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Newsletter of the Pomona Valley Amateur Astronomers

Science and literature are not two things, but two sides of one thing. *Thomas Huxley*

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President's Address

Every year at this time I remind everyone of the "Carnegie Astronomy Lecture Series." For several years, I have been attending these lectures and have found to be highly informative and entertaining.

This year the lectures will be held at two sites. The first and second lectures will be in Friends Hall at the Huntington Library. The third and fourth lectures will be in Magnin Auditorium at the Skirball Cultural Center.

The March 25th lecture is titled "The Great Escape: Hypervelocity Stars" and will be presented by Juna Kollmeier. On April 1st Mark Seibert's lecture will be "Opening an Ultraviolet Eye on the Universe." The April 22nd lecture, "Einstein's Biggest Blunder?" is by Wendy Freedman. And the final lecture for 2008 on April 30th, will be "Looking for Life (in All the Right Places)" by Alan Dressler. For more information visit this web address:

http://www.ociw.edu/Events/2008_astronomy_lectures/.

Our next star party is April 5th at Cottonwood Springs Campground. The weather this time of year is generally pleasant out there. Cottonwood is a good dark site for no farther than it is. I hope to be seeing many you at our PVAA Cottonwood Springs star party and at the Carnegie Astronomy Lectures. Happy stargazing!

Ron Hoekwater

PVAA Events Calendar

Month	Star Party	General	Board
April	5(CS)	18	10
May	3(CC)	16	8
June	7	20	12

Greetings Earthlings!

If you haven't enjoyed our beautiful Death Valley, you absolutely must. Ron Hoekwater and I took a hike up a small portion of Titus Canyon. This canyon is steep, windy, and spectacular. We will make it a point of exploring the whole of the canyon on another trip. My big outing took Ron and me out to "The Racetrack", a dry lake bed where rocks are believed to move across the landscape when the wind is right.

Friday night had an hour or so of okay star gazing until the clouds moved in. However, at 4am a peek at the sky showed it to be cloud free, but oh well….zzzzzzzzz.

Saturday night started out very windy. We were ready to call it quits when the wind gave up the ghost at about 8:30pm and the sky became clear. A ranger at Mesquite Springs Campground gave an informative talk on astronomy and later joined Ron to look through Ron's big Dobsonian. There were two other amateur astronomers camping near us. One man was from Tonopah and the other hailed from Fallon, NV. We enjoyed speaking with them and sharing views of the night sky through our scopes.

The campground was unexpectedly full, but I learned that there are other acceptable unmarked campgrounds. The ranger said that there is an informal and unimproved campground just south of "The Racetrack." This would certainly be less crowded since one has to drive an hour on an unpaved and rocky road to get there!

Death Valley has many things to see and do and is magical, even when the weather isn't cooperating for stargazing. It is a must-see for anybody visiting our neck of the universe.

Laura Jaoui

Site Legend

(CC) Cow Canyon Saddle, near Mount Baldy Village
(CS) Cottonwood Springs campground, Joshua Tree Natl. Pk
(KD) Kelso Dunes

Road Trip

Our next star party on April 5th will be at the Cottonwood Springs campsite "Loop B" in Joshua Tree National Park. Check our website for a map to Cottonwood. It is a nice drive with all paved roads to the campsite. The Milkyway is a site to see as it spans the late night sky.

The elevation is 3000 feet and the weather in April is in the 80s by day and the low 50s at night. There is a nice short hike that will take you to Mastodon Peak. It is a 3 mile hike with excellent views of the Eagle Mountains and the Salton Sea. The campsites have tables and restrooms to make your stay more enjoyable. Hope to see you there.

Jim Bridgewater

February General Meeting

A few students from Citrus College joined our meeting – we hope you enjoyed your visit.

The Club discussed a change in date for the trip to Edwards Air Force Base. By going mid-week, we will be able to have a private tour just for our Club. The new date for our visit will be Wednesday, June 25, 2008 and will run from about 9:30 AM until 2:30 PM at the Base. Our day will include a morning with NASA, lunch in their cafeteria, then a tour with the Air Force. It sounds like an enjoyable day and I hope many of you can come. Please feel free to bring along family members on the tour. We will need some information ahead of time from those who wish to attend and have talked about meeting ahead of time at the College for the drive up there if you are interested so we can share cars – and gas money! Please contact Claire for details.

