

GET HUNGRY!!! OCA BANQUET APRIL 28TH!



Always a crowd-pleaser, Saturn is visible throughout the evening even in light-polluted skies. Bruce Waddington took this image from Laguna Beach on March 13th using a 10-inch Meade LX200GPS and a ToUCam Pro WebCam.

OCA CLUB MEETING

The free and open club meeting will be held Friday, April 13th at 7:30 PM in the Irvine Lecture Hall of the Hashinger Science Center at Chapman University in Orange. The scheduled speaker is our own Chris Butler, who will discuss his planetarium program aboard the Queen Mary 2!

Next General Meeting: May 11th

STAR PARTIES

The Anza site will be open this month on April 14th. The Black Star Canyon site will be open this month on April 7th. Members are encouraged to check the website calendar, for the latest updates on star parties and other events.

Please check the website calendar for the outreach events this month! Volunteers are always welcome!

You are also reminded to check the web site frequently for updates to the calendar of events and other club news.

COMING UP

The next session of the Beginners Class will be held on Friday, April 6th (and next month on May 4th) at the Centennial Heritage Museum at 3101 West Harvard Street in Santa Ana.
GOTO SIG: Apr. 9th
Astrophysics SIG: Apr. 20th, May 18th
Astro-Imagers SIG: Apr. 17th, May 15th
EOA SIG: Apr. 25th, May 23rd
Dark Sky SIG: TBA (contact coordinator for details)

President's Message

By Barbara Toy

Moving into April, there are reminders all around us that we've had minimal rain this year. On the bright side, we have a lot less damage to the dirt roads on and around our Anza site than usual by this time of year, and the lack of water should result in less weed growth, making it easier to keep them under control. However, it also means that the fire season has started very early, and, by all the signs so far, we'll be seeing a lot more wildfires than usual this summer. We still have a lot of charred reminders of the fire that swept over part of our Anza site on June 5, 2004 (in another year when the fire season started early) – that was an experience we really don't want to repeat!

To reduce the chance of another fire on our site – and to minimize the damage if we do have one – please help with clearing any weeds or shrubs around any structures, particularly Anza house and the club observatory. This makes it harder for sparks and flames to reach the buildings and also helps firefighters protect them. If you are a pad or observatory holder, please be sure the area around your pad or observatory is cleared of weeds and any rubbish sooner rather than later; you may recall that the club has the end of May as a deadline for clearing these areas, but please don't wait that long. Wildfires have already started, and, as I write this, a large brush fire just burned for several days in Anaheim Hills and a small brush fire near Griffith Observatory caused the March meeting of the LA Astronomical Society to be canceled. Fires can strike anywhere, so please be careful wherever you are!

At least we have a reasonable prospect that these dry conditions will give us clearer skies this spring and summer than we've had in the last few years – conditions were certainly good for the March Anza star party and Messier Marathon! We always have some amount of June Gloom each year, but here's hoping that we only see it in June this year!

Get Your Telescope Raffle Tickets!

Elsewhere in this issue you should see an ad for our telescope raffle, with a picture of the Patriot Edition ZenithStar SD 66 refractor telescope that was donated to the club by William Optics – optically, this is a really nice telescope, and it actually looks even better than the picture in the ad, done in a flag-inspired motif. Its body has red and white stripes along the length of the tube, with a nicely-drawn head of an eagle superimposed on the stripes on one side, and the dew shield has a blue background with white stars. We'll be selling tickets for the raffle again at the April general meeting and also at the banquet on April 28, and the drawing for the telescope will be at the banquet. Tickets are five dollars each, you can buy as many as you want, and you don't have to be present at the drawing to win (though, of course, it would be a lot more fun if you were – banquet tickets are also on sale, and it promises to be a really memorable event!). Be sure that you put your name and telephone number on the back of your raffle tickets, so we have a way of contacting you if you are the lucky winner!

The telescope comes with its own hard case, with room for eyepieces, etc. We're doing our best to protect both the telescope and the case from scuffs, scratches and other damage, which is why, when the scope and case are displayed at the meetings, the scope is covered with plastic wrap and people are asked not to touch them. While the protection means that you can't see the scope as well as if it was out in the open, we do have pictures nearby showing it in detail, and the lucky winner will undoubtedly be grateful that the unique paint job is undamaged.

William Optics produced the Patriot Edition of this refractor specifically as a fundraiser for the Red Cross. There are only a hundred of these telescopes total, 50 with the words "The United States of America" engraved on the focuser, and the other 50 with the name of one of the fifty states engraved on the focuser. Our telescope is one of the "United States" telescopes. William Optics didn't put any limitations on how we use this donation, but the Board felt that it would be in keeping with the purpose of this special set of telescopes to have this raffle and donate 50% of the proceeds to the Red Cross, as an addition to William Optics' fundraising effort. The Red Cross is always there to help in times of major trouble, such as earthquakes, hurricanes, floods and fires, and also helps our military personnel and their families, refugees and other victims of war. Its services are constantly needed in our own country and around the world, and we are proud to help to help William Optics support its activities with this raffle.

So, to help with a noble cause and to have the chance of winning a rare and beautiful telescope that will give many years of great viewing or imaging, be sure to buy your raffle tickets at the next meeting!

