

Grand Canyon Star Party

Barry Peckham

I have to start this tale with an account of the surreal transition from hot, humid, sea-level Honolulu to the cool, high and dry Colorado Plateau into which the Grand Canyon is cut. It begins with a planetarium show at the Bishop Museum and then races to the airport gate for an overnight flight to LAX, with a 6:20 AM pick-up by Mojo Jones, a transfer to a van packed with 3 LITEBOX dobs and one John Dobson, plus Jane Houston Jones, and then a long haul out of town, across the Mojave and up into the high, volcanically dormant desert, through the Grand Canyon National Park gates (free admission for participating astronomers) and on to Yavapai Rooms, where we do a partial unloading and continue on to the Grand

(Continued on page 6)

Inside this issue:

Club Information	2
Observer's Notebook	3
Meeting Minutes	4
Meteor Log	5
School Star Parties	5
Guest Editorial	9
Treasurer's Report	11



Upcoming Events:

- The next meeting is at 7:30 p.m. on Tuesday, July 5th at the Bishop Museum.
- Bishop Museum's next planetarium show (with **Barry Peckham**) is on Friday, July 1st.

Upcoming Star Parties

Club Party	Jul	2	Dillingham
Deep Impact	Jul	3	Bishop Museum
Public Party	Jul	9	Kahala/Waikele
Club Party	Jul	30	Dillingham
Public Party	Aug	6	Dillingham
Public Party	Aug	13	Kahala/Waikele
Public Party	Aug	27	Dillingham

President's Message

By the time of our July meeting, the Deep Impact mission will have encountered Comet Tempel 1. The official name of this comet is Comet 9/P Tempel. This indicates that it was the 9th comet determined to be a periodic visitor to the inner solar system. I found some interesting facts about Tempel 1 on the NASA Deep Impact web site.

The comet was discovered on April 3rd, 1867, by Ernst Wilhelm Leberecht Tempel of Marseilles, France. Like most short-period comets, this one has been influenced by Jupiter's gravity. I was surprised, however, to learn how much Jupiter is still influencing this body. While Tempel 1 has remained in an orbit between those of Mars and Jupiter since its discovery, its orbit and period have varied considerably due to multiple encounters with Jupiter. According to information provided on the website, between now and the year 3000 the comet's perihelion will range between 1.48 AU and 2.37 AU. At the time of discovery, the orbital period was 5.68 years. Currently the comet orbits in 5.5 years, but in 2040 it will have a period of 6.29 years.

While it may seem that this is rather chaotic behavior, Tempel 1 is actually in a rather stable 2:1 resonance with Jupiter. That is to say, it orbits the Sun twice for each orbit of Jupiter. That is what brings it close enough to Jupiter at each aphelion to be influenced by Jupiter's gravity. Each time it gets perturbed a little, but if it starts to stray too far from the average, Jupiter will pull it back on the next orbit. This is similar to how the Moon appears to rock back and forth slightly due to its slightly elliptical orbit around Earth but maintains the same average rotation because it is tidally locked to the Earth.

Chris

**Hawaiian Astronomical
Society**
P.O. Box 17671
Honolulu, Hawaii 96817

President

Chris Peterson

956-3131

chrisp@higp.hawaii.edu

Vice President

Barry Peckham

524-2450

barry@litebox-telescopes.com

Secretary

Gretchen West

735-0482

gwest@pixi.com

Treasurer

Jim MacDonald

261-2162

jim.macd@verizon.net

Board Members-at-Large

John Gallagher 683-0118

gallaghej002@hawaii.rr.com

Steve Huffman

shuffman@sacredhearts.org

The **Astronews** Editor

Paul C. Lawler

395-8121

paul@kilolani.net

HAS Webmaster

Peter Besenbruch

prb@lava.net

The Astronews is the monthly newsletter of the Hawaiian Astronomical Society. Some of the contents may be copyrighted. We request that authors and artists be given credit for their work. Contributions are welcome. Send them to the Editor via e-mail. The deadline is the 15th of each month. We are not responsible for unsolicited artwork.

Planets Close To the Moon

Times are Hawaii Standard Time

- July 8, 12h, M 4.8° NNE of Mercury (26° from sun in evening sky)
- July 8, 12h, M 2.9° NNE of Venus (26° from sun in evening sky)
- July 13, 08h, M 0.70° S of Jupiter (80° from sun in evening sky)
- July 22, 05h, M 4.2° SSE of Neptune (162° from sun in morning sky)
- July 23, 29h, M 2.2° SSE of Uranus (141° from sun in morning sky)
- July 27, 03h, M 1.9° NNW of Mars (95° from sun in morning sky)

Saturn is closer than 15o from the sun when near the moon in July.

