



Smoke and Mirrors

Barry Peckham

You can easily guess the type of mirrors I'm writing about. The smoke comes out of my ears when I find out that a mirror I just bought is no darn good.

Toward the end of our club's April meeting I talked about testing a mirror with Galaxy Optics' seal of approval. John Hudek of Galaxy Optics is an honorable fellow and the guy I bought this mirror from also seemed honorable, based on his ratings on Astromart.com. But what I passed around the room on Tuesday night was evidence that this \$800 optic was fatally flawed.

It seemed that 2 honorable fellows had dumped a bad mirror in mid-Pacific, where my screams wouldn't be heard. So calls and emails began

(Continued on page 6)

Inside this issue:

| | |
|---------------------|---|
| Club Information | 2 |
| President's Message | 2 |
| Observer's Notebook | 3 |
| Meteor Log | 5 |
| School Star Parties | 7 |
| Treasurer's Report | 7 |



Upcoming Star Parties

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|----------------------|----------------|-----------------------|
| Public Party* | May 6 | Kahala/Waikele |
| Club Party | May 20 | Dillingham |
| Public Party | May 27 | Dillingham |
| Public Party | June 3 | Kahala/Waikele |
| Public Party | June 17 | Dillingham |
| Club Party | June 24 | Dillingham |

* Astronomy Day

Upcoming Events:

- The next meeting is at 7:30 p.m. on Tuesday, June 6th at the Bishop Museum.
- **NOTE:** The subscription rate for Sky & Telescope is now \$34.00 per year.

President's Message

The role of impact in the history of the solar system was not always appreciated. Until spacecraft and astronauts started visiting the Moon, it was widely believed that volcanic processes were responsible for at least some of the craters seen on the Moon through telescopes. Meteor (or Barringer) Crater in Arizona was at first thought to be volcanic. Although many people suspected that it was an impact crater, it was not until Eugene Shoemaker carefully studied it that the impact origin was proved.

Although close observation and returned samples left no doubt that almost all of the Moon's craters resulted from impacts, and the rest of the solar system had been heavily bombarded as well, no one had ever witnessed a significant impact. That changed when a comet, appropriately co-discovered by Gene Shoemaker, was broken apart by a close pass by Jupiter. Many pieces of that comet, Shoemaker-Levy 9, struck Jupiter over a period of days in 1994. Although the impactors were destroyed by their collisions with Jupiter's atmosphere long before they could reach whatever solid surface may exist at depth on Jupiter, they left bullseye-like marks in the clouds that were visible for weeks from Earth-based telescopes and the Galileo spacecraft that was then approaching the planet.

Now we might have a chance to see a deliberate impact on the Moon. Two impacts, actually. The European SMART-1 spacecraft is nearing the end of its mission, and plans call for the spacecraft to be crashed into the western limb of the Moon in September of this year. Also, plans have just been announced for the Lunar Reconnaissance Orbiter mission, scheduled to be

(Continued on page 5)

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Planets Close To the Moon

Times are Hawaii Standard Time

- May 2, 01h, M 3.6° N of Mars
(59° from sun in evening sky)
- May 4, 01h, M 3.7° NNE of Saturn
(81° from sun in evening sky)
- May 12, 01h, M 4.6° SSW of Jupiter
(170° from sun in midnight sky)
- May 19, 08h, M 3.3° SSE of Neptune
(98° from sun in morning sky)
- May 21, 01h, M 0.85° SSE of Uranus
(50° from sun in morning sky)
- May 23, 19h, M 3.8° NNW of Venus
(39° from sun in morning sky)
- May 30, 19h, M 3.1° NNE of Mars
(48° from sun in evening sky)
- May 31, 13h, M 3.7° NNE of Saturn
(57° from sun in evening sky)

Other Events of Interest

Times are Hawaii Standard Time

- May 2, 21h, M 1.7° N of Vesta
(68° from sun in evening sky)
- May 4, 04h, Jupiter at opposition
- May 6, Astronomy Day
- May 12, 20:52h, Moon Full
- May 18, 10h, Mercury at superior conj. with sun (Passes into evening sky.)
- May 26, 19:27h, Moon New
- May 2, 21h, M 0.83° NNE of Vesta
(52° from sun in evening sky)

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

Planets in May

| | | |
|--|--|---|
| <p> Mercury visible low in the WNW in the evening twilight at the end of the month.</p> | <p> Venus rises about 2 hours before the sun in the morning sky at magnitude -4.0.</p> | <p> Mars low in the SW at dusk and dims to about +1.8 magnitude in May.</p> |
| <p> Jupiter reaches opposition this month and is in the sky all night. Can be best observed after 9:00 pm at magnitude -2.5.</p> | <p> Saturn shines brightly in the southwest near Mars at a magnitude of about 0.3.</p> | <p> Uranus rises about 3 hours before the sun in the morning. Will be better placed for viewing at the end of summer.</p> |
| <p> Neptune can be observed in the early morning hours in Capricornus.</p> | | <p> Pluto rises about 9:00 pm and can be observed after midnight.</p> |

The April 4, 2006 general membership meeting of the Hawaiian Astronomical Society was called to order by Chris Peterson at 7:42 p.m. The meeting was held at the Atherton Halau, on the grounds of the Bishop Museum. There were twenty-six members and six visitors in attendance.