Volunteers Needed For Astronomy Day Events!

I'm happy to report that we have a couple of great events coming up on Astronomy Day (April 21), and we need some volunteers to help make them a success.

Steve Short has been working with a local mall in Orange to arrange for an area to display some of the pictures from the club's collection of astroimage prints and to answer questions and provide information about astronomy. He needs some help with this – please contact him at NightSkyTours@hotmail.com or (714) 771-2624. If all goes well, his write-up on this event should appear elsewhere in this issue as well as on our website.

Mike Simmons is organizing an Astronomy Day event with Irvine Valley College (IVC) and Meade Instruments as one of the first formal activities sponsored by Astronomers Without Borders. It will feature a series of talks, solar viewing, night-sky viewing, and tours of the Meade facility, among other activities. There'll be room for a club table, where we can give out information about the club, have displays, answer astronomical and viewing questions, etc. We need people to help organize that and to handle the

booth itself, and Mike needs volunteers to give presentations, help with solar scopes and the telescopes at night, and other activities.

If you can help with the club booth, please let me know as soon as possible. If you can help with any of these other activities, please contact Mike: msimm@ucla.edu or (818) 486-7633. Ironically enough, long before this event was set up, I was already committed to running the club observatory for the IVC astronomy class field trip to Anza that day, so I won't be able to be at IVC myself – even though I won't be able to be there, I hope we have a great turnout of volunteers from the club to help out with the event and also that a lot of members will bring their family and friends to enjoy it!

Sidewalk Astronomy Night:

Donna Smith of Sidewalk Astronomers has sent us information on the first International Sidewalk Astronomy Night, set up in honor of John Dobson, father of the Dobsonian telescope design and avid proponent of sidewalk astronomy. This is an informal and fun type of outreach, where volunteers take telescopes to outside places with a lot of walk-by traffic, such as near theaters, restaurants and shopping areas, and let the passersby look at whatever objects can be seen – there isn't a lot of planning, no notices going out or anything, just some astronomers getting together to share some views of the night sky with folks who might never have thought about what they can actually see up there (this can be done as a solo activity, but it's more fun as a group, plus two or three telescopes attract a lot more curiosity than just one). This lets us reach people we might never see otherwise, and may spark an interest in astronomy in some of them, or remind them of an interest they had in the past that's been buried by day-to-day life.

This event is set on May 19th, which is the night of our Anza Star Party and of a scheduled outreach event at Riley Park. If you'd like to participate before heading out to Anza or Riley Park, a sidewalk astronomy session of solar viewing would certainly be in the spirit of the event. If you're not going to one of these other events, please consider taking your telescope to some location near you where there's a lot of foot traffic, ideally with a couple of other people and telescopes, and spending a couple of hours showing passers by some of the wonderful objects in the night sky. If you'd like more information about sidewalk astronomy or this event, please email me, and I'll send you a copy of the information sheet that Ms. Smith sent us, or you can visit their website at www.sidewalkastronomers.us. If you do participate, please let me know so I can pass that information on to Ms. Smith – they're hoping there'll be 1000 telescopes out doing sidewalk astronomy that day.

Centennial Heritage Museum:

Both our Beginner's Class and our astrophysics meetings have been held in the classroom behind the Centennial heritage Museum for many years. This is a mobile classroom, the type used by many school districts when they are short of space. It was the center of the museum's ecology program, where they had activities to teach children about the natural world and the benefits of recycling, and had a lot of other uses, in addition to our meetings.

This building was moved from one side of the museum property to the other a couple of years ago when construction started on the high school that is now behind the museum. Unfortunately, it didn't do well in the move, and attempts to make it weather-tight since then haven't been very successful. The storm we had near the end of February proved to be too much for it, and part of the roof collapsed, making the building unusable. Colleen Mensel, who recently became the Executive Director of the museum, and her colleagues did a wonderful job of coming up with an alternative location for our meetings – these are now in the large room on the bottom floor of the Carriage House building, which has some advantages we didn't have in the original classroom, such as an adjoining restroom, and heat and air conditioning. Needless to say, we're very grateful that they were willing to make this area available to us.

It's unclear whether the original classroom can be salvaged – the museum needs the facility, and could certainly use help in either repairing it and making it more habitable that it's been since the move or in finding a replacement. If you can help out with this at all, both the club and the museum would be very grateful.

Another area where we need help is in developing additional astronomy programs through the museum. This could include such things as a scale model of the solar system, similar to the one that Don Lynn and Matt Ota have been installing at our Anza site, special displays on astronomical phenomena, astronomy classes that are geared more toward children than our current Beginners Class – there are a wide range of possibilities. If you are interested in working on anything like this, please let me know.

Do we want AstroImage 2008?

Our club has a long tradition of producing conferences on various aspects of astronomical imaging, going back at least to the 80's and 90's. Since 2000, we presented three expanded AstroImage conferences, in 2002, 2004 and 2006. Our objective with these larger conferences was to bring in recognized experts in a range of topics related to imaging for a series of presentations that would bring new information and fresh perspectives to conference participants. Our earlier conferences relied primarily on club members and other local imagers as speakers, but we wanted more expertise and increased depth in the presentations, and to make the entire conference more professional. One major reason the club organized these events in the past is that there weren't many places people could go to get concentrated exposure to what different people were doing in the field and to expand their own knowledge and understanding.

