

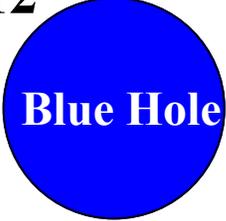
Phactum

“When the people find they can vote themselves money, that will herald the end of the republic.”
~ Benjamin Franklin,
(1706 - 1790)

The Newsletter and Propaganda Organ of the
Philadelphia Association for Critical Thinking
May / June / July 2012

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Webmaster: Wes Powers <http://phact.org/>

Saturday, May 19, 2012

PhACT Scientific Expedition to the  Blue Hole

On Saturday, May 19, 2012, you are invited to join PhACT for a scientific expedition deep into the South Jersey Pine Barrens where we will investigate the legend of the Blue Hole. This pool of water is said to be icy cold in some places, even in summer, and warm in other spots, even in winter and bottomless. In addition, the Jersey Devil allegedly lurks within and pulls down those foolish enough to enter its waters. We will also look for any remains of Inskip, once the site of a nearby sawmill.



Our guide will be Don Nigrone who has explored much of the Pine Barrens, and Eric Krieg, the president of PhACT, will lead the scientific investigative team. Armed with scientific equipment, like thermometers and fishing lines with sinkers, we will test the legendary properties of the mysterious Blue Hole. We will meet at the outdoor firing range parking lot off Piney Hollow Road at 10:00 AM and will be hiking about a mile each way on sandy roads. We may not find the Jersey Devil but will be sure to have a good time and learn some history of the area along the way. Bring insect repellent, sturdy shoes, lunch, and a camera.

The event is free - let us know if you can make it.

(Continued on page 2)

“Fantasy, abandoned by reason, produces impossible monsters; united with it, she is the mother of the arts and the origin of marvels.”

~ Francisco de Goya (1746 - 1828), Spanish painter and printmaker

Directions:

For those with a GPS the coordinates for the Blue Hole are:
 39° 37' 35.38" N, 74° 53' 45.5" W or
 39.626495, -74.895971

On a map: The Blue Hole is about 3 miles, as the crow flies, from Collings Lakes, NJ. The nearest exit from the Atlantic City Expressway is Exit 33.

Directions from Philadelphia:

Go over the Walt Whitman Bridge and onto the North South Freeway and (12.5 miles from the beginning of the bridge to where you would bear left for the AC Expressway or right for the Black Horse Pike) bear right for the Black Horse Pike. Proceed 13.9 miles on the Black Horse Pike to Piney Hollow Road (for restrooms, Burger King is on your right

at 6.8 miles from where you came onto the Black Horse Pike), then cross over Piney Hollow Road and immediately take the jug handle on your right in order to make a left onto Piney Hollow Road (which is East Piney Hollow Road once you cross over the Black Horse Pike). Go .8 mile to a sand road on your left, which leads to the outdoor firing range parking lot (entrance to the sand road has two metal posts with orange tops, one on each side of the sand road – see photograph – if you see the outdoor archery range on your left while still on East Piney Hollow Road then you went too far). Proceed .1 mile down the sand road to the parking lot on your right, where we will meet.



Entrance to the sand road off East Piney Hollow Road leading to the parking lot.

For previous Phactum article about the Blue Hole see the May/June 2009 edition, page 13.

<http://www.phact.org/data/phactums/Phactum%202009-05.pdf>

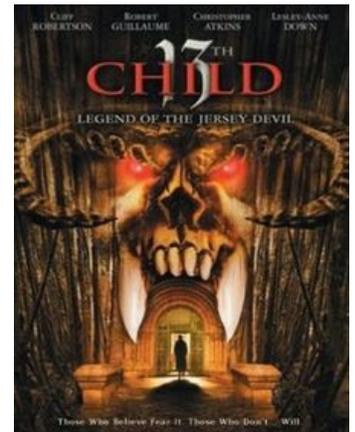
See also the report of the Great PhACT Jersey Devil Expedition of 2010. See July/August 2010, pages 1 and 2.

<http://www.phact.org/data/phactums/Phactum%202010-07.pdf>

The Blue Hole has been the locale for several movies or videos. None have been very successful but here are some links that might be fun to explore:

In 2002 a movie called *13th Child: Legend of the Jersey Devil* was produced in the New Jersey Pine Barrens not so far from the Blue Hole and the lair of the Jersey Devil. The budget was \$5 million and featured actor Cliff Robertson. It did not do well at the box office.

http://en.wikipedia.org/wiki/13th_Child



A short video, *Legend of the Blue Hole*, was a 2004 college production:

<http://cinemassacre.com/2004/05/17/legend-of-the-blue-hole/>



Be sure to bring Mosquito Repellant!!

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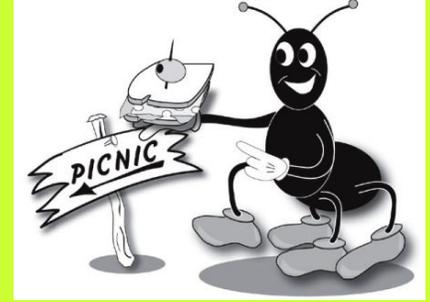
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Saturday, July 7, 2012 - PhACT Picnic

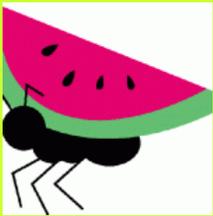
10:00 to 2:00 Mondauk Common Park

(our usual location)

We always have fun visiting, eating, and playing sports. Bring your own food, you can cook on the grill. And bring stuff to throw. We have reserved the pavilion in the woods on the Southeast corner of Mondauk Common park in Upper Dublin. This is good fun for the whole family. And all are welcome.



We will again have a book swap - it can be a great free way to build up a science/skeptic book collection - or help someone else do so.



Broad Street runs between Susquehanna and Limekiln roads. From the PA turnpike, go to the Fort Washington exit and take Rt 309 north, take the second exit and turn right onto Susquehanna. Make a left at the second light onto Broad Street, park in the second parking lot on the left, and follow the little sand path up to the pavilion.

Bring some food and your Aunt. We will supply the ants.

Edge of the Universe: A Voyage to the Cosmic Horizon and Beyond

Saturday, September 15, 2012

Dr. Paul Halpern of University of the Sciences will speak on his book, "**Edge of the Universe: A Voyage to the Cosmic Horizon and Beyond.**" See [Page 17](#) for book description. There will be a book signing after the meeting.

The observable universe, the part we can see with telescopes, is incredibly vast. Yet recent theories suggest that there is far more to the universe than what our instruments record -- in fact, it could be infinite. Colossal flows of galaxies, large empty regions called voids, and other unexplained phenomena offer clues that our own "bubble universe" could be part of a greater realm called the multiverse. How big is the observable universe? What it is made of? What lies beyond it? Was there a time before the Big Bang? Could space have unseen dimensions? In this book, physicist and science writer Paul Halpern explains what we know -- and what we hope to soon find out -- about our extraordinary cosmos.



Paul Halpern is author of 13 books, mostly about physics and the universe. Dr. Halpern's research interests include complex and higher-dimensional solutions in general relativity, structurally dynamic cellular automata and genetic algorithms, the history of modern physics, and the relationship between science and culture.

<http://www.nasw.org/users/Halpern/>

Letters to the Editor

Editor: You're not wrong to attribute a slight difference in coin heads-tails probability to an imbalance in the coin; that can certainly be a factor. What the Stanford work shows is that even in a "fair" (i.e., balanced) coin, there is a difference in probability, which is introduced by the way the coin is facing, heads up or tails up, when it's flipped. That's really not much of a problem; all you have to do is flip the coin when it is randomly heads up or tails up, which randomness is determined by flipping a coin, of course!

According to Wikipedia, John von Neumann gave a procedure for getting fair results from even an unfair coin:

- Toss the coin twice.
- If the results match, start over, forgetting both results.
- If the results differ, use the first result, forgetting the second.

Wikipedia continues: The reason this process produces a fair result is that the probability of getting heads and then tails must be the same as the probability of getting tails and then heads, as the coin is not changing its bias between flips and the two flips are independent. By excluding the events of two heads and two tails by repeating the procedure, the coin flipper is left with the only two remaining outcomes having equivalent probability.

Personally, I think the best way to go about it is to call "Heads I win, tails you lose."

