

Observatory News

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The Word from FOTO’s President Bosse

The list of astronomical phenomena that I have **not** experienced is plenty long and every once in a great while I get to check one more off that list. A lot of these elusive events take either a great deal of effort or a great deal of luck to encounter. The easy (frequent) ones will come to you; lunar eclipses, meteor showers, lunar occultations, transits of Mercury. The hard ones (rare), you may have to go in search of, a total solar eclipse for example. Or you just have to be alive on the planet at the right time, say, for a transit of Venus or a comet like Hale-Bopp. Some, you just have to be on your toes and recognize them for what they are as they are happening, like the Aurora Borealis or my most recent acquisition: The Bands of Venus.

I had seen many pictures of the Bands of Venus after being introduced to them by Paul Nohr several years ago, but had never experienced them firsthand. Most of the images that I

have seen seemed somewhat subdued and I always wondered what the hoopla was all about. The *Bands of Venus* is basically a phenomenon where the shadow of the earth becomes visible in the atmosphere just after sunset. The characteristic red/pinkish band around the horizon becomes undercut opposite the set sun by a deep blue band that grows thicker as the sun continues to set further over the horizon.

A few weeks ago I found myself on a bus ride back from Crested Butte, Colorado on the flat plains of eastern Colorado. As the sun was setting, the buses were traveling in a slightly northeast direction with the sun directly at our backs. The shadows grew long and the cloudless sky near the horizon was showing the yellow, orange and red hues so typical of a brilliant sunset. The colors took on a fiery hue as you looked around to the north or to the south. Straight ahead the colors were more of a pastel, but definitely lacking the blue end of the spectrum. The wide-open spaces of the Colorado plains and the cloudless sky gave a feeling of tremendous depth, as there was hardly a tree or a building from horizon to horizon. Eastern Colorado is, well, a lot like Kansas, relatively flat and possessing tremendous quantities of not much.

I knew that simple Rayleigh scattering could explain what I was witnessing and I didn't think much of it. A few moments later however, the pink band at the horizon began to lift and I began to think that this was no ordinary sunset. As the moments passed the pink

band stayed in contact with the horizon to the north and to the south, but straight ahead it was lifting off of the horizon up into the sky being replaced by a dark blue stripe that narrowed to the left and to the right. The cloudless sky added to the depth of the experience and I could actually see the curvature of the earth, or should I say the curvature of the shadow of the spherical earth passing up into the atmosphere ahead of me for hundreds of miles. Now I knew what the hoopla was all about.

I snapped quite a few pictures and conversed with the bus driver about the marvelous event we were witnessing. The pictures showed the color bands, but could not convey the enormous scale of the phenomena. They seemed somewhat subdued.

As I recall the experience now, I cannot help but think of the experience of the many folks we entertain and educate at the Observatory. They arrive with inquisitive and hopeful minds, on their toes to the experience we provide. I have now, recently felt what they must feel all the time, the exuberance of learning or experiencing something for the first time. Let's keep up the good work. We have a million lists of un-experiences to shorten.

Clear horizons!

The January FOTO Meeting

Thursday, January 3rd
7:30 PM

By Dave Bosse

Good food and a festive atmosphere reigned supreme at the December Appreciation Dinner and a good time was had by all. Thanks to **Becky Shundich**, our new vice president who handled the logistics of the dinner, everything came off without a hitch and quite tasty to boot. I promised everyone a very special guest and he showed up right on time. I am talking of course of the visit to our Observatory by Sir Isaac Newton. Sir Isaac regaled on several topics close to his heart, how his contemporaries were trying to steal the credit for his ideas and how he had no friends (this was the sad part). Isaac Newton was played by our own **Roger**

Burgess and we all found his discourse most entertaining and educational.

