nightwatch
Newsletter of the Pomona Valley Amateur Astronomers

Volume 33 Number 5 ***nightwatch*** **May 2013**

General Meeting 04/26/13

Matt called the meeting to order and reminded everyone that their dues are now due. Last year was "shortened" by 4 months so that our dues would be due before our club sends in our Astronomical League dues. So, for those who paid their dues for the 2012 year, this year's dues is $20/individual and $25/family. If you are joining the club this year the dues are $30/individual or $40/family. Other announcements included:

Project Bright Sky is having a star party with the Braille Institute on Friday, September 13th at the Cottonwood campsite in Joshua Tree National Park. The Institute will have a picnic dinner for their members, the Park Ranger will take them and their guides on a small nature walk, and then we will show them the moon and Saturn.

Laura Jaoui did check to make sure our JPL Tour set for July 24th at 1pm is still on. (It is.) JPL canceled their open house due to the sequester.

On Tuesday, May 14th starting at dusk we are having a public star party & outreach at the Ontario Main Library. The library is located at 215 East "C" Street in Ontario.

Cori Charles is a member of the PVAA and the Planetary Society. She talked about Yuri's Night and apologized that Dr. Bruce Brett couldn't speak tonight due to a cold and sore throat. She did urge all PVAA members to check out the Planetary Society's website at www.planetary.org. Once you see what they are doing she believes you will become a member of the Planetary Society as well. (I am a member.) They have several projects going like the LightSail-1, Laser Bees, LIFE Project, SETI and more. You can check them and more projects out on their web site.

Matt then talked about the Mount Wilson trip. It was held on April 12th, "Yuri's Night". If you have never looked through the 60 inch telescope, then you are really missing out on a spectacular viewing session. We here in the LA area are blessed with this magnificent telescope. On an average night you will be able to see more, with better detail, than what you would see through your telescope on your best night.

Our speaker for the night was Dr. Joann Eisberg, a PVAA

member who happens to teach Astronomy and History of Science at Chaffey College. The title for her talk was "Women Hold Up Half The Sky", as her subject was "Women in Astronomy – Past & Present." Not only did she give an excellent presentation, she had only 3 hours before the meeting to prepare. Throughout history astronomy has been a male dominated science. Several women worked in the shadows of other well-known men. Caroline Herschel was one of those. While her brother Sir William Herschel discovered the planet Uranus, she discovered 8 comets, 11 nebulae, and published the British Catalogue of Stars through the Royal Astronomical Society. For this last feat she was honored by the Royal Astronomical Society (RAS), and became an honorary member.

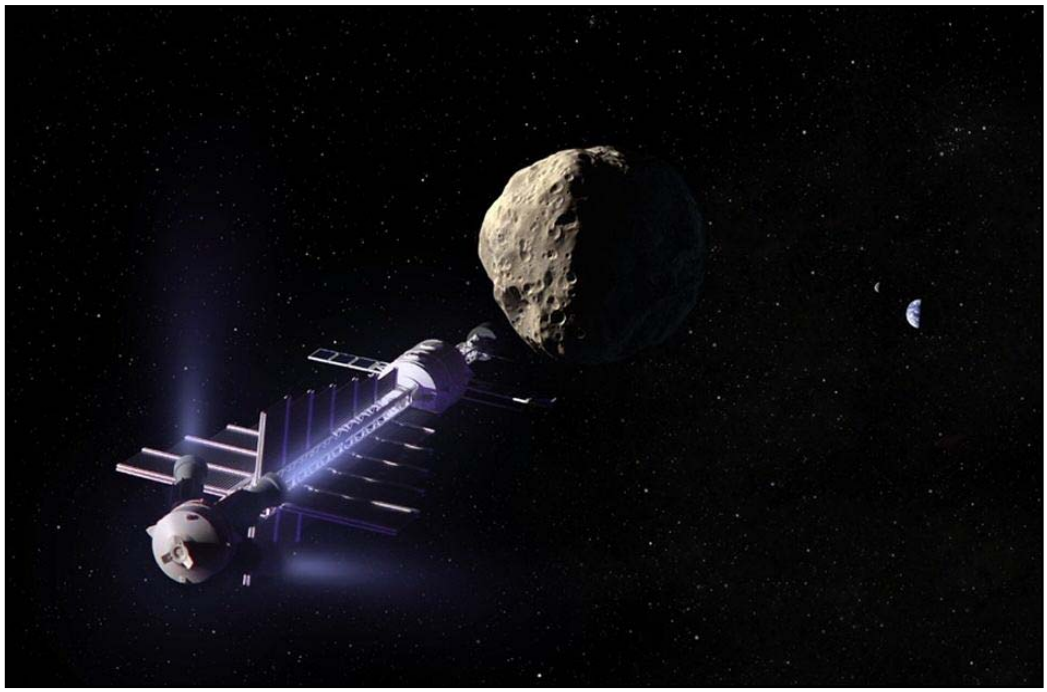
RAS also bestowed an honorary membership to Mary Somerville, who translated French and the (see page 3)

