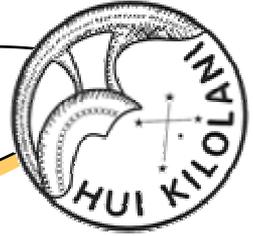


The Astronews



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April 2003

Musical Satellites

by Tony Phillips

If light were sound, then chemicals would play chords. Water: C major. Cyanide: A minor. Chlorophyll: G diminished 7th. (Please note that the choice of chords here is only for the sake of illustration, and not meant to reflect the actual spectra of these chemicals.)

It's a loose metaphor, but an apt one. Musical chords are combinations of frequencies of sound (notes), while chemicals leave unique combinations of dips in the frequency spectrum of reflected light, like keys pressed on a piano. Spectrographs, machines that recognize chemicals from their "chords of light," are among the most powerful tools of modern chemistry.

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Upcoming Star Parties

Club Party	Mar. 29	Dillingham
Public Party	Apr. 5	Dillingham
Public Party	Apr. 12	Kahala Park
Club Party	Apr. 26	Dillingham
Public Party	May 3	Dillingham
Public Party	May 10	Kahala Park



Upcoming Events:

- The next meeting is 7:30 on. Apr 1st at Bishop Museum
- **Sam Rhodes** next Planetarium show on Mon. Apr. 8th. Hanauma Bay shows have been cancelled until further notice.

President's Message

HAS members of long standing will remember that we used to have outside speakers as a regular part of our meetings. A typical meeting included up to a half hour of reports and other business followed by a 45-minute to one-hour talk. The speaker was frequently from the University of Hawaii. More recently, the HAS leadership has focused more on recruiting our own members to contribute to the meetings.

This year, we are planning to try some other types of meetings as well. For example, the April meeting will consist mostly of a swap meet where members can offer equipment for sale to fellow members. Other special themes we have considered include discussions of observing accessories such as eyepieces, star charts, etc. One suggestion I received recently was to have a meeting devoted to showing and learning more about some of the spectacular astronomical images that we frequently see in magazines, on the internet, and elsewhere.

At the April meeting I plan to distribute a questionnaire to solicit the opinions of members regarding the content of future meetings. Do you like the way meetings are being run? Do you want to return to having more outside speakers? Do you have suggestions for special purpose meetings?

The club belongs to the members, and your input is important. If you have a suggestion that I haven't mentioned, please call me at 956-3131 and leave a message, or e-mail me at hrip@higp.hawaii.edu with your comments. I'll try to include them in the survey.

Chris

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Planets Close to the Moon

Times are Hawaii Standard Time

- Apr 7, 11h, M 3.1° N of Saturn (66° from sun in evening sky)
- Apr 10, 23h, M 3.9° NNE of Jupiter (107° from sun in evening sky)
- Apr 22, 22h, M 3.3° S of Mars (92° from sun in morning sky)
- Apr 23, 21h, M 5.0° SSE of Neptune (81° from sun in morning sky)
- Apr 25, 09h, M 4.5° SSE of Uranus (63° from sun in morning sky)
- Apr 28, 01h, M 2.4° SSE of Venus (29° from sun in morning sky)

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

Other Events of Interest

Times are Hawaii Standard Time

- Apr 1, 04:19h, New Moon
- Apr 3, 10h, Jupiter 1.1° SE of Center of M44 (114° from sun in evening sky)
- Apr 16, 04h, Mercury at greatest elongation (19.8° east of sun in evening sky)
- Apr 16, 09:36h, Full Moon
- Apr 16, 20h, Moon at perigee, closest to earth (Only about 10 hours after a full moon producing very high and very low tides)
- April 22, Lyrid Meteors

The Planets in April

♿ Mercury	♀ Venus	♂ Mars
Mercury is visible just after sunset most of the month, reaching max elongation on Apr 16.	Venus is visible low in the east before dawn, with a magnitude of -3.9.	Mars rises about 1 am and is brightening rapidly. It will be mag 0.0 by the end of April.
♃ Jupiter	♄ Saturn	♅ Uranus
Jupiter is in the SE at sunset and well placed for viewing all evening at mag -2.2.	Saturn is past it best, but still shows up very well in early evening. Mag. +0.1.	Uranus, in the predawn sky before sunrise, is still too close to the sun to view easily.
♆ Neptune	♇ Pluto	
Neptune is visible in the east before dawn, but will be better viewed later in the year.	Pluto rises about midnight and is well placed for viewing in the predawn sky.	