Other Events of Interest

Times are Hawaii Standard Time

- July 6, 02:04h, Moon New
- July 6, 22h, Mercury 1.6° S of Venus (26° from sun in evening sky)
- July 8, 12h, Mercury, Venus, and the Moon are within a circle of 4.76o. (26° from sun in evening sky)
- July 8, 17h, Mercury at greatest elongation (23.6o east of the sun.)
- July 21, 01:02h, Moon Full
- July 21, Moon at perigee 8.8 hours after full moon.
 - Very high and very low tides expected.
- July 22, 13h, Venus 1.1° NNE of Regulus (30° from sun in evening sky)
- July 23, 06h, Saturn at conjunction with sun (Passes into morning sky.)

Planets in July

<p> Mercury</p> <p>will be near Venus in the west after sunset during the 1st 10 days of July.</p>	<p> Venus</p> <p>About 25o above the western horizon at sunset. Very close to Mercury early in the month.</p>	<p> Mars</p> <p>Rises about midnight, has brightened to neg. magnitude, and is getting large enough (10") to see some detail.</p>
<p> Jupiter</p> <p>Still shining brightly in the southwest just after sunset at magnitude -2.0.</p>	<p> Saturn</p> <p>Reaches opposition this month and it too close to the sun to observe.</p>	<p> Uranus</p> <p>Rises in late evening and can be observed after midnight.</p>
<p> Neptune</p> <p>Rises about an hour after Uranus and can be viewed after midnight..</p>		<p> Pluto</p> <p>Near the meridian at 10:00 pm. If you want to observe this faint planet this year, now is your best chance.</p>

The June 7, 2005 general membership meeting of the Hawaiian Astronomical Society was called to order at 7:40 p.m. by Chris Peterson. The meeting was held in the Atherton Halau on the grounds of the Bishop Museum. There were 26 members and 4 visitors in attendance.

President Chris Peterson greeted the membership.

D.O.T. Authorization - President Peterson informed the membership that the authorization from the Department of Transportation to use the Dillingham site has been renewed through June 30, 2006.

Changes Made - He also related that changes have been made to Web site. These outline the rules for public and club use of the observing site. Chris urges everyone look at and make sure any friends who may be joining us for the first time read the information.

Visitors and New Members - Three visitors introduced themselves. Lenore Hansen, who joined the Molo-kai Ranch group has become a new member. She and our other guests are interested in finding the right scope for them and getting into viewing at weekend star parties.

School Star Parties - Forrest reported to the membership that our members guided budding astronomers at 5 school star parties during the month of May. A number of schools sent letters of appreciation, and the children of Voyager School sent a monetary gift of \$50.

June 27 is slated for a star party for the Muscular Dystrophy Association Summer Camp. Discussion ensued regarding the Special Activity

Release and Consent Form. Club members who choose to help out at this star party are asked to sign a rather long form and are urged to read it before choosing/ not choosing to sign. We already have 4 schools who have requested star parties for the 2005-2006 school year.

Bishop Museum News - Carolyn Kaichi, Planetarium Director for the Bishop Museum related to club members that the Deep Impact Event at the Bishop Museum will take place Sunday, July 3, 2005. President Chris Peterson led a discussion of the what we might be able to see at the moment of impact, magnitude and length of brightening. The consensus was that "we don't really know" what the overall effects will be observed over what length of time. We'll just have to be there and see.

Probes - President Peterson discussed the current status of various probes in the solar system, such as Mercury Messenger, Smart I, Global Surveyor and Odyssey (Mars) and the Mars Express survey for water. The list included Mars rovers Spirit and Opportunity as well as the Cassini flybys of Saturn's rings and Titan.

Planetary Society Solar Sail - The Cosmos I "Solar Sail," the joint project of the Planetary Society and Russia will be put into near polar orbit June 21, 2005. The project will see if satellites can be boosted to higher orbit using a 15 meter solar sail.

Mauna Kea Telescopes Debate - Member Ray Brust updated the assembled members on his views of the possible effects of the Akaka Bill on the use of the summit of Mauna Kea

(Continued on page 5)

Darker nights and several minor showers plus a few early Perseids spice up July.