(continued on page 8)

AstroSpace Update

April 2007

Gathered by Don Lynn from NASA and other sources

Exoplanet atmospheres – The Spitzer infrared space telescope has captured for the first time enough light from 2 exoplanets (outside the solar system) to identify molecules in their atmospheres. The exoplanets are both gas giant planets that transit (pass in front of) their stars. By taking spectra of the combined star and planet when it is in front of and then behind the star, the difference can be found, which is due to the planet's atmosphere. The technique works only in infrared, where the planet has a substantial brightness compared to its star. In visible light, the star overwhelms the planet. In both observations, the atmospheres were found devoid of water, which theoretically can't happen. A gas giant has to form with water vapor in detectable quantities. One showed silicates, which indicates dust clouds, so dust clouds may be hiding the layers where water vapor should be present.

Dwarf spheroidal galaxies – Galaxies have been found with very few stars and almost devoid of gas, but with substantial dark matter. They are known as dwarf spheroidals, and have been found only close to our Milky Way galaxy, since they are too faint to be seen far away. A new theory explains how these could have formed. Supercomputer simulations of galaxy formation show that they could have formed as normal galaxies, but then approached a more massive galaxy. There they would encounter ram pressure, tidal shocking and cosmic ultraviolet background, all of which apply forces to the stars and gas. But only the tidal shocking would apply force to dark matter. The simulations showed that after several passes by or through a larger galaxy, most of the stars and gas could be stripped from the galaxy, while leaving the dark matter relatively intact. This would produce the dwarf spheroidals as observed. Simulations of galaxy formation have long been producing far more small satellite galaxies about the large galaxies than are found actually. This new theory could solve this problem by turning most of the small galaxies that should have been formed into dwarf spheroidals, most of which would remain undiscovered due to their dimness.

Ulysses (solar polar mission) has verified in its current pass over the Sun's south pole the finding from previous passes over the poles that one pole of the Sun is cooler (by almost 8%) than the other. The cooler pole is the opposite one from last time, because the magnetic field of the Sun has reversed since then. It reverses every 11 years in synchronization with the Sunspot cycle. Other findings by the spacecraft are that the poles are still producing remarkably energetic outbursts, even though the Sun is now in a solar minimum, when outbursts should be almost non-existent. Even though solar storms were seen only in the equatorial regions, charged particles were being thrown off by the polar regions.

Mars Reconnaissance Orbiter has found patterns in a Martian canyon that appear to have been made by minerals carried by liquid or possibly gas flowing up through fractures in the ground. The mineralized areas are harder than surrounding material, and show up when erosion removes the surroundings later. Most likely the fluid was water containing much dissolved minerals. Yet more evidence that water probably flowed on Mars in the past.

Rosetta (European comet mission) flew just 150 miles above Mars the end of February at a speed of over 22,000 mph for a gravity slingshot. Normally a gravity slingshot is used to speed up a spacecraft toward its final destination. But in this case it slowed the spacecraft down, which set it up for a double slingshot by Earth this November and 2 years later. That will speed Rosetta to its encounter with comet Churyumov Gerasimenko in 2014. Rosetta will be the first spacecraft to orbit a comet nucleus, and will release the first comet lander (named Philae). It will take images on the surface and analyze the comet's surface. Rosetta has huge (100 foot) solar panels, and will be the first solar-powered spacecraft to function past the asteroid belt, where the Sun's energy is far less than around the inner planets. The flyby of Mars included about half an hour behind Mars, in solar eclipse. After problems with the launch rocket being ready a few years ago, Rosetta was retargeted to its current path and comet, using a different rocket. The original path did not include such an eclipse, so the spacecraft had not been built to withstand being without solar power. But spacecraft controllers devised a plan to shut down electrical use on Rosetta for 3 hours about the eclipse, and with this plan the spacecraft survived in fine condition. The lander Philae has its own rechargeable battery which can power it for more than a half hour, so it was left on. It took spectacular images during the flyby, including one of the Syrtis Major area of Mars with the Rosetta spacecraft in the foreground silhouetting it. Before and after the shutdown, Rosetta studied the interaction of the solar wind with the Martian atmosphere, the radiation environment about the planet, the ionosphere, surface and atmospheric composition, and the moons Phobos and Deimos. Rosetta instruments operate in visible light, infrared and ultraviolet. This is the first time Mars has been imaged up close in ultraviolet.

Colliding-wind binary star – The European XMM-Newton and NASA's Chandra X-ray orbiting telescopes have combined observations which identified a colliding-wind binary star in the Small Magellanic Cloud, a satellite galaxy to our Milky Way. This type of binary is composed of two massive stars closely orbiting each other, each with a powerful stellar wind (more than a billion times our Sun's wind), resulting in the winds colliding, heating to millions of degrees, and producing X-rays. The stars in this pair are a Luminous Blue Variable and an evolving Wolf-Rayet star. They are pouring the equivalent of the Earth's mass into their stellar winds every month. Only about 2 dozen colliding-wind binaries were previously known, all within our Milky Way galaxy.