For Scope Rentals—See Barry Peckham

The March 4, 2003 meeting of the Hawaiian Astronomical Society was called to order at 7:30 p.m. by President Chris Peterson. Forty-one members and six visitors were in attendance.

President Peterson informed the club of a stellar occultation taking place March 20th, 11:48 PM, lasting only @ 63 seconds. Interested members were urged to participate in timing the event. Jim MacDonald gave further information on location and guided members to look in the March issue of Sky & Telescope for further information.

President Peterson requested the loan of a small scope to be used on Molokai for a school star party for the week of March 4, 2003. Any trusting member who is willing to lend his/her scope is asked to contact Chris.

School Star Parties : Star Parties can be fun and sometimes they are like a war zone. During a recent star party at Iolani School, members were bombarded by liter sized bottle rockets. Luckily no one was hurt and no scopes damaged. Forrest Luke sent around a sign-up for March Star Parties in Wahiawa, Ewa and in town.

New Business: April Meeting = SWAP MEET: The Board of Directors need to gauge the number of members who need tables for their saleable items for the April 1st meeting. A tentative sign-up was sent around, but if you weren't there please contact any Board member.

Member Ray Brust, who could

not be with us at the meeting, sent a message that the U. of Hawaii could use a bit of support for the Astronomy facility on Mauna Kea. Ray asked for support of the facility on Mauna Kea ASAP. Please send any supportive e-mail to <dlnr@exec.state.hi.us>

Astronomy Day: May 10th Vice President, Barry Peckham, will be coordinating efforts to have this year's Astronomy Day at Kahala Mall, upper level, outside of Barnes & Noble. We will need volunteers, scopes and some sun filters. A sign-up will be passed around at the next meeting.

Old Friends, New Friends:

We had 6 visitors with us at the meeting, as well as having 5 member return after some time away.

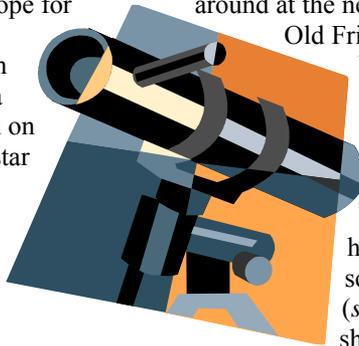
Ron Paul Smith shared his dapper portable scope and accessories. (see page 7) What a show, Ron Paul!

Mike Shannahan announced Sun/Earth Day at the Bishop Museum. He requested help for Saturday, March 15th and Tuesday March 18th (9:30-11:30 and 1:30-3:30). All are welcome. Don Tucker, who will be taking a short "vacation" in Korea for two weeks and who will be leaving us soon, read a short poem (see page 11).

Visiting member, Alan Levin, spoke to the membership about similarities of our club with other clubs in California. He also described some of the great viewing on the mainland, despite cold weather conditions.

Returning member, Scott B Schneeweis, shared a collectible he

(Continued on page 6)



School Star Parties

It's that time of year again, and School Star Parties are being coordinated by Forrest Luke. If you are contacted for a school star party, please have the school contact Forrest directly at 623-9830 or <lukef003@hawaii.rr.com>.

As a reminder, upcoming scheduled school star parties are:

- 4 Apr 2003 Lanakila Elementary**
- 7 Apr 2003 Voyager School (Kakaako)**
- 25 Apr 2003 Niu Valley Middle School**
- 7 May 2003 Mauka Lani (Makakilo)**
- 9 May 2003 Helemano (Central Oahu)**

If you signed up and need help finding the school, or if you didn't sign up, but still want to participate, please contact Forrest.

Musical Satellites (Continued from page 1)

Most earth-watching satellites, like the highly successful Landsat series, carry spectrographs onboard. These sensors measure the spectra of light reflected from forests, crops, cities, and lakes, yielding valuable information about our natural environment. Current satellites do this in a fairly limited way; their sensors can "hear" only a few meager notes amid the symphony of information emanating from the planet below.