Howard J. Wilk
Philadelphia, PA

Editor: Do you ever listen to Car Talk? Great show. If you don't, you probably don't know that each week they have a puzzler, which you can also get emailed to you, as I have done. This one is easy. But what I found interesting is "Some strategists will play only numbers over 31, hoping to share with as few others as possible if and when they win, right, because there's no birthdays beyond the 31st of a month." I do that. As I've written before, some lottery numbers really are better than others. No doubt others play the same way, although this is the first time I've seen the particular strategy of playing numbers over 31 explicitly described. I was informed by the Multi-State Lottery Association:

Here is what the top five looked like at the last survey (2008).

- 04 08 15 16 23 42 (from TV's LOST)
- 07 14 21 28 35 42 (multiplies of 7)
- 07 17 27 37 47 07 (ending in 7's)
- 01 02 03 04 05 06 (numerical)
- 05 10 15 20 25 30 (by 5's)

Beyond choosing numbers over 31, I also avoid numbers with 7's, etc.

Howard J. Wilk
Philadelphia, PA

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Various Ruminations

Collected/Written by Ray Haupt
(with help from others)

Newly discovered Mayan calendar goes way past 2012

Don Nigrone passed along a USA Today article claiming that the Mayan Calendar will not end December 21 of this year. The Earth and civilization seem to have a reprieve until some time during the 36th Century AD. At that time Phactum in its twelve thousandth edition will intensify reporting on this matter, so stay tuned in for the next 1500 years. We can not help but speculate that Harold Camping, the Doomsday Prophet, is somehow behind this new prediction.

<http://www.usatoday.com/tech/science/story/2012-05-08/maya-apocalypse-calendar-2012/54879760/1>



Meanwhile, at the University of Pennsylvania Museum of Anthropology and Archeology there is an new exhibition called **MAYA 2012:Lords of Time** which leads visitors on a journey through the Maya's time-ordered universe, expressed through their intricate calendar systems, and the power

wielded by their divine kings, the astounding "lords of time." Visitors explore the Maya world through interactive experiences and walk among sculptures and full-sized replicas of major monuments.

This exhibit will be on-going until January 13, 2013 unless the December 21 date really does end civilization.

<http://penn.museum/upcoming-exhibits/995-maya-2012-lords-of-time.html>

Chiropractic schools facing financial trouble.

Dr. Stephen Barrett reported in Consumer Health Digest of April 19, 2012 that:

The Chronicle of Higher Education has reported that many of the nation's 16 chiropractic programs are struggling to stay in business.

*According to the journal's analysis: **During the past ten years, enrollment at chiropractic colleges fell by 8% to about 12,000 students and four lost close to half of their students. This is a serious problem because about 85% of chiropractic college income comes from tuition.*

***One cause of financial stress is the high compensation packages of their presidents, which consume 2% of their colleges' budgets (five times as much as the typical president at a private college with a budget over \$50 million). Some earn nearly as much as leaders of research universities that are 10 times or more their size.*

Source: Fuller A. Chiropractic colleges seek legitimacy amid

financial woes. *The Chronicle of Higher Education*, April 1, 2012.

<http://chronicle.com/article/Chiropractic-Colleges-Seek/131538/>

JAMA commentary blasts NCCAM

The following item appeared in Dr. Stephen Barrett's Consumer Health Digest #12-16 of May 3, 2012.

Paul A. Offit, M.D., has added his voice to the growing chorus of criticism of the National Center for Complementary and Alternative Medicine. [Offit P. Studying complementary and alternative therapies.

JAMA 307:1803-1804, 2012]

He stated:

- ***Since their inception, NCCAM and its predecessor agencies have spent \$1.6 billion, much of it wasted.*
- ***Many studies it sponsored lacked a sound biological underpinning, which should be an important requirement for funding.*
- ***Believers often argue that it does not matter what the data show; they know what works for them.*
- ***Because negative studies do not appear to change*

behavior and because studies performed without a sound biological basis have little to no chance of success, it would make sense for NCCAM to either refrain from funding studies of therapies that border on mysticism such as distance healing, purgings, and prayer; redefine its mission to include a better understanding of the physiology of the placebo response; or shift its resources to other NIH institutes.

We have lamented in Phactum on several occasions about scarce science and medical research funding squandered by NCCAM. Adding insult to injury, that agency has a poor record of even publishing the results of the many "studies" performed. What good is a scientific study with findings not shared?

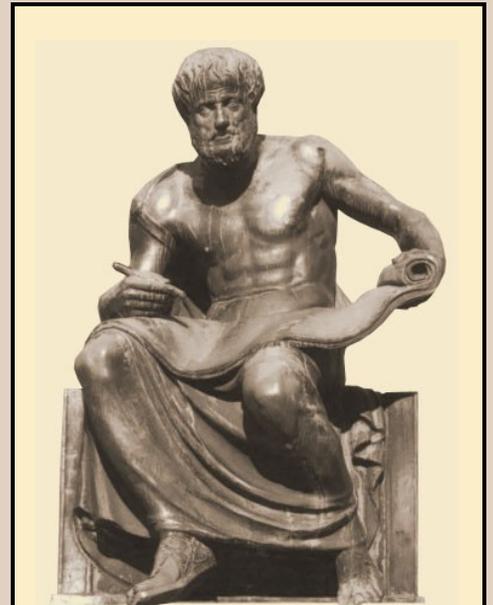
Doctor Offit is a prominent leader in the field of vaccine research and had been a PhACT lecturer in February 2008. He recently participated in a discussion of the anti-vaccination movement at the Philadelphia College of Physicians,. His latest book, *Deadly Choices: How the Anti-Vaccination Movement Threatens Us All*, is described on the next page.

"It is the mark of an educated mind to be able to entertain a thought without accepting it." - Aristotle

Aristotle certainly makes a major Critical Thinking observation in that statement. There is an abundance of examples of thoughts regarding social customs, religion, sex, politics, science, slavery, prisons, vegetarianism and many others aspects of life where there is a multitude of differing and controversial opinions. One may accept or reject any of those ideas but progress in Civilization can only be made if serious thinkers entertain various propositions. We invite readers to ventilate with passion, but not anger, on some matter that might interest Critical Thinkers.

We would very much like participation from Creationists, UFOlogists, Homeopaths and others often scorned by Skeptics. Student letters and essays are as welcome as communications from established professionals. It could be a great mental and writing exercise to entertain some thoughts that you do not accept. But, please, no electoral politics and we really do not care about the vapid antics of the Kardashian Sisters.

Send submissions to the Phactum Editor at phactpublicity@aol.com



Aristotle (384 BC – 322 BC), Greek philosopher. He was a student of Plato and teacher of Alexander the Great.

New Book by Paul Barnett

Paul Barnett, a prolific science and science fiction writer who often uses the pen name John Grant, was PhACT's speaker September 2010. His topic at that time was "Denying Science" which is now the title of his recent non-fiction books. Paul, as a science fiction writer has twice won the prestigious HUGO Award. See [page 17](#) for description of *Denying Science: Conspiracy Theories, Media Distortions, and the War Against Reality*.

Cancer Treatment - Penn Medicine Cancer Team's "Serial Killer" T Cell Leukemia Treatment Named Among Nation's Top Clinical Research Achievements

Carl June, MD, Director of Translational Research for Penn's ACC and a Professor of Pathology and Laboratory Medicine in the Perelman School of Medicine, has been named among the top three winners of the inaugural Clinical Research Forum Top 10 Clinical Research Achievement Awards for his work treating chronic lymphocytic leukemia using genetically engineered versions of patients' own T cells, which multiply in the body as "serial killer" cells aimed at cancerous tumors. His team's findings, which have drawn a new map for the treatment of ovarian and pancreatic cancers and mesothelioma, were published in the New England Journal of Medicine and Science Translational Medicine in August 2011.

http://www.uphs.upenn.edu/news/news_Releases/2012/04/t-cell/

Coincidences

Howard Wilk sent an interesting internet link where Professor David Spiegelhalter of Cambridge University considers matters involving "coincidence" and is collecting stories of coincidental happenings from ordinary people. Most of

these stories are rather unremarkable, but have we not all experienced some little incident in life that seems odds defying? I know that I have on many occasions, one recently involving the rather inconsequential topic of an Italian delicacy, Eggplant Parmesan. What are the odds for having had multiple coincidental events?

See: <http://understandinguncertainty.org/coincidences>.