Ron shared with us that PVAA members can get a discount on tickets to the first annual Pacific Astronomy and Telescope Show (PATS), to be held at the Pasadena Convention Center on September 13th and 14th, 2008. PVAA Member and RAS President Alex McConahay will have more details for us soon. This new show will be kind of an indoor RTMC with many vendors offering astronomy-related items for sale, product demonstrations, along with presentations on imaging, observing and more. See this website for details:

http://www.rtmcastronomyexpo.org/PATS.htm

Next, Frank Busutil gave a wonderful presentation on his Project Bright Sky programs – service to the sight impaired with outreach programs ranging from classroom instruction and demonstrations, to lunar study programs, summer camp observing for school age campers, and an adult evening program held at Joshua Tree State Park. As a participant in a few of the events, I can tell you they have been fun to be a part of and the sight impaired are very enthusiastic learners and observers. Thank you to Frank for arranging such wonderful opportunities for us all. Please contact him if you would like to help.

Claire Stover

Ray Magdziarz would like to share a **CANDORVILLE** comic with you. Copyright rules prevent us from printing it here, but you may view it at:

http://www.candorville.com/wordpress/2008/03/08/twinkling

February Speaker

Our speaker in February was Dr. Denise Kaisler, Astronomy Professor at Citrus College. We learned about different types of journeys into space and about possible opportunities available soon for many more to visit these areas around our planet historically visited by only a lucky few.

Edge of Space - The first types of trips are those up to what is known as the Von Karman line. This line is defined as 100 kilometers or 62 miles above the Earth. If you were to look out the window from this vantage point you could expect to see the curvature of the Earth, the presence of our atmosphere against the background of darker space, and a few stars above you. Some jets including the Russian MiG 25 regularly fly up to 27 km high. While a test pilot flying special version of this jet reached a record height of 37 km, taking civilians this high in a MiG would be tough on the body and not recommended. Still, many pilots have been this high and a flight could probably be purchased today on such specialized jets for a cost in the $10,000 – 20,000 dollar range.

Sub-orbital - These trips go beyond the Von Karman line but return to Earth after less than one full orbit around the planet. They are currently being planned by private firms Space Adventured Ltd. and Sir Richard Branson's Virgin Galactic, creator of SpaceShipOne. This craft took the first such privately funded manned flight and won the Ansari X prize for its efforts. Tickets have already been sold for $100,000 - 200,000 apiece to about 200 people who hope to be the first in line when service begins in 2009. Features of a trip to this altitude will include about 5 minutes of weightlessness.

Orbital Flights - Aside from professional astronauts, these have been taken so far by just four people who are popularly called space tourists or spaceflight participants:

- Dennis Tito – this American Entrepreneur is a former JPL scientist who founded a firm that uses mathematical modeling to analyze market risks. He paid an estimated $10-20 million to travel aboard Soyuz to the International Space Station on April 28, 2001.

- Mark Shuttleworth – a South African Entrepreneur, he has been involved with digital certificates and Internet security methods as well as with Linux distributions. He traveled aboard Soyuz to the ISS on April 25, 2002 at a cost of $20 million.

- Gregory Olsen - an American entrepreneur who co-founded a company which develops optoelectronic devices such as infrared cameras. On October 1, 2005 at a cost of $20 million, he traveled to the ISS on a Soyuz mission.

- Anousheh Ansari - this Iranian businesswoman and co-founder of Telecom technologies, Inc. also journeyed on Soyuz to the ISS. Her trip was for an undisclosed price on September 18, 2006. The Ansari family is the title sponsor of the Ansari X Prize

These four trips were all arranged through Space Adventures Limited.

What's Up – A Dancing Polar Zoo

What's up is a polar zoo of two bears and a dragon dancing around "steadfast" Polaris. "Steadfast" is a traditional word to describe Polaris the Pole Star, or North Star. It is a star that never wanders across the sky like other stars. Of course, it's located directly above Earth's North Pole. This famous pole star is fixed at the end of the "tail" of Ursa Minor, the Little Bear (or Little Dipper). Perhaps the reason the Little Bear's tail is so long is that it's been stretched by swinging constantly around the pole for several thousand years.