EO-1 could change that. Short for "Earth Observing 1," EO-1 is an experimental NASA satellite in orbit since 2000. It's testing out a more advanced "spectrometer in the sky"-the Hyperion hyperspectral imager. How good is it? If Landsat were *chopsticks*, EO-1 would be Gershwin's *Rhapsody in Blue*.

The Hyperion sensor looks at 220 frequencies in the spectrum of visible and infrared light (0.4 to 2.5 microns) reflecting off Earth's surface. Landsat, in contrast, measures only 10. Bryant Cramer, who manages the EO-1 pro-

ject at the Goddard Space Flight Center, puts these numbers in perspective. "If we flew Landsat over the north-eastern United States, it could readily identify a hardwood forest. But using hyperspectral techniques, you probably can...tell the oak trees from the maple trees."

Future earth-watching satellites may use Hyperion-like instruments to vastly improve the environmental data they provide. EO-1 is paving the way for these future missions by taking on the risk of flight-testing the sensor for the first time.

For farmers, foresters, and many others, this new remote sensing technology will surely be music to the ears.

Read about EO1 at: <<http://eo1.gsfc.nasa.gov>>. Budding young astronomers can learn more at <http://spaceplace.nasa.gov/eo1_1.htm>.

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

April, like February, can bring more sporadic fireballs than usual, but the main event is the Lyrids.

Tuesday, May 22nd the **Lyrids**.
(Radiant 18h04m +34°)

The average rate for this shower is about 18 meteors per hour. This years maximum is at 22 hours UT or noon Hawaii time. It may be best to

look in the early evening before Moon rise. Lyrids are swift and occasionally spetacularly bright with some leaving persistent glowing trains.

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

Equipment for Sale

Edmund Scientific Astroscan 4 1/8" f/4.2 rich field reflector in original box. Includes finder, base, carrying strap, 25mm Plossl eyepiece, detailed instruction manual. Shows stars down to mag 13.3 and even planets show well with a high power eyepiece. Weighs about 11 lbs, super portable and a complete package. \$185.

Contact Mike 225-3144, <linnolt@hawaii.edu>

Minutes (Continued from page 4)

acquired, a prototype of the mechanism that made adjustments to the Hubble Space telescope.

Mel Levin offered a concise description of his and Claire's trip to Raratonga last month. He urges anyone, yearning for a return to the "good old days," to take a trip down there. Claire and Mel enjoyed their quiet times and exciting ones, as well as the cyclone or two that they experienced while there. Mel raved about the wonderful southern skies and hopes everyone has the chance, before it's too late (*oblique LP reference*), to see

such a wonderful sight.

Kudos to John Gallagher for his great Dillingham lock diagram. It will help Public and Club Star Party visitors to attach the locks on the Dillingham gate correctly. *Thanks John! *

The meeting adjourned at 9:05 pm. for refreshments and a short planetarium show with Joanne, Barry and Nick.

Respectfully submitted by G. West,
Secretary H.A.S.

The Compleat Telescope

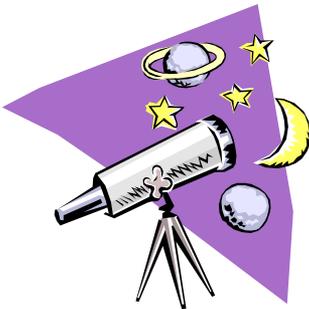
by Ron Paul Smith

Most amateur astronomers know that the ideal telescope is a 30" diameter APO (apochromatic) refractor. Jokes aside, a large aperture and top-of-the-line optics are highly desirable separately or together. Both cost a lot of money.

But a small aperture of 80mm and low end optics can still be quite satisfying: the popular Celestron 80mm/f5 rich field refractor and the Orion Short Tube 80 (both made to the seller's specs by SYNTA, a Chinese optics manufacturer) are cases in point.

These "little" scopes have surprisingly good optics, and there are books and web sites devoted to modifying, collimating and using them. Don Tucker and I both own one, and have made improvements, such as removing the 80mm objective lens doublet from the lens cell, and "painting" the circumference of the lens with a black magic marker to greatly reduce internal lens reflection, a technique invented by the Zeiss optical company.

Yet another approach to fully utilizing the 80mm/f5 is its accessorization: Use the best eyepieces, et.al., such as the Televue Nagler. Note that the cost of the eyepiece can easily exceed the cost of the OTA (optical tube assembly)!



