

Friends Of The Observatory Newsletter

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Phone 513-321-5186

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www.cincinnatiobservatory.org Bill Cartwright, editor

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A Letter From President Huber

Dear Friends,

Well, winter is on its way again. Although it is tough to tell by the temperatures. I hope you all had a good Thanksgiving. As if you haven't stuffed your-selves enough this month I want everyone to come out for the annual FOTO Winter Banquet. Every year we have a great time talking astronomy and enjoying great food. If you didn't get a chance to sign up

for some thing to bring, don't worry, just bring something YUMMY. If you did sign up and don't remember, just check out the next article.

Construction has begun on the main building as well. Thank you all for being patient while we do all of this construction. It may be a mess around the old place for a while but it will be worth it. Just check out the Mitchel building if you aren't sure. (The new bathrooms are great!)

REMEMBER, This Month Only, we will meet at the OBSERVATORY at 6:30 PM.

December FOTO Meeting (The Winter Banquet)

FOTO Folks make your list and check it twice as the FOTO winter banquet is just around the corner. As usual FOTO will be providing the meat and cheese trays and the drinks, so all you have to bring is an item for a few friends to share. Please



check the list from Last month in case you have forgotten what to bring. If you aren't signed up, then whip up something wonderful and come on out to the "O".

Remember to come to the Observatory, not the church, and at 6:30, not 7:30 PM, Thursday, December 6th.

Here's a reminder of who signed up to bring various dishes:

Drinks: Rick Hunter and Michael Mountain.

Snacks: Linda Magee and Claire Shottenfeld.

Desserts: Valerie Niemi, Andy Bruggeman, Chuck Strubbe, Scott Naylor, and JoAnne and Poul Pedersen.

Salads: Minnie Mehuron, Frank Huss, and Sue Rismiller.

Side Dishes: Steve Rismiller and Jeff Green.

Other Goodies: Ron Diesslin, Bill Cartwright, and Sam Vessel.

Did You Know....

Eons ago, craters pocked Earth, but erosion has obscured them. Some recent impacts remain including the mile wide Wolf Crater in western Australia and Meteor Crater near Winslow, Arizona.

Last month's FOTO meeting multimedia presentation was given by **John Bevan** who talked about his tour of the observatories of Australia. Great job John!

Before John's presentation members helped stuff envelopes for FOTO.



Planning Meeting

The December planning meeting has been cancelled because of the holiday, but we will meet again Wednesday, January 16th.

FOTOKids Meeting

The next meeting of FOTOKids will take place on Friday, December 7th, at 7:30 PM. We'll have an astronomy craft and discussion. After the presentation, we will open up the telescopes for viewing, weather permitting. The meeting will take place at the Observatory Center.

If you have a kid interested in astronomy between the ages of 8 and 14, find out more about FOTOKids by contacting **Chuck Strubbe** at 513-886-7600 or jstrubbe@one.net.

FOTOKids And Rockets

The ROCKETS! ROCKETS! ROCKETS! Program for FOTOKids was very successful. On the evening of November 2nd, almost 20 FOTOKids gathered to make Este's Gnome kits. **Mark Fisher** for Queen City Area Rocket Club (Quark) led the kids in building the kits and talked about the fun hobby of rocketry.



Then on Sunday, November 11th, FOTOKids gather at the Countryside YMCA in Lebanon to launch their rockets along with Quark members.

Despite the cold breeze, all-afternoon the skies were filled with the roar of solid propellant rockets pushing into the blue sky. The day ended with pinked-cheeked FOTOKids retiring back to Cincinnati to contemplate future flights, rockets that may lead the way to deeper journeys into space.

Did You Know....

The Leonid Meteor shower in 1966 was the most prolific ever, spewing 100 to 150 thousand meteors per hour!

More Hot Astronomical Websites

By Chuck Strubbe

Electronic newsletters via the Internet have some distinct advantages to paper ones. Probably the most significant advantage in the field of astronomy is the real time information that can be passed along. For instance, there are newsletters that immediately contact all subscribers about new novae, aurora borealis, comets, etc. This means that we here in the USA

can instantly respond to finds in Europe and Asia.

Subscribing to these email lists can be easy or complex. Unsubscribing can be a challenge, but one can usually figure it out. Here are some sights that you might want to look into.