Howard had also written a Letter to the Editor ([page 4](#) of



this Phactum) about various strategies for picking numbers in a state lottery. By the very strangest of Coincidental Happenings the Understanding Uncertainty website has an animated facility that shows the frequency of lottery number appearances spanning 1240 drawings of the UK National Lottery.

<http://understandinguncertainty.org/node/39>

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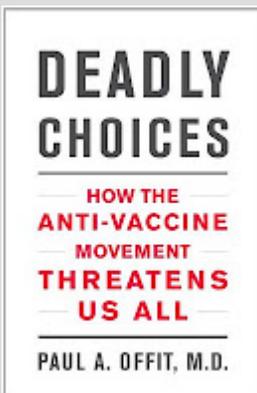
Deadly Choices: How the Anti-Vaccination Movement Threatens Us All.

By Paul Offit, MD

Publisher: Basic Books; 1 edition (December 28, 2010)

Language: English Hardcover: 288 pages

ISBN-10: 0465021492 ISBN-13: 978-0465021499



There's a silent, dangerous war going on out there. On one side are parents, bombarded with stories about the dangers of vaccines, now wary of immunizing their sons and daughters. On the other side are doctors, scared to send kids out of their offices vulnerable to illnesses like whooping cough and measles--the diseases of their grandparents.

How did anyone come to view vaccines with horror? The answer is rooted in one of the most powerful citizen activist movements in our nation's history. In *Deadly Choices*, infectious disease

expert Paul Offit relates the shocking story of anti-vaccine America--its origins, leaders, influences, and impact. Offering strategies to keep us from returning to an era when children routinely died from infections, *Deadly Choices* is a vigorous and definitive rebuttal of the powerful anti-vaccine movement.

Meeting Report - April 2012

“The good old days: They were terrible” A Lecture by toxicologist David Cragin, Ph.D.

PhACT wishes to thank Marko Kopij who prepared this meeting report.
Mr. Kopij is a Physics student of Dr. David Cattell at Philadelphia Community College.

At April's PhACT meeting, toxicologist David Cragin, Ph.D. presented “The good old days: They were terrible”. The meeting covered two topics; one discussing how various toxins were used in the past that are either banned or tightly regulated as of present time, and how various sources of information we obtain on the note of environmental toxins are biased. During the first half of the meeting, Dr. Cragin discussed many old world perceptions of today's toxins. Dr. Cragin displayed how in the “good old days” people were not informed about various toxic elements, such as arsenic; simply for the lack of tests and information available on the said toxin at the given time.

In the good old days, arsenic was used in many items, such as wallpaper, candles, and food wrappers. For example, during the Bronze Age, arsenic was often included in bronze, which made the alloy harder, so called "arsenical bronze". During the Victorian era, white arsenic powder was mixed with vinegar and chalk and eaten by women to improve the complexion of their faces, making their skin paler to show they did not work in the fields. Arsenic was also rubbed into the faces and arms of women to "improve their complexion".

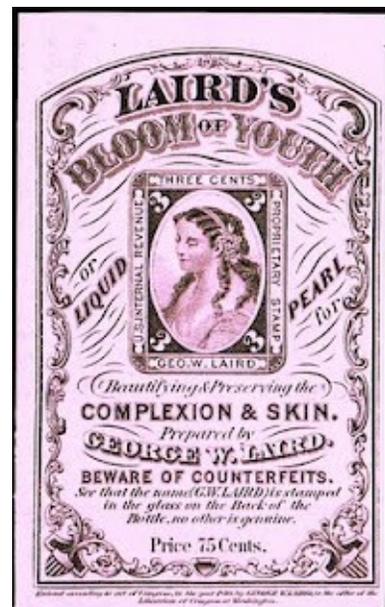
In today's times we know that arsenic is notoriously poisonous to multicellular life (although a few species of bacteria are able to use arsenic compounds as respiratory metabolites), simply because the exposure to arsenic can cause various negative health effects, such as decreased production of red and white blood cells, skin changes and lung irritation. Prolonged exposure can intensify the chances of cancer development, especially the chances of skin cancer, lung cancer, liver cancer and lymphatic cancer. Thus, arsenic in the present day is tightly regulated as Dr. Cragin stated. [See article by Caroline Rance on [Page 15](#)]

Another toxin Dr. Cragin discussed was “DDT” (dichlorodiphenyltrichloroethane) and how it was used in the old era. DDT during the 40s till about early 70s has been heavily used in agriculture; more than 40,000 tons were used each year worldwide and it has been estimated that a total of 1.8 million tons have been produced globally since the 1940s. DDT was great for farmers, as it eliminated virtually any pests that infested crops. DDT was also persistent and lasted a long time. DDT has been even coated on posters which were placed on the walls to eliminate various pests around the house. What made DDT even more attractive choice is the broad spectrum, virtually killing any type of pest, yet remaining inexpensive.

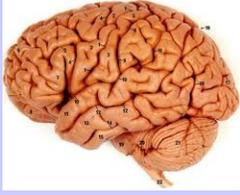
Although, even in the 40s many U.S scientists had begun expressing concerns over possible hazards associated with DDT, and in the 1950s the government began tightening some of the regulations governing its use. Unfortunately, these events received very little attention until 1972, when DDT was banned for use in agricultural and other general settings in the United States.

DDT is quite toxic to a wide range of living organisms, including marine animals such as crayfish, daphnids, sea shrimp and many other species of fish. Furthermore, it's suggested that DDT can lower the reproductive rate of certain bird species by causing eggshell thinning, which leads to egg breakage. DDT is not as toxic to mammals as to other range of organisms but it has some negative effects. For example, human epidemiological studies suggest that exposure to DDT is a risk factor for premature birth and low birth weight. In addition, other studies have also found that DDT interferes with proper thyroid function. Therefore, DDT is tightly regulated in the U.S.

Lastly, Dr. Cragin concluded the meeting with criticism of various sources of information regarding news of toxic occurrences and effects on health. Dr. Cragin pointed out how various sources spin the story to their liking in order to grab the reader's attention. Therefore, stressing that the readers should follow up on sources to receive most accurate information. Nonetheless, Aprils PhACT meeting was quite an interesting meeting. It has given the attendees an insight and a history lesson of the toxic world that surrounds us. As Dr. Cragin said; “Anything is toxic in the right dose”.



Laird's Bloom Of Youth and Dr. MacKenzie's Arsenic Complexion Wafers were just two of the brands women consumed as a beauty aid. Arsenic made the skin pale by destroying red blood cells. Among the side effects of these wafers (pills) were blindness and death.



WHAT'S ON YOUR MIND?

The Noble Quest Continues

By Tom Medero

Recently I applauded the National Institutes for Health's Human Connectome Project as a great leap forward in understanding the inner workings of the human brain, mapping the myriad connections between neurons, and their significance in constructing thought processes. As I have pondered this great undertaking it occurred to me that yes, it would be fantastic to know how all of the functional areas of our brain connect together and how those synapses connect and associate to form thoughts, emotions, and sensory perceptions. What I did not consider is just how incomplete the project really is. It is all well and good to see and learn from the trillions of connections, and this project will certainly illuminate functionality, but it leaves the main philosophical question still on the table; how do action potentials (nerve impulses), which are simply the presence of a cellular cross-membrane electrical gradient, cause thought? I'm delving into philosophy here, but if philosophy didn't ask and seek answers to these questions in the search for truth, science just wouldn't be where it is today.

Philosophy today is far too often viewed as a highly abstract discipline with little bearing on objective reality or possessive of any practical use. We would do well to recall that for over 2,500 years philosophy was considered the only road to knowledge and wisdom, the generator of fields of research still with us today. As testament to this fact and in acknowledgment of its due respect, we still refer to our highest academic degree of achievement as a Ph.D. – a Doctor of Philosophy.

Sometimes we can confuse the two, science and philosophy. With some differences in approach to acquiring knowledge, and they can and do overlap. Adding to the confusion is that certain “sciences” such as mathematics, economics, and psychology all can be and are conducted in an armchair without dependence on empirical observation. These are primarily rational endeavors. Science and

philosophy, at least at this juncture of our primitive exploration of brain and mind can, and must, co-exist.

There is no question that the conscious mind is one of the greatest mysteries of science as well as a legitimate philosophical pursuit. But there is also a major problem in uniting the two. It is just so difficult to think of chains of chemical-electrical action as something we are much more intimate with – the I, or the Me. This area, at least for the time being, will stay firmly in the purview of the philosophers and their Theories of Mind, as it should if and until empirical science can overcome the formidable obstacles that lie ahead.