Saturday the 9th, the **Pegasids**. Radiant 22h40m +15 deg. Only about 3 meteors and hours from this shower, but the Moon is out of the way. The meteors are swift and faint. The Pegasids are far faster than any other minor shower active simultaneously.

Thursday the 28th, the **Southern Delta Aquarids**. Radiant 22h36m -16 deg. Expect less than 20 meteors an hour. Occasional bright meteors do happen, but only 5 to 10% leave trains. This shower needs investigating. The shower is on display all night.

Saturday the 30th, the **Alpha Capricornids**. Radiant 20h28m -10 deg. Typical Alpha Capricornids are slow, bright, and sometimes of fireball class. The Moon is in the way this year. Expect less than 4 meteors an hour.

If you are interested in observing meteors contact Tom Giguere on Oahu at 672-6677 or write to: Mike Morrow, P.O. Box 6692, Ocean View, Hawaii 96737

School and Group Star Parties are being coordinated by Forrest Luke. If you are contacted for a school star party, please have the school contact Forrest directly by phone at 623-9830 or via e-mail at <lukef003@hawaii.rr.com>.

03 July 2005 Deep Impact Night (Bishop Museum)

Minutes (Continued from page 4) and the current and future status of telescopes.

Molokai Ranch in May - Stephanie Choquette spoke briefly about the recent trip made by 35 H.A.S. and other astronomy enthusiasts to Molokai Ranch's eco-tourist Kaupo Beach Village. The trip was a success on many levels. Five club members took scopes to share the night skies with the assembled group. Accommodations were comfortable and in close proximity to the viewing area. The skies were beautifully ³dark-dark-dark² and

the seeing was great. All club members that attended had great fun.

Nite-Sky-Network - John Gallagher introduce the newest NSN toolkit from NASA. The Black Hole Survival Outreach Toolkit has a variety of teaching tools that help explain how scientists gain information about possible black hole locations.

The meeting adjourned at 9:07 p.m. and refreshments were served.

Respectfully Submitted,
Gretchen West

Grand Canyon (Cont. from page 1)

Canyon Star Party at Yavapai Point, arriving for sunset and nesting in among 4 dozen telescopes set up for the public's enjoyment of our universe on a near-perfect night. We quit after 10:00 PM with clouds drifting in, but none of us are especially tired. The reason for the sustained energy is likely due to the continuous stimulus.

ways misunderstood, and yet he manages to move the crowd, one group at a time. When the group is German, Dobson tells a joke in German and gets a laugh. John's specialty is Chinese tourists and his Mandarin jokes earn him squeals of astonishment. Meanwhile Mojo is showing the Sombrero Galaxy in his 14.5" scope, Jane has found Comet Temple in her 17.5



With a start like this, it is very hard to slow the pace. John Dobson, about to celebrate his 90th birthday, keeps right up with us... when he isn't leading the pack. Dobson's "thing" is public access to the universe: what it looks like, what it is made of and what it means. His 2 states of being are talking and sleeping. In a grove of telescopes, he stalks the receptive ear: "The universe is composed of 2 ingredients!" he quips, as a variant upon his 3 ingredient universe, wherein hydrogen, helium and the dust of exploded stars accounts for everything. The 2 ingredients he now lists are "hydrogen and misunderstanding." He is nearly al-

l- inch and I'm showing globular cluster M5 at 200x in a 7 year old, 12.5" LITEBOX. A 4th LITEBOX scope from San Francisco joins us on our second through sixth nights, but the total number of telescopes drops to about 3 dozen. The sunset-at-the-Canyon-rim crowd catches only planets in our scopes before shivering their way home. Temperatures fall fast at 7000' elevation and a gusty breeze torments us on 3 nights. The evening astro-talk crowd passes through the scopes before the sky is really dark. They are mostly gone by 9:00, but more visitors are bused in every few minutes, so we have folks to thrill



