Coming Up At The Observatory....

FOTO Meeting, Mar 1, 7:30p
FOTO Kids & Teens, Mar 2, 7p
Marsapalooza Mar 3, 8p
Astro Thursday Mar 8, 8p
Astro Friday Mar 9, 8p
History Tours Mar 11, 1-4p
A2Z Astro Class Mar 11, 7p
Venus & Jupiter Night, Mar 12, 8p
Olde Fashion Slide Show, Mar 14, 7p
Astro Thursday Mar 15, 8p
Astro Friday Mar 16, 8p
Late Night @ the COC, Mar 16, 10:30p
Astro Thursday Mar 22, 8p
Astro Friday Mar 23, 8p
History Tours Mar 25, 1-4p
Dean’s Class f/ Members Mar 27, 8p
Astro Thursday- Mars! Mar 29, 8p
Astro Friday-Mars! Mar 30, 8p
Astro Saturday-Mars! Mar 30, 8p

For additional information, call the Observatory 513-321-5186.

The Word

By Dale Zoller

On February 20, 2012, NASA celebrated the 50th anniversary of America’s first manned orbital flight. Piloted by astronaut John H. Glenn, Jr., the Mercury spacecraft Friendship 7 made 3 orbits of the earth in a little less than five hours. Glenn’s flight put the American space program on a more even footing with the Soviet program, which had sent cosmonauts into orbit the previous year (Gagarin for one orbit and Titov for one whole day). Glenn’s successful flight generated a lot of excitement about space exploration – especially among kids.

I was just nine years old when Friendship 7 blasted into space. Like most kids at the time, I was totally enthralled with the space program – the astronauts, the rockets, the space capsules – I couldn’t get enough of it. My father subscribed to Aviation Week & Space Technology magazine, and I would race home from school and have most of it read before he got home from work. I couldn’t wait to read about the latest test flights of the X-15, Mercury, etc.

In 6th grade, several of my friends and I formed a “space club” and we decided we were going to design and launch our own rockets. But before we built the rocket, we planned to send a mouse up in a “capsule” carried by balloons (no PETA in those days). We made our capsule out of an empty coffee can, the inside lined with foam padding. We included a canister of crushed charcoal to purify the air because we had read that was what they did in the Mercury. We added a parachute and tested it by dropping it out the window of our 3rd-floor classroom at Westwood Elementary.

On a Saturday afternoon, my dad drove us to Woolworth’s and we purchased several helium balloons, some sparklers and the mouse. We took everything to the “launch site” – a field near our house. We tied the balloons together at the base of their strings; tied a string from the base of the balloons to the top of the furled parachute; and then tied a sparkler in the middle of the connecting string. We loaded the
mouse into the capsule, lit the sparkler and – 5-4-3-2-1 – let it go. Up it went! It probably achieved an altitude of several hundred feet, but to a bunch of 12 year old kids, it might as well have been a mile. The sparkler burned down its wire and then through the string, which released the capsule/parachute from the balloons. The capsule floated down under its parachute and we recovered our ―test subject‖ alive, if not happy. Look out NASA, you have competition. We were junior space scientists! All this was inspired by the fledgling space program and the excitement it generated.

Lately there have been a number of stories in the news about kids launching cameras attached to weather balloons which have returned with pictures from altitudes high enough to see the curvature of the Earth. Their designs, though far more sophisticated, are hauntingly familiar – camera-carrying canister, parachute, and balloon. It’s good to see that the spirit of adventure is still alive.

**Did You Know That….**

*By Dale Zoller*

John Glenn was actually the second “American” to orbit the earth; the chimp Enos was launched aboard Mercury-Atlas 5 in November, 1961 for a successful 2-orbit flight.

**FOTO's March Meeting**

*By Dave McBride*

Over the last several years John B. Kachuba has investigated over 100 haunted locations, most of them in Ohio. Each of these places is open to the public and several of them are located right here in the Queen City, including the Cincinnati Observatory. Join us on Thursday, March 1, 7:30 p.m. to hear John take you on a paranormal tour of some of Ohio’s creepiest haunted locations with his topic “Ohio Haunts.” The meeting will be held in the west wing of the Herget Building at the Observatory.

Our April Program will be presented on April 5 by Mr. Jeff Hutton speaking to us about one of our favorite topics: “Just a Bunch of Amateurs.” In May we look forward to hearing Michele Gainey's presentation on "Captain James Cook and the Transit of Venus." Michele's topic is just in time for the upcoming June 5th Venus Transit.