Layout of telescope OTA and accessory carry case for Celestron 80mm F5. The top row of accessories and foam may be removed to accommodate OTA. Note 3-9x/22mm riflescope finder, E6 roof prism erector, 25mm & 5mm crosshair eyepieces, 48mm Lumicon/Minos Violet filter on order (visual/photo color corrector filter).

I've opted for less expensive, but full use eyepieces, such as the new fully multi-coated Highlight Plössl and long eye relief (20mm) ED glass EPIC eyepieces from Orion.

I've also gone on to purchase various crosshair eyepieces, a super-zoom eyepiece, an APO 2x shorty Barlow lens, a Pechau (roof) prism erector for terrestrial observing, a solar filter, a star spectroscope (filter), various moon, planetary (color) and variable polarizing filters, a 1st generation image-intensifier device adapted to astronomical/telescope use, and the piece de resistance, a bino-viewer. This unit allows the use of both eyes to view objects, a spectacular feeling of floating around the moon, like an astronaut. In short, the "compleat" telescope.

Editors Note: Those of you at the March meeting saw the "compleat" telescope up close and personal.

In the January, 1961 issue of the *Astronews*, the new officers (including vice-president Mike Morrow) looked forward to the coming year. They said, "This should be an outstanding year for the Hawaiian Astronomical Society and also in the annals of astronomy in Hawaii. Among the anticipated events will be the opening of the new Planetarium and Observatory at the Bishop Museum. The Director of Bishop Museum is counting on our members to help give these new installations scientific and educational value in Honolulu." They went on to say, "The Society needs a home of its own. The Waikiki-Kapahulu branch of the Library has served generously and well as a meeting place, but it is not a home. Dr. Early G. Linsley, who is the Astronomer on the Bishop Museum staff has expressed his willingness to share his office and storage facilities in the new Planetarium with the Society; and the Museum Director has offered the Society the facilities of the entire astronomical plant."

The Bishop Museum Planetarium was dedicated in mid-December of that year, but the HAS had already started to hold their meetings there, beginning in November after the seats had been installed. Thus began a mutually beneficial relationship that has lasted over 41 years between the Museum and the Society.

For the first dozen years of HAS, meetings were held at various sites. During the first few months, members got together in the park, then met for several years at McKinley HS. After Dr. Linsley reorganized the club in 1957, meetings were held at the Wai-



Planetarium Pioneer Louis Miller

kiki-Kapahulu branch of the library. Since November of 1961 though, almost every HAS meeting has been at Bishop Museum.

HAS members have provided a variety of services and help to the museum over the years. Most special events held by the museum involving astronomy have included participation of HAS members. Of particular note was the contribution of Louis Miller. He was instrumental in getting the observatory dome and 12 ½" telescope mount working and for many years maintained the observatory and spent every Friday and Saturday evening giving "star parties" for the visitors. Other members of the society helped out and carried on with the observing sessions after Louis' health prevented him from continuing.

It is interesting that the participation of Bishop Museum Planetarium with HAS preceded their opening and

(Continued on page 9)

Messier March Madness:

The last Saturday in March (March 29) will be a member only star party and this year's Messier Marathon. Remember, a Messier Marathon is not a competition against anyone else, since **everyone** who participates can win. It's a great opportunity to challenge yourself and learn the night sky a little better. Don't forget that part of the reason you got into astronomy in the first place because it's fun to look at stuff!

Star Lore — (α Leonis)

Editor

Regulus, the brightest star in the constellation Leo, lies at the base of an easy to find figure of stars (or asterism) known as *The Sickle*. These stars form the head and chest of a reclining westward-facing lion. Regulus means *Little King* in Latin but has at times also been known as **Cor Leonis**, (the heart of the lion). It was originally named *Regulus* because astrologers believed that this star “ruled the affairs of the heavens.” (needless to say, we know better now).

Regulus is a visual triple star, whose colors have been described as “flushed white and ultramarine.” It's components are mag 1.7, 8.5 and 13, which combine to make it the 25th brightest star in the sky.