Certainly because of its "steadfast" position, Polaris has long been studied by astronomers. It is a giant Cepheid variable star that has been mysteriously getting brighter. In addition, it has two tiny companion stars, reminding us that our sun is unusual in its singularity. Because of the gyroscopic wobble of the Earth's pole, Egyptian temples four thousand years ago indicated Thuban (in Draco the Dragon) to be the pole star. Even now Polaris is not exactly above the fixed polar spot, but it has been calculated that it will be on March 24th, 2100 – if you want to wait until then. Because of its "always visible" fame (in the Northern Hemisphere), the North Star is often thought to be the brightest in the sky, actually it's the 48th.

Unfortunately our South Pole has no such polar star, but travelers must rely on circumpolar constellations like the Southern Cross for orientation. Here, our reliably northern circumpolar constellations are Ursa Minor, Ursa Major, Draco, Cassiopeia, and Cepheus. But let's talk about the circle dancing polar zoo: two bears and a long tailed dragon.

Ursa Major, or Big Dipper with its seven bright stars, shines out above the others. The two bright forward stars on its "bowl" point northward directly toward Polaris. Widely seen by most Indian tribes as a bear, its very long tail was explained by one tribe to be three cubs following their mother or three hunters. The first hunter carried the killing bow, the second the cooking pot, and the third the wood for the fire. Of course these seven bright stars are more widely known as the Big Dipper, the Plough in England, or the Saucepan in cooking conscious France. Other cultures see it as a wagon, a chariot, or even a meat cleaver. Escaped slaves were told to follow the seven stars of the "drinking gourd" north to freedom.

After Polaris, the second most studied stars in this polar zoo are Mizar and its close companion, Alcor. Known as "horse and rider," this second star in the Dipper's handle has long been used as a test of eyesight for armies to decide who would be a good rifle marksman. Known as a double since ancient times, it became the first telescopic double in 1617 when Galileo discovered that Mizar was itself a binary double star. Now a triple star, it became the first spectroscopic multiple study in 1889. In 1996, two tiny additional stars were discovered turning Mizar and Alcor into a five star system.

The Big Dipper polar region is also rich in galaxies at this northern end of the Realm of The Galaxies. They include M63 (Sunflower), M94, M106, M108, M109 and the unusual neighboring galaxies M81 and M82. Bode's Galaxy (M81) is a beautiful tilted spiral, but its neighbor, the Cigar Galaxy (M82), hovers like a weird cigar-shaped UFO. It has a "cigar band" that scars it, probably the result of a smaller galaxy that "crashed" into it causing glowing internal disturbances.

[speaker cont]

Space Hotels - Still on the drawing boards and in the realm of science fiction writers are long-term stay ideas. Lengthy stay facilities may have some areas with artificial gravity to alleviate the need for extensive exercise before, during and after space flight to maintain muscle tone and to reduce bone loss experienced by those who live in micro-gravity.

What is an Astronaut? - Those traveling higher than 80 kilometers (50 miles) would be awarded the special designation of astronaut. Up until 2003, all astronauts were participants in either military or civilian space programs, sponsored by national governments. Then in 2004, SpaceShipOne flew the first privately funded mission to reach this special altitude. People reaching the 80-km limit in this way are now called commercial astronauts. Interestingly, while the United States limit is 80 kilometers, it is the Von Karman line of 100 kilometers according to the Federation Aeronautique Internationale (FAI) which keeps track of international standards and records for aeronautics and astronautics.

By their stricter definition 470 people from 34 countries have met the altitude qualification, as of February 8, 2008. An additional 7 have been as high as 80-km but less that 100-km. 24 of these have traveled beyond low Earth orbit to either travel to or land on the moon and three people have done it twice: Lovell, Young, and Cernan.

These travelers to space have collectively spent over 30,400 astronaut-days or over 83 years in space. The record holder for the most days is space in Sergei K. Krikalev who has lived in space for 803 days and Sunita L. Williams whose stay lasted 195 days.

