The
Astronews

HUI KILOLANI

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November 2002

On Top of the World

by Stephanie Choquette

Unbelievable! A third chance to visit the observatories on top of Mauna Kea's 14,000 foot summit! And this time, I did not have to do any of the organizing. The Hilo Astronomy Club took over that job and made this visit a memorable one. Being on the Big Island, the Hilo Club enjoys many benefits related to their close proximity to one of the world's premiere astronomy facilities.

The scientists and managers of Mauna Kea hope to convince the people of Hawaii, through the Hilo Club via special events and tours, that telescopes are essential. Not everyone agrees (impact on the environment, access to cultural sites) but for an as-

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Inside this issue:

Upcoming Star Parties

Club Party	**Nov. 2**	**Dillingham**
Public Party	**Nov. 9**	**Kahala Park**
Club Party	**Nov. 30**	**Dillingham**
Public Party	**Dec. 7**	**Dillingham**
Public Party	**Dec. 14**	**Kahala Park**
Club Party	**Dec. 28**	**Dillingham**

Upcoming Events:

- The next meeting is 7:30 on Nov. 5 at Bishop Museum
- **Sam Rhodes** next Planetarium show on Mon. Nov. 4th. Hanauma Bay show will be on Nov. 11th. Gates will close at 7:30pm.

Treasury Notes

The much touted club polo shirt design is now a reality. A digitized version of the HAS logo was created to allow us to change the various component's colors. This was necessary so that the logo will contrast with the color of the polo shirt chosen. Elton Chambers was very helpful in identifying a company that will provide shirts for the club. We will have items for members to see at our next meeting. The price of shirts will vary depending on items purchased.

Unlike T-Shirts, the club will not be stocking polo shirts. Members will be asked to make selections and pay, in advance, for all items ordered.

The end of the year is once again upon us and it's time for many club members to renew their membership. If you are unsure of your anniversary date, it's printed on the upper left-hand corner of the address label of your Astronews. Club dues remain at $15.00 per year, plus $2.00 for each additional family member you may wish to include. The rate for full-time students remains at $8.00. The rate for Astronomy magazine is $29.00 and for Sky and Telescope it's $29.95. Astronomy magazine will accept a 2 year subscription, whereas Sky and Telescope limits its subscriptions to one. Magazine subscriptions must be sent through the club as we must certify club membership before the reduced rates are allowed.

To make things easier on all concerned, I recommend that renewals be paid by check for the total amount of your transaction and sent to the club's Post Office box. If this is not convenient, or if you wish to renew at a club meeting, please write a check for the total amount of your payment. Cash slows things down, especially if a receipt is requested, not to mention having to keep change on hand. Please

kokua *Jim MacDonald*

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Planets Close to the Moon

Times are Hawaii Standard Time

Nov 2, 10h, M 3.4° NNE of Mars
(29° from sun in morning sky)
Nov 10, 22h, M 4.6° SSE of Neptune
(80° from sun in evening sky)
Nov 11, 22 h, M 4.4° SSE of Uranus
(95° from sun in evening sky)
Nov 22, 02h, M 3.0° N of Saturn
(107° from sun in evening sky)
Nov 25, 23h, M 4.3° NNE of Jupiter
(106° from sun in morning sky)

Mercury and Venus are closer than 15° from the sun when near the moon in September.

Other Events of Interest

Times are Hawaii Standard Time

Nov 3, 02h, Moon 0.5° SSW of Juno
(20° from sun in morning sky)
Nov 4, 10:35h, New Moon
Nov 13, 18h, Mercury at Superior Conjunction
(Passes into evening sky)
Nov 17-19, Leonid Meteors
Nov 19, 15:35h, Full Moon
Nov 21, 16h, Mars 3.0° NNE of Spica
(36° from sun in morning sky)
Nov 24, 03h, Moon 3.0° S of Pollux
(128° from sun in morning sky)
Nov 28, 17h, Moon 0.28° WNW of Vesta
(71° from sun in morning sky)

The Planets in November

Mercury
Mercury is too close to the sun to be observed in November.

