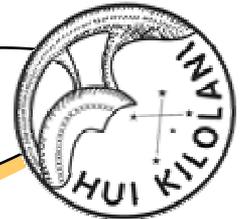


# The Astronews



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July 2002

## Exploring the Universe by Paul Lawler

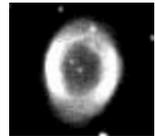
This past week, I was fortunate to visit the Smithsonian's Air and Space Museum in our nation's capitol. There is a new exhibit in the Air & Space Museum called "Exploring the Universe." The exhibit starts with the visual observations of the ancients, then proceeds through the development of telescopes from Galileo's refractor to the Hubble Space Telescope, astrophotography and spectroscopy, through digital photography, radio astronomy to today's sophisticated imaging and detection systems.

While I didn't really understand much of the 2nd half of the exhibit (my tiny brain still has problems with

*(Continued on page 7)*

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### Special points of interest:

- The next meeting is 7:30 on July 2 at Bishop Museum
- **Sam Rhodes** Hanauma Bay shows have moved to the 2nd Monday of every month. Gates close at 7:30

## Upcoming Star Parties

|                     |                  |                    |
|---------------------|------------------|--------------------|
| <b>Club Party</b>   | <b>July 6</b>    | <b>Dillingham</b>  |
| <b>Public Party</b> | <b>July 13</b>   | <b>Dillingham</b>  |
| <b>Public Party</b> | <b>July 20</b>   | <b>Kahala Park</b> |
| <b>Club Party</b>   | <b>August 3</b>  | <b>Dillingham</b>  |
| <b>Public Party</b> | <b>August 10</b> | <b>Dillingham</b>  |
| <b>Public Party</b> | <b>August 17</b> | <b>Kahala Park</b> |

## President's Message

by Gretchen West

Welcome to July! Six months down and six months to go. What an equitable concept. It all depends on your point of view, I guess—you know—how you perceive situations. It's the old partially filled glass thing. Are you one who views the glass as half full or half empty?

For me, I guess, the glass is still half full. So much still to do, to see, to experience. We have the opportunity to welcome back more old friends into the night sky. Back comes the Summer Triangle and the summer Milky Way. Yes, I know! It's the same one we see each year, but what a magnificent panoply of stars. Just think about what we yet have to see!

A June event that I hope everyone had the opportunity to view was the annular eclipse of the sun that occurred on June 10th. Club members assisted visitors to the Bishop Museum to experience this partial eclipse first hand (story on page 11). Partial or not, the viewing was clear and quite different from the previous event earlier in the year. But interestingly enough, just as exciting. I truly hope everyone in the club had just a tiny a bit of time to step outside and view the event, safely.

Mahalo for a splendid first half of the year! I hope to see many of you soon, at our next meeting!

Clear Viewing to All & Mahalo,  
*Gretchen*

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**Planets Close to the Moon**

Times are Hawaii Standard Time

- July 8, 02h, M 1.7° N of Saturn (24° from sun in morning sky)
- July 13, 05h, M3.7° NNE of Venus (42° from sun in morning sky)
- July 24, 15 h, M 4.24° SSE of Neptune (171° from sun in midnight sky)
- July 26, 02h, M 4.1° SSE of Uranus (155° from sun in morning sky)

Mars, Jupiter, and Mercury are closer than 15° from the sun when near the moon in July.

**Other Events of Interest**

Times are Hawaii Standard Time

- July 2, 02h, Mercury 0.22° S of Saturn (19° from sun in Morning sky) Closest planetary conjunction this year.
- July 5, 18h, Earth at Aphelion (farthest from the sun at 152,094,200 km)
- July 10, 00:26h, New Moon
- July 10, 07h, Venus 1.0° NNE of Regulus (42° from sun in evening sky)
- July 19, 15h, Jupiter at conjunction with sun. Passes into morning sky.
- July 20, 16h, Mercury at superior conjunction with sun, passes into evening sky.
- July 22, 11h, Venus 0.56° SSW of 3 Juno (44° from sun in evening sky)
- July 23, 23:07h, Full Moon

