

The USGS Field Center

Barry Peckham

Until recently, my recollections of Flagstaff centered on the airport, where we left John Dobson twirling a lariat one spring morning in '01. I never got a sense of the city until this past June, when HAS members Jane and Mojo Jones decided to make a day trip of this well-known astronomy center. Though they invited several others to come along, Dobson and I took up the back seat.

Flagstaff is over 2 hours of high-way driving south of the Grand Canyon. This area, for thousands of square miles, was long-ago lifted by forces that spewed lava upon the high plateau, and the added elevation helps to keep Flagstaff cool while Phoenix is roasting. There are volcanic mountains to

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Upcoming Star Parties

Public Party	Aug 6	Dillingham
Public Party	Aug 13	Kahala/Waikele
Public Party	Aug 27	Dillingham
Club Party	Sep 3	Dillingham
Public Party	Sep 10	Kahala/Waikele
Public Party	Sep 24	Dillingham

Upcoming Events:

- The next meeting is at 7:30 p.m. on Tuesday, Aug. 2nd at the Bishop Museum. **Karen Meech** from UH will be speaking on *Astrobiology*.
- Bishop Museum's next planetarium show (with **Barry Peckham**) is on Friday, Aug. 5th.

President's Message

As I write this, the space shuttle Discovery is still waiting to launch. It's easy to get impatient while waiting for something to happen, especially something that's happened many times before, but it's actually amazing that space shuttles ever get off the ground. There are thousands of parts that must all work correctly during liftoff.

Sometimes it's good to look back and see how far we have come. It was just over 40 years ago, just half a typical human lifetime, on July 14th, 1965, that Mariner 4 returned the first detailed images of the surface of Mars. Nothing farther from Earth than the Moon had been seen so clearly before, and almost everyone was amazed at what we saw. Craters! Lots of them! We've seen so many planets and moons by now, most of them peppered with countless craters, that it's easy to forget how unexpected the discovery of craters on Mars was.

In addition to greatly deepening our understanding of the processes of planetary formation and change, the discoveries of the last 40 years have shown us how connected we are to space outside of Earth. We can no longer think of Earth as isolated and independent. We know that conditions on Earth are repeatedly and greatly affected by gravitational effects of other bodies, variation in the Sun's output, and collisions with meteoroids and asteroids. Much of this knowledge has been gained by studying other planets.

Now a new chapter is about to begin. On August 10th, the Mars Reconnaissance Orbiter is due to launch toward the red planet. When Mars reaches opposition in November, MRO should be well on its way. As we observe Mars, our experiences will be richer because we know so much

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Planets Close To the Moon

Times are Hawaii Standard Time

- Aug 7, 19h, M 1.1° NNE of Venus (34° from sun in evening sky)
- Aug 9, 21h, M 1.1° SW of Jupiter (26° from sun in evening sky)
- Aug 18, 15h, M 4.2° SSE of Neptune (169° from sun in evening sky)
- Aug 20, 04h, M 2.2° SSE of Uranus (168° from sun in morning sky)
- Aug 24, 17h, M 5.3° NNW of Mars (141° from sun in morning sky)
- Aug 31, 09h, M 4.5° NNE of Saturn (33° from sun in morning sky)













Mercury is closer than 15° from the sun when near the moon in August.

Other Events of Interest

Times are Hawaii Standard Time

- Aug 4, 17:05h, Moon New
- Aug 5, 13h, Mercury at inferior conj. with sun (Passes into morning sky.)
- Aug 8, 06h, Neptune at opposition
- Aug 14, 03h, Moon 0.42° NNE of Antares (108° from the sun in evening sky)
- Aug 18, Moon at perigee 12.1 hours before full. Very high and very low tides expected.
- Aug 19, 07:54h, Moon Full
- Aug 23, 13h, Mercury at greatest elongation (18.4° west of the sun.)
- Aug 25, 22h, Moon 0.43° SSW of Pleiades (93° from the sun in morning sky)