Herbig magnetic fields – XMM-Newton also observed a young star named AB Aurigae, one of the most massive stars in the Taurus-Auriga star-forming cloud. It is a Herbig star, a class of massive stars that are still in the formation stage. X-rays are expected to come from young stars that have strong magnetic fields, but computer simulations of Herbig stars showed them incapable of forming magnetic fields. Yet for 20 years, Herbig stars have been observed to emit X-rays. The new observations showed that the X-rays were coming from high above the star. This usually means the X-rays are being given off by colliding stellar wind, which happens only when the magnetic field of the star directs stellar winds from the two poles to collide. So Herbig stars definitely have

(continued on page 6)



Early Bird Gets the Worm or "Black Hole Breakfast"

by Dr. Tony Phillips

We all know that birds eat worms. Every day, millions of birds eat millions of worms. It's going on all around you! But how often have you awakened in the morning, stalked out in the dewy grass, and actually seen a bird having breakfast? Even though we know it happens all the time, a bird gulping a worm is a rare sight.

Just like a black hole gulping a star..

Every day in the Universe, millions of stars fall into millions of black holes. And that's bad news for the stars. Black holes exert terrible tides, and stars that come too close are literally ripped apart as they fall into the gullet of the monster. A long burp of X-rays and ultraviolet radiation signals the meal for all to see.

Yet astronomers rarely catch a black hole in the act. "It's like the problem of the bird and the worm," says astronomer Christopher Martin of Caltech. "You have to be in the right place at the right time, looking in the right direction and paying attention."

A great place to look is deep in the cores of galaxies. Most galaxies have massive black holes sitting in their pinwheel centers, with dense swarms of stars all around. An occasional meal is inevitable.

A group of astronomers led by Suvi Gezari of Caltech recently surveyed more than 10,000 galactic cores—and they caught one! In a distant, unnamed elliptical galaxy, a star fell into a central black hole and "burped" a blast of ultraviolet radiation.

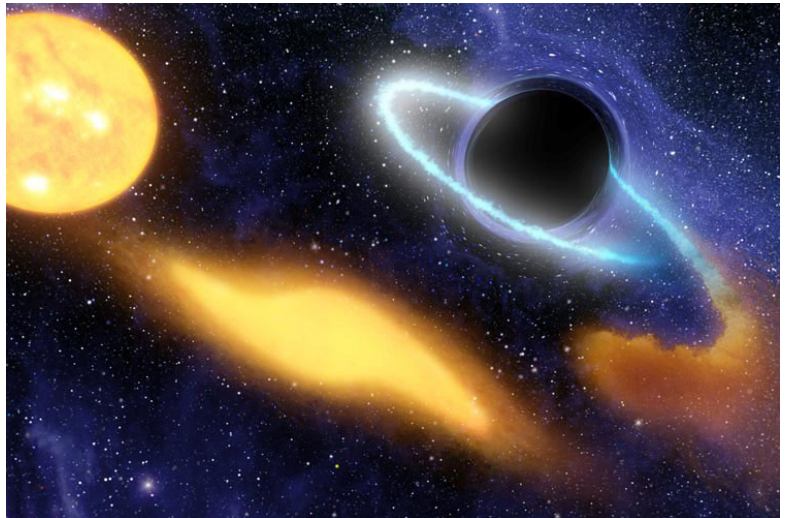
"We detected the blast using the Galaxy Evolution Explorer (GALEX), an ultraviolet space telescope," explains Gezari. Her team reported the observation in the December 2006 issue of *The Astrophysical Journal Letters*. "Other telescopes have seen black holes devouring stars before," she adds, "but this is the first time we have been able to watch the process from beginning to end."

The meal began about two years ago. After the initial blast, radiation diminished as the black hole slowly consumed the star. GALEX has monitored the process throughout. Additional data from the Chandra X-ray Observatory, the Canada-France-Hawaii Telescope and the Keck Telescope in Hawaii helped Gezari's team chronicle the event in multiple wavelengths

Studying the process in its entirety "helps us understand how black holes feed and grow in their host galaxies," notes Martin.

One down, millions to go.

"Now that we know we can observe these events with ultraviolet light," says Gezari, "we've got a new tool for finding more." For more on this and other findings of GALEX, see www.galex.caltech.edu. For help explaining black holes to kids, visit The Space Place at spaceplace.nasa.gov.



In this artist's concept, a giant black hole is caught devouring a star that ventured too close..

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

(continued from page 4)

a magnetic field, though it does not take a really strong one to cause stellar winds to collide. A new theory has been proposed to explain how Herbig stars obtain a magnetic field, and it involves the weak magnetic field that exists in interstellar space being captured and concentrated during the collapse of material that forms the Herbig star. High resolution X-ray data of other Herbig stars will be taken to verify that this applies to all.

Chandra (X-ray orbiting telescope) has imaged the area of the Eagle Nebula that is pictured in the famous "Pillars of Creation" image from the Hubble Space Telescope. X-rays penetrate the columns of gas and dust better than visible light, so now we can see what is going on inside them. Very few X-ray sources were found in the pillars themselves, but dozens appeared throughout the nebula. This implies that the nebula is past its prime in creating new stars, and most such new stars have been uncovered by radiation from bright stars pushing the gas away that normally hides them during star formation. Chandra has found many more hidden newly formed stars in other star-forming regions, such as NGC 2024. None of the evaporating gaseous globules (or EGGs) in the Eagle Nebula were found to harbor new stars giving off X-rays. Infrared observations have previously shown that 15% of the EGGs harbor new stars, so that means those stars are too young to have begun emitting X-rays.

