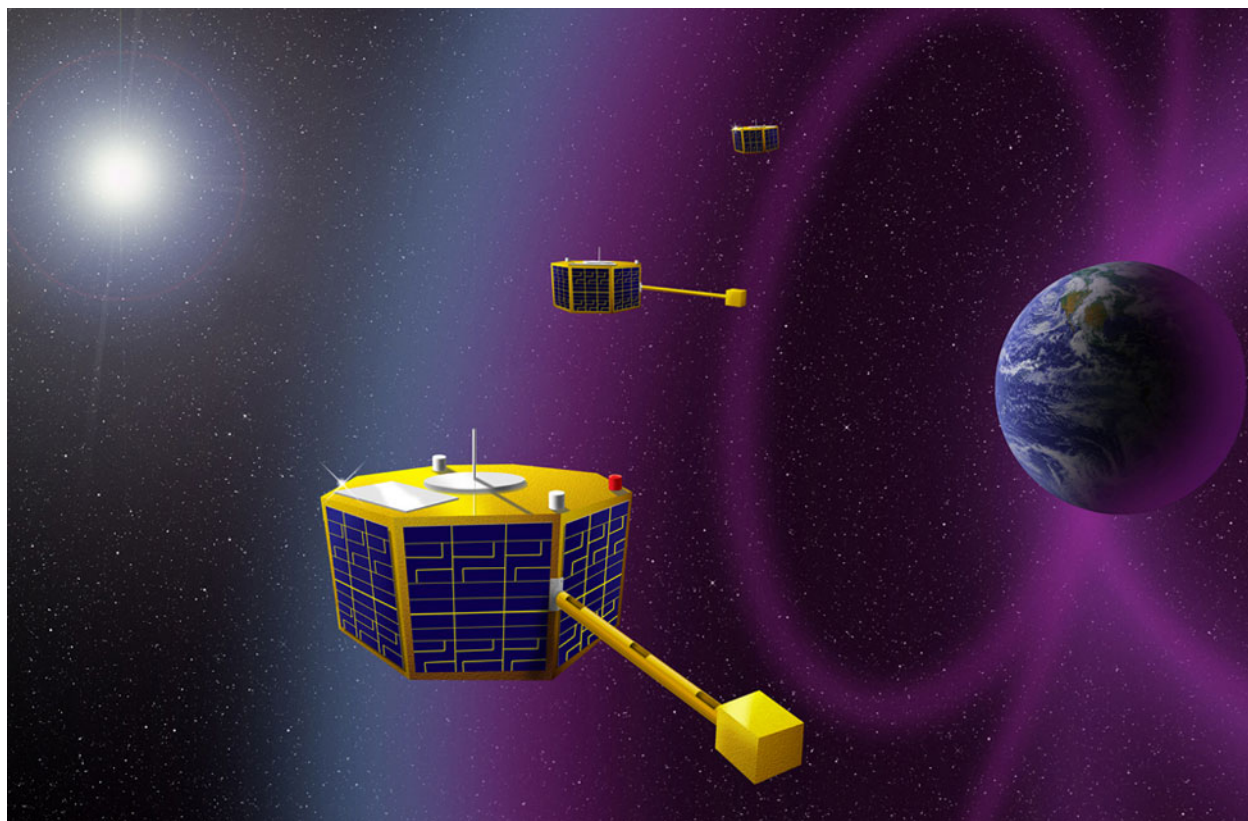
And that's just one example of the cool things that micro-sats could do. Plus, micro-sats are simply smaller and lighter than normal satellites, so they're much cheaper to launch into space. In February, NASA plans to launch its first experimental micro-sat mission, called Space Technology 5. As part of the New Millennium Program, ST5 will test out the crucial technologies needed for micro-sats-such as miniature thrust and guidance systems-so that future missions can use those technologies dependably.

Measuring only 53 centimeters (20 inches) across and weighing a mere 25 kilograms (55 pounds), each of the three micro-sats for ST5 resembles a small television in size and weight. Normal satellites can be as large and heavy as a school bus. "ST5 will also gather scientific data, helping scientists explore Earth's magnetic field and space weather," says James Slavin, Project Scientist for ST5.