What's Up? - Cosmic Leftovers

Asteroids are those leftovers from the birth of our solar system. They never formed a planet between Mars and Jupiter. They're disturbingly close to Earth in their Asteroid Belt. This years' Russian meteor, which tore itself apart in Earth's atmosphere at a speed of 18 miles per second (42,000 mph) came from that Asteroid Belt. Crashing down unseen from the direction of the Sun just before dawn, it's explosion (30 time greater than the Hiroshima bomb) was bright as that sun. Fortunately our atmosphere destroyed it at a height of 76,000 ft above a surprised city of a million people (Chelyabinsk). Its fragments to fell to earth as meteorite rain. Unfortunately thousands rushed to their windows to see the flash's cause and were injured by flying glass when the shock wave reached them. 1,500 were treated for multiple cuts, but none were killed.

The meteorite was a house-sized visitor from the Belt and could have caused fatal damage if it hadn't come it at an oblique angle. There were two odd things associated with it. There was a larger known asteroid (2012 DA14) flying by Earth at about the same time. But the two were different in type and unrelated. Also, in 1908 a even larger object exploded above the Tunguska wilderness not so far away.

These events along with convincing evidence for an asteroid impact crater (Chicxulub) which exterminated the dinosaurs, as well other past meteoric near extinctions on Earth, have focused eyes on the Asteroid Belt.



The Belt undoubtedly exists because of a gravitational conflict between Jupiter and the Sun that prevented a planet from forming there. Asteroids aren't close together like in the movies, but so thinly scattered that several spacecraft have traveled through them without collision. Although over 100,000 objects are now known, the total mass is less than our Moon. Half that mass is in its four largest members, Ceres, Vesta, Pallas, and Hygiea. The supply of goddess names ran out long ago (there's a Pomona) and discoverers can now choose their own (there are four Beatles).

Ceres, the biggest (585 mi diameter) was upgraded to dwarf planet in 2006 when Pluto was downgraded. The only Belt object large enough to be round, Ceres (6th mag) was discovered on the magical date of 1-1-1801 by priest/astronomer, Giuseppe Piazzi. He named it Ceres (goddess of cereal) the patron saint of his native Sicily. NASA's Dawn spacecraft should rendezvous with Ceres in 2015.

Dawn has already reached and explored Vesta (goddess of the hearth) the next largest (360 mi dia) Belt object. The Roman Vesta had temples maintained by Vestal Virgins who kept the hearth fires burning. Not perfectly round like a proper planet, it was discovered in 1807 by Heinrich Olbers. It's the brightest body (5th magnitude) in the Asteroid Belt. It has an equatorial belt of bumps formed when it was molten and spinning.

In 1802, Olbers also discovered Pallas (340 mi dia) naming it after the goddess of wisdom. In 1852 a dark oblong Hygeia (goddess of Health) was found (250 mi dia). Originally these were considered new planets, but since no telescope at the time could resolve them into visible forms William Herschel suggested the name asteroid (starlike object). By 1850 the misleading term Asteroid Belt was in use, actually they tend to gather in family groups. Some are binary pairs or even have small moons. 243 Ida was photographed by NASA's Galileo in 1993 with a moonlet Dactyl.

Also misleading is an impression that all asteroids are as solid as the meteorites that fall to earth. Actually most Asteroids have densities less than rock solid. In 2005 Japan sent a space craft to little 25143 Itokawa and it looked like a pile of gravel held together by its own gravity. It seemed to have been shattered and reformed.

Spectrographic studies show that asteroids come in three main types of composition. The largest (75% of those visible) are the carbonaceous. Black-red in hue they have a low reflective albedo. The one that exploded over Chelyabinsk was a carbonaceous condrite. It left hundreds of heavy, black stoney bits. A second group are the silicate-rich asteroids (17%) without carbon. A third group are the metal-rich asteroids (10%).

Secondary asteroid groups include theTrojans which follow Jupiter's orbit and the dangerous earth-crossing Apollos (named after their largest member). The Chelyabinsk meteor come from this group. They get close enough to us to make them life threatening. A global peril that we might have to deal with someday by moving it out of a collision orbit (pictured) .

Lee Collins

General Meeting 04/26/13 Continued ...

algebra of Laplace into English and common language for the Society for the Diffusion of Useful Knowledge. She became famous for her book "The Mechanism for the Heavens." Her other books include "On the Connexion of the Physical Sciences" and "Molecular and Microscopic Science." She actually invented the word "scientist."