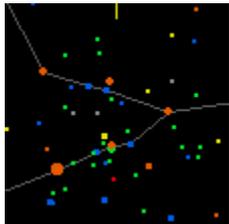
**The Planets in July**

|   |   |   |
|---|---|---|
| ♿ <b>Mercury</b>  | ♀ <b>Venus</b>  | ♂ <b>Mars</b>   |
| Mercury is visible in the morning sky the first week of July. Very near Saturn on July 2. | Venus dominates the western sky after sunset Near Regulus July 10-11. Mag. -4.1.                  | Mars fades into the glow of sunset in July and will reach conjunction with the sun on Aug 10. |
| ♃ <b>Jupiter</b>  | ♄ <b>Saturn</b>   | ♅ <b>Uranus</b>   |
| Jupiter is at opposition this month and is too close to the sun to be viewed.             | Saturn appears in the early morning sky but is too close to the sun for easy observing in July.   | Uranus rises about an hour after Neptune and can be viewed before dawn. Mag +5.8              |
| ♆ <b>Neptune</b>  | ♇ <b>Pluto</b>  |   |
| Neptune rises about midnight and is near the meridian by dawn. Mag +7.9                   | Pluto is well placed for viewing in the evening sky in Ophiuchus but is very faint at mag. +13.8. |   |



**Summer Friends Return**

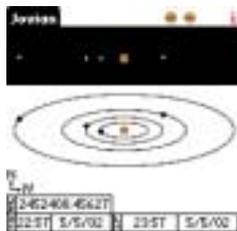
This striking image of M57, the Ring Nebula (which also appears on our cover), affectionately known to some as the “smoke ring in the sky” was captured by Jay Wrathall during the club star party on June 8th.



Have you recently noticed some of the members looking at their Palms? No, I am not talking about that part of the hand where your fingers are attached. I am referring to those little hand-held computers, PDAs, Pocket Organizers, Palm Pilots, or the myriad of other names by which these devices are known. They seem to be popping up in the most unusual places and used by people you would never expect. One evening while watching the news, a reporter out in the field was using a PDA as a prompter for her report rather than a piece of paper.

I never thought I would be interested in owning a hand-held until I saw an astronomy program being displayed. Wow, it showed all 88 constellations, their names, the stars that make up the asterisms, and all items down to 9.5 magnitude. It also included the Messier objects, plus the entire NGC catalog. The Sun, Moon and planets are similarly displayed. Tapping on an object will tell you what it is, the RA, rising and setting times and a host of other information. You can even see what's below the horizon or create a circle equal to the field of view of your telescope. You can instantly switch the view to a new point on the compass, the zenith, the horizon, zoom in or out, etc. For viewing at night, the screen is backlit and can be changed to produce a red image.

In addition, there are other programs that display the current position of the Jovian (Galilean) moons, and our own moon in its current phase. If you 'tap' a feature of the moon, the program will identify the crater, mare or whatever you point to. There seem to be a lot of programs available in many categories. I even saw a program that will predict the amount of time you can stay out under the sun before you get a burn. The prediction is based on such factors as weather conditions, your skin type, and time of day.



These hand-helds will never replace my Sky Atlas for detail, accuracy and clarity, but they are a very handy resource for use out under the stars. You can find an object faster than pulling out an Atlas and locating the correct page, etc. If you have previously done your research, you can make a notation on your hand-held and save that view for later when you need it. I am happy I made the jump into this new arena. It's a great help in supplementing my memory bank (or should I say blank).

If you want to see what's available and the current prices, drop into <<http://www.dealtime.com>>, select computers, and then choose PDAs. This web site is trying to sell products, but you can always browse without purchasing, just like at Macy's. Clear skies and electronically informed viewing!

*Editors Note: The author of the premier palm planetarium program 2Sky is HAS's very own Kevin Polk. ([www.palmgear.com](http://www.palmgear.com) or [www.pilotzone.com](http://www.pilotzone.com))*

**SETI** (Search for Extraterrestrial Intelligence)@home uses home PCs to analyze signals from the Arecibo radio telescope in Puerto Rico (of *Contact* fame) for patterns which would indicate extra terrestrial life. This is not flying saucers, but serious science. Each work unit consists of a 256k chunk of data plus some added information bringing it to 340k total which represents a patch of sky about .1° high by .6° wide.

You can download the SETI@home software for free and run it on your PC either working constantly in the background or as a screen saver. Be warned, if you choose constantly, there is serious number crunching going on.

SETI@home continues to grow. In May 2001 they recorded their 3 millionth user, in September they passed the ZettaFLOP ( $10^{21}$  operations) mark—by far the largest computation ever performed (at least on Earth!), and recently they surpassed one million years of CPU time.