At the January meeting (January 3rd, 7:30 pm), we are going to have one of our interactive presentation sessions. As a group, we will be discussing the Drake Equation. The Drake Equation is a series of probability parameters put together by Frank Drake in 1961 to focus on the factors involved with calculating a realistic probability of intelligent life elsewhere in the Milky Way galaxy. Most of the parameters are quite speculative and open to much debate, so I am looking forward to a lively discussion. Come on out and add your voice to the collective opinion of FOTO on the topic of Little Green Men.

FOTO Planning Meeting

By Dave Bosse

The next FOTO planning meeting will be on the 24th of January, 6:00 pm at The Hyde Park Tavern. All members of FOTO are invited to attend and add your 2 cents. Actually your opinion is worth much more than that.

I know last month I said that The Hyde Park Tavern and Grille had closed its doors, and indeed they had. But they are open again and I understand that the new establishment, The Hyde Park Tavern, has a new owner, is under new management with a new menu. We'll give them a try in January and see if they are up to our standards. The Hyde Park Tavern is located at 3384 Erie Avenue east of Marburg, just over the hill from the Observatory.

FOTOKids January Meeting

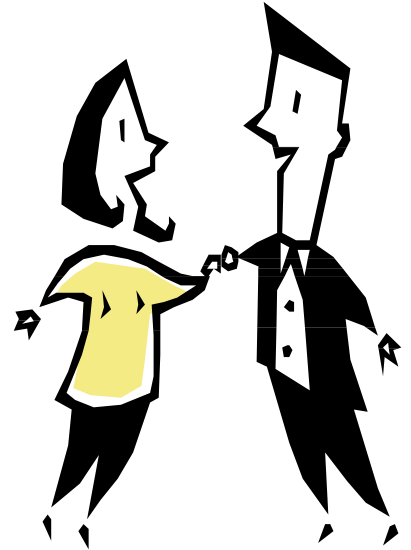
By Dean Regas

The next meeting of FOTO Kids will be **Friday, January 4 at 7 pm**. Our topic will be, "Navigating the Winter Sky." Most of the brightest stars of the year are visible in winter and we will take a tour around Orion, Gemini, Taurus, and the two dogs. Please bring your star charts with you and get ready for some wacky myths about the stars. This will help us get prepared for next month's meeting.

Heads up for next month! February's meeting (on February 1) will be held at the Wolff Planetarium in Burnet Woods at 7 pm. This is a cozy little planetarium that seats 18 people. Dean will give directions at the January meeting and via email.

If you have any questions please call Dean Regas at 513-321-5186.

Welcome Renewing & New FOTO and COC Members!



Joan & Steve Claybourn
Maria & Don Eynon
Jeanette Fisher
Sean & Deidra Fisher
Naomi Tucker Gerwin
Tom Gould
Guy Guckenberger
Dean Hanley
Jim Horrigan
Rick Hunter
Nancy Hurst
Gary Kepler
Kevin Langston
James & Bette Ramsey
Sarah & Ron Roberts
Alvin Roehr
Bill & Stephanie Schmidt
Bethany Sininger-Flege
Randal & Marcy Spear
Jim Steiner
Gary & Nancy Strassel
John Williamson

Craig's Corner

By Craig Niemi,
COC Executive Director

Happy New Year from the Observatory!

What a great and exciting year 2007 was for the Observatory! New members, more programs, new contributors and new staff!

Thanks to everyone who joined or renewed last year. We set a goal of 500 members for the end of 2007, and with a week to go we're at 498! Double the membership we had before upgrading the membership software and renewal procedures.

We'll end the year with over \$200,000 in gifts, donations and foundation support for restoration projects and our educational work. Our thanks to UC for their generous support as we work to strengthen old bonds and seek out new collaborations within the university. The COC received many in-kind donations in 2007 including design services for Paul Nohr's memorial, a very heavy meteorite, several telescopes earmarked for educational work, and a gorgeous 1930's refractor which will be restored and find a new home in the Cone Dome. Thanks to everyone who gave so generously! We hope we can count on your continued support.

There's not enough space here to list all the terrific accomplishments of 2007. We'll save that for the upcoming Annual Report. But I do want to again thank the Observatory's hard-working staff, our members and tireless volunteers, COC board members, vendors and contributors, all who contribute in their own way to make this a very special place.