Venus
Venus appears in the pre-dawn sky low in the east in the last half of November.

Mars
Mars is in the pre-dawn sky, but is still far from the earth.

Jupiter
Jupiter rises just before midnight and is visible in the east between midnight and dawn.

Saturn
Saturn rises in mid evening in Taurus and is now brightened to negative magnitude.

Uranus
Uranus is in the westen sky after sunset in Capricornus. Mag +5.7

Neptune
Neptune is near Uranus in the western sky in early evening. Mag +7.8

Pluto
Pluto is too close to the sun to view this month, reaching conjunction in early December.

Eyepiece for Sale

Sirius Plossl 6.3mm High quality planetary eyepiece with end cap and rubber eyecup $25. Contact Mike 225-3144, <linnolt@hawaii.edu>

On Top of the World

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tronomy enthusiast like me, it means incredible opportunities. Let me give you an idea of what I'm talking about.

On Saturday, July 13, 2002, I took a 40 minute flight from Honolulu to Hilo where I then picked up a rental car and some large quantities of bottled water, snacks that you can eat while walking, as well as the mandatory bag of chips (more on this later!)

Usually, people who want to visit the summit have to either book a guided tour or rent a 4WD vehicle at a fairly high price to enjoy Mauna Kea. However, this time, the Hilo Club had organized to have transportation and drivers for the 20+ people visiting the summit. I decided to stop at Ken's House of Pancakes for a quick lunch before setting out on Saddle Road for the 60 minute drive to Hale Pohaku at an altitude of 9000 feet. Here's where the bag of chips comes into play—you leave Hilo which is at sea level to reach 9000 feet within an hour's drive. Depending on the brand of chips bought, you will be able to observe your bad become very tight and eventually burst with a loud bang as the pressure inside the bag becomes too great to be contained. (a simple but fun physics experiment!)

Everyone on our tour was to meet up at Hale Pohaku (HP) at 1pm for lunch, beverages and the mandatory one hour of acclimatizing. Altitude sickness is a strange disease—it does not discriminate between young and old, the athlete and the couch potato or the number of times that you have been at altitude (more than 10,000 feet). However, stopping at HP might be good for your body but not your wallet. HP is the Mauna Kea visitor center where you can watch documentaries on astronomy and the telescopes of Mauna Kea, read some information on the observatories and buy *everything* Mauna Kea!!

From incredible astronomy posters (taken by the Canada France Hawaii telescope), to clothes, books, games, 3-D models of Keck and Hubble, and Milky Way and Mars chocolate bars, you will be set back quite a few dollars in no time at all. The center also has a 5" refractor, 2 Meade SCT 16" fully computerized telescopes and solar filters (yes, Hydrogen alpha included) for viewing the sun while you wait to continue your journey.

Finally, everyone was here and David Brennan the President of the Hilo Astronomy Club welcomed us all and proceeded with the mandatory safety briefing, signs and symptoms of

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The 114th Annual A.S.P. Star Party

by Mel Levin

Clare and I attended the 114th Annual Star Party of the Astronomical Society of the Pacific on Saturday, September 28th, held on top of Mt. Tamalpais in Marin County near San Francisco. We had actually gone to the mainland to spend time with our daughter and two grandchildren in Oregon, and on the way back to the Bay region, we were able to attend this function.

We were aided by the warm Aloha Spirit of Jane Houston-Jones the very same who has attended our star parties at Dillingham, and who is the author of an excellent and informative article in the November issue of Sky & Tele-

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Meeting Minutes

by Gretchen, Stephanie & Nick

The meeting was called to order at 7:36 p.m. by Gretchen West, with 38 members and visitors in attendance. Nine students from Maryknoll High School were present with their teacher.

A recap of the September star parties was presented. A short discussion of the problems presented when we have non club members at the Dillingham public star parties.

At the November meeting, nominations will be taken for the slate of officers for the HAS Board for 2003. Joanne Bogan has consented to be chairperson for the nominating committee. Member are invited to increase their participation in the club and take a position on the HAS Board. Anyone interested please contact Joanne or speak up at the next meeting.