Cataclysmic binary stars come in 2 classes: those called dwarf novae, which erupt in smaller blasts (in which their light may increase by 40 times) every few weeks, and those called classical novae, which undergo huge explosions (up to a million times brighter than dwarf novae) once, or maybe once every many thousand years. A 20-year-old theory suggests that binary stars where matter is sucked off one star by the other (a white dwarf) should undergo both types of novae. The Galaxy Evolution Explorer (ultraviolet space telescope) has observed a massive shell around Z Cam, a dwarf nova, which indicates it underwent a classical nova explosion a few thousand years ago, giving the first evidence that the theory is correct.

Cosmic particle accelerator – Scientists have been trying to figure out exactly how the black hole at the center of our Milky Way galaxy emits gamma rays. A theory has been advanced that it works like a cosmic particle accelerator, revving up protons that smash at incredible speeds into other low energy protons to create gamma rays. Powerful chaotic magnetic fields are proposed to be the mechanism accelerating the protons. The proposers have run computer simulations showing how this happens, and the results match the energy spectrum and brightness of the gamma-rays observed. The same mechanism probably occurs in all black-hole systems, though with much greater power earlier in the Universe.

Comet McNaught was observed by the New Technology Telescope in Chile, revealing 3 jets of gas, spiraling away from the nucleus as it rotates. Dust was observed released from the comet following a different pattern. Dust is thrown off the lit side (towards the Sun), producing a bright fan, which is then blown back by the pressure of the sunlight. Spectroscopic analysis showed the usual comet products, such as cyanide, carbon and ammonia, but also showed neutral sodium atoms, which are rarely seen in comets. One exception was comet Hale-Bopp, which had a sodium tail separate from the gas and dust tails. It is believed that McNaught's sodium is created by vaporizing of dust grains by the Sun's heat.

Yarkovsky Effect - Astronomers have theorized that light from the Sun can spin asteroids, known as the Yarkovsky Effect (or YORP Effect, if you wish to include all of Yarkovsky's colleagues). The region warmed by the Sun will re-radiate the energy, causing a slight twisting effect on the asteroid, which is believed to build up over millions of years. This was measured for the first time by tracking the nearby asteroid 2000 PH5 for 4 years with various instruments. The rotation period was found to be decreasing by a millisecond per year. If this continues for 35 million years, the asteroid will spin so fast it tears apart.

BepiColombo (Mercury mission) has been given approval by the European Space Agency for building the spacecraft for launch in 2013. It will be a double orbiter, one studying just the magnetosphere and called MMO, to be built by the Japanese space agency JAXA, and the other (built in Europe), called MPO, to study the planet's surface and interior properties. MPO will have 11 scientific instruments. BepiColombo will use a combination of solar-electric (ion engine) and standard rocket propulsion, as well as a gravity slingshot at the Moon, to reach Mercury and go into orbit about it. Polar orbits (ones that pass over the north and south poles) will be used so the spacecraft pass over all parts of the planet. The spacecraft will have multi-layer insulation blankets and radiators to withstand the heat from being so close to the Sun and heat reflected from the planet. The mission will track Mercury's position more accurately than ever before, allowing a test of Einstein's General Relativity, which disturbs Mercury's orbit slightly from a Newtonian ellipse due to the strong gravity so near the Sun. Observations are scheduled to last at least one Earth year (more than 4 Mercury years, but only 2 Mercury days). This will be the 3rd mission to Mercury ever, after Mariner 10 in 1974 and Messenger now on the way. BepiColombo is named after the late professor at the University of Padua who first explained the resonance in Mercury's rotation.

Instant AstroSpace Updates

New Horizons (Pluto mission) shot some spectacular images of Jupiter and its 4 large moons during its gravity slingshot by the giant planet. An image of the Tvashtar volcano proved to be the most detailed volcanic plume image ever taken of any on the moon Io.

A sudden explosive thunderstorm battered the **space shuttle** Atlantis with golf-ball-sized hail, causing extensive damage to the insulation on the external tank. Atlantis has been moved back to the Vehicle Assembly Building for repairs, delaying its planned March 15 launch to late April.

The **South Pole Telescope**, a 10-meter microwave telescope, saw first light. It will be used to study the Cosmic Microwave Background (CMB) through the Sunyaev-Zeldovich effect, where hot gas of galaxy clusters distort the CMB, expecting to get better measurements on the effects of dark energy on the CMB.

The state of New Mexico, long the home of the late Clyde Tombaugh, discoverer of Pluto, adopted a resolution declaring Pluto a planet and that March 13 is "**Pluto Planet Day**". The resolution noted that "Pluto has been recognized as a planet for 75 years".