<http://science.nasa.gov/news/> -- Mostly for beginning astronomers. This has the major public NASA newsletters including Science@NASA, Spaceweather.com (sun spots, aurora borealis, etc.) and LiftOff (Satellite tracking, etc.)

<http://www.skypub.com/resources/links/lists.html> -- For more advanced astronomers. This is one of the most complete lists of lists. List subjects include updates on variable stars, CCD imaging, ATM, lots of foreign astronomy news, dark sky, magnetometry, maksutov telescope discussion, etc.

Evidence Of Martian Life Dealt Critical Blow

When, in 1996, a group of NASA researchers presented several lines of evidence for fossil bacteria in a Martian meteorite, a wave of excitement passed through the public and the scientific community alike. That wave was followed by a storm of controversy. Now, new data and criticisms are coming from a research team.

<http://spaceflightnow.com/news/n0111/20marslife/>

Observatory Hosting the Boy Scouts

By John Ventre

The COC is hosting Boy Scout Troop 399 at the O for an astronomy program, telescope viewing, and an all night camp out on the O's grounds on Saturday, December 8th. These are the scouts who helped us park cars at Scope Out and helped at other events.

Please consider operating one of the portable telescopes on the lawn, or bring your own telescope. Viewing will start about 7:30 PM, weather permitting. It will not be an all night viewing session, since the scouts want to have bonfire activities later on in the evening.

Science Mission Defined For NASA's 2005 Mars Probe



NASA announced the selection of 10 scientific investigations as part of the 2005 Mars Reconnaissance Orbiter mission. The probe will carry six primary instruments that will greatly enhance the search for evidence of water, take images of objects about the size of a beach ball, and search for future landing sites on the Martian surface.

<http://spaceflightnow.com/news/n0111/10mro/>

New Class Is In the Works

Bob Casey is working on a class for people who get a new telescope for Christmas. Details are sketchy at this point, but the class would start in early January.

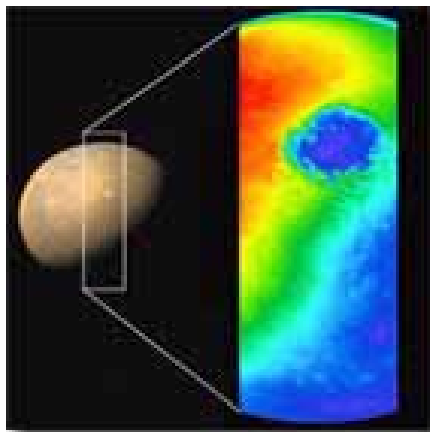
"Earth, Sun, Moon"

Wednesday, December 12th
7:00-9:00 PM, at the Observatory

This program will discuss the relationships between the Earth, Sun, and Moon, seasons, eclipses, moon phases, gravity, and much more. This is a great program to prepare you for the partial solar eclipse on December 14. Cost: \$12.

To register, please call **Dean Regas** at 513-321-5186.

Odyssey's First Image of Mars Is a Real Treat



NASA's 2001 Mars Odyssey gave mission managers a real treat this Halloween with its first look at the red planet.

It's a thermal infrared image of the Martian southern hemisphere that captures the south polar carbon dioxide ice cap at a temperature of about minus 120 C (minus 184 F).

Stonelick Lake Star Parties

by Scott Naylor

The next Stonelick Star Party and Cloud Dates will be Saturday, December 8th with a rain date of Saturday, December 15th. We will be setting up around dusk in the beach overflow parking lot. They're held at Stonelick Lake State Park, which is open to the public all night year round. For updates, directions or information phone Scott Naylor at 513-575-5556.

Stonelick Streetlamp Shielded

By Scott Naylor

Cinergy sent a truck out to Stonelick and shielded the annoying streetlight by the beach. I submitted the papers Wednesday afternoon and it was done by Friday morning.

That thank you letter 30 people signed at the April FOTO meeting helped.

Stonelick Parties November 10th & 17th

by Scott Naylor

We had two opportunities to view this month. On November 10th people started showing up at dusk, and by 6:30 we had a nice crowd. Throughout the night we had 50 – 55 people observing.

Planetary nebula seemed popular targets with detail in the Eskimo popping into view and disappearing again. The Double Cluster and Beehive were easy naked eye objects and some tight doubles like eta Orion at 1.8" and Rigel were clean splits. On November 17th fog blanketed us for an hour around 8:30, and almost everyone left. Those packing up scopes noticed that by the time we were ready to leave the fog had started to lift and new people were arriving.