until 11:00, when the last bus takes them away. Arizona weather gives us 5 good or better nights in a row, then a cool and rainy day/night with thunder and lightning before dark. This is a welcome break for us and creates a cooler climb out of the Canyon for a nearly-90-year-old who makes it down 1 1/2 miles of Bright Angel Trail (it is 8 miles to the bottom). The rain also clears the Canyon air for better views on the following day. We 4 walk along the rim for hours. Everyone likes our 6th night under the stars best, because it is the best night for pleasing a big crowd. Jane and Mojo both count well over 200 lookers at their scopes (they each have clickers). A thin crescent moon washes out some of the galaxies but, as Dobson says, “The public is not allergic to the moon!” Saturn looks good until very low. Jupiter does well even before sunset, being upstaged by fainter favorites after dark. Jane features Pluto in her 17.5" scope after 10:00 PM (with charts to help others see it) while Mojo jumps between galaxies and I set people up to scan the Milky Way

under their own power. Dobson, as on other nights, stands in our midst and feeds astro-facts to the waiting lines: “If you put Deneb where Vega is, it would shine so brightly that you could see the shadows of your fingers on the ground!”

This is my third time at the annual Grand Canyon Star Party. I've gotten used to the bus and car headlights sweeping close to the scopes. I just stand still, close my eyes and wait for the darkness to return. The nosebleeds and cracked lips are part of the admission price. It's not a perfect place, but it is a lot of fun. As Dobson insists: “The universe is a funny place. You only have to look at it!”

Astronomy Haiku

Planetarium
Where all the stars look
the same
Out of focus blobs.

Big Dish Skates in Super Slo-Mo

by Diane K. Fisher

How would you move something the size of a 12-story building? Try skateboards! That was, more or less, how one of NASA's giant Deep Space Network (DSN) dish antennas in Madrid, Spain, was moved recently. The ground beneath the antenna had become unstable. The an-

tenna was sinking a tiny bit. It had to be moved. Each trailer had six axles, with four wheels each. Each of the 24 wheels could be steered. All four trailers were controlled with one joystick, so they all moved exactly together.

The antenna was moved only 60 meters (about 200 feet), but it took



Huge 12-story-tall Deep Space Network antenna “skates” to its new location. Insert shows some of one “skateboard’s” 24 wheels

tenna was sinking a tiny bit. It had to be moved.

To move this humongous piece of delicate equipment, NASA hired a company from the Netherlands. This company, Mammoet, had moved such things as giant oil rigs and oil platforms in the ocean. To move the antenna, they first jacked it up, then drove a huge self-propelled, skateboard-like trailer under each of the

four corners of the antenna's base. Each trailer had six axles, with four wheels each. Each of the 24 wheels could be steered. All four trailers were controlled with one joystick, so they all moved exactly together.

Ben Saldua was the NASA structural engineer in charge of the move. “The DSN antennas are the phone company for the space program,” Saldua explains. “They are so sensitive they can detect the faintest signal

TOO MUCH STUFF ASTRO GARAGE SALE

I've got to make room – there's too much to list but I'm, selling scopes (8" Meade SCT, 5" Burgess refractor w/ aluminum case (BNIB), 5.5" Celestron Comet Catcher (needs TLC) and a 5" Orion MAK) and mounts (Meade 500B, Celestron GoTo for 80mm scope, smaller generic EQ and heavy camera), and tripods (QuickSet Hercules and heavy camera tripod), eyepieces, finder scopes, binoculars and, ta da! — **Olympus OM-1's** (3 of them) with several lenses and a right angle eyepiece. Also lots of misc. astro hardware. Saturday, July 23rd, 8 am to 2:00 pm, 436 Iliwahi Loop, Kailua - call for directions and info Tom Pico (ph. 286-1103).

Space Place (Cont. from page 8)

from spacecraft that are millions of miles out in space.”

The antennas also transmit instructions to the spacecraft. So the antenna, even though it is 34 meters (111.5 feet) across, must be able to point very, very precisely. Otherwise, by the time the signal travels a few

million miles, it will be miles off-course and will completely miss the spacecraft. So, the ground under the antenna can't be sinking or shifting around!

Find out more about these amazing antennas at The Space Place, http://spaceplace.nasa.gov/en/kids/dsn_fact1.shtml .

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



The Sky's my treasure chest,
It's there that I store
Diamonds and sapphires,
Emeralds galore
Rubies of red, jades of green
Topaz and opal, iridescent sheen
Gems of all color,
Jewels of all hue,
This treasure's all mine,
But I'll share it with you.

— G. O. Pitcovich

I know a place where the Sun never sets.

It's a mountain, and it's on the Moon. It sticks up so high that even as the Moon spins, it's in perpetual daylight. Radiation from the Sun pours down on there day and night, 24 hours a day—well, the Moon's day is actually about 4 weeks long, so the sunlight pours down there 708 hours a day.