Best wishes and we hope to see you at the Observatory often this New Year! Craig

Did You Know....

A quarter moon and a half moon are the same thing. The quarter refers to the fraction of the lunar month which has passed, whilst the half describes the portion of the Moon's disc which is visible.

Upcoming Communiversity Classes at the Observatory

By Craig Niemi

For over 10 years the Observatory has been offering classes for "Life-long Learners" through UC's Communi-versity program.



Communi-versity offers adults in Greater Cincinnati learning opportunities in such diverse areas as medicine, knitting, dancing, astronomy, fitness, test preparation and much more. Many COC presenters have taken part over the years including John, Dean, Basil and the late Paul Nohr. Valerie and I have recently given a couple of the "Behind the Scenes" classes. There is nothing Val likes more than a captive audience for a 2-hour tour.

If you'd like to take one of the courses just register through UC. <http://www.uc.edu/ace/commu/> or call 513-556-6932.

"The Planet Mars"

FOTO member **Basil Rowe** has taught astronomy courses for Communi-versity since 1996.

Date: January 29, 2008

Time: 7-9 PM.

"Stargazing 101"

COC Outreach Astronomy **Dean Regas**.

Date: January 30, 2008

Time: 7-9 PM.

"Behind the Scenes at the Observatory"

Craig & Valerie Niemi, COC History Docents.

Date: February 11, 2008

Time: 7-9 PM

Cost per course: \$18

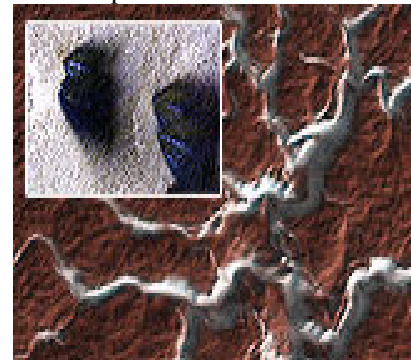
To register or for information on future classes call UC at 513-556-6932.

www.uc.edu/ace/commu/

Strange Shapes On Mars

NASA scientists have discovered what might form some of the weirdest landscapes on Mars, winding channels carved into the Martian surface that scientists have dubbed "spiders," "lace" and "lizard skin."

The unusual landscape features form in an area of Mars' south pole called cryptic terrain because it once defied explanation.



But new observations from NASA's Mars Reconnaissance Orbiter, presented here today at a meeting of the American Geophysical Union, bolster theories that the intricate patterns may be sculpted by springtime [outbursts of carbon dioxide](http://www.space.com/scienceastronomy/071211-spiders-lace.html) gas from underneath the frozen-carbon dioxide polar ice cap. <http://www.space.com/scienceastronomy/071211-spiders-lace.html>

The Word of the Month

By Greg Huber

The Word is "Lunambulism"

December's Word was "syndyname". A syndyname is the curve that connects particles in a comet's tail that are all identical size.

Observatory University: Math, the Queen of the Sciences

By Craig Niemi

All of us experience math in our daily lives, whether through its applications, or as a tool. Many speak of math as a language. Mathematics is all that and more; it is a science too. Math in fact is the "Queen of the Sciences!"

Join Cincinnati Observatory Center staff scientist **Richard Hamilton** and learn how math makes the Universe work. "Observatory University" offers college-level astronomy, science & math courses for inquisitive members of the general public, high school students, amateur astronomers, and science educators.

"Explorations in Mathematics" meets on the 2nd & 4th Sundays beginning January 13th and is open to all including the math-challenged. Some exposure to basic algebra and geometry is sufficient and all concepts will be reviewed as part of the class. This is a continuation of last semester's Exploration in Mathematics class, however each Observatory University course can be taken separately.