Maria Mitchell became a professor of astronomy at Vassar College, mostly due to her fame of discovering a comet at just the right time. King Frederick VII of Denmark offered a gold medal prize for the next comet discovered. The comet became known as "Miss Mitchell's Comet." She was the first woman to work as a professional astronomer.

Annie Jump Cannon is credited with the creation of the Harvard Classification Scheme of stellar classification by temperatures. She created the stellar spectral classes of stars: O, B, A, F, G, K, M. (Memorized by the mnemonic of "Oh Be A Fine Girl, Kiss Me." She also earned the first honorary doctorate that Oxford University ever awarded a woman.

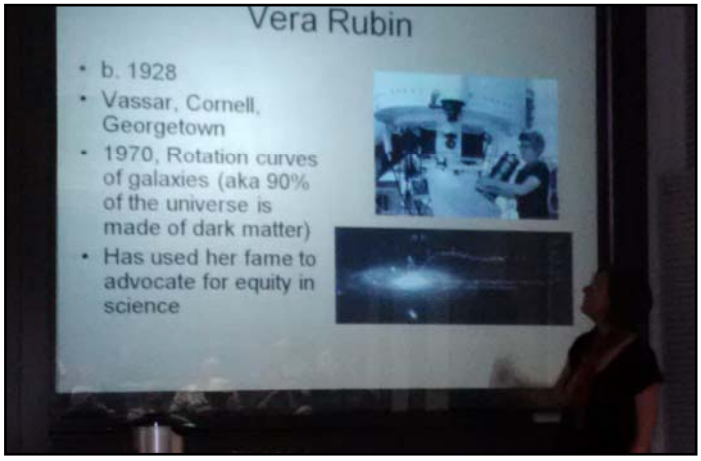
Cecilia Payne-Gaposchkin met Harlow Shapely – the Director of the Harvard College Observatory. He persuaded her to write a doctoral dissertation. She became the first person to earn a Ph.D. In astronomy from Radcliffe College, which is now part of Harvard. Her thesis showed that hydrogen and, to a lessor extent, helium were the main ingredients of stars.

Vera Rubin suggested that galaxies were clumped together in groups or clusters, and not randomly distributed throughout the universe. She also argued that galaxies were rotating around an unknown axis. These ideas were not well received at the time.

Beatrice Tinsley was born in England & immigrated to New Zealand after World War II. She is known for her research in the evolution of galaxies and stars.

Dr. Eisberg had more women to talk about, but time wouldn't allow it.

Gary Thompson



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Outreach	Jeff Schroeder	818/298-3965
Programs	Ron Hoekwater	909/391-1943
Nightwatch	John Stover ….....	909/988-9747

Club Events Calendar

May 17 – General Meeting
May 22-27 - RTMC

June 8 - Star Party – White Mountain
June 13 - Board Meeting, 6:15
June 21 - General Meeting

July 6 - Star Party – Mt Baldy, Cow Canyon Saddle
July 11 - Board Meeting, 6:15
July 19 - General Meeting

August 3 - Star Party -GMARS, Landers
August 8 - Board meeting, 6:15
August 23 -General Meeting

September 7 -Star Party - GMARS, Landers
September 12 - Board Meeting, 6:15
September 20 - General Meeting

October 5 - Star Party - Salton Sea
October 10 - Board Meeting, 6:15
October 18 - General meeting

November 2 - Star Party - Anza-Borrego St Park Parking Lot
November 7 - Board Meeting, 6:15
November 15 - General meeting

December 7 - Holiday Party - Sizzlin' Skillets, 7:00pm
No scheduled Star Party
December 12 - Board Meeting, 6:15

Star Party/Outreach at Ontario Main Library

On Tuesday, May 14th, PVAA had an outreach star party at the Ontario Main Library. Gary Thompson and Matt Wedel brought their telescopes and treated the crowd to views of the Moon, Jupiter & Saturn. For many it was their first time for a look at Saturn & Jupiter. For some it was their first time to look through a telescope. Some came back with their friends and family to look through the telescopes.

Gary Thompson

JPL Visitor Day Tour is scheduled for July 29th at 1pm. Nine club members are approved to visit.

Another Visitor Day Tour will be scheduled between September and December. Tours are on Mondays and Wednesdays at 1pm. Members and friends wishing to sign up can contact Laura Jaoui ljjaoui@yahoo.com or (909) 706-7031.

PVAA Membership Renewal for September 1, 2013 to April 30, 2014

_____ $20 - Individual Membership
_____ $25 – Family Membership
_____ $8 – Student Under age 18 Membership

Name: _____

Email address for Newsletter delivery:_____

Address: _____

City: _____ State: ____ Zip:_____

Please send check payable to PVAA to:

PVAA
P.O. Box 162
Upland, CA 91785

Thank you for your continued membership!