*Come One, Come All!
(And bring your loved ones with you!)
Celebrate our 40th Anniversary at the
2007 OCA Banquet!
At the Orange County Mining Co.*

*Great company!
Wonderful (and plentiful) food!
Convenient and picturesque location!
Excellent speaker - **Dr. Laura Woodney**, Comet Researcher!
Who Could Ask For More?*

*Calendar the date: **4/28/07 at 7:00 p.m.**
Only \$45.00 per ticket - Available from Charlie Oostdyk
See you there!*



Well, times do change. Not only has film photography taken a backseat to CCD cameras and other forms of digital imaging over the last ten years or so, but a lot of entities are now presenting conferences and training events centered on astronomical imaging. The Advanced Imaging Conference in San Jose in October has now become an annual event, and local companies such as Meade and Oceanside Photo and Telescope (OPT) are providing seminars and classes on using different types of equipment, image processing, and other areas important to imagers; these include talks and demonstrations during the conferences OPT has been presenting over two weekends every summer starting a couple years ago. Some examples of other conferences that are likely to become regular events: the Oregon Museum of Science and Industry had an Astrophotography Conference on March 10; the first Midwest Astroimaging Conference, running concurrently with the EPOC 2007 Star Party, is scheduled for July 13 and 14; the two-day NorthEast Astro-Imaging Conference will be held just before the NorthEast Astronomy Forum (NEAF 2007) in April; and the 2007 East Coast Conference on Astronomical Imaging, another two-day conference, will be held in September.

With the increasing number of regular imaging conferences available throughout the country and the other imaging events in the Southern California area, we have a real question about whether we can add enough under current conditions to justify the club resources needed to organize an AstroImage 2008 conference. Although we have gained prestige as a club through our past successful conferences, and the club members who attended them found them valuable, among our other concerns is the fact that all of these other events give us increasing competition for speakers, sponsors and attendees, which will make it harder to organize an event that will pay for itself.

I chaired the organizing committee for AstroImage 2006, and I'm willing to be actively involved in organizing another conference – if we really want to do one. My question to all of you is whether this is something you want to see your club involved in and whether it is something that you would find valuable yourself as a club member. Please let me know your thoughts on this – you can email me at btoy@cox.net, send me your comments by snailmail to the club's P.O. Box (1762, Costa Mesa, CA 92628), or talk to me about it whenever you happen to see me or by calling me at (714) 606-1825. We need to make the decision soon, as it takes us more than a year to organize each of these conferences, so please get me your comments as soon as possible! ■



**And thanks to our Galactic sponsors:
Astro Hutech and Oceanside Photo and Telescope (OPT)**

HOME WITH OBSERVATORY FOR SALE by former OCA member. 2700 square feet, 5 acres fenced for horses or livestock with barn, spa, pool and storage space. For more information, go to <http://www.cfsmithrealty.com> (reference 'Tule Oak Property') or contact Billie Chandler at 555-539-0900/

FOR SALE: 18" F/4.5 Obsession Telescope. The telescope includes Galaxy 96% enhanced primary, 99 % Endobright enhanced secondary, nylon light shroud, JMI NGC-Max Computerized digital setting circle unit with over 12,000 objects in database, Telrad base, rear dust cover, 2" JMI-NGF-2 focuser, heat rope for secondary, custom tailgate counterweights and custom made carrying and storing covers. Also included is an AstroSystem storage cover for field use. Will transport scope up to 200 miles otherwise buyer pays shipping cost. The scope is in very fine condition. Price is negotiable. Please contact Bob Whiles at (949) 215-3541.

Pad License For Sale: Located on **Jupiter Ridge**, second pad from top. The pad includes spacious pad area, a long gravel driveway, electrical outlets, redwood work bench and is assessable for pier mounting. Light breaking bushes nearby. Will sell pad for what it cost to build. Please call Bob at (949) 215-3541.

FOR SALE: Coulter Odyssey 13.1" f/4.5 Dobsonian w/Telrad. Very good condition. \$450. Contact Steve Bird at 562-234-2157

Sandblasted on the equator

by Hassi Norlen

Since my last trip to Africa, some ten years ago, before my days as an active amateur astronomer, I have thought about the next trip; how I would bring a good telescope with me, plan observations, and really take advantage of the velvet skies of "darkest" Africa. Needless to say, things do not always work out the way you plan. What follows are some notes from a trip to some of the darkest skies and best seeing I have ever experienced, with some astonishingly exotic stellar and deep sky objects... without a telescope.

To call the town of Moshi (1 degree 25' south, 36 degrees 55' east) light polluted would be a stretch, not that they don't try to get there, don't get me wrong; Tanzanians do their best to approach western civilization and lifestyle, in their own way. Among the most egregious dark sky sins is the outdoors lighting common around tourist sports, restaurants, and lodges, fluorescent tubes strung up along trees or poles, shining in all directions. It is,

however, not progress that stops observing, but rather the lack of progress in the form of law and order. All gardens and backyards are well lit up with security lights in an attempt to deter would-be burglars or worse. The few dark nights that appeared out of the blue meant observing straight up more or less, to get away from the lights.