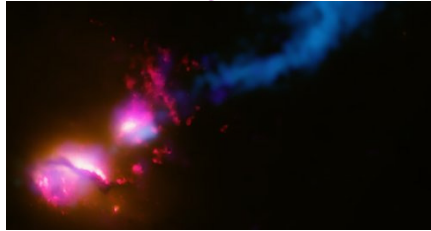
We'll look at mathematics as mathematicians do through a series of topics including the "Let's Make a Deal" problem, Pieces of "pi Chaos, Misbehaving Parallel Lines, Mandelbrot's Monster and Pink Floyd?"

Pure mathematics transcends science and becomes art. In the introduction to his book "The Fractal Geometry of Nature," mathematician Benoit Mandelbrot wrote that "Clouds are not spheres, mountains are not cones, coastlines are not circles, bark is not smooth, nor does lightning travel in a straight line."

The cost is \$150 for general public, high school students and Friends of the Observatory members. Teachers can receive graduate credit or professional development units through Xavier University.

To register contact Nancy Downing at the Xavier University Center for Excellence in Education. 513-745-3477.

Galactic Black Hole Fires a Jet at a Nearby Neighbor



Ouch, that's going to leave a mark. A new photograph captured by NASA's Chandra X-Ray Observatory shows a powerful jet blasting out of one galaxy, and colliding with another. As the jet tears through the galaxy, it could have serious implications for planetary formation, and trigger a wave of new star formation.

<http://www.universetoday.com/2007/12/17/galactic-black-hole-fires-a-jet-at-a-nearby-neighbour/>

Close Encounter With Mars



Have you noticed an intense red star rising in the east in recent evenings? That's no star, that's Mars. The red planet is having a close encounter with Earth this week. The closest approach was on Tuesday evening, Dec. 18th, when the two worlds were only 55 million miles apart. Mars won't be this nearby again until the year 2016. To the naked eye, Mars now outshines every star in the night sky (it is slightly brighter than Sirius) and it looks great through a backyard telescope. Visit <http://spaceweather.com> for photos, observing tips and sky maps.

NOTE: While, technically speaking, Mars was at its best and brightest only on Dec. 18th, the red planet will remain unusually close and beautiful for weeks to come.

Huge Newfound Part of Milky Way Rotates Backward

Our Milky Way Galaxy has two distinct parts in its outer reaches that rotate in opposite directions.



The galaxy has a bulbous core where stars are tightly packed and orbiting rather furiously around the central black hole. Then there's the big flat disk with its spiral arms, also orbiting the galactic center somewhat in the manner of a hurricane's spiral bands. Around it all is a halo of stars that don't all behave in such an orderly fashion. That much [researchers knew](#).

Now they find the halo [has two parts](#). <http://www.space.com/scienceastronomy/071212-milky-way-halo.html>

All About Orion

A Program for All Ages At the Observatory

Sunday, January 13th, 6:00 pm

By Dean Regas

Who is that guy wearing the snazzy belt in the sky? Orion.

The Observatory will host a night **All About Orion**. Learn about his legends, his loves, and of course his Betelgeuse (the giant orange star marking his armpit). This class combines fun mythology with science of the stars you see every clear winter night. Great for all ages.

Following the class, we will view the beautiful Orion Nebula through our historic 1843 and 1904 telescopes (weather permitting).

Cost: \$5 per person. Reservations are required - space is limited.

Please call 513-321-5186.

www.cincinnatiobservatory.org

Improvements at the Observatory

For over 130 years visitors to the Cincinnati Observatory have had to tread carefully. Now the over 20,000 skywatchers who visit this landmark have the extra security of new railings to assist them up and down the front steps.

No photos or blueprints of any previous railings could be found of the Observatory's main building designed in 1873 by famed architect Samuel Hannaford so great care had to be taken to design a system that would compliment Hannaford's Greek Revival design.

Working with Len Thomas, the UC architect who has been responsible for the Observatory's campus for nearly 10 years, and COC Historian John Ventre, the Observatory selected Elegant Iron Studios to fabricate and install the railings. The expense of the railing was generously cost-shared by the University.