The sky cleared, 50-60 people drifted in by 4:00 AM and we got to see the Leonid Storm, in which the count averaged a meteor a second for close to an hour.

Observatory Receives Major Grant

By Tricia Bevan

Good news from the National Endowment for the Humanities: We have received a \$10,000 grant to bring in Steve Turner from the Smithsonian Institution and Patricia Whitesell from the Detroit Observatory, plus other consultants to help us plan our Astronomy Collection exhibits. The money will be available in January 2002 to be used by the end of that spring.

We are also trying for an NEH Challenge grant for the Fund Raising Campaign. This second grant will match any contributions to the Capital Campaign that are made after December 1, 2001.

Another Observatory Grant

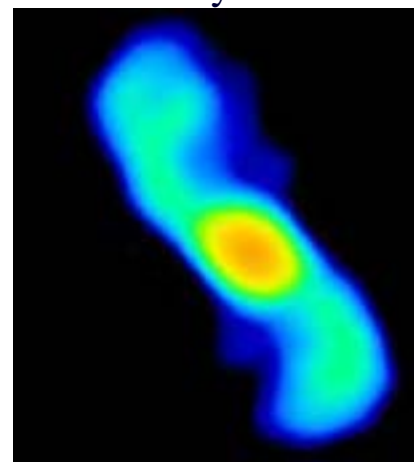
The Cincinnati Observatory Center just received a grant for a camera system, which will allow handicapped persons to see what being viewed on the telescope. It can be viewed either on a computer projector or computer monitor.

A Point to Ponder....

Could galactic empires exist? There has been plenty of time for aliens keen on colonizing the Milky Way to pull it off. However, we see no signs of galactic federation ("Star Trek" aside). Why does the cosmos look so untouched and unconquered? What is keeping advanced extraterrestrials from claiming every star system in sight?

This puzzle, known as the Fermi Paradox, has burned up a lot of cerebrum cycles when scientists tried to reconcile the lack of company with the expectation that there are many advanced alien societies.

Caught In The Act: Star Seen Turning Into Planetary Nebula



A team of astronomers using the National Science Foundation's Very Large Array (VLA) radio telescope has caught an old star during the very brief period of its transformation into a planetary nebula, a shining bubble of glowing gas with a hot remnant star at its center.

This is the first time that anyone has seen a star that is so clearly going through this transformation stage.

At the end of their lives, stars like our Sun eject gas into space before starting to contract under their own gravity into white dwarf stars. The gravitational contraction heats up the star, making it pour out energetic ultraviolet light. The ultraviolet light tears apart molecules in the gas ejected earlier by the star and rips electrons from the atoms in the gas. This makes the gas glow, producing often-beautiful shining shells and other shapes. http://spaceflightnow.com/news/n0111/15_starnebula/

Jaw-Dropping Leonids



By John Bevan

I'd set the alarm for 3:45 a.m. but awoke by 3:30, anyway. Tricia got up, too, and at 4 o'clock, armed with a thermos of coffee and a packet of English 'digestive' biscuits, we set out by car, ostensibly to join the hardy FOTO members who were spending the night at our Stonelick State Park dark site. While it was obviously cloudless above, thick fog blanketed the city streets and we began to worry that Stonelick with its lake might also be fogged in. Not too promising for meteor watching. Reluctantly (yeah!), we decided to forsake our friends and head northwest along Interstate 71, looking for high ground and no fog. The fact that we could see Leonids flashing across the sky as we drove spurred us on. The first rest stop ("Scenic Lookout 1/4 mi."): it wasn't perfect but it would have to do.

There were lights, of course, and the grass was glistening with heavy dew. We threw down a rubber mat from the back of the station wagon, lay on it and looked up at Regulus and the familiar, friendly shape of Leo from whence these meteors appear to come. It was 4:35 a.m.

O.K. - it was no 1833 shower *deja vu* all over again but there were certainly more meteors than we'd ever seen before. We started to count aloud, whooping every time there was an especially bright one. It's amazing how fast the Leonids are. You've got to be looking right at them to really see them. If you see one out of the corner of your eye, by the time you turn your head, it's gone. The incoming relative velocity is 50 km/sec - that's over 110,000 mph!