**February 2012 FOTO Meeting Highlights**

*By Dale Zoller*

February’s program “Communicating with Mars” was presented by FOTO member Rick Hunter. Rick gave an overview of the missions exploring Mars, focusing on the communications equipment including some that he helped design.

**Business Meeting**

- FOTO Treasurer JoAnne Pedersen gave the financial summary for fiscal year 2011.
- COC plans to add some “Astro Saturdays” in addition to the Thursday and Friday events.
- Leo’s late night programs have been very popular and he plans to increase these to twice monthly; needs volunteers to help with these (Friday nights, starting at 10:30 PM).

**COC Representative; Scott Gainey:**

- Reiterated that we need more volunteers trained to work in the gift shop; the gift shop brought in $25,000 in revenues last year.
- A training session for the gift shop will be announced in next month’s newsletter.
- All items in the gift shop are getting price tags put on which will make it easier.
- Scott also asked for volunteers to help with classes on how to use the loaner telescopes.

**COC Director; Craig Niemi:**

- The exterior of the Mitchel Building Dome has been sealed and the electric motor that turns the Mitchel Dome will be revised to a manual crank method during February or March.
- The COC quarterly meeting was held last week. Jenny O’Donnell was approved as a new Board member. She has experience with fundraising and publicity, and is helping with the Annual Report.
- Last year’s attendance figures: > 25,000.
- 3,600 public school students, also many scout groups, home school groups, and others
- Almost 2,000 attendees at the Astronomy Thursday and Fridays; brought in about $12,000 in the past year.
- The new book “Legendary Locals of Cincinnati” features COC and has a picture of Craig, Dean and John Ventre.

**Did You Know That….**

There is a bar of 30 million stars in the center of our galaxy which reaches 27,000 light years across. The bar attaches to the spiral arms of the galaxy at each end of the bar.
Welcome New & Renewing Members!

Terrence & Kelly Anchrum
Donna and Bill Anderson
Martin Auhagen
Bill and Cathy Bachelder
Nathan Barber
Jerry and Louise Berman
Gene Bertke
Tom Busemeyer
Marcia Clifton
Jason Currie
Judi Dooley
Carl Eastwood
Timothy Fair and Selena Reder
Mark C. Franke
John Hill
Lee Hite

Todd Hofacre
Richard E. Hunter, Jr.
Nancy Jackson
Judy Keeney
Laura Kremer
Randy Krueger
Matthew Leonard
Dale and Heather Lombardo
Elissa MacDonald
Bill & Julie Machesky
Charles and Lorraine Maguire III
Russ and Jennifer McMahon
Daniel Peters
Fred Sanborn and Janet Dieman
Kendahl and Jay Schloss
Stephen R. Scholl
Stephen Schueler
David Shirey
Everett and Margie Yowell

Craig’s Corner
By Craig Niemi

21st Century Skills

Last month we wrote about the Strive Partnership and our work with their STEM education initiative.

Science, Technology, Engineering and Mathematics represent the 21st century skills that today’s students will need throughout their lives. The overall objective is to increase the number of students graduating high school with an interest in and the preparation for STEM college studies and careers.

If the magazines I recently found side-by-side on a bookstore shelf are any indication there is plenty for the partnership to do.

STEM careers don’t necessarily mean just those that probably first come to mind: physicists, astronomers, professional engineers, etc. Skills in technology and science are needed in all careers today including many trades. The last time someone came to repair your furnace, how much high tech equipment and expertise did they bring?

To learn more about the STEM innovation Collaborative visit www.strivetogether.org/stem-innovation-collaborative

Stargazing at Stonelick State Park
By Craig Niemi

Saturdays, March 17 & 24th

Enjoy the spring with skies full of stars! Free and open to all ages.

Best to arrive just after sunset so you can get the lay of the land before lights-out. Stay late enough and you can be the first to catch a view of the spring skies.
Leap the Moon
At the Observatory

Wednesday, February 29
7-9 pm

By Dean Regas

Every four years we need to add a day to our calendar – a Leap Day. And this year, the Moon is in perfect position to view on February 29. Moon lovers and Luna-tics will love this program!

**Leap the Moon** includes classes and tours by local Moon experts. The cow won’t jump over the Moon, but you will when you see the Moon through the Observatory telescopes (weather permitting). Stop by after work or school to celebrate our extra day this year.