Slavin suggests some other potential uses for micro-sats: A cluster of micro-sats between the Earth and the Sun-spread out in space like little sensor buoys floating in the ocean-could sample incoming waves of high-speed particles from an erupting solar flare, thus giving scientists hours of warning of the threat posed to city power grids and communications satellites. Or perhaps a string of micro-sats, flying single file in low-Earth orbit, could take a series of snapshots of violent thunderstorms as each micro-sat in the "train" passes over the storm. This technology would combine the continuous large-scale storm monitoring of geosynchronous weather satellites-which orbit far from the Earth at about 36,000 kilometers' altitude-with the up-close, highly detailed view of satellites only 400 kilometers overhead.

If ST5 is successful, these little satellites could end up playing a big role in future exploration.

The ST5 Web site at [nmp.jpl.nasa.gov/st5](http://nmp.jpl.nasa.gov/st5) has the details. Kids can have fun with ST5 at [spaceplace.nasa.gov](http://spaceplace.nasa.gov), by just typing ST5 in the site's Find It field.



**Photo Caption:** The Space Technology 5 mission will test crucial micro-satellite technologies.

## Astronomy Quote of the Month

*“Telescopes are in some ways like time machines. They reveal galaxies so far away that their light has taken billions of years to reach us. We in astronomy have an advantage in studying the universe, in that we can actually see the past.*

*We owe our existence to stars, because they make the atoms of which we are formed. So if you are romantic you can say we are literally starstuff. If you're less romantic you can say we're the nuclear waste from the fuel that makes stars shine.*

*We've made so many advances in our understanding. A few centuries ago, the pioneer navigators learnt the size and shape of our Earth, and the layout of the continents. We are now just learning the dimensions and ingredients of our entire cosmos, and can at last make some sense of our cosmic habitat.”*

— Sir Martin Rees, Astronomer Royal of Great Britain

## Cool Thoughts to Share at Star Parties

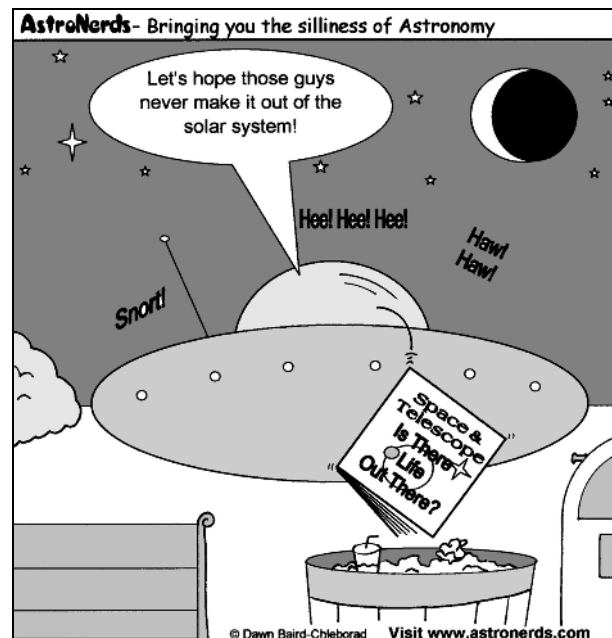
by Leah Sapir

Start by pointing out Sirius, Orion's belt, and Aldebaran, which are approximately in a straight line. Sirius is the brightest star in our sky; it's only about 8 light years away, and it's about 20 times as bright as our sun. And over there is Orion — you can easily see the three stars in a row that make up Orion's belt. Now if you draw a straight line from Sirius, through Orion's belt, you reach a little V-shaped pattern of 5 stars — that's the head of Taurus, the bull. The brightest star, a reddish one, sometimes considered to be the “eye” of the bull, is called Aldebaran [al-DEB-ah-ron]. There's a Polynesian legend that Sirius wasn't always the brightest star. There used to be a brighter one, and Sirius got jealous! So Sirius asked the stars of Orion's belt to throw Aldebaran at that brighter star, and it broke into a zillion pieces! If we follow our straight line from Sirius through Orion's belt and Aldebaran, we can see it right there ... the Pleiades star cluster!