They are working on new SETI searches, using new versions of SETI@home software. They hope to start recording data at a telescope in Australia (with coverage of most of the southern sky) and to expand their frequency coverage at Arecibo, if they can raise the funds.

With success has come a variety of technical problems. The most serious of these happened in early 2002 when the U.C. Berkeley Internet connection became saturated; during peak hours little bandwidth was available to SETI@home and many users were unable to connect and get work units. They have solved this problem by getting their own high-speed network connection.

If you would like to be part of the most massive distributed computing project in history, you can visit their web site at:

<http://setiathome.ssl.berkeley.edu/>

## Meteor Log — July 2002

by Mike Morrow

The nights are a bit darker in July but the Moon does spoil a few interesting near-ecliptic showers.

Sporadic rates are improving. Most of the showers are minor, but a few early Perseids may spice up July.

Sunday the 28, the southern Delta Aquarids. Radiant 22h36m -16. Rates are about 10 to 15 per hour. The waning Moon ruins the shower.

Tuesday the 30th, the Alpha Capricornids. Radiant 20h28m -10. Rates

are generally less than 3 meteors per hour but the meteors are typically slow, bright and sometimes fireball-class. The Moon again is in the way.

The showers of early July produce generally less than 3 meteors per hour and so we won't even mention them.

If you are interested in observing Meteors contact Tom Giguere on Oahu at 672-6677

or write to Mike Morrow, Meteor Group Hawaii, P.O. Box 6692, Ocean View, HI 96737

# Annular Eclipse

On June 10, HAS members **Gretchen West, Stephanie Choquette, Jim MacDonald, Glen Nanamori, Forest Luke, Tom Piper, Don Tucker,**



**Joanne Bogan and Paul Lawler** along with planetarium manager **Mike Shanahan** got together on the great lawn at Bishop Museum to help the public view an Annular solar eclipse. While the maximum coverage of only 52% of the sun's disk at 2:42 p.m. did not come close to the 80% of December's eclipse, the sky was mostly clear, giving great views.

There were several telescopes available for viewing. The Bishop

Museum's Goto was used to reflect the sun on a plate, and the Museum also had a great solar viewing tool called a "Sunspotter solar telescope." (see page 11) Sun Peeps were also available at the Museum shop for \$2.

HAS member Jim MacDonald provided an 8" reflector as well as Tom Piper's Schmidt Cassegrain with full aperture solar filters for direct viewing. Lines quickly formed at all of the scopes for views of the eclipse as well as sunspot activity. Many people were fascinate by the sunspots as well as the eclipse.

Thanks to the PR efforts of Mike Shanahan (or because it was a slow news day), we had coverage by the



"It happens like this..." Stephanie Choquette explains the mechanics of a solar eclipse to an observer.



Advertiser as well as 4 different television stations. The TV news crews were able to use Forest Luke's solar filter in front of their cameras to record the eclipse. The next total solar eclipse takes place on December 4,2002, but it will only be visible from eastern Africa to southwestern Australia. The next partial solar eclipse visible from Hawaii won't take place until October 14, 2004.

(Continued from page 1)  
the whole “big bang”  
thing), the first section which concentrated on visual and early telescope observation was fascinating.

The highlight of the display is William Herschel’s 20-foot reflector. In the hands of William Herschel, the telescope became a powerful scientific tool. Herschel had a talent for telescope



making that matched his passion for studying the heavens. He began building them in the 1770s. Soon he was creating the most powerful telescopes in the world and looking deeper into the Universe than ever before. The telescope displayed here was Herschel's favorite: his 20-foot reflector. You will notice that the primary mirror is angled so the eyepiece is at the edge of the tube opening (i.e., there is no secondary). Displayed at the lower right is the telescope’s mirror.

Herschel began observing with the telescope in 1783, and though he went on to build even larger ones, his 20-foot remained his favorite. In 1820 Herschel and his son John rebuilt the telescope, which had deteriorated after decades of use, salvaging what they could from the original. The tube displayed here is a product of that reconstruction.



This mirror was one of several crafted for the 20-foot telescope. Like other early telescope mirrors, it was made of metal (mostly copper and tin) and tarnished quickly, so it had to be repolished often. The base of the telescope could be opened and the mirror easily removed. Another mirror was always on hand to use while the first was being polished.