Upcoming Lecture - President Chris Peterson announced this month's Hawaii Space Lecture Series at the NASA Pacific Regional Planetary Data Center. The upcoming lecturer will be Dr. Karen J. Meech, of the University of Hawaii's Institute for Astronomy, who will speak on "Deep Impact: Secrets of the Comet." This month's lecture will take place on April 25, at 7:30 pm, in room 504 of the UH P.O.S.T. building.

Upcoming Speaker- Author Michael Chauvin has been asked to introduce his new book, *Before Mauna Kea - Ancient Hawaiian Astronomy* at our May General Membership meeting. Hawaii State Science Fair- Tuesday, April 4, 2006 was the day of judging for this year's Hawaii State Science and Technology Fair. Jim MacDonald and Gretchen West judged for the club on Tuesday afternoon, April 4, 2006. Presentations will take place on Wednesday afternoon, April 5, 2006. The Globe Project - President Chris Peterson reported on the project that hoped to draw world attention to the loss of night viewing to light pollution was rained during the evenings of March 22nd through March 27, 2006. IFA Open House- The yearly IFA Open House will take place on April 30, 2006, at the Manoa campus of the Institute for Astronomy.

Astronomy Day - This year Astron-

omy Day falls on May 6, 2006. Once again this year, we will be sharing the daytime sky with the public from the upper level of the Kahala Mall, outside Barnes & Noble bookstore. We will have a sign up at the next meeting for all those who want to participate in this activity. We will view the moon with personal scopes and share views of the sun with the solar telescopes. Evening viewing will take place at Kahala Community Park, next to Kahala School, on Pahoia Road. HAS Asteroid- - A certificate of appreciation was created and was presented to former HAS member, Joe Dellinger and W.G. Dillon for their graciously naming the recently discovered asteroid #88297 "Huikilolani"-2001 NP14 in honor of our club. Club president Chris Peterson was attending a conference in Houston, and contacted Mr. Dellinger to personally present Mr. Dellinger with the certificate along with a club tee shirt. We were treated to the latest video from the Mars Odyssey website. A virtual fly-by of Vallus Marinarus. You can view it yourself at <<http://mars.jpl.nasa.gov/odyssey/gallery/video/video.html>> Visitors - Joining us were Kevin and Derek Suehiro, and repeat visitor Steven Chun, who is interested in choosing the right scope for viewing. Our monthly star parties at Kahala Park, Waikele Community Park, and at Dillingham Field, on Oahu's North Shore are the best places to get some hands on experience with different types of scope. Our members share their love of the night skies, and their abilities with their personal scopes.

(Continued on page 5)

Twilight increases in the northern hemisphere which hampers observations, but the month's major shower, the Eta Aquarids, benefits from a waxing Moon. Daylight radio showers are featured in the later part of the month.

Saturday the 6th, the **Eta Aquarids**. Radiant 22h28m -22 deg.

The major problem for spotting this shower is that the radiant, in the little "Y"-shaped *water jar* asterism of Aquarius, rises in twilight only an hour or two before dawn for mid-northern latitudes.

However we are nearer the equator and we will have a little twilight-free sky.

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

(Continued from page 4)

Look first; learn the ins and outs of using scopes and then make a choice is our advice to newcomers.

Telescope Workshop/ Mentoring - We would like to enlist the help of members to be a mentor to new members with like telescopes. New member, Robert Kessler

<Keslerr001@Hawaii.rr.com> contacted Chris to ask if there were someone who might help him. We would like to pair newcomers with a veteran member who may have a similar scope, in hopes of helping our new members be more successful with learning which scope would be best for them, helping them understand their new scopes, being happier with their choice of scope. If you would be willing to help out please contact Jim MacDonald, Barry Peckham, or Paul Lawler.

Waimea Valley Audubon Center - The Waimea Valley Audubon Center will host a fund raising event for about 20 people on the evening of Friday, April 21,2006. They asked for help from two astronomers with telescopes . They indicated that they would provide the astronomers with a

President's Report *(Continued from page 2)*

launched in October of 2008, to carry an additional small spacecraft that will guide the upper stage of its launch rocket to an impact at the Moon's south pole, then fly through the resulting plume to try to detect the water that may be there. Both of these impacts could be visible from Earth. Get ready for a rare experience (or two)!

Chris

\$50/person honorarium.

Aloha from the Solar Eclipse- Mel Levine read an e-mail he received from Joanne Bogan and John Sandor as they viewed the recent Solar eclipse from Turkey. The glowing report made everyone envious of their perfect view of the event.