## From your Editor

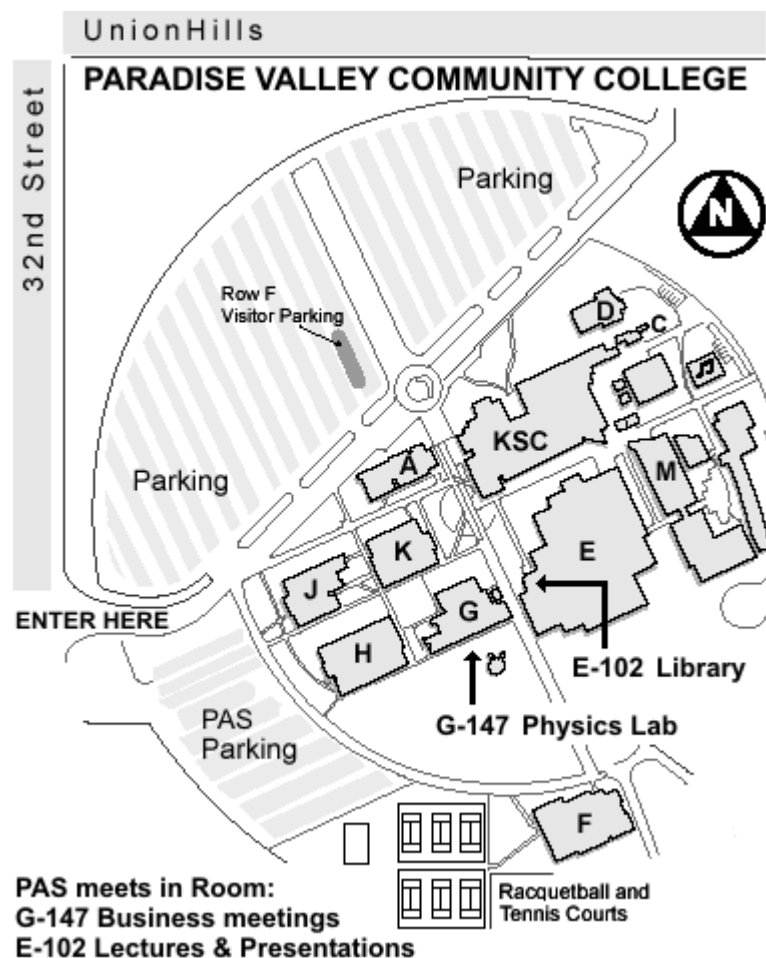
by Dan Heim

Once upon a midnight dreary,  
As I pondered weak and weary,  
Over newsletter copy of now and yore,  
I nodded, sometimes napping  
And found myself entrapping,  
Then decided I would edit “nevermore.”  
So whence the Summer Sun shines,  
And thence the office declines,  
Heimhenge will seek respite in astro lore.  
What this means is ambiguous,  
My intent is just to do thus,  
Fission is the splitting of a core.  
Should you take the time to read this,  
And wonder what my tack is,  
Consider what an astro club is for.  
When the winds of change are blowing,  
And the weatherman is knowing,  
Then the time has come for evolution more. ★



Comic provided gratis by [www.astronerd.com](http://www.astronerd.com)

## MAP TO OUR MEETING LOCATION



## March 2006

Sunset: 6:30pm

Sunrise: 6:45 am



Q1: Mar 6th



FULL: Mar 14th



Q3: Mar 22nd



NEW: Mar 29th

### Astro Events:

Vernal Equinox at 10:26 am MST on March 20th. The rest of the world springs forward into Daylight Savings.

Venus at greatest western elongation high in the east before sunrise, just left of the Moon on March 25th.

Moon at perigee on March 28th. Since it is nearly new, there's not much of a chance you'll notice anything special.

Saturn is still the "star" of the sky, so be sure to check it out this year while the rings are still at a good tilt. Other planets this month are unspectacular.

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PAS is incorporated in the state of Arizona as a non-profit, scientific and educational 501(c)(3) organization. Our newsletter, PASTimes is published monthly from September through May and distributed to PAS members via USPS and internet. All issues from the current season are available for download on our website at: [www.pasaz.org](http://www.pasaz.org). While you're there, browse the rest of the site and learn more about PAS. All photos by Dan Heim unless otherwise noted.