While we are in Leo, let's stop off at a couple of deep sky object that caused me some confusion when I first observed them. When looking at

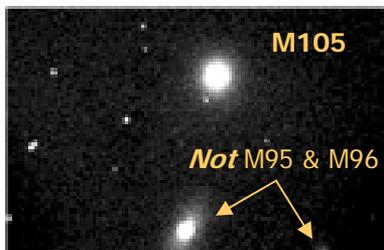


Photo by Jay Wrathall

M105, there are two nearby galaxies (NGC 3384 and NGC 3389) which appear in the same field of view in a 1° eyepiece. I erroneously assumed these were M95 and M96, but they are not. M95 and M96 are farther away from M105.

When looking for M65 and M66 (which are also seen in the same 1° eyepiece field, there was another galaxy (NGC 3628) ½° north, which could easily be confused for M65 or M66.

History (Continued from page 8)

has continued during their entire history. Their support for the club has always been strong. Several times in the past, employees of the planetarium have been presidents of the club (George Bunton and Raymon Ayer, for example). The Museum has always provided rooms for club meetings, even when the Planetarium is not available, as in recent months. Old-time club members have learned that

the Museum staff is sincerely interested in supporting amateur astronomy as part of its mission to educate the public and advance science in Hawaii. HAS members, in turn, volunteer to help in Museum events not to “pay the rent,” but because they love astronomy and want to share the wonders of the heavens with others. The Hawaiian Astronomical Society has indeed, “found a home” at the Bishop Museum /Planetarium.

Treasurer's Report

by Jim MacDonald

HAS Financial Report as of March 15, 2003

Initial Balance:	\$5,838.71
Receipts:	
Astronomy Payment	87.00
Donations	24.10
Dues Received	253.00
S&T Payment	209.65
Telescope Fee	20.00
Total Income:	\$593.75
Expenses:	
Astronews	168.73
Magazine Subscription Payment	217.01
Polo Shirt Payment	154.16
Total Expenses:	\$539.90
Final Balance:	\$5,892.56

Since last month, the club increased by four new members. They include **Scot and Verdene Allen**; **Julie Besenbruch**; and **Edward Hoffer**. Welcome to the club and clear skies to the many members renewing their membership during the month!

We would also like to thank **Alan Asato**, **Paul Erickson**, and **Jean and Toshio Taniguchi** for their generous donations.

Astro Quotables

“Here come more stars to character the skies
And they in the estimation of the wise
Are more divine than any bulb or arc,
Because their purpose is to flash and spark,
But not to take away the precious dark.
We need the interruption of the night
To ease attention off when overtight,
To break our logic in too long a flight,
And ask us if our premises are right.”

from Robert Frost—*The Literate Farmer and the Planet Venus*

Here I am in flip-flops and pockets full of sand
Sunburned in a tank top, straw hat all stained with coppertone
Darkness is upon us as the stars are close at hand
I aim my spyglass to the skies and know I'm not alone!

For lo! Who is beside me! who also views such sights?
An ancient navigator of these stars who sailed for many a moon
A native of these Islands who takes in such delights
He smiles upon Arcturus star within this early June

He tells me proudly of the voyage made across the ocean
A time before the ships of steam would use magnetic measure
Celestial beacons in the sky would be the guide of motion
To safely steer a culture to these isles of emerald treasure

The night passed slowly with a chill as heavenly bodies shimmered
A crescent Moon rose from the East in majesty of the darkness
My neutral filter, matched with optics had acted as a dimmer
As craters and rillies jumped into view and made all picturesque

The Moon had risen high above, her throne upon the zenith
When dawn had finally stolen night away from Eastern sky
My friend then left me for his home as Sol began his menace
As daybreak faded night away I watched the darkness die

So...here again in flip flops and pockets full of sand
Sunburned in a tank top, straw hat all chilled and wet with dew
I listen to the ocean as I gaze upon this beautiful land
...and wait upon the darkness again...to fall afresh and anew...

-Don Tucker 2003

HAS' Swap Meet April 1 (this is no joke!)

The big event is here! The club's swap meet will be held at our meeting in April. Remember to look through your astronomy equipment for those items that you no longer need or want in hopes of finding a new home for them. This is a good opportunity to turn your surplus equipment into some ready cash as well as clearing space in your storage area. Of course, there is always the possibility that you might also find a sweet bargain or two for sale at another table. Come one, come all, and let's have a good time looking *at* equipment rather than through it for a change.

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