Thank you for you interesting talk, Dr. Kaisler. I'm sure many of us look forward to the day when travel way above the Earth's surface joins the travel taken so frequently now by plane, train, and automobile. What was fantastic only a few hundred years ago has become commonplace to us today.

Claire Stover

http://en.wikipedia.org/wiki/Astronaut

The Next "X"

"Well, for one thing, we just think it's cool." says Alan Eustace, Senior Vice President of Engineering for Google. In September 2007, Google announced they would award a grand prize of $20 million to the first team to gently land on the moon, rove at least 500 meters and transmit specific video and other data back to Earth. Founding fathers of Google (Larry Page and Sergey Brin) hope to encourage scientific breakthroughs by sponsoring this new X Prize contest. Get your sleeves rolled up because Larry and Sergey's pocket change is only up for grabs through 2012.

John Stover

Edwards Air Force Base private tour just for our Club will be Wednesday, June 25, 2008 and will run from about 9:30 AM until 2:30 PM. Our day will include a morning with NASA, lunch in their cafeteria, then a tour with the Air Force.

Please contact Claire for details.

[whats up cont]

Two of the most photographed overhead spiral nebulas are also here, the gigantic M101 (Pinwheel) and M51 (Whirlpool) with its interactive companion NGC 5895. This smaller companion galaxy has passed by the larger M51 and twisted its spiral arm behind its galactic back in a most arresting way.

In addition, this polar zoo has two of Charles Messier's "mistakes". M40 was first recorded in 1774 as a "nebula" (fuzzy cloud) but it turned out to be a close stellar double. However, Messier kept it in his catalog, perhaps because he was in competition with other early catalogers. Another questionable addition is M102, which was listed as near M101. The only "nebula" there is NGC 5866, the edge-on Spindle Galaxy which astronomers feel is too faint to be seen by Messier's telescope, but still it appears on many charts as M102.

Also located in these circumpolar constellations are two faint planetary nebulas. First, in Ursa Major, the Owl Nebula (M97) with its spooky staring eyes suggestive of two exploded stars rather than the usual one. Also indicative of two exploded star shells is the Cat's Eye Nebula (NGC 6543). This glowing "feline eye" stares down at observers from the constellation of Draco the Dragon, the third animal in the polar zoo. Even though Draco's long tail seems to wind dramatically around the pole, it remains less known because of its fainter stars. But the most recent discovery in the polar zoo is a faint sun-like star, 47 Ursa Majoris, which could have a solar system similar to our own. Although it's a relatively nearby system, it's still too far away to detect an earth-sized planet.

In the end, the most distinctive asterism of this polar zoo is the bright seven stars of the Big Dipper. These "always visible" stars appear in art all over the Northern Hemisphere, such as a painting by Van Gogh. They've appeared on many political flags, such as the state flag of Alaska. The famous Hubble Deep Field photograph was taken within Ursa Major. Finally, they've been written about in numerous classical books, including Homer, Shakespeare, and the Bible. A famous circle-dancing Big Dipper indeed!

Lee Collins

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Project Bright Sky Update

On April 14th 2008 we will deliver our 5th annual Desert Adventure Star Party for the Los Angeles Braille Institute's blind adult clients (and staff). We will be at Joshua Tree National Park.

The summer will bring Project Bright Sky Telescopes and Instructors back to Camp Bloomfield in Malibu on Sunday, July 13 and Saturday, August 9. Our Summer Skies Star Parties will assist summer campers from the Junior Blind Of America. who come from all over the United Sates. Weekend dates will make it easier for more astronomers to attend.

Project Bright Sky will travel to Rancho Mirage in September. The adult blind clients of the Desert Center Braille Institute will take part in a 2 hour astronomy class on September 18th. The students will then attend a Desert Adventure Star Party on October 9th (changed from September 25th) at Joshua Tree National Park

The San Diego Astronomical Society is now considering conducting Project Bright Sky events in the San Diego area.

Project Bright Sky continues to grow and bring astronomy to many blind individuals of all ages. This is only made possible because of your participation, Thank You!!

As always, all of you are invited to attend any of our events. Feel free to contact me for exact details.

Frank Busutil