This is not such a bad thing. Many questions and dialogue pursued by philosophers past have supplied the insight for a host of scientific discoveries. New and challenging demands in science and philosophy require thinking outside the box using solid logic and sound reasoning to reach conclusions that can form testable, working hypotheses. Of the countless people who lived on the planet before Einstein, I wonder if anyone daydreamed (or, as he liked to call them, thought experiments) imagining time on a clock tower moving slower if he was moving away from the clock tower on a bus approaching the speed of light? That kind of idea can only occur in an unfettered daydream or thought experiment where the mundane concerns of everyday life do not clog the creative process. Or, consider another great Einstein insight, space-time. It is extremely difficult even to imagine space, which has no physical dimensions, being able to bend and warp around entities according to their mass and alter the speed of time along with it. Space-time for the average Joe, myself included, is not an easy concept to grasp. This is why they are called “EUREKA!” moments. But fantastic ideas have occurred no doubt countless times by towering minds and many have been proven experimentally. But my fear is that

“If the human brain were so simple that we could understand it, we would be so simple that we couldn't.”

~ Emerson M. Pugh

Quoted by George E. Pugh — The Biological Origin of Human Values, p. 154, 1977

far too many “EUREKAS” have not survived the ages. What would we think if we discovered that Pythagoras had been tinkering with the idea of space-time? Or that Xenophanes had been pondering what preceded the singularity during the Big Bang?

That much abstract thinking brings me back to the nature of thought and consciousness. Let's take an example. Let me propose, for instance, consciousness is solely a product of neuronal function much the way digestion is a function of the liver or blood filtration a kidney function. The only substantive difference between the brain and these other organs is that one gives us awareness, thought, emotions, consciousness, and some other very cool attributes. Very unique and strange traits indeed. So different in fact, that Descartes and other dualists couldn't even imagine that they could originate from one organ or entity. Conventional wisdom of the time forced them to think of a body and soul as separate entities to account for this difference in qualia (and, in Descartes' case, to appease the Church). Personally, I am in league with John Searle, the Slusser Professor of Philosophy at U.C. Berkeley. No slouch. You may recall him from his famous “Chinese Room Argument” in the artificial intelligence debates in philosophy. It is also his holding that no, we do not have a soul, an ethereal entity in addition to our physical body that is the actual home of the mind. What we call consciousness from a reductionist perspective is simply the action of neurons acting together as genetically programmed to and produce a specific outcome; consciousness, dreams, memories, emotions, etc. Accordingly, we uniquely experience the phenomenology of emotions, rewards, pleasure, pain, and schadenfreude, among others.

Taking the opposing view, I could argue that we are composed of a dual nature, a physical or material existence as well as a separate, non-physical mind or soul as a contemporaneously existing entity in the same body. Beyond offering this proposition, I cannot for the life of me see a reasonable argument for the existence of it. It simply seems an empty proposition. Speaking purely as a critical thinker and using the tools of logic, I must remain skeptical as to whether we have a soul. I can find no reasonable course to conclude otherwise. To believe in a soul without sufficient warrant or reason is an appeal to ignorance (take no offense, that is the actual name of the logical fallacy). But to not believe in a soul is simply a skeptical position, completely benign. We have no knowledge as of yet to warrant the belief in the presence of a soul. In earlier times, perhaps before neuroscience made inroads into this area, the idea of a separate soul may have been a conclusion by default, weak induction at best. But this is just speculation.

There is a duality here, but not the kind referred to above, and we encounter it hundreds of times a day; an unconscious

cause of stress arising out of the primal instincts of the unconsciously active limbic system and our frontal cortex which is conscious and called on to put these primal impulses in check. Our frontal cortex is responsible for planning, weighing consequences against possible choices, goal setting and other “executive“ functions. In short, it possesses not an ounce of hedonism. It is the Mr. Spock in our brain. The limbic system, on the other hand, is the seat and core of our emotional brain; and it responds first and consequences it considers not, as every action it takes in response to stimuli is designed to perpetuate life and/or generate pleasure. The ultimate evolutionary machinery, it single-mindedly (please pardon the pun) pursues preservation of the species. Ancient in evolutionary terms, it simply responds to stimuli – a tiger behind a tree, a face approaching recognized as a foe. We sometimes call this “impulsive behavior” but in reality, it is the absolute most natural behavior, it is the manifestation of the true animal that we are. Impulsive is really a misnomer; unconscious is more accurate. To call it impulsive implies no control when it is in fact a completely deliberate act, simply one we are not consciously aware of.

Although present in all mammalian brains, the limbic system is a much more ancient structure of the brain compared with the frontal lobe, and only in the relatively recent past, an evolutionary blink of an eye, has the frontal cortex developed the ability and sought to apply the brakes, undoubtedly due the evolutionary advantage in working cohesively within social groups. If everyone is at war with each other, there would be no cooperation, and progress as a species would come to a halt, possibly even extinction. So, a social mechanism for cooperation toward mutual benefit might be called an exaptation of our frontal cortex. This part of our brain seems to not have evolved for this specific purpose, but instead has stumbled upon a useful exercise of its

The brain is the last and grandest biological frontier, the most complex thing we have yet discovered in our universe. It contains hundreds of billions of cells interlinked through trillions of connections. The brain boggles the mind.

~ **James D. Watson, Discovering the Brain, National Academy Press, 1992**

reasoning power to temper the limbic system's hedonistic *raison d'etre*. That's what an exaptation is; something that evolves for one purpose, but finds use in a completely different, unrelated, and often unexpected way. One exaptation, for example, are the three bones in our inner ear that originally evolved in reptiles to allow their jaw to open wide enough to engulf prey bigger than they could swallow otherwise. We have modified that use to convert sound vibrations in the air into neural impulses, and presto - hearing. We are replete with these exaptations. This inelegance of evolution was best summed up by Francis Crick, co-discoverer of DNA. To paraphrase him: “God is a hacker, not an engineer.” That pretty much explains it.

We possess emotions that, although not brutish, find themselves very useful in an evolutionary context. I am speaking here of empathy, compassion, love, loyalty, and

others in this virtuous set. These emotions are much more complex than the basic fight or flight response found in the amygdalae. A virtue such as loyalty I might hypothesize had originated in the older primitive limbic area as an evolutionary advantageous trait to remain close to those who have been beneficial to be with; possibly an above-average hunter, or a possessor of knowledge of toolmaking, or where the best sources of foodstuffs are. The frontal lobe “observes” this behavior and reasons “It would really be good if this could go on indefinitely. How can I accomplish that?” Here's where the frontal lobe springs into action planning and assessing how to perpetuate the benefit, and possibly go so far as to reciprocate to convey a sense of equitable return to mutually enhance it.

Which brings us back to consciousness. The Connectome Project will certainly succeed in identifying the structural associations used in thought processes producing a comprehensive map of our neural wiring and helping us to see how different people learn. But it comes up short on how and why this gives rise to “mind”. This is, I believe, what we are really looking for although it is often presented (disguised?) as other closely-related projects. Maybe the big bucks needed for such research couldn't be had for a “philosophical” project, so they call it science instead. For my money, the twin issues of how and why are really at the heart of the matter and what the real search is, or should be,

for. The answers to these questions go directly to what makes us human, so distinct from every other species on our planet.

Science has pursued how and why from the beginning, and certainly with sincerity having sought out fundamental truths not anticipated by even the wildest imaginations. However I hold that science would not be asking these questions at all if they had not first been posed by philosophers beginning some two millennia before Newton. This tells me that in any search for the true nature of the mind and consciousness, one must go back to the originators of adventure in reason and truth – the philosophers and their very special craft.

Tom Medero is originally from Long Island, NY, and has lived in Philadelphia for 20 years now. Tom is graduating this Spring from Community College of Philadelphia and is completing his B.A. at Temple University beginning this fall.

From the author: At this time I would like to express a very special Thank You to Professor Kirsten Quinn of the CCP English Department without whose inspiration, encouragement, and support my writing for this column would not be possible.

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How to Become a Certified Heinz NWR Weed Warrior



The mission of the John Heinz National Wildlife Refuge Weed Warriors is to enrich wildlife habitat within the Refuge by participating in the restoration of native plant communities. Weed Warriors recognize that these native plant communities are vital to supporting a rich and diverse population of native wildlife, including more than 300 species of birds. After taking an online training course and attending an in-house workshop and field training, Weed Warriors remove invasive plant species in plots they have adopted or along refuge trails.