Forrest Luke presented a rundown for the upcoming star parties in October, Wilson School and Niu Intermediate. A sign-up sheet was sent around for names and phone number of interested participants for the two parties.

Rental fees for club telescopes will change. $15 per month with a

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Meteor Log—November 2002

by Mike Morrow

A good year for the Taurid showers, but very poor for the Leonids.

Tues. the 5th, the Southern Taurids. Radiant 03h20m+13. Rates for this shower are generally 5 or less.

Tues. the 12th, the Northern Taurids. Radiant 03h52m+22. Again the shower produces 5 meteors or less generally per hour. The Moon favors the shower.

Some notable fireballs may be observed. Both Taurid radiants are well above the horizon all night.

Sun. the 17th thru Tues. the 19th, the Leonids. Radiant 10h12m+22. Rates run from about ten to thousands per hour. The Moon really messes up the Leonids this year. There may be two maxima according to several groups of observers the one on the 17th will be at 20h UT (daylight in Hawaii) and about 10h36m UT on the 20th. One might try observing from the 16th thru the 20th. For best results choose a field of view facing well away from the Moon.

Leonids are extremely swift as they approach the Earth virtually head-on. They often are bright and 50 to 70% leave persistent trains.

Thurs. the 21st, the Alpha Monocerotids. Radiant 07h48m+01. Maximum about 20h30m UT. Rates are variable from less than 5 an hour to a few hundred.

An outburst occurred in 1995 with near 400 an hour. It would be neat to see such an outburst as the 1995 outburst lasted only 5 minutes in the 400 an hour range while the whole outburst lasted about 30 minutes. The Moon unfortunately is full.

If you are interested in observing Meteors, or if you happen to observe a bolide (note date, time and direction) contact Tom Giguere on Oahu at 672-6677
or write to: Mike Morrow, Meteor Group Hawaii, P.O. Box 6692, Ocean View, HI 96737

History of the HAS (part 2—Revival)

by Jay Wrathall

The ***Hawaii Astronomical Society*** was organized in 1949 and held regular meetings and activities for several years. Open houses were held for the public. For example, in June of 1954 over 240 people attended a two-evening public star party at Kapiolani Park to observe Mars and on September 13, 1956 another close approach of Mars prompted another open house for the public which was held on the grounds of the Waikiki-Kapahulu branch Library.

In late 1956 many of the club members, who were in the armed services, left the islands. Although the remaining members continued to meet, attendance was low and the club struggled. It seemed that the society might just fade away. However, in January of 1957, Dr. Earle G. Linsley came to Honolulu for a vacation to visit his son and nephew. Dr. Linsley was 75 years old and had been interested in astronomy most of his life. He had been Professor of astronomy at Mills College for many years and Director of the Chabot Observatory in Oakland, California. He had also been influential in helping to build the Morrison Planetarium in Golden Gate Park in San Francisco. At the time the Bishop Museum was thinking about building a Planetarium and Observatory and Dr. Linsley was appointed Associate in Astronomy to help in planning the new facility.

Dr. Linsley was very interested in developing interest in amateur astronomy in Hawaii. He began to give talks on astronomy, mainly to students, and on February 18 of 1957 he sent out a mimeographed letter addressed to "Friends of Astronomy in Honolulu". In this letter he said, "I came down from Oakland, California in early January for a three week vacation. I began to inquire about interest in astronomy here... I found that there was a desire for frequent meetings of an astronomical society... Since I have had considerable experience in astronomical activities in public education, I was glad to extend my visit and see if I could lend a hand." He went on to say "There already exists a Hawaii

Astronomical Society. Let us increase its membership and have some brief lectures and discussions, at least monthly. There is an excellent place to meet in the lecture hall of the Waikiki-Kapahulu branch library. The custom of each member bringing his portable telescope materially helps the enjoyment of these meetings, and

should be encouraged."