Moshi lies just beneath the southern slope of mount Kilimanjaro which, at 5,895 meters (19,340 ft) is the tallest free-standing mountain in the world. A mighty sight both from the air and from down below this extinct volcano has one distinct disadvantage from an astronomy point of view. By rapidly forcing air of the plains up along its slopes it is a veritable cloud generator. The mountain top itself is only really uncovered by clouds early morning and around sunset, and climbers of the Uhuru Peak start out long before dawn to get to the top before it clouds over. Normally, at this time of year, the clouds tend to just hover around the mountain top, and dissipate at night, but this year the weather in northern Tanzania did not conform to any agreed upon prediction. Cloudy night after cloudy night put an effective end to any plans to observe from our hosts garden, and to add insult to injury, by the time the clouds finally cleared, the full moon appeared. Ah, well...

So, after a few frustrating weeks inland, with a glowing full moon and cloud cover, we finally travelled down to the Indian Ocean coast and a totally different experience. Trading inland climate for coastal weather, the skies cleared, finally allowing some peeks at the southern skies.

Pepino lodge lies about ten miles south of Kanga, the closes large city here on the coast of the Indian Ocean in eastern Tanzania, and it is hard to imagine a more amazing place for a star party; miles of pristine shell-littered beaches with a slight slant to the south-west, effectively exposing the southern celestial pole on the horizon far far out to sea.

This is the kind of place where you'd want your nice 24 inch Obsession light bucket. These, however, are pretty darn hard to travel with, especially on bumpy rides in the african hinterland. Just to make sure I at least had something to look through, I gave my father in law a nice, vintage, 60 mm Tasco monocular for Christmas, and then politely asked to borrow it. It works really well for looking at elephants and the receding glaciers of mount Kilimanjaro, as well as dhows far out at sea, and is actually pretty decent at all looking at bright celestial phenomena.

The moon was now past full and didn't rise until after 10 PM, leaving plenty of time from sunset around 6:30 PM. That is, if you don't add the social factor. Dinner is served at 7 PM, and there is no real way around that. Man is a social creature, and if my family had dragged me across all of Tanzania to be here with them, I had better sit down and be polite for a little while. So I did... and the food at the lodge is actually very good.

(continued next page)

(continued from previous page)



After the main course I bid my companions adieu and sauntered along the sandy path under the palm trees down to the beach. It was a stargazer's dream come true... almost. The night was pitch black and from the static light of the stars I gathered that the seeing was about as perfect as I had ever seen it, with a high laminar flow from the Indian ocean. The coast line curved slightly to the west, exposing the whole southern horizon from north to south west.

Oh, yeah, almost I said. Down there on the beach blew a gusty fairly strong wind that gently lifted the newly dried sand and not so gently sent it like so many small nails into my eyes and over the lens of my refractor. This was a night for naked eye observation...

After a while my eyes started to get used to the darkness, glimpsing the surf on the waves, and star after star popping out on the velvety black

night sky. The only major source of potential light was Zanzibar island some 100 miles due south. The sky was intensely dark.

This being the east coast, the sun sets over land and didn't leave any residual light over the water and the approaching night sky to the west. With the zodiacal lights receding and the eyes adapting to darkness when I turned my face southward I was greeted by some of the possibly least inspiring of all constellations, with names such as Horologium - the clock, Pictor - the easel, and why not Mensa - the Table mountain of Cape Town, all mapped and named in the mid 1700s by the French astronomer Abbe Nicolas Lacaille. These do not in the least carry the historical or mythological gravity of the "classical" constellations we are used to. They are also pretty faint, as constellations go, with the brightest star of Mensa at a paltry magnitude 5.07. But belying the relative dimness of the constellations is the richness of dark sky gems they contain.

I could just barely make out the zodiacal light to the east, and fairly high over the southern horizon two bright beacons jumped into view, Canopus and Achernar, the second and ninth brightest stars in the sky. Achernar, the OendO star of the river constellation Eridanus, seemingly dumped its water in the ocean just off the coast. Like the foaming mist of a waterfall at the end of the world one of the other two outstanding sights of the early evening materialized, a soft misty glow some 15 degrees below Achernar - the small cloud of Magellan. To the naked eye this is a faint haze of light about the size of your thumb, with a more definite star like point just off to the right. This is 47 Tucanae, at magnitude 4.0 one of the largest and brightest of the globular clusters in the sky, and sadly only visible from the southern hemisphere.

Far outshining SMC was its big brother, the large cloud of Magellan, halfway up to Canopus to the right. Even strong moonlight does nothing more than slightly fade this impressive apparition. Both clouds look somewhat like small pieces of the Milky Way on the run but are in reality two of the closest galaxies to our own, at 179 thousand (LMC) and 210 thousand (SMC) light years away.

Leaving the galaxies behind, sweeping the sky in the binoculars I was amazed to find just how good the viewing was. To the northeast, the Crab (M1) literally jumped out at me, clinging to the horn of the Ox, much like the crab we found clinging to a bit of drift wood in the surf earlier that day. Orion's nebula (M42) was nothing short of stunning, and all my favorite clusters hung like small fuzzy jewels against the velvet backdrop. But no matter the favorites allure, the eyes continuously kept drifting back to the mysterious and novel region where there's decidedly no southern pole star, and the novelties of that patch of sky.

It was painful bidding farewell to the Peponi beach, knowing that I would travel back to "civilization" and light pollution; yes it was that dark. But fate had one more trick up its sleeve. The east african internet connection is spotty at best, and news on astronomy even spottier down here, so it was just a day or so before our flight back home that I heard about comet McNaught. Horizon hugger sounded ominous, but my flight would take me over the northern tip of Greenland, and a quick geometry "guesstimate" gave rise to some hope. At those extreme northern latitudes the comet must hang high above the horizon, or so I hoped.