We counted #100 at 5:13 AM - an average rate of 158/hr. Number 101 was a beauty! The biggest and brightest one we saw, its trail persisted for several min-

utes. No. 200 came up at 5:30 a.m., an average rate of 353/hr, followed by #320 at 5:45 a.m., an average rate of 480/hr and the maximum we saw.

The next 15 minutes produced 82 Leonids, or 328/hr. We gave up at 6:05, having counted 410 meteors in 90 minutes. Stiff, but happy, we staggered to our feet and drove home as dawn lightened the eastern horizon. We heard that the Stonelickers had a great time, too.

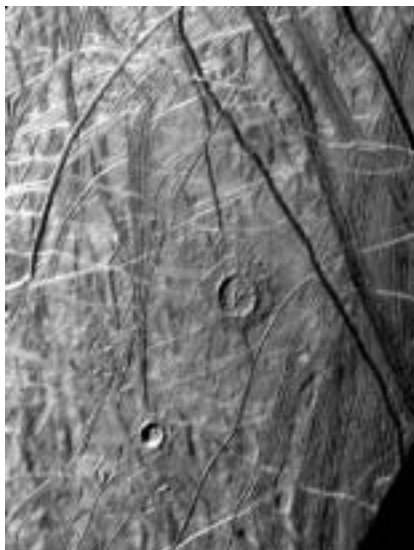
Texas Star Party

Anyone interested in teaming up to ride share to Texas for the annual Texas Star Party, perhaps camping or similar? Any ideas considered. Call **Graham Davis** at 513-587-6754 day; or e-mail him at [gdavis@edgegraphicsinc.com](mailto:gDavis@edgegraphicsinc.com)

Did You Know....

The best telescope today can see light 100 million times dimmer than that you can see with your naked eye.

Impact Craters Give Clues About Europa's Ice Crust



Impact craters on Europa -- the Jovian satellite that scientists say may hide a subsurface liquid ocean - show that the moon's brittle ice shell crust is more than 3 to 4 kilometers (1.8 to 2.4 miles) thick, two University of Arizona planetary scientists report. The thickness of Europa's hard ice shell is a hot scientific debate. http://spaceflightnow.com/news/n0111/09_europa/

The Observatory Construction Update

By Bob Casey



The Dome work is proceeding at a great pace. The dry October - November weather has helped. The top half has been scraped and repainted and half of the lower panels have now been replaced. The brackets for the panel support structure are also half way complete. Other than completing panels and brackets, the silicone seal, rivets and touch up painting needs to be completed.

The ADA work has begun with some minor site clearance done and the layout for the front driveway and walkways marked. Full site clearance will begin the week after Thanksgiving. This will also include trenching for the underground electrical and phone service.

The contract for the new HVAC system in the main building has been agreed to. The current system was turned off, drained, and site cleared, starting Thanksgiving week.

We have moved into the office trailer and hope to minimize our stay there but it's for a "good cause" because of the progress that we expect to be made over the next few months.

December's Trivia Question

In 1918, the first model of the structure of the Milky Way Galaxy was developed. Who was the astronomer who introduced this model?

November's Trivia Question: "Name one of the two cultures that accurately described planetary movements in 750 BCE."

Answer: China and Babylonia were both of the early cultures, which were able to accurately predict the movements of the planets in 700BCE.

Update on Paul's Tuesday Class & Craig's AstroPhoto Wednesday Class

By Paul Nohr

When the classes begin again -- probably by mid March or early April -- we will dig pretty deeply into CCD imaging. The material may get a little mathematical at times but, for those not inclined in that direction, most of the discussion and activities will be directed towards getting good astronomical images and doing the tech stuff almost without knowing it.

For those who really want to get into CCD imaging for scientific purposes or to get the best astronomical pictures possible, then I strongly recommend getting a copy of *The Handbook of Astronomical Image Processing* by Richard Berry and James Burnell.

This is an excellent introductory and somewhat intermediate level book with image processing software and many, many example images to work on.

After getting this book and software I decided to use it for the class. I encourage anyone who really wants to learn about CCD imaging -- especially astronomical imaging -- to get a copy and follow along.

Some of the things covered in our class may not come out as clear as I would hope. With the text you can clarify our discussions and have an excellent reference for the future.

I haven't used the software enough to totally evaluate it but so far it has worked flawlessly, is easy to use and has the power to do nearly anything most advanced amateur astronomer researchers would ever want or need.