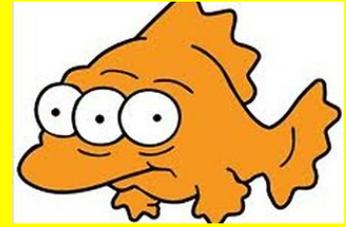
Weed Warrior Volunteer Orientation online training can be found at <http://www.friendsofheinzrefuge.org/weedwarriors/intro.html>.

The in-house workshop and field training take place on the refuge. The next scheduled **Weed Warrior In-House Workshop and Field Training Course** will occur on Saturday, **May 26, 2012** from 9:00 am to 3:00 pm and this training will be offered again on **June 23** and **July 21**.

To register for training, please call the refuge at **215-365-3118**.

The Realities of Mutation

by Paul Schlueter III



One area in which Hollywood's imagination has perhaps twisted public perception the furthest is in depictions of mutants. Very often, mutation is explained on celluloid by the mysterious influences of "radiation." In other cases, the mutation is either caused by magic/alchemy, or it simply occurs as "a freak of Nature."

The first reality of mutation is the simple fact that ALL life on Earth today is mutant. Through the proven science of evolutionary biology, we have come to know (and even partially understand) that modern species have evolved through natural selection between randomly-occurring mutations of predecessor species. Mutations which happened to prove beneficial (primarily to the mating success of those mutants) tend to improve either survivability in the environment or fecundity in reproduction (which essentially average out, over time, to produce the same result).

What CAUSES mutation? There are indeed some environmental conditions which can cause mutation directly or indirectly, but it appears that the primary cause of mutation is the imprecise duplication of DNA (and, as we're now learning, RNA and epigenetic factors) during the normal, sloppy process of living biology. If a minor error is made, your genetic blueprint is slightly altered, and you are different than either one of your parents, or their ancestors. Such imperfect copies, made over millions of generations, accumulate to change the creature into different forms, some of which succeed, and others which don't.

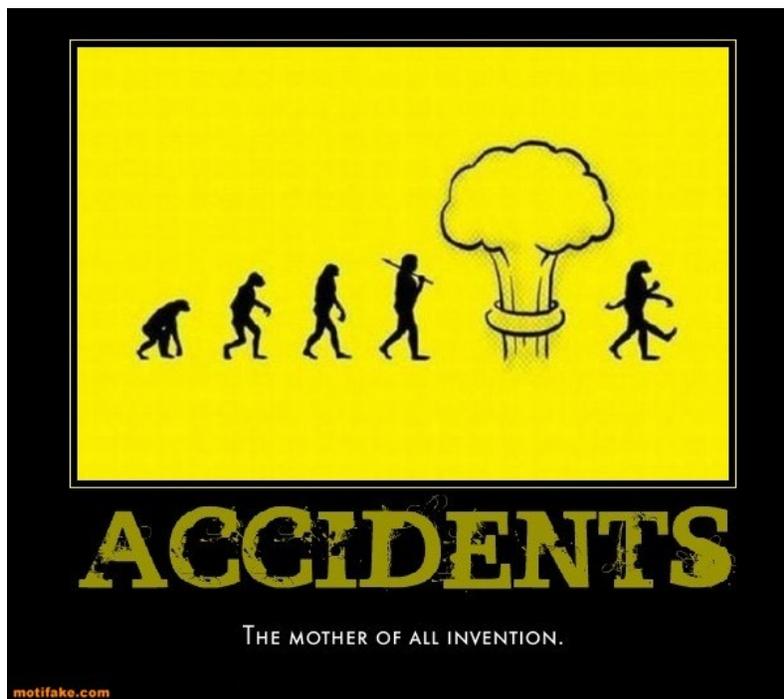
One of the older film concepts of mutation is the idea of radiation causing an organism to become vastly larger in physical size. This has been depicted to occur to people, insects, arachnids, fish, birds, reptiles (and dino-like beasts), and

even bacteria. The goal of such sci-fi movies has generally been to cause audiences fear. Usually, the fear inspired is a fear of the work of scientists, because it is their "irresponsible" curiosity and manipulation of "what God meant to be" which brings terror and destruction on the innocent. Long before film was invented Mary Shelly's story, "Frankenstein," frightened the ignorant with the idea that a

mad doctor could misuse the mysterious, arcane knowledge of medical science to create an inhuman monstrosity (the brutality it later displayed was in fact learned from its treatment at the hands of humanity). Today, the ignorant still mistrust the researches of scientists with trepidation and overactive imagination.

Sometimes, film depicts certain mutants in a positive light. Consider the good superheroes of the "X-Men" films, based on Marvel comic book characters. There, mutants (with no causation offered) represent the next evolution of humanity and in a single generation

creatures unrealistically acquire awesome and terrifying powers. The leader can read minds. One of his favored Lieutenants has almost God-like omnipotence in her manipulation of matter with her thoughts alone. Another has eyes that, if unshielded, EMIT a reddish light of terrifying force. Still another can mentally control the weather. One of the earliest mutants of the group has both rapid regenerative powers and the ability to sprout claws from his hands, BETWEEN his fingers. Some of the children (and thus, we sympathize with and feel hope for them) have abilities such as draining away another lifeform's essence, turning solid matter nonsolid, freezing material objects, controlling the propagation (but not the creation) of fire, and so on. Characters which are presented as adversaries are a leader who can



manipulate metals with his mind, a female who can transform her physical appearance into anything or anyone she wishes to simulate, a man of unstoppable momentum, and a man with great strength and the tongue of a toad. You begin to recognize here not so much a pattern of mutation, but a wild exercise of the imagination in an effort to grant a nearly endless number of people powers and abilities that are wholly unreal and without natural limitation. They are then arrayed in chess-like armies, and set against one another in a strategic contest of mutant strengths. Hopefully, the group of mutants with moral self-control and tolerance for us ordinary folks will prevail, because otherwise, we're in for a shellacking!

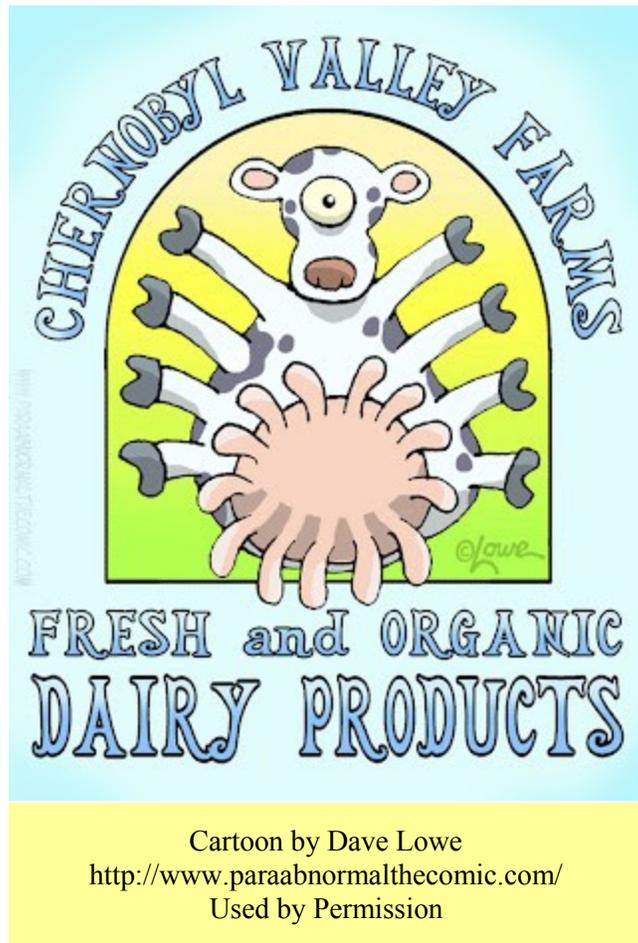
Coming back to reality, the X-Men are impossible creatures, not because such mutations could never develop, but because they are far too complex and unusual to develop QUICKLY (here, in a single generation). First, any natural creature's abilities must be linked to the laws of physics, and to reality-based causation. Telepathy SOUNDS cool, but there is no means in the physical world for one creature to emit mental signals which can be received and read by another at a distance. Eyes RECEIVE light, they don't emit it. Mental control of mass or energy outside the body has no causative pathway, so we can neither control weather, metals, fire or ice, or show any of the other -epathy powers which so fascinate a certain credulous group of people.