As the blue and white 747 slowly climbed latitude line after latitude line going north, the sun sunk lower and lower, and just after we passed the southern tip of Greenland it finally set in the ocean due almost south while the plane slowly skirted the border

between the polar night and day, creating an artificial sunset roughly two hours long. When the cabin lights dimmed to prepare for the in-flight movie I maneuvered myself over to the left hand side of the plane (our seats were - to my eternal regret- on the wrong side of the plane), and pulled up the window cover. It took the eyes a few seconds to get used to the orange glowing twilight, but then... There it hung, like a glowing javelin pointing straight at the sun about ten degrees over the horizon. This was, by far, the best view I have ever had of a comet, bar none. The photos I took does it no justice. It was a sight I will never forget.

And truly, comets are the bringers of bad news and disasters (etymology: bad stars). As soon as we were back in California and the comet had set, my vacation was over.

Hassi Norlen

Who will definitely bring a telescope on the next trip.



Win!

William
Optics
ZenithStar
SD 66
Patriot Edition

RAFFLE



Win!

Collector's
Edition!
1 of only 100!
Doublet APO
refractor with case!

*Tickets Available at the March and April General Meetings
and at the Banquet!*

Drawing to be held at the Banquet - Winner need not be present

Win!

Only \$5 per ticket!

1/2 Donated to the Red Cross Disaster Relief Fund

Win!

**NEWSLETTER OF THE
ORANGE COUNTY ASTRONOMERS
P.O. BOX 1762
COSTA MESA, CA 92628**

RETURN SERVICE REQUESTED

**DATED MATERIAL
DELIVER PROMPTLY**

HANDY CONTACT LIST

CLUB OFFICERS

| | | | |
|----------------|-----------------|------------------------------------|--------------|
| President | Barbara Toy | btoy@cox.net | 714-606-1825 |
| Vice-President | Craig Bobchin | ETX_Astro_Boy@sbcglobal.net | 714-721-3273 |
| Treasurer | Charlie Oostdyk | charlie@cccd.edu | 714-751-5381 |
| Secretary | Bob Buchheim | rbuchheim@earthlink.net | 949-459-7622 |
| Trustee | Sheila Cassidy | rivme@pacbell.net | 951-360-1199 |
| Trustee | Steve Condrey | SiriusAstronomer@OCAstronomers.org | 951-678-0189 |
| Trustee | Bill Hepner | billhepner@yahoo.com | 714-447-8566 |
| Trustee | Tom Kucharski | TomRigel@aol.com | 949-348-0230 |
| Trustee | Gary Schones | gary378@pacbell.net | 714-556-8729 |
| Trustee | Steve Short | steves@inductor.com | 714-771-2624 |
| Trustee | Alan Smallbone | asmallbone@earthlink.net | 818-237-6293 |

COMMITTEES, SUBGROUPS, AND OTHER CLUB VOLUNTEERS

| | | | |
|---------------------------------------------------------------|-------------------------|------------------------------------|--------------|
| Press Contact | Russell Sipe | russell@sipe.com | 714-281-0651 |
| Sirius Astronomer Editor | Steve Condrey | SiriusAstronomer@OCAstronomers.org | 951-678-0189 |
| Website Editor | Hassi Norlen | hassi@norlens.net | 714-710-9444 |
| Website Coordinator | Rob Carr | RCarr@excite.com | 909-606-1241 |
| Beginner's Astronomy Class | David Pearson | astrodwp@dslextre.com | 949-492-5342 |
| Observatory Custodian/Trainer/ Member Liaison/Dark Sky SIG | Barbara Toy | btoy@cox.net | 714-606-1825 |
| Astrophysics SIG | Chris Buchen | buchen@cox.net | 949-854-3089 |
| Astrolmagers SIG | Bill Patterson | bill@laastro.com | 714-578-2419 |
| GoTo SIG | Mike Bertin | MCB1@aol.com | 949-786-9450 |
| EOA Liaison | Del Christiansen | DelmarChris@earthlink.net | 714-895-2215 |
| Anza Site Maintenance | Don Lynn | donald.lynn@alumni.usc.edu | 714-775-7238 |
| Librarian | Karen Schnabel | karen@schnabel.net | 949-887-9517 |
| Membership, Pad Coordinator | Charlie Oostdyk | charlie@cccd.edu | 714-751-5381 |
| Explore the Stars OCA Contact | Richard Cranston | rcransto@ix.netcom.com | 714-893-8659 |
| Black Star Canyon Star Parties | Steve Short | steves@inductor.com | 714-771-2624 |
| OCA Outreach Coordinator | Jim Benet | jimbenet@pacbell.net | 714-693-1639 |
| Telescope Loaner Program | Mike Myers | loanerscopes@twow.com | 714-240-8458 |
| Anza House Coordinators | Steve and Sandy Condrey | AnzaHouseIssues@yahoo.com | 951-678-0189 |
| WAA Representative | Tim Hogle | TimHogle@aol.com | 626-357-7770 |