In real life silver linings are frequently accompanied by dark clouds. Well, this gray cloud is the \$79.95 price tag. That's cheap considering the information in the book and the software; and compared to some of the very powerful image processing software packages.

So, while it might be a bit pricey for our purpose, I believe it is a package worth every penny of the cost.

That is where we're going when the class resume. I hope many of you are ready to jump into CCD imaging, astronomical measurement and image analysis.

ISO Finds 30 'Failed Stars' In Nearby Stellar Nursery



The impressive cloud in the region of the star rho Ophiuchi is one of the heavenly meeting points for astronomers in search of young stars. Located 540 light-years away, the dusty clouds are the nest of more than one hundred newborn stars. But ESA's Infrared Space Observatory has also found a surprise hidden in the dust. <http://spaceflightnow.com/news/n0110/26iso/>

Hubble Reveals Ultraviolet Galactic Ring



A new photo taken by the Hubble Space Telescope shows how a galaxy can look completely different when viewed in ultraviolet light. This image of barred spiral galaxy NGC 6782, reveals a ring of hot stars around the center of the galaxy. Astronomers believe this hot-star area is created when gas and dust bunches up round in the middle of the galaxy, creating stellar nurseries.

Introductory Astronomy Classes For Adults

At the Cincinnati Observatory Center

**Wednesday January 9th,
16th, & 23rd, 2002
7:00-9:00 PM \$45**

Purpose: To provide classes for adults wanting to learn more about astronomy, observing the night sky, and the Cincinnati Observatory.

January 9th Topic "The Marvelous Moon"

We will be discussing what causes Moon phases and identifying distinctive Moon features. After a lecture in the Mitchel Auditorium, we will go outside and observe the real thing -- first with the naked eye, then with binoculars, and finally with the Mitchel scope.

January 16th Topic "Stargazing 101 What Star Is That?"

Where do I find Orion, the Big Dipper, or the planets in the night sky? This program will explore the stars and constellations using computer simulations and the real stars (when available). Combining mythology and science, you will learn tips and techniques to stargazing in your own back yard.

January 23rd Topic "Telescopes and Much More"

Learn all about telescopes - refractors, reflectors, how they work, what they do, which is the best one for you. Friends of the Observatory (FOTO) members will also be around to show off a variety of scopes. Best of all, we will use the oldest continuously working telescope in the world, a piece of telescopic perfection, our 1842 Merz and Mahler scope.

You will receive expert training by very knowledgeable and enthusiastic astronomers, use of the world's oldest operating telescope, star charts, and refreshments.

Contact To register, contact Dean Regas at 513-321-5186.

An Aurora Comes To Cincinnati



Steve Rismiller took this amazing photograph (*amazing only if you can view it in color on the web or via email*) of an aurora visible in Cincinnati and most of the U.S. in early November.

December's Word of the Month

"Nyctalopia"

Answer to November's Word of the Month: "Nocturnal" (a noun).

Nocturnal was an ancient device to tell what time it was by using the circumpolar stars.

FOTO-SETI Update

23 dedicated FOTO members have completed 6800 SETI studies, an increase of 391 in November, for a combined total of 20.7 years of computer time!

Sign up now to become part of the greatest search in history! Join SETI.
<http://www.space.com/searchforlife>

Is your membership about to expire? Please rush your renewal check to the address shown below. \$35 single and \$50 family, payable to the "C.O.C."

Get Your Newsletter Faster!

Be among the first to receive your Newsletter, and get it in full color instead of black and white. You can receive it via email in PDF format of about only about 100 KB. Contact Bill Cartwright at wcartw@aol.com.

Star Factory Near Galactic Center Bathed In X-Rays

Near the crowded core of the Milky Way galaxy, where stars shine so brightly and plentifully that planets there would never experience nighttime, astronomers have found a new phenomenon: a cauldron of 60-million-degree gas enveloping a cluster of young stars.
<http://spaceflightnow.com/news/n0106/07chandra/>

Saturn's Changing Seasons

Looming like a giant flying saucer in our outer solar system, Saturn puts on a show as the planet and its magnificent ring system nod majestically over the course of its 29-year journey around the Sun.

Hubble images, captured from 1996 to 2000, show Saturn's rings open up from just past edge-on to nearly fully open as it moves from autumn towards winter in its Northern Hemisphere.

<http://spaceflightnow.com/news/n0106/08saturn/>