Planets in August

<p> Mercury</p> <p>below Saturn in the west just before sunrise during the last 2 weeks of August.</p>	<p> Venus</p> <p>Shines very brightly in the west after sunset, setting a couple of hours after the sun.</p>	<p> Mars</p> <p>Rises before midnight, has brightened to -1.0 magnitude, and will be 14" in diameter by month's end.</p>		
<p> Jupiter</p> <p>Above Venus in the evening sky – they are very close together by the end of the month.</p>	<p> Saturn</p> <p>Appears in the morning sky before sunrise, but too close to the horizon for good viewing.</p>	<p> Uranus</p> <p>Reaches opposition with the sun at month's end and is near the meridian about midnight.</p>		
<table border="1"> <tr> <td> <p> Neptune</p> <p>Also reaches opposition in August, best viewed a couple of hours before and after midnight.</p> </td> <td> <p> Pluto</p> <p>Still well placed for viewing in the early evening in the constellation Serpens Cauda.</p> </td> </tr> </table>		<p> Neptune</p> <p>Also reaches opposition in August, best viewed a couple of hours before and after midnight.</p>	<p> Pluto</p> <p>Still well placed for viewing in the early evening in the constellation Serpens Cauda.</p>	
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The general membership meeting was called to order at 7:32 p.m. by President Chris Peterson. The meeting held in the Atherton Halau on the grounds of the Bishop Museum. Twenty-nine members and four visitors were present.

Deep Impact - President Chris Peterson updated general membership on the recent impact of the smart probe with Comet Temple I on July 3rd. The incandescent flash was quite a view via the flyby space craft. Everyone with a decent telescope on the ground had virtually no view of the impact. However, the view from Hubble and the craft that had piggy-backed the copper probe sent back impressive images and data that astronomers will be analyzing for months. The debris field obscured the view of the crater, however, astronomers are hoping to be able to glean information. After weeding out unneeded information the signatures of chemical species can hopefully be identified.

Planetary interests for upcoming summer months - President Chris Peterson spoke briefly about the sight of the Planets Jupiter, Venus, and Mercury available to interested viewers during the upcoming summer months.

Astronews- Due to an error in communication the June 2005 Astronews was sent to members in error. The July 2005 Astronews will be printed and sent.

Welcome to Visitors- Four visitors were greeted by Chris Peterson.

School Star Party Report - Forrest Luke reported that Sapavith "Ort"

Vanapraks was able to man the Camp

Erdmann MDA star party, setting up two scopes.

Lecture at Planetary Data Center - July 16 through 24, 2005 is "Space Week." The Planetary Data Center is presenting a related lecture, on the Apollo 11 Mission Tuesday July 19, 2005.

Back to the Moon - President Chris Peterson spoke briefly about NASA's renewed vision of traveling back to the Moon.

Nite Sky Network - At-Large HAS Board Member and Nite Sky Coordinator John Gallagher has asked for help to pass out flyers and instruct visitors at the Kahala Star Parties. Anyone interested contact John. July 21 phone conference with NASA. If interested contact John Gallagher.

Featured Speaker for July: - Jay Wrathall, long-time member and retired astronomy professor at BYU Hawaii, spoke at length about astrophotography. Jay outlined the pro's and con's of the use of commercial digital cameras and their usefulness in obtaining quality pictures using your own telescope.

He spoke of and displayed examples pictures one can obtain through the use tripods without tracking to capture views of wide angle constellations, piggybacking cameras on telescopes, and using CCD setups. Jay also outlined the process of enhancing areas within the picture to brighten the image and make the composition clearer.

Astronomy Vacation Destination - Mel Levin spoke about the early spring visit he and Clare spent at the recreational astronomy destination, the

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This is **Perseid** month, and the Moon is cooperating this year. This is the last time you will be able to view the Perseids under moonless skies until 2007. Not until the **Quadrantids** of January 2006 will a major shower peak under such favorable conditions.

Thursday the 4th, **Southern Iota Aquarids**. Radiant 22h12m -15 deg. The new Moon provides excellent conditions for this minor drizzle. About 2 meteors an hour if luck is with you.

Monday the 8th, the **Northern Delta Aquarids**. Radiant 22h20m -05 deg. The Moon is nearly new. The meteors are faint and or medium speed. the radiant is above the horizon most of the night, but rates are 4 or less per hour.

Friday the 12th, the **Perseids**. Radiant 03h04m +57deg. One may expect up to about 80 meteors and hour. The radiant just a few degrees north-east of the Perseus Double Cluster reaches a decent elevation about 10 or 11 PM local time.

The remaining August shower are minor and are messed up by the full Moon.

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

President's Report (Continued from page 2)
more than we used to about what we are looking at.

Chris

Minutes (Continued from page 4)
Star Hill Inn outside of Santa Fe, New Mexico. Mel spoke in glowing terms of the homey atmosphere of the accommodations and well maintained telescopes available for each vacation bungalow. Mel and Clare paid \$169 per night for their particular accommodation, capable of sleeping 6 to 8 people.