Herschel constantly worked at improving the telescope, modifying its optics, framework, and controls many times. With it, he and his son discovered thousands of nebulae and star clusters and mapped the entire sky. His sister Caroline sat inside the house nearby at an open window, recording her brother's observations as he called them down to her.

## How I Got Started in Astronomy

by Ron Paul Smith

It was the late 1950's and like many boys, I was interested in the hard sciences—rocketry, gems & minerals and astronomy. At that time, Sky & Telescope magazine advertised two telescopes that were in my price range—about \$6 each (\$6 was a far amount of money for a kid in those days). One scope was a ready to use 60x hand-held type, with multiple draw tubes, like the ones seamen used in that era. The other scope was in kit form, consisting of a 6" diameter objective lens and an eyepiece. The purchaser had to supply their own tubes. What made this scope unusual was its promise of seeing the moon at 300 power, and the fact that the large diameter objective was a piece of *flat plate glass*!

I opted to purchase the kit and built the telescope. Did I mention that the tube required was 12' long—not counting the eyepiece drawtube? I was so anxious to use it, that I went outside at twilight and plunked it down on the neighbor's fence (using it as a bipod).

There it was, the moon at 300x. Huge and dim (with hardly any contrast at full moon) and not very sharp—no Nagler eyepieces in those days, but gorgeous. That was my introduction to astronomy.

Many decades later, I was a laser and telescope maintenance technician, working with a 29" Cassegrain telescope at NASA, but that's a story in itself.

**Note:** While browsing through telescope making books, I came across the reference to the use of plate glass as a telescope objective lens. Light rays will eventually come to focus after passing through plate (flat) glass, but at a considerable focal length, thus requiring a long and ungainly tube. Readers might wish to experiment with this concept, and build a “window pane” telescope. In an age of APO lenses and GPS driven mounts, it will be a lot of fun to see ATM's dash around the island trying to find the right sized tubing—40 years after I built mine!

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## Star Lore — $\beta$ Cygnus

**Albireo**, the now universal title, is in no way related to the word Arabia, but apparently was first applied to the star from a misunderstanding of the words *ab ireo* in the description of the constellation in the 1515 *Almagest*. The Arabians designated  $\beta$  Cygnus as Al Minñar al Dajājah (the hen's beak), where it is still located on our maps.

It's colors have been described as golden and azure (also topaz yellow and sapphire blue), and it is certainly one of the most lovely colored double stars in the heavens. Separated by 35",

the pair is easily resolved in any telescope. The pair is likely not a true binary but an optical double, as no motion has ever been detected.

A nova appeared close to Albireo on June 20, 1670, described by the Carthusian monk, Anthelmus of Dijon. The nova disappeared after two years of varying brilliancy, but may still exist as a 10th to 11th magnitude variable, discovered in the supposed location by Hind in 1852.

*Adapted from Star Names and Their Meanings G.E. Stechert, 1899*

# Scope Rentals

New members—How would you like to observe the summer night skies in your own backyard, the Summer Triangle and that carpet of stars we call the Milky Way? Binoculars are great but an HAS rental telescope is even better! They're portable, easy to use and the rental fee is a reasonable \$20 per month. On top of that you can bring it out to Dillingham Field or Kahala Park to view the night skies. Even get started as a sidewalk astronomer! Contact HAS vice-president Barry Peckham to reserve your scope today and join us in enjoying the night skies.

## Minutes

by Chris Trusty

President, **Gretchen West**, called the meeting to order at 7:35pm and welcomed visitors. **Barry Peckham** reported on his visit to the Riverside Telescope Makers Convention held at Big Bear, California. The conditions were very dusty and the star party was scheduled during a full moon. He had pictures and does not recommend attending this event.

**Chris Peterson** gave a short talk about an article in *Mercury*, March/April 2002 issue titled: *A Universe From Nothing* by Alexi Filippenko and Jay Pasachoff. It discusses cosmology without all the mathematics.

**Jay Wrathal** shared his newly designed mount for two small scopes that are difficult to use. He designed a Dobsonian box mounted on tripod legs. The legs can be removed and the scope can be used as a table top Dobsonian. He is going to publish the plans in *Sky and Telescope*.

Barry held the monthly drawing.

**Jim DeLuze** won the door prize. Tom Piper will talk about his trip to new Zealand, **Myra Vega** will write an article for the *AstroNews*, and **Glenn Nanamori** will also write an article.

**Harry Zisko**, **Stephanie Choquette** and **Patrick Enomoto** will let Barry know what they are going to volunteer to do.