Cost: $5 per person

Reservations recommended.

For further information or to make reservations, please call 513-321-5186.

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Marsapalooza

Saturday, March 3rd
8-10 pm

The Red Planet is back! Mars, always a crowd favorite, will be the featured planet for a viewing extravaganza called Marsapalooza.

The Cincinnati Observatory will open its doors and telescopes to the public while Mars is at its closest for the year. There will be classes about Mars, tours of the buildings, and viewing through the historic 1845 and 1904 telescopes (weather permitting). The Moon and Orion Nebula will also be observed.

Cost: $6 per person.

Reservations are recommended.

For more information call 321-5186.

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Matching Gift Donations

By Craig Niemi

Submitting your Observatory contributions to your employer is a fast, easy to make your generosity go even further. Many of Greater Cincinnati’s major companies, as well as many smaller businesses, offer matching gift programs.

The GE Matching Gift Program is very generously matching current employee’s, retirees’ and many contract employees’ donations dollar for dollar in the past 5 years adding over $7,000 to the Observatory’s operations!

Check with your HR department and stretch your charitable dollars.

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Globular Clusters:
Survivors of a 13-Billion-Year-Old Massacre

Our Milky Way galaxy is surrounded by some 200 compact groups of stars, containing up to a million stars each. At 13 billion years of age, these globular clusters are almost as old as the universe itself and were born when the first generations of stars and galaxies formed. Now a team of astronomers from Germany and The Netherlands have conducted a novel type of computer simulation that looked at how they were born – and they find that these giant clusters of stars are the only survivors of a 13-billion-year-old massacre that destroyed many of their smaller siblings.

http://www.sciencedaily.com/releases/2012/02/120214100815.htm

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March FOTO Planning Meeting

By Dale Zoller

The next FOTO Planning Meeting is scheduled for Thursday, March 22, at 6 pm at the Observatory. The meeting generally lasts a couple hours. The planning meetings are open to all FOTO members. We encourage your participation in the discussion of future FOTO activities.

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Scout Programs

By Craig Niemi

Junior Scouts

February 28th 6 pm

The Observatory’s evening Scout Merit Badge Programs provide girl scouts and boy scouts with a unique stargazing experience that fully completes the requirements of the badge or pin.

$6/participant (includes scouts, adults, and all siblings)

Private programs (Monday, Tuesday, or Wednesday evenings) require a $100 minimum group fee.

Contact Leo Sack, Outreach Educator at 513-321-5186 leo@cincinnatiobservatory.org

www.cincinnatiobservatory.org/scoutprograms.html
I started this column in September of 2008 with a discussion about solar cycle 24. The predictions at that time indicated Solar Max to be mid 2012 with a smoothed sunspot count of 85 to 90. This indicated that cycle 24 would have less activity than cycle 23 but still interesting to see.

Now here we are in March of 2012 and those of us who have been solar observing have seen some nice displays of activity. But, the active regions are not producing large sunspot counts. We are currently over 3 years into cycle 24 and current predictions make this cycle the smallest in about 100 years.

The chart above indicates that February, 2013 may be the maximum of the solar cycle with a smoothed sunspot count of only 63. That’s only about 60% of the amount of cycle 23. If you watch the daily sunspot count on Spaceweather.com, you should be aware that their count is the Boulder count and it is usually about 35% higher than the international smoothed count on this chart.

So, if you plan to do any solar observing in this solar cycle, now is the time to start as solar activity may not get much better than we see today.

### A2Z+ Astronomy Class

**For the Love of Comets**

*By Dave Bosse*

Comet Lovejoy, otherwise known as C/2011 W3 (Lovejoy), caught our attention last December when it passed incredibly close to the Sun a mere three weeks after its discovery. Surprisingly it survived the close encounter with the Sun’s corona and lived on to be … well, … be a comet for another apparition. Basil Rowe will be taking the reins of the A2Z+ Astronomy class this month on March 11th at 7:00 P.M. at the Observatory.

In honor of Comet Lovejoy, this month at the A2Z+ Astronomy class we’ll take a closer look at comets and a special family called “Sungrazers.” Throughout history there have been many Sungrazer comets, some of which have been the most spectacular things ever seen in the sky. Some have even been visible in daylight. Most recently comet Lovejoy passed just 87,000 mi from the surface of the Sun in December 2011 and re-emerged a spectacular object for observers in the southern hemisphere and on the International Space Station. In fact astronaut Dan Burbank said comet Lovejoy was “the most amazing thing he’s ever seen in space.” Most Sungrazers give little advance warning before they put on their show, and you’ll want to be ready the next time one comes around. This class will give you all you need to know to be ready for one of the most amazing things you might ever see.