According to Thomas, "It was imperative that the design of the railing be consistent with Hannaford's vision, the history of the Observatory, perform its function well, and yet be subordinate to the building overall. The greatest design challenge was to make the railing look like it had always been there."



"It was a long design process and the results are excellent", said Craig Niemi, Director of the Observatory, "fittingly, the evening the railing was installed we had a book signing for Robert Flischel's "The University of Cincinnati, Architectural Transformation, Tradition and Innovation" which includes the

Observatory. The first two visitors commented that they were glad there was now a railing, that the design looked great and that it seemed like it "belonged there" and had "always been there".

Did You Know....

There's a limit to how fast stars can spin. Too fast and they'll break apart. But since astronomers don't know the exact make-up of neutron stars, their speed limit is not yet known.

Volunteers Needed for Restoration Project

By John Ventre

Beginning January 14th the restoration project in the Herget Building will begin. All of the wooden floors, which have been exhibiting severe wear, will be sanded and then several coats of polyurethane will be applied. Also in the Pier room the old paint will be removed from the walls to reveal the original, 1870s faux-ashlar (block stone) painting, and the back wall, 1940-1950s bookcases will be removed and replaced with quality replicas of the front wall (original-1873) bookcases. The project is being funded by grants from the Carol Ann and Ralph V. Haile, Jr. Fund and the Skyler Foundation.

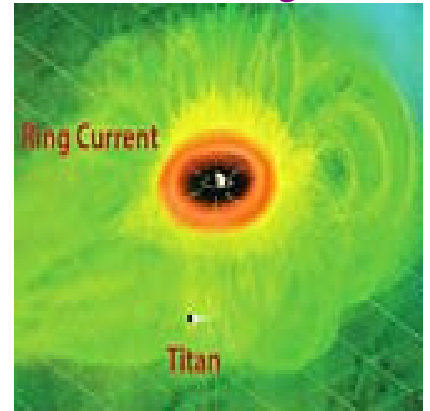
In preparation for the project we are required to remove all books, displays, exhibits, furniture, etc. from all of the rooms. Professional movers will be used to move the furniture. We will need volunteers to assist in boxing up all of this material and unpacking it when the restoration is complete.

If you will be available some afternoons or evenings between Wednesday, January 2nd and Thursday, January 10th please let **John Ventre** know. He is coordinating the volunteer team; e-mail him at jeventre@ix.netcom.com or call him at 513-321-5186 ext.4.

Did You Know....

The pull of the early Moon was 4,000 times as strong as it is today.

Saturn Ringed by Electric Doughnut



Homer Simpson, meet your match in space: Astronomers have confirmed the existence of a lopsided "doughnut" of electrified plasma surrounding Saturn.

The giant ring current, as [the doughnut](#) is called, was confirmed following analysis of recent Cassini spacecraft data. But the new information adds a twist to the electric phenomenon, which extends more than 746,000 miles (1.2 million kilometers) into space: It rotates!

<http://www.space.com/scienceastronomy/071212-saturn-halo.html>

Using Your Telescope

At the Observatory
January 12, from 6-9 pm

By Dean Regas

Did you just get a telescope and can't seem to make it work? Is there an old telescope collecting dust in your closet just waiting to be used by a knowledgeable astronomer?

Here's your chance to become that knowledgeable astronomer – or at least get started. **Using Your Telescope** will teach you step by step how to get your telescope ready for viewing and essential tips to finding objects in the night sky.

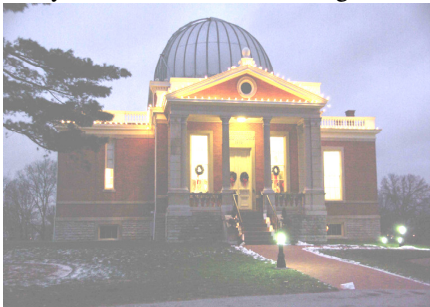
Bring your telescope, a friend or family member, or just yourself to begin exploring the heavens above.