Upcoming speakers - We are still hopeful that Dr. Karen Meech of I.F.A. from the University of Hawaii, Manoa

will address the club about her work on her newest project in astrobiology. She has been contacted and she is searching for a date during which she might be with us. We are hoping also that she may give us additional information about her involvement with the recent Deep Impact Mission.

The meeting adjourned at 9:17 p.m. Refreshments were served.

Respectfully Submitted,
Gretchen West

Grand Canyon (Cont. from page 1)

view in most directions, but the landscape is mostly flat, with junipers and pines providing the color and texture.

Flagstaff has 2 main attractions, the US Geological Survey Field Center, with its main building named for Gene Shoemaker, and the Lowell Observatory on Mars Hill, overlooking this high elevation town. I'll cover our visit to Lowell Observatory in next month's Astronews (editor permitting).



We were invited to visit the USGS by Brent Archinal, thanks mainly to Jane's friendly nature. Brent gave a talk about the Huygen's mission to Titan at the Grand Canyon Star Party. Planets and natural satellites such as Titan get mapped at USGS, and the long, long corridors display many, many examples of the work being done.

We spent a good deal of time roaming these corridors, but also got into several offices and met a few of the people who work here, including Carolyn Shoemaker. If her name fails to ring any bells for you, think Comet Shoemaker-Levy 9 that hit, and hit, and hit Jupiter a decade ago. The lobby's display cases made clear how important her husband Gene is to the way we regard impact craters today.

Before Gene Shoemaker, the Moon seemed to be pock-marked with

extinct volcanoes, and Berringer Crater, not far from Flagstaff, was also tagged as somehow volcanic (minus the lava). Mr. Shoemaker is also known for promoting lunar prospecting. A lunar rover practice vehicle sits in the lobby of Gene's building, along with pictures of astronauts in training. Gene helped to train space cowboys in the art of rock appreciation. It didn't take long in this lobby to realize how miraculous it was for the Shoemakers to have found a comet with planetary collision in its future. Gene had preached this scenario for most of his professional life.

The USGS is no mere monument to times gone by, however, and folks were at work while we cruised the corridors. Big screen computers showed maps in progress. One was plotting the previous paths of the Mars rovers and Larry Soderblom was helping to direct the rover named Spirit. We wore 3-D glasses in another office and took a look at Titan (a work in progress). The whole Solar System was being pieced together in this building, office by office.



Top, left to right, John Dobson, Carolyn Shoemaker, Morris Jones, Barry Peckham.
Bottom, Bill Moore from Alaska, Jane Houston Jones.

It was out in those long, long corridors that we spotted Carolyn Shoe-

HAS Financial Report as of July 15, 2005

Initial Balance:.....	\$4,877.95
Receipts:	
Astronomy Payment.....	38.00
Deposit-Telescope.....	20.00
Donations.....	170.00
Dues Received.....	250.00
S&T Payments.....	164.75
T-Shirt Sales.....	15.00
Telescope Fee.....	20.00
Total Income:	\$697.75
Expenses:	
Astronews.....	228.38
Magazine Subscriptions.....	90.95
Postage.....	3.85
Refreshments.....	12.65
Total Expenses:	\$335.83
Ending Balance:.....	\$5,239.87

The club welcomes **twelve** new members this month. They are **Benjamin, Kent, Bonnie and Michael Richards; Dean, Cynthia, Tyler and Kendall Gadd; Elizabeth Ebisu; Ronald, Cheryl and Cheriane Goodknecht**. In addition, many thanks to those renewing their membership and to **Jaurene Judy, Beth Helms, Bill and Fran Parker, Dean Gadd, Jeffrey Schmidt, Rick Decker** and the **Voyager School** for their generous donations. Clear skies to all!

maker moving in our direction. She and Dobson had recently been in Bolivia, at the Southern Skies Star Party, so they gave each other warm smiles. John is a big fan of impact geology so he can align with Carolyn on that subject. You will note in the photo that he makes no secret of his disdain for the Big Bang, which has no impact on his cosmology. Carolyn was polite to us all, spoke with Jane and Mojo about the asteroid named for them, and continued on down the hall.

Astronomy Haiku
 through the telescope
 the mountains on the moon
 Grandmother yawns

Penny Harter

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The Lowell Observatory, Mars Hill (Flagstaff, Arizona)
(photo by Jane Houston Jones)