**Kevin Polk** told us how he was partially responsible for adding another crater to Mars. He described how he helped put a microphone on a lander that crashed on Mars. **Stephanie Choquette** gave a review of the book, *Universe: Stars and Galaxies*, 6th edition, by Freeman and Kaufman. It comes with a CD and a web site that helps explain complicated concepts. It is an introductory college textbook; the basics, but not too advanced. It is available at the U.H. bookstore.

**Chrissey Kellog** announced that the Windward Community College has a lecture series on Wednesdays June 12, 19 and 26. They will cover Hawaiian Stars and Legends, Calendars and Culture, and Comparative Navigation. Call 235-7433 for registration or more information.

Please notice the higher quality of the newsletters. We now transfer the file electronically to the printer, therefore the photos are sharper.

**John Gallagher** reported on a star party for Waldorf School's 6th and 7th graders up at Camp Timberline. The sky was clear and they had great seeing.

Meeting broke for refreshments at 9pm and reconvened in the planetarium at 9:15 for a "sky tonight." Meeting adjourned at 9:45pm.

# Treasurer's Report

by Jim MacDonald

HAS Financial Report as of June 15, 2002

|                               |            |
|-------------------------------|------------|
| Initial Balance:              | \$5,881.20 |
| Receipts:                     |            |
| Donations                     | 10.00      |
| Dues Received                 | 137.00     |
| Interest Income               | 1.38       |
| S&T Payment                   | 29.95      |
| T-Shirt Sales                 | 15.00      |
| Telescope Fee                 | 20.00      |
| Total Income:                 | \$213.33   |
| Expenses:                     |            |
| Astronews                     | 153.02     |
| Magazine Subscription Payment | 107.95     |
| Refreshments                  | 17.58      |
| Total Expenses:               | \$278.55   |
| Final Balance:                | \$5,881.20 |

Since last month, we have had five new members join HAS. They are **Janine Einck, Alexander Andrade, Robert Fairchild, Ralph Hare** and **Rebecca Rouse**. Welcome to the club. Many thanks to **Tsugito Nishimura** for his donation.

*Clear skies to the many members renewing their membership this month!*

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## Star Party Coordinator

We need a volunteer to coordinate next year's school star parties. This position entails receiving calls and/or emails requesting a star party and assigning that party to a member on the volunteer list. The assigned member will be responsible for rounding up enough folks and actually providing the star party.

Mel and Claire Levine have volunteered to oversee the East Oahu area, and we hope Forest Luke will continue to provide for the Leeward area. We need a coordinator to keep track of all the parties and make sure enough people and scopes show up.

The coordinator does not need to go to all the star parties, rather be more of a liaison for the schools and club members. This is our community outreach and we need your kokua to continue to make it a successful program. Here's your chance to make a difference. Call Gretchen (735-0482) if you are interested.

## Star Party Special Notice

The gate at Dillingham has been damaged and the bar mechanism that keeps it rigid no longer works. As a result the chain and lock used to secure the gate is too loose. During our last outing, the HAS lock was bypassed three times by Dillingham personnel meaning that someone had to leave their viewing to let people out. To avoid this problem, we ask that members shorten the chain around the gate frame when installing the HAS lock. This will keep the gate snug and less likely to attract unfavorable attention. Connect the HAS lock to the airfield's lock at one end, and then to the chain with several links dangling free after our lock. The result is a shorter, tighter chain. Thank you.

## Equipment Review — Sunspotter

School classes can now observe and follow the storms that play havoc with our tiny globe! *Sunspotter* gives students the opportunity to track sunspots as they appear, move, and vanish. A bright three-inch solar image is projected in all of its glory by a powerful 62mm diameter objective lens.

Because the image is projected on a pad of paper, students can easily trace the face of the sun and compare it from hour to hour and day to day. Easily aligned to the sun in seconds, using a pinhole and gnomon (the functional part of a sundial) the Sunspotter makes our closest star a subject of study by even the youngest students, without the complication of telescopes, solar filters, and tripods.

This unique, wooden, folded-Keplerian telescope provides a much safer and



more convenient way to view the brilliant light of the sun compared to more common methods.

By using a series of mirrors, the device projects an image of the sun onto a white viewing screen.

Unlike other ways of viewing the sun, the compact and sturdy Sunspotter is convenient, easy to set up, lightweight and fun to use. List price \$300.



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