The A2Z+ class meets the second Sunday of each month at 7:00 P.M. in the West Wing of the Herget Building, lasts about an hour or so and is free to any member of the Observatory. Call 513-321-5186.

### Alien Matter in the Solar System: A Galactic Mismatch

**Feb. 10, 2012:** This just in: The Solar System is different from the space just outside it.

Researchers announced the finding at a press conference on Jan. 31, 2012. It’s based on data from NASA’s IBEX spacecraft, which is able to sample material flowing into the solar system from interstellar space.

We’ve detected alien matter that came into our solar system from other parts of the galaxy—and, chemically speaking, it’s not exactly like what we find here at home.

Our solar system is surrounded by the heliosphere, a magnetic bubble that separates us from the rest of the Milky Way. Outside the heliosphere lies the realm of the stars or “interstellar space”; inside lies the Sun and all the planets. The Sun blows this vast magnetic bubble using the solar wind to inflate the sun’s own magnetic field. It’s a good thing.

http://science.nasa.gov/science-at-nasa/2012/10feb_alienmatter/

### The Fireballs of February, 2012

This month, some big space rocks have been hitting Earth’s atmosphere. There have been five or six notable fireballs that might have dropped meteorites around the United States. “These fireballs are particularly slow and penetrating. They hit the top of the atmosphere moving slower than 15 km/s, decelerate rapidly, and make it to within 50 km of Earth’s surface. http://science.nasa.gov/science-news/science-at-nasa/2012/22feb_februaryfireballs/
**FOTOKids and FOTO Teens**

*By Dean Regas*

The next FOTO Kids and FOTO Teens meeting will be on Friday March 2 at 8pm (note the later time) at the Observatory. Our record of five straight meetings with clear skies came to an end in February so we need to start another streak.

We have a lot going on in the sky with our old friends the Moon, Venus, and Jupiter. Then for the grand finale we can catch our first glimpse of the red planet Mars rising in the east.

There have been some requests from club members to have another astronomy trivia night. If it’s cloudy (and it better not be…) we’ll test your knowledge on the following subjects: Planets, constellations, Moons of the Solar System, Messier Objects, and NASA Missions. If you have any questions please contact Dean Regas at 321-5186 or dean@cincinnatiobservatory.org

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**Through the Looking Glass**

*An OLDE FASHIONED SLIDE SHOW*  
*At the Observatory*

Wednesday, March 14, 7-9 pm

*By Dean Regas*

Travel back in time! Enjoy an old-fashioned slide show at the Cincinnati Observatory using a period projector. These historic glass plates from the Observatory’s unique collection tell of its heritage and early star gazing events of the late 1800s and early 1900s. Slides include astronomical images, history, and humor - some of these haven’t been seen by the public in over 100 years.

Popcorn and refreshments will be served. Cost: $10/adults, $5/kids. Space is limited. Contact Dean Regas at 513-321-5186 to RSVP

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**Did You Know That….**

Our Earth traverses the Milky Way once every 250 million years.

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**Building Blocks of Early Earth Survived Collision That Created Moon**

"It is believed that Earth grew to its current size by collisions of bodies of increasing size, over what may have been as much as tens of millions of years, yet our results suggest that some portions of the Earth formed within 10 to 20 million years of the creation of the Solar System and that parts of the planet created during this early stage of construction remained distinct within the mantle until at least 2.8 billion years ago."  
http://www.sciencedaily.com/releases/2012/02/120218134532.htm

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Kevin Grace is the Archivist and head of UC’s Archives and Rare books Library.  
www.libraries.uc.edu/libraries/arb/index.html.

Thanks to the long relationship between the University and the Observatory, much of the Observatory’s early history is recorded in Kevin’s extensive archives. Several Observatory volunteers are currently researching the holdings and are coming back with new insights that even Mr. Ventre was unaware.

Kevin’s new book takes a look at many of the city’s leaders, medical pioneers, sports figures and celebrities that make Cincinnati the Queen City of the West.

Pick up a copy at Joseph Beth Booksellers and check out the familiar faces on page 122.