This letter was sent to the remaining members of the Hawaii Astronomical Society and to people who had signed up for more information at Dr. Linsley's lectures. He called a meeting for March 7, 1957 for all those that were interested and at that meeting the club was reorganized. Quoting from a talk by Edwin H. Bryan, Jr. at the August, 1962 meeting of the Western Amateur Astronomers, this meeting "touched off a new era in the society's history. Dr. Linsley was promptly elected (Acting) President and from then on regular and usually excellent programs were held monthly, to date." Also, at this meeting the name of the organization was changed to be the ***Hawaiian Astronomical Society***.

On Top of the World *(Continued from page 4)*

altitude sickness and the itinerary of the day. I was drinking lots of water to prevent the dehydration related to the dry air encountered at altitude that leads to headaches, nausea, dizziness, etc... We were all restless as we boarded the vans for the 30 minute drive to the summit. Our adventure was finally beginning!!

First stop Subaru- Japan's National Observatory. An 8 meter optical and infra-red telescope designed by Mitsubishi. It is quite a sight. We meet our guide who supplies us with hard hats, another safety briefing and then we start our tour. The dome is unlike all other domes we have seen. Instead of the spherical design usually encountered, Subaru is more rectangular in shape and fits very tightly around the scope- almost like a glove on a hand! The telescope itself is a brilliant blue and connected to various spectrometers, CCD's, cameras at it's various foci. We go on to view the control room, try to remember to ask our questions (altitude makes you quite forgetful) and after many visits to the restrooms (you can blame it on the altitude again) we get back in our vans. Time to load more film in my cameras, drink more water and add on some warmer clothes. 14,000 feet can be quite cold and then, all the observatories are kept refrigerated inside at a temperature of 0 C or 32 F, gloves and a hat are a very good idea. Then it's on to the NASA Infra-Red telescope facility. The dome is a brilliant silver (minimizes heat absorption) and the 3 meter orange dish is set right next to a small control room decorated with cowboy hat wearing aliens and rubber chickens!

And it's back to the vans and on to the Smithsonian Sub-Millimeter array. All the radio dishes remind me of the movie Contact with Jodie Foster, but on a much smaller scale. We tour the facility and our guide explains how they collimate and position the dishes using at first very easy and bright targets like the moon and Venus before going on to fainter objects. Then, we actually get to go inside the towers to view the inner workings of those telescopes. By now it was getting close to sunset and the best was still to come.

We got back in our vehicles and made our way to Gemini North- another 8 meter optical, infra-red telescope. Now, the way this dome opens is quite revolutionary- you have to see it to understand, but it allows smooth

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On Top of the World
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air flow and quick temperature stabilization inside the dome. We toured the control room, the aluminizing chamber and finally the telescope. The dome had been opened and the primary mirror uncovered for the night's viewing. We had the opportunity to view the sunset through the open roof of the dome as well as to get so close to the primary that we could have touched it! By now, our group was feeling tired from the trek at 14,000 feet but elated. Everyone was talking about what they had seen, taking pictures of the sunset and of all the pinks, blues, and oranges that were being reflected on the domes that were all by now opening up for a night of observations.

We could even see the massive shadow of Mauna Kea projected onto the land below! And this was only the beginning of the evening!

Our group got to see the dark night sky from the summit- so full of stars you could loose your way! Then, it was back to the 9000 foot level where we were dinner guests at the astronomers' residence. A very cozy building with a dining area that allowed people to exchange stories around the table while enjoying a great spaghetti dinner. After everyone was rested, it was time to join the staff at HP for the free nightly star party. It was around 9pm, the sky was dark, clear, free of air or light pollution. The air, crisp and cool. Telescopes were being set up everywhere.

Messier objects in Sagittarius were naked eye, the nebulae and planetaries showed so much detail! Everyone was exchanging views at the eyepiece, stories, advice and making plans for the next Mauna Kea summit tour. The public was leaving by now but our group had obtained permission to stay overnight to observe.

It is cold now, time to fill up on hot cocoa before HP closes its doors. The night sky beckons... I must get back to the telescopes!!