One X-man which might very nearly have a chance to occur in the natural world, over a very long period of time, would be the one with regenerative ability. We actually HAVE this power already, so the only mutation required would be one regarding how effectively and how rapidly it occurs. Various organisms, to which we are in fact related by the DNA history of terran life, have the ability to regrow tails, whole working limbs, and even large segments of the body. It is at least conceptually possible to manipulate DNA in such a way as to enhance that ability in species which have essentially lost most of it, through genetic manipulation. First, of course, we must continue to learn more about the genetic code, because we have nothing near the degree of familiarity which would allow us to even identify the relevant genes and their order, let alone transporting them successfully from one organism into a vastly different one.

Some mutations are for more likely than others. For example, we have many residual organs and body parts (potential gills, the appendix, a tail, and big toes which could possibly be returned to "opposed" arrangement). Simple alterations in our current genetic code might be capable of reversing past mutations, thus restoring such commonplace and entirely natural arrangements of body parts. Also, we have yet-uncounted recent mutations which have set us apart from the rest of the natural zoo, and perhaps subtle alterations in those areas of the DNA could enhance the differences which already exist. The key here is to realize that mutations, at least in natural evolution, occur in very small increments, and must be sufficiently adaptive that we can survive and reproduce while possessing them.

Real mutations can also take the form of added, or reduced, susceptibility to environmental pathogens; there are inherited differences in susceptibility to diseases, in lactose tolerance, in propensity to develop diabetes (essentially, carbohydrate intolerance) and high cholesterol (basically, meat intolerance), and in the likelihood of developing breast cancer. Mental disabilities are sometimes shown to have a genetic causative component. There is a gene which, when not present or when disrupted, leaves otherwise normal humans unable to speak. Where these negative mutations lead to disabilities that prevent victims from breeding successfully, the mutation might be selected out of the genome. Where it is instead of a sort that affects later life, or perhaps only manifests itself subtly, we might very easily live long enough to successfully pass the mutation along to future generations.

There is an entire subfield of medical ethics which deals specifically with the potential consequences of making conscious choices for or against reproduction when a person carries a genetic "disorder" of one sort or another. When do we owe our offspring, and even our society, protection against some mutation we carry, and which we might spread throughout the population if we breed? What even constitutes a "genetic disorder?" It might reasonably include a propensity for uncontrollable violent temperament. Would it just as reasonably include a propensity for drug abuse? Might it also include a propensity for tanning deeply with even minimal exposure to sunlight, or simply a naturally darker skin color? Which characteristics shall we attempt to forcibly



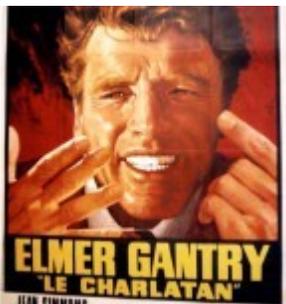
Cartoon by Dave Lowe
<http://www.paraabnormalthecomix.com/>
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"breed out" of the population, much as Jefferson attempted to breed out Native Americans by instituting the reservation system in early U.S. history? We casually breed our dogs, our cats, our horses, and our cattle to achieve breeds with enhanced desirable traits, and subdued undesirable ones; at which point do we determine that we should, or should not, exert similar manipulation over the breeding of one another?

This leads to yet another aspect of mutation; where does a mutation take sufficient form to cause the creation of a new species? With our own heritage, we are still embroiled in debate over whether or not Neanderthals were a distinct species, or simply a regional "race" no more different than Asians are from Caucasians, or from Africans. We can examine three human "races" which arguably have the greatest degree of evolutionary separation (Africans as the source race, Nordics as the furthest-removed Europeans, and South American natives as the furthest-removed Asians), and between them (I should say, "us"), there is less genetic difference than we could find among the chimpanzees on opposite sides of a single African mountain! That we tend to perceive such great cultural difference between such groups should warn us against the results of human perception and prejudice that would occur if some mutation of actual substance should occur, or be invented in a lab!

I have imagined a mutation which carries truly frightening potential. What would happen if some subtle, minimal alteration in our DNA should occur which might give its children an enhanced ability to double-talk, mystify, and persuade other people? What if a "charlatan" gene could be enhanced through careful social self-segregation and inbreeding, creating a race of superior manipulators of the ordinarily-ignorant masses of the rest of humanity? Wouldn't they quickly dominate in politics, and develop a fearsome advantage in manipulating law and



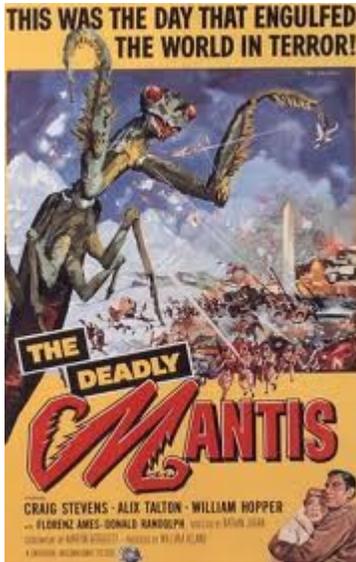
public policy? What if they could influence the rest of us to distrust science even more, and to place even greater faith in religion, superstition, and complementary alternative medicines? Wouldn't the long-term effect of that power serve to breed the rest of us right out of competitive existence, so that those manipulative mutants could take over the world? Now THERE'S a sci-fi horror flick that should grip you deeply with terror, especially if you happen to have a natural inclination to subscribe to conspiracy theories and to the 99% movement!

The reality of mutation is that it has not, so far, become something which human science has learned to manipulate effectively. We have not, in fact, become capable of reliably breeding a super-race from the rest of us mere common folk. Historically, when we've tried our best to control our familial breeding to achieve a "superior" (however you might care to define that) group, we invariably find that Nature confounds our best-laid plans; our kids, our grandkids, and their descendants as well, all seem profoundly bent on interbreeding with people we progenitors would find unacceptable, inappropriate, and insufficient. One nationalist group might well try to exterminate and exile the undesirables within its sphere of influence, and yet its own members will generate sufficient rebels and misfits that the overall superiority plan will falter and break down, if not in the current generation then certainly in one soon to follow. We cannot control our own species' breeding in anything like the way men have been able to control the breeding of small captive groups of our domesticated animal species. Whether you find this reality comforting or disturbing, it remains one of the unavoidable truths of human cultures.

However, that has not stopped us from trying to learn more and more about DNA about the influences of RNA and epigenetic factors, and of the environment with which we surround ourselves. Our learning progresses at the typical exponential pace, yet the more we learn, the more we still find that we have only just begun to scratch the surface of understanding. We like to think that we hold our own futures firmly in our hands, and that we may somehow control our collective fate, but we find that we make very little in measurable forward progress, no matter how hard we try.

As we try to eliminate disease, the organisms and micro-organisms that cause disease mutate and subvert our efforts at every turn. We seek the cure for the common viral cold, and we spend generations in fruitless frustration. We modify and homogenize our worldly environment, polluting it and denuding it as we go, and we cause what is beginning to appear to be the next great episode of extinction in geological history, yet we cannot agree to take such steps as to draw back from fossil fuel gluttony, from runaway overpopulation among our underdeveloped societies, or from transporting invasive, non-native species from one continent to another.

In order to move on to a higher level of human evolution, one that will have a better chance of long-term success than our current generation seems to have, we need one mutation more than any other: we need to develop the ability to over-



come our base impulses by manifestation of will. In short, we need to learn to control ourselves. If we can achieve that, on the level of genetic mutation, then not only will we improve our futures immeasurably, but we will also achieve something which we currently ascribe only to the realm of the supernatural: we will achieve consciously-directed intelligent design of a species! How's THAT for a sci-fi fantasy?

Paul Schlueter III is serving *Life in Prison* in NE Pennsylvania. His supporters have created a website about him. www.jaylbird.org

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Delaware Valley Opera Company Summer Opera Festival 2012

June 16,20 & 23 - Hansel & Gretel

A timeless tale by Engelbert Humperdinck

Two children become lost in a forest and are captured by a witch whose gingerbread house proves too much of a temptation for their hunger. In an explosive climax, and with the help of some magic, parents and children are reunited. Humperdinck's music matches catchy folk-like songs with sumptuous instrumental color. Sung in English

July 14,18 & 21 - La Somnambula

A romantic journey by Vincenzo Bellini

In a small Swiss village, orphan girl Amina's upcoming marriage to her beloved farmer Elvino is celebrated by the entire village. But their love is threatened by her uncontrollable sleepwalking. Bellini's 1831 score is a subtle blend of dazzling vocal fireworks and genuinely touching emotion. Sung in Italian.