I know a place where the Sun never shines. It's at the bottom of the ocean. A crack in the crust there exudes nasty chemicals and heats the water to the boiling point. This would kill a human instantly, but there are creatures there, bacteria, that thrive. They eat the sulfur from the vent, and excrete sulfuric acid.

I know a place where the temperature is 15 million degrees, and the pressure would crush you to a microscopic dot. That place is the core of the Sun.

I know a place where the magnetic fields would rip you apart, atom by atom: the surface of a neutron star, a magnetar.

I know a place where life began billions of years ago. That place is here, the Earth.

I know these places because I'm a scientist.

Science is a way of finding things out. It's a way of testing what's real. It's what Richard Feynman called "A way of not fooling ourselves."

No astrologer ever predicted the existence of Uranus, Neptune, or Pluto. No modern astrologer had a clue about Sedna, a ball of ice half the size of Pluto that orbits even farther out. No astrologer predicted the more than 150 planets now known to orbit other suns.

But scientists did.

No psychic, despite their claims, has ever helped the police solve a crime. But forensic scientists have, all the time.

It wasn't someone who practices homeopathy who found a cure for smallpox, or polio. Scientists did, medical scientists.

No creationist ever cracked the genetic code. Chemists did. Molecular biologists did.

They used physics. They used math. They used chemistry, biology, astronomy, engineering.

They used science.

These are all the things you discovered doing your projects. All the things that brought you here today.

Computers? Cell phones? Rockets to Saturn, probes to the ocean floor, PSP, gamecubes, gameboys, X-boxes? All by scientists.

Those places I talked about before—you can get to know them too. You can experience the wonder of seeing them for the first time, the thrill of discovery, the incredible, visceral feeling of doing something no one has ever done before, seen things no one has seen before, know something no one else has ever known.

No crystal balls, no tarot cards, no horoscopes. Just you, your brain, and your ability to think.

Welcome to science. You're gonna like it here.

Phil Plait is an astronomer, writer, and skeptic, and the author of the book, [Bad Astronomy](#) This article is from a speech given at a high school science fair. (article reprinted with the author's permission).

Treasurer's Report

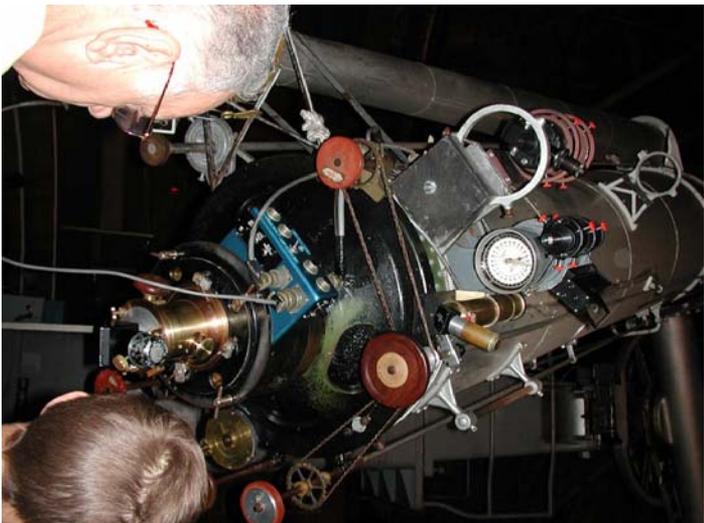
by Jim MacDonald

HAS Financial Report as of June 15, 2005

Initial Balance:.....	\$4,912.71
Receipts:	
Astronomy Payment.....	87.00
Donations.....	48.95
Dues Received.....	107.00
S&T Payments.....	65.90
Telescope Fee.....	20.00
Total Income:.....	\$328.85
Expenses:	
Magazine Subscriptions.....	282.79
Postage.....	80.82
Total Expenses:.....	\$363.61
Ending Balance:.....	\$4877.95

The club welcomes two new members this month. They are **Lenore Hansen-Stafford** and **Louis Robinson**. In addition, many thanks to those renewing their membership and to John Proud and Peter Besenbruch for their generous donations. Clear skies to all!

**H.A.S.
P.O. Box 17671
Honolulu, HI 96817**



The 24" Clark Refractor at Lowell Observatory (note the Telrad!)
(photo by Jane Houston Jones)

Place stamp
here. Post
Office will not
deliver mail
without proper
postage