Minutes *(Continued from page 5)*

$20 deposit required for adult members. Rental fees for student members will be reduced to $10 per month.

Astronomy Day was discussed and a joint activity with IFA was proposed.

We had 3 members who shared information with us during the meeting: Stephanie Choquette urged members to look at NGC 253, an edge-on spiral galaxy in Sculptor. Paul Lawler spoke regarding his mentoring with the Boy Scouts Astronomy merit badge program. Jim DeLuze presented information about a paper by a Russian scientist, *Possible Superconductivity of Saturn's Rings*. He explained the scientist's alternate theo-

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How I Got Started in Astronomy

by Harry Zisko

I don't remember if there was a single event that got me started in astronomy, but it just seems I've always been interested in it (if not always particularly active…). As a kid, I was your typical math/science geek (and I hated anything that wasn't math or science). I followed all the space launches with great interest. The night that Neil Armstrong walked on the moon (I was 14), I went outside and looked up at the moon and wondered what it must really be like to be an astronaut and walk on the moon.

My interest in math and science continued throughout school, and I was always fascinated by the theories of the origin of the universe. At City College of San Francisco, I took an astronomy class. I still remember the final exam for that class - it was a multiple-choice test, and one of the questions was "What is a red giant?". One of the possible responses was "A Cincinnati Reds player who has been traded to the San Francisco Giants". It was one of the few classes where I got a good laugh on the final exam!

After college I started work, got married, got busy with life, but found that I still had an interest in astronomy. While I did not do any observing of the sky, the appearance of comet Halley was the occasion to invite friends over to the house, and we proceeded en masse to the local highest peak to view the comet. Viewing was only fair due to cloudy conditions.

Eventually my wife gave a small refractor telescope with an equatorial mount. We enjoyed looking though it, but since I didn't know the sky, all I could see through the scope was little points of light and, of course, the moon. This quickly lost its appeal. One night a friend was taking an astronomy class at the local junior college and told me to bring my scope out to the college as they were going to have an observing session, and other folks were welcome. So, I set up my little scope, and once the instructor pointed out Saturn, I was able to find it. WOW! I got to see Saturn through my own telescope! I'm not sure why, but there was just something very special about that. (I'm still getting razzed by my friend for the dance I did after that first glimpse.)

Now that we've moved here to Hawaii, I am pursuing my interest in astronomy more vigorously than before. I have learned a lot from the people in the club, and hope my contributions make the club a little better, too.

Minutes *(Continued from page 8)*

ries regarding the formation and composition of Saturn's rings. Gretchen asked for feedback on the Kahala Community Park star parties from the visiting students. Those who had attended were pleasantly surprised and interested in further participation. A request was made by Gretchen for the members to contact her if they have any interesting ideas for augmenting our meetings to better serve our members. We want members' suggestions.

The meeting was adjourned for refreshments and a later Planetarium discussion at 8:35.

After a fifteen minute recess, interested member reconvened in the Planetarium with Stephanie Choquette and Nick Bradley for a interesting trek through the early October skies.

Treasurer's Report

by Jim MacDonald

HAS Financial Report as of July 15, 2002

Initial Balance:	$5,911.26
Receipts:	
Dues Received	128.00
Magazine Payments	296.65
T-Shirt Sales	105.00
Total Income:	$529.65
Expenses:	
Astronews	159.46
Magazine Subscription Payment	172.71
Refreshments	10.17
T-Shirt supply	196.88
Scope repairs (C-14)	78.15
Total Expenses:	$617.37
Final Balance	$5,823.54

Since last month, we had one family join HAS. They are **Rahul**, **Virgie** and **David Chattergy**. Welcome to the club and *Clear Skies* to all members renewing this month!

ASP Star Party *(Continued from page 4)*

scope. She went full out to make us welcome, introducing us around and procuring us a special parking pass. She kissed Clare, but only shook my hand.