Lunar Planetary Science Conference - President Chris Peterson gave some detail of what took place during the recent planetary science conference in Houston earlier this month. Chris gave the members a rundown of the very large poster project he presented. Star Dust Mission Request - During a

(Continued on page 7)

(Continued from page 1)

streaming out to the suspects. The seller went completely quiet for more than 2 weeks, while the tester claimed not to understand my test results. It looked pretty bad for awhile, and then pieces of this puzzling predicament began falling into place.

The ad for this mirror stated that it had a chip on the backside which had no effect on image quality. At the knife-edge of a Foucault tester, I saw a ruinous effect from a “chip” on this mirror’s backside. Photos I took at the time showed that the “chip” was outlined with magic marker, so it couldn’t be the result of shipping damage.

Also, the mirror had been packed in several inches of foam and there was no obvious damage to the outer box.

I mentioned to Mr. Hudek that I could pull pieces of glass out of this “chip” area, which I explained was more of a crush zone.

Hudek-the-Meticulous said he would never let a tested mirror leave his shop with bits of removable glass stuck to it. He was sure that I was exaggerating the defects of this mirror, and so I was inspired to unpack the mirror once more and to get better photographic evidence. Close inspection of the backside damage revealed a lot. That “marker outline” I’d seen in the previous photos turned out to be a deep crack below the crush zone. This poor mirror took a major hit and is definitely dead! The crushed back edge, in zoomed macro-photos, showed hundreds of glass bits and shards. It sure looked like shipping damage.

While the mirror’s shipping box was thick with upholstery foam, that crushable foam was only 1½” thick at 2 places along the mirror’s edge.

Dropping this box on its side from a height of only 4 feet could do the damage I was looking at. But where was the damage to the shipping box? A closer look showed a 3” slit in the box’s side, right where the mirror’s edge had been. Some sharp, hard corner could have penetrated the box during a side impact and killed my mirror.

Sometimes the unlikely scenario is the only possibility. In addition, I finally noticed the chip mentioned in the Astromart ad. It was right next to the crush zone and so minor I hadn’t noticed it during the initial inspection. Now things were making sense!

My report went out to Galaxy Optics, and John Hudek sent a message to the mirror’s former owner, and he finally called me. Like some of our own club members, he’d been off chasing the eclipse that passed through Africa and the Middle East. There were a lot of urgent, angry and threatening messages on his phone and computer, but all was made right in short order and he took the mirror back so that he could chase insurance money. At this writing I have received a refund for most of my money. The optical universe is once again at peace.

Lessons learned:

1. Close inspection of fragile shipments is a good idea.
2. First impressions can be misleading.
3. Upholstery foam is not good for packing heavy slabs of glass.
4. Clear communication is key for transactions among strangers.
5. Eclipses happen.

Barry

HAS Financial Report as of April 15, 2006

| | |
|------------------------|------------|
| Initial Balance: | \$4,220.52 |
| Receipts: | |
| Donations | 6.05 |
| Dues Received | 59.00 |
| S&T Payments | 32.95 |
| Total Income: | \$98.00 |
| Expenses: | |
| Astronews | 158.50 |
| Magazine Subscriptions | 77.35 |
| Science Fair Award | 50.00 |
| Refreshments | 6.71 |
| Postage | 3.27 |
| Total Expenses: | \$295.83 |
| Ending Balance: | \$4,022.69 |

This month we welcome three new members. They are **Steven and Raizel Chun**, and **Robert Fairchild** who has rejoined the club. Our thanks to Robert Fairchild for his donation. Many thanks also to those renewing their membership this month. Clear skies to all!

School Star Parties

May 3, 2006 (Wednesday)

Ala Wai Elementary School

May 5, 2006 (Friday)

Pearl Harbor Elementary School

Minutes (Continued from page 5)

recent Nite-Sky teleconference, NASA has asked for interested parties with time and a PC volunteer and be evaluated to be trained for assessing the aerogel that was brought back to earth from the comet. NASA is looking to find the microscopic track of particles of comet and interstellar dust in the scanned aerogel.

Woden Optics - Vice President Barry Peckham spoke briefly about the diagonal mirror calculator, which allows you to calculate the correct size of your secondary based on the diameter of your primary mirror.

Standard vs. Enhanced Optical Coatings—The pros and cons of standard

versus enhanced optical coatings on mirrors was discussed.

Modern Dobsonian - by Tom Clarke is an interesting read according to Barry Peckham.

Star Party Etiquette - Barry urged everyone to bone up on star party etiquette. They are useful and ensure a more enjoyable viewing experience at star parties. You can see a set of these rules of etiquette on our website. Take a look and you will have a better viewing experience.

The meeting was adjourned at 9:23 p.m. and refreshments were served.

Respectfully submitted,
Gretchen West, HAS Secretary

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NGC 253, the *Silver Dollar* galaxy is one of the brightest and dustiest visible. **Photo credit & copyright:** [R. Jay GaBany](#)