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**Did You Know That….**

Dark flow joins other cosmological mysteries, including dark matter and dark energy, none of which are easily explained by Einstein’s general theory of relativity.
Check-Off Your Taxes for Local History

By Craig Niemi

History advocates have a new and convenient way to demonstrate their support for history and preservation in Ohio. For the first time, taxpayers will be able to donate a portion of their income tax refund to the Ohio Historical Society. The 2011 Ohio individual income tax forms provide a “tax check-off” option—a blank box on where those receiving a refund can designate an amount of it for donation. The Ohio Historical Society will use the revenue generated from the tax check-off to create a new grant program to support history-related projects throughout Ohio. These will include repair or restoration of historic properties, care for historic objects and documents, education initiatives, public programs, and more across the entire state of Ohio. The Society is busy preparing criteria for the grants program, which they expect to be unveiled in the spring.

The Ohio Historical Society income tax check-off was approved as part of the state’s two-year budget that was signed into law by Gov. John R. Kasich on June 30. The Society does not know how much the new tax check-off will generate, but officials estimate it to be at least $200,000 per year.

Please be sure to remember that tax time is also your time to support local history!

Did You Know That…

The material which made up our Sun, our Earth and the other planets, all came from dust no thicker than cigarette smoke. This process repeated itself throughout the Universe.

History of the Observatory

2nd & 4th Sundays
1-4pm

Our talented volunteer docents from the Museum & History Committee weave the fascinating story of the Cincinnati Observatory’s rich history and the unique cast of characters that made Cincinnati the Birthplace of American Astronomy. An ideal opportunity for our astronomy program volunteers to learn more about the Observatory and incorporate its history into your programming. No reservations are needed, except groups.

26 New Planets Discovered

Call it payday for planet hunters. The Kepler space telescope mission has detected 26 previously unknown planets orbiting their suns in 11 new planetary systems, NASA’s Ames Research Center announced on Thursday.

The discoveries nearly double the number of known alien worlds - or "exoplanets," as astronomers call them.

Prior to the Kepler mission, we knew of perhaps 500 exoplanets across the whole sky. Now, in just two years staring at a patch of sky not much bigger than your fist, Kepler has discovered more than 60 planets and more than 2,300 planet candidates."

The findings show that our Milky Way galaxy is "positively loaded with planets of all sizes and orbits," Hudgins said.

And the list is likely to keep growing. The number of exoplanets confirmed by the Kepler mission now stands at 61, with an additional 2,326 planets not yet confirmed, MSNBC reported. All told, more than 700 planets have been found outside our solar system.

The newly discovered planets vary in size, with some only about 1.5 times the size of Earth and others bigger than Jupiter, Discovery.com reported. It’s unclear whether the planets have rocky surfaces like those in Earth or Mars or if they are gaseous planets, like Neptune.

Because the planets have tight orbits around their stars, none is believed to be conducive to life. But astronomers were out of this world with enthusiasm for the findings. As Dimitar D. Sasselov, a professor of astronomy at Harvard University, told MSNBC, "There is more diversity out there than our limited imaginations could come up with, which is good.

Europe’s Rosetta spacecraft is en route to intercept a comet--and to make history. In 2014, Rosetta will enter orbit around 67P/Churyumov-Gerasimenko and land a probe on it for a front row seat as the comet heads toward the disintegrating heat of the sun.

FULL STORY at http://science.nasa.gov/science-news/science-at-nasa/2012/02feb_rosetta/
Hubble Reveals a New Class of Extrasolar Planet

Observations by the NASA/ESA Hubble Space Telescope have come up with a new class of planet, a waterworld enshrouded by a thick, steamy atmosphere. It's smaller than Uranus but larger than Earth.

GJ1214b, shown in this artist’s view, is a super-Earth orbiting a red dwarf star 40 light-years from Earth. New observations from the NASA/ESA Hubble Space Telescope show that it is a waterworld enshrouded by a thick, steamy atmosphere.

GJ 1214b represents a new type of planet, like nothing seen in the Solar System or any other planetary system currently known. (Credit: NASA, ESA, and D. Aguilar (Harvard-Smithsonian Center for Astrophysics)

This super-Earth is about 2.7 times Earth's diameter and weighs almost seven times as much. It orbits a red-dwarf star every 38 hours at a distance of 2 million kilometres, giving it an estimated temperature of 230 degrees Celsius. Did You Know That….

The Earth is gathers in 100,000 tons of space debris each day!

The End