The road up the mountain was crowded crooked, and circuitous with huge fallouts on the edges. The amphitheater was built by C.C.C. Boys (Civilian Conservation Corps) in The 1930's and looked like an old Roman ruin complete with cold rough hewn stone seats. The view of the North Bay was stupendous--the sky was dark and clear, and the weather was freezing cold. I wore a shirt and sweater under a parka with a thermal lining and was still cold. This underscores how lucky we are in Hawaii to view the sky in T-shirts and shorts.

While waiting for the program to start the I.S.S. was highly visible passing overhead. We were able to see another satellite fast approaching it--ostensibly a Russian Supply Ship according to the locals.

The featured speaker was David Levy of the famous Shoemaker-Levy comet (and many others) who also was featured in the October Sky & Telescope. His talk entitled "From Stars to Life: Suppose You Had to Design a Universe" was warm, witty, and intelligent. In it he related the many fortuitous scientific necessities that occurred to make our planet able to sustain life.

The beginning & ending of his talk were the most effective and heart-warming. He related how, as a 13 year old he observed his first meteor and got hooked on Astronomy--and most

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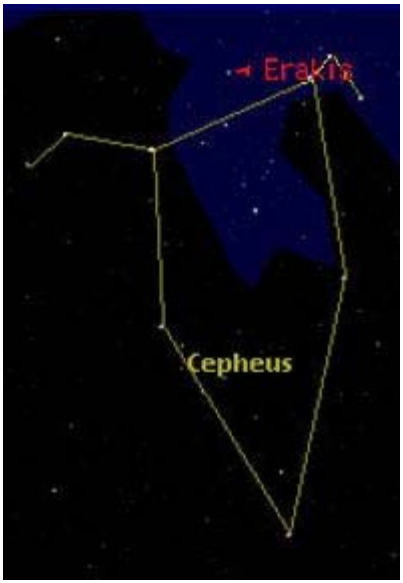
Star Lore — μ Cephei

Editor

Which is the "biggest" star? It all depends on how you measure "big." The brightest and most massive star we know of is the Pistol Star with a luminosity of 10 million suns, and a solar mass of 100. However, the star with the largest diameter is μ Cephei* If it replaced the Sun, its diameter would extend midway between the orbits of Jupiter and Saturn. Too faint to have a classical name, but called by some Erakis, or the garnet star, μ is a red supergiant in Cepheus.



Too far for parallax measurement, estimates of the star's distance vary widely, with the average being about 2,700ly. Its distance and apparent brightness suggest an extraordinary luminosity a quarter million or more times that of the Sun. μ pulsates semi-regularly in brightness every 2-2.5 years, from magnitude 5.1 to 3.6.

The eminent William Herschel dubbed Erakis the "garnet star." In Hershel's day, it was one of the "reddest" stars apparent to the eye in a telescope, although in recent years it has become decidedly orange.

The reddish hue is quite apparent when seen through a small telescope and compared with the stars in the vicinity. The color is a result of μ's swollen atmosphere, which has cooled as the star uses up the remaining fuel at its center and begins fusing helium into carbon. Erakis is thus a dying star (maybe it's not even there any more *nudge, nudge… wink, wink*), and will most likely end its life as a supernova.

* Some believe that ε Aurigae B (the invisible dark companion of ε Aurigae) is larger with a diameter which would exceed the orbit of Saturn.

ASP Star Party *(Continued from page 10)*

telling of all were his closing remarks about his colleague, Gene Shoemaker. He spoke of him with such reverence, that even on a cold San Francisco night the warmth shared by these two men exuded from speaker to audience. It was an enthralling experience.

Then to a parking lot for the star party. About a dozen scopes including three of Barry's Liteboxes were arranged in a semi-circle and perhaps 300 people stood in line to get a peek. Our best shot was Mojo's (Jones) 14" litebox with a 31mm Nagler focused on the Eastern section of the veil nebula. WOW! We saw it last week at Dillingham with our 12.5" Litebox and a PanOptic 27mm plus Paul's borrowed 2" Skyglow filter and it was good, but nothing like the view through the Nagler.

So, in summary, we're delighted we went, and doubly delighted to share it with you.

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