Cost: \$35 per telescope (includes admission for up to 3 people)

Space is limited. To register, please call 513-321-5186.

Luminaria Night at the Observatory – (a review)

Despite the so-so weather on December 16th, the Observatory had over 100 chilly visitors for Luminaria Night.



The Observatory was all decked out for the holidays and everyone was treated to refreshments including hot chocolate and coffee from Mt. Lookout Joe Coffee Roasters. Christmas carols from the East Side / West Side Quartet filled the 1873 building. The evening was generously sponsored by **Richards Industries** of Oakley.

Although the skies didn't cooperate for viewing the Observatory was open for tours, questions and answers on its history and architecture as well as all the latest news in astronomy including the red planet Mars which is dazzling bright in the night sky right now. And the Observatory's gift shop was open for last minute out-of-this-world gifts.

Mt. Lookout Square was lit by hundreds of candle luminarias and the Mount Lookout Community Council shuttled holiday revelers between the Observatory and the Square where Santa Claus made an appearance.

This was the 32nd year for the Mt. Lookout Festival of Lights and the Observatory is looking forward to next year's event.

Stonelick Lake Star Parties

By Scott Naylor

Our next Star Party will start at dusk on **Saturday, January 5th**, with a rain or snow date the next Saturday, January 12th

For directions or for more information phone **Scott Naylor at 513-575-5556**

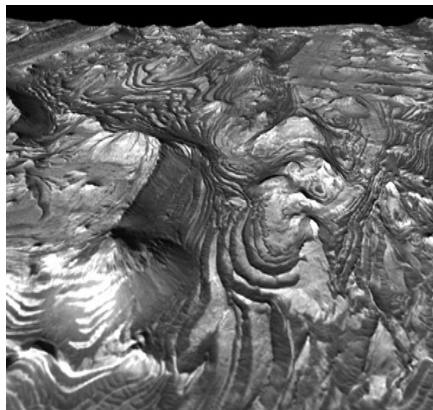
Asteroid Threatens Mars



NASA-funded astronomers are monitoring a Tunguska-sized asteroid that should pass within 30,000 miles of Mars on January 30th. But based on data currently available, the space rock has a 1-in-75 chance of actually hitting Mars and blasting a crater more than half-a-mile wide. Stay tuned!

http://science.nasa.gov/headlines/y2007/21dec_2007wd5.htm?list739819

A Weird View of Mars



This area of Mars' Candor Chasma lies within the region of "cryptic terrain" that also includes the "lace" and "lizard skin" areas recently revealed by planetary scientists in San Francisco at the meeting of the American Geophysical Union.

Here, the view faces the east, as if from a vantage point a few hundred yards or meters above the surface. The image was produced using stereo data collected by the High Resolution Imaging Science Experiment (HiRISE) camera aboard NASA's Mars Reconnaissance Orbiter spacecraft.

In this mysterious, enigmatic scene, layers of bedrock have been folded into a series of elliptical dome-like structures. The upper surfaces of these folds have been stripped away by erosion, leaving behind concentric

patterns of layers and "stair-stepped" terrain. The dark-toned material is a layer of windblown sand that has been trapped against the "steps" in the terrain. These patterns of layer deformation must carry within them the geologic history of the region.

The width of the scene at the bottom of the image is approximately 2,000 feet.

http://www.space.com/imageoftheday/image_of_day_071212.html

January's Trivia Question

By Greg Huber

In bytes, how much data does the Hubble Telescope generate per day?

December's Trivia Question

Where in the U.S. did the Soviet space planners choose as an emergency landing spot for Russian Cosmonauts?

The Answer

The Soviet Union had chosen the North Central United States as a place for an emergency landing for cosmonauts in the 60's. (North Dakota to Kansas) Amazingly this was not known at the time by the U.S. government.

Did You Know....

Colossal impacts in the outer reaches of the solar system may have bowled over remote, frozen moons, leading to vast cracks across their surfaces.



This is The End