August 4,8 & 11 - Rigoletto

A musical powerhouse by Giuseppe Verdi

A disfigured and ridiculed court jester, Rigoletto, aids and abets his master in the seduction of young women. Rigoletto mocks their stricken husbands and fathers - until the tables are horribly turned. Verdi's score remains one of the most popular in all of opera. sung in Italian.

Performances are at the Salvation Army Kroc Center, 4200 Wissahickon Avenue, Philadelphia, PA 19129. All performances are at 8:00 PM. \$15 Senior and Student Members. \$18 Member and Student Non-Members. Non-Members \$20. Handicapped accessible.

Tickets and Information: 215-725-4171 or www.dvopera.org

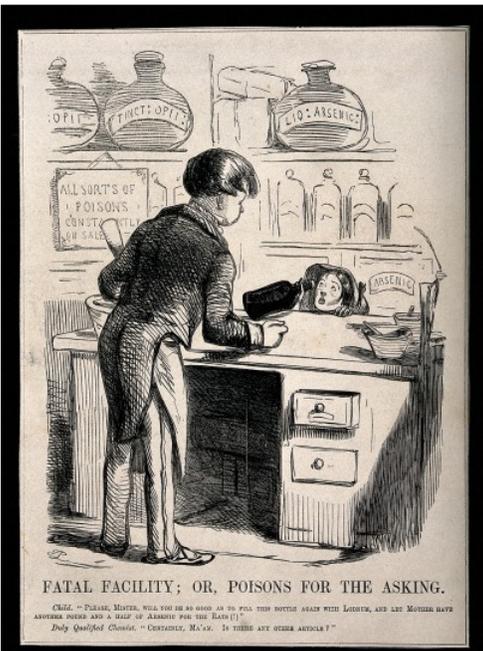


‘Like a half-felled cow’ – a case of arsenic poisoning in Victorian Scotland

by Caroline Rance

When you’re under the weather and you Google your symptoms in an attempt to convince yourself that you are about to die, spare a thought for Jean Landess, whose perusal of Chambers’s Encyclopaedia was the beginning of a tragic chain of events.

In May 1868, 39-year-old Mrs Landess, of Paisley, had just weaned her youngest child and had developed what she called a ‘weed’ in her breast. She sought medical help, and the family doctor poulticed and lanced two small abscesses.



Wellcome Images

A John Leech cartoon commenting on the ready availability of poisons - an unscrupulous chemist sells arsenic and laudanum to a child. Credit: Wellcome Images

Mrs Landess, however, discovered from the Encyclopaedia that her symptoms were almost exactly like those of breast cancer. On the recommendation of an acquaintance who had apparently been cured, she decided to consult an unlicensed practitioner by the name of Paterson. This might seem like a naïve or even downright stupid decision, but I think it’s understandable. She had recently undergone a painful invasive procedure, she was in the midst of the hormonal upheaval of stopping breast-feeding, and now feared that a terminal disease was going to deprive her 8 children of their mother. The recommended cancer-healer must have seemed a potential life-saver. Unfortunately, he proved quite the opposite.

Alexander Paterson was a shoemaker with a sideline in treating cancer patients. He made no claims to being a doctor and does not appear to have been out to swindle anyone. He was no less dangerous, however, for being well-intentioned.

Paterson told Mrs Landess that she did have cancer, but not to worry – it could easily be removed. The first stage of the treatment was a fly-blister (a plaster of cantharides) that would take off the surface of the skin, leaving it ready to absorb his cancer-curing salve. After the plaster had been on for about 12 hours, he applied the ointment and instructed the patient to renew it every day.

By Paterson’s next visit, most of the tissue had turned black, but he saw this as a good thing and reassured Mrs Landess that the treatment was going well. She, however, was suffering from headaches, vomiting and great thirst, and the inflammation of the breast began to spread into her arm. Two days later, she had a fit. Her husband described her appearance as:

...being like a ‘half-felled cow’. Foam issued from her mouth, and she roared most unnaturally.

That evening, she died.

Douglas Maclagan, Professor of Medical Jurisprudence at Edinburgh University, carried out a post-mortem examination and confirmed that Mrs Landess had never had breast cancer. There were traces of arsenic in her organs, and when he analysed Paterson’s salve he discovered that it was 49% arsenic and 51% lard.

Arsenic salves were a long-established quack treatment for cancer, and local unqualified healers like Paterson were not unusual – though perhaps less common by the 1860s than they had been in the 18th and early 19th centuries. When Paterson was brought to trial charged with culpable homicide, the question was not whether he should have been practising as a healer in the first place, but whether he had been negligent when administering a dangerous medicine.

Paterson's defence was that he had 20 years' experience of treating cancer and that when Mrs Landess asked him for help, she knew very well that he was an unlicensed practitioner. Several witnesses came forward to say that he had cured them.

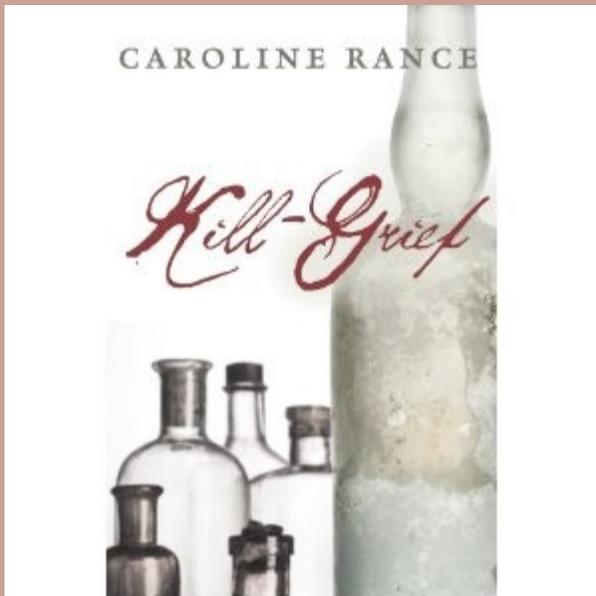
The judge, Lord Ardmillan, must have been in a particularly good mood that day. In summing up, he advised the jury not be too swayed by the fact that Paterson was unqualified, but to take into account his experience, the apparent cures of the witnesses, and the fact that any medical man could muck up sometimes.

'A mere mistake,' he said, *'did not imply culpability.'*

The jury found Paterson guilty. Lord Ardmillan, however, told him that *'no one could suppose he meant any harm to the unfortunate woman Landess'* and sent him to prison for just four months.

Caroline Rance is a writer of historical fiction. Her first novel, *Kill-Grief*, set in a 1750s hospital, is available from Amazon.com. Caroline, although not a health professional, has a keen interest in the history of medicine and as a hobby runs an internet blog called thequackdoctor.com. She is a MA student studying Medicine, Science and Society at Birkbeck, University of London, and is writing a book based on The Quack Doctor blog for publication by The History Press (UK) in 2013.

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Kill-Grief

A historical novel by Caroline Rance

Paperback: 400 pages

Publisher: Picnic Publishing Ltd (16 April 2009)

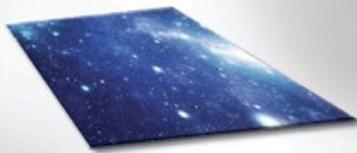
ISBN-10: 0955861349 ISBN-13: 978-0955861345

Available at Amazon.com as a paperback or on Kindle

This is a debut novel by Caroline Rance inspired by her research into eighteenth century medicine while reading English and History at Keele university. Chester 1756: Mary Helsall starts a job as a nurse entering a world of stench and sickness where her caring duties are at odds with her impatient nature. She seeks solace in gin and a volatile relationship with hospital porter Anthony. But when a diseased beggar arrives for treatment, it becomes clear that he knows Mary has a lot to hide. From the

bleak Wirral shore, to the screams of the operating theatre, and from a backstreet gin shop to the dungeons of the gaol, Mary searches for the hope of an independent future. First, though, she must fight the attraction of oblivion and make a choice between duty, money and a love overshadowed by addiction. An historical novel full of alcohol, gruesome diseases, surgery, smuggling, prison dungeons and general grimness. Florence Nightingale it ain't!! This, in a way, is one of its strengths i.e. it portrays nurses as individual women rather than caricatures. It will appeal to book groups as there are plenty of issues for discussion. Its topical theme of women and alcohol links the 18th century with today.

EDGE of the UNIVERSE



A VOYAGE TO THE
COSMIC HORIZON AND BEYOND

PAUL HALPERN

Edge of the Universe A Voyage to the Cosmic Horizon and Beyond

By Paul Halpern

Publisher: Wiley; 1 edition (September 25, 2012) Hardcover: 240 pages

ISBN-10: 0470636246 ISBN-13: 978-0470636244

Cosmology, the science of the universe, is undergoing a startling revolution! Colossal flows of galaxies, large empty regions called voids, and other unexplained phenomena offer clues that our own "bubble universe" could be part of a greater realm called the multiverse.

How big is the observable universe? What it is made of? What lies beyond it? Was there a time before the Big Bang? Could space have unseen dimensions? What exactly is the "axis of evil?" And what are the mysterious cosmic dragons that lurk in the gamma ray fog?

Edge of the Universe investigates these fascinating questions and more, offering the

background behind humanity's search for the frontiers of the universe!

Denying Science: Conspiracy Theories, Media Distortions, and the War Against Reality

By John Grant

Prometheus Books (August 2011) Hardcover: 374 pages \$25.00 retail

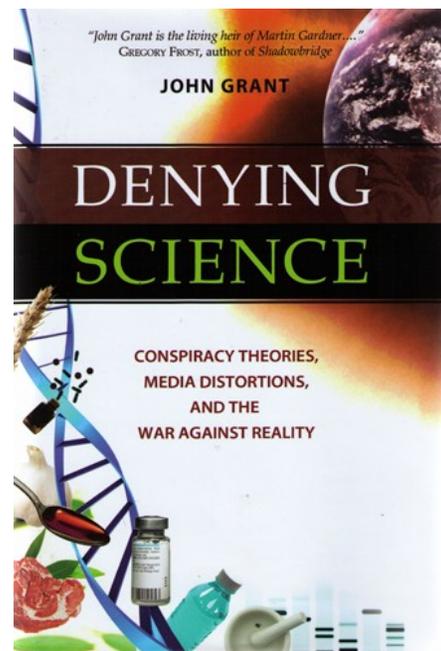
ISBN-10: 1616143991 ISBN-13: 978-1616143992

Our culture has in recent decades been characterized by a widespread antagonism toward science and the not-always-welcome messages it brings. Large sections of our population deny scientific evidence and even call into question the competence of science as a descriptor of reality. In short, as John Grant forcefully points out in this important book, they reject reality.

- Is global warming just scaremongering by climatologists conspiring to protect their jobs?
- Is evolution "just a theory"?
- Do vaccinations cause autism?
- Can vitamin supplements cure AIDS?

The answer to all of these questions is, of course, no. The scientific evidence is now in, and it's conclusive, on these and many further issues that are fundamental to our knowledge and well-being – even our survival. Yet the popular media are full of stories claiming there's still "debate" or "controversy" on these matters – despite the fact that, among the relevant scientists themselves, all debates and controversies about the central conclusions were settled long ago.

What motivates people to deny science? In some cases the answer is ignorance and lack of the ability to think critically: scientific answers can be complicated and nuanced and require some education to understand, while the answers of gurus and quacks seem simpler . . . and thus, to use Stephen Colbert's term, more "truthy." Far more sinister are the active campaigns mounted, through "think tanks" and fake grassroots organizations, by ideological and commercial entities in a deliberate and often far too successful attempt to deceive the public – from fundamentalists promoting Intelligent Design Creationism to the tobacco giants muddling the science on the health effects of smoking to the fossil-fuel corporations claiming climate change is a hoax. Grant surveys these and a gamut of other denials of established science raised by various panics, urban legends and deliberate distortions amid a general climate of misinformation.



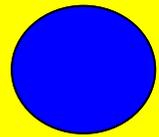
PHACT CALENDAR

PhACT Events

Dr. David Cattell, Chairman of the Physics Department of Community College of Philadelphia hosts meetings of **PhACT** - at 2:00 PM on the third Saturday of most months at Community College of Philadelphia.., Parking is easily available and costs \$4.00 for all day. Enter the college parking lot on 17th Street which is one way south bound. This meeting site is handicap accessible. **PhACT Meetings are Free and open to the public unless otherwise noted.**



Saturday, May 19, 2012 - PhACT Scientific Expedition to the Blue Hole - PhACT will engage in a totally serious expedition to the New Jersey Pine Barrens to scientifically explore the Blue Hole, learn some local history, and while we are at it we'll capture the Jersey Devil.
See [Page 1](#) for more details.



Saturday, July 7, 2012 - PhACT Picnic—more details on [Page 3](#)

Saturday, September 15, 2012 - Physicist Paul Halpern will discuss his new book “**Edge of the Universe: A Voyage to the Cosmic Horizon and Beyond**”. See [Page 3](#) for more details.

Saturday, October 20, 2012 - The Pseudoscience Wars: Immanuel Velikovsky and the Birth of the Modern Fringe. Princeton Professor Michael Gordin will speak.

Saturday, November 17, 2012 - Writer Ken Silber will speak on "**Politics vs Science**". More details to come later. Please visit his web site at <http://www.advisorone.com/author/kenneth-silber>

Saturday, January 19, 2013 - TBA

Saturday, February 16, 2013 - John Ruscio will talk on fallacies and new technology related to lie detector tests.

The **PhACT Calendar** is open to members and non-members who wish to announce meetings and events of other groups of which they are interested or affiliated. These events should be of some general interest to the Skeptical or Scientific community and should be within a reasonable radius of Philadelphia. Send submissions to the editor at phactpublicity@aol.com. Keep the announcements brief. Space is limited and insertions will be made on a first come-first served basis after the needs of PhACT are accomplished. Phactum does not accept paid advertising.



The Philadelphia Area Center for the History of Science (PACHS) maintains a calendar of events about the history of science, technology and medicine that may contain some interesting events not listed in the Phactum Calendar. Check out their website at:

<http://www.pachs.net/events>

Wednesday, May 9, 2012 at 7:30 PM at Frankford Hall, 1210 Frankford Avenue.

Philadelphia Nerd Nite

Good food, good beer, science lectures, and plenty of fellow Nerds.

<http://philadelphia.nerdnite.com/updates/>

Monday, May 14, 2012 at 6:00 PM - Science on Tap takes place at 6pm on the second Monday of every month at National Mechanics, 22 South Third St., Philadelphia 19106

Science on Tap is a monthly gathering that features a brief, informal presentation by a scientist or other expert followed by lively conversation.

<http://scienceontapphilly.com/>

This science café is FREE, open to the public.

Come for dinner and conversation.

Ages 21+ or accompanied by a chaperone 25 years or older

Tuesday, May 15, 2012 at 10:00am at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery>

Lotta Talking, Little Walking: Explorations of Old Laurel Hill

Laurel Hill Cemetery is 78 acres of hilly, meandering, often uneven terrain. Tackling a decent portion of its landscape in the standard hike or walking tour is often not for the weak of body or youngsters faint of heart. Walking will be sacrificed to the pleasures of talking in this tour of Laurel Hill's most historic stones and stories in the North section of the site, just beyond its majestic Gatehouse entrance. Indulge your minds while giving your feet a break! This walking tour will be led by military historian and administrator of Findagrave.com, Russ Dodge. It will conclude with cookies and refreshments. In observance of National Older Americans Month, seniors 65 years and older with ID receive FREE admission.

\$12/person general admission

Tickets can be purchased at the door, or in advance online, or by calling 215.228.8200.

Wednesday, May 16, 2012 at 12:00n - 1:00PM at College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia, PA 19103, (215) 563-3737 x304

http://www.collphyphil.org/prog_calendar.htm

Food & Thought: "Snakes, Sex, Sushi, Saunas, and Spinach"

Speaker: Bennett Lorber, MD, FCPP, MACP, Thomas M. Durant Professor of Medicine and Professor of Microbiology and Immunology at the Temple University School of Medicine; Chairman of the Board, The College of Physicians of Philadelphia

Although we don't often think about it, changes in society can have

SOCRATES CAFE is moderated by: Lewis Mifsud, Ph.D., P.E., a member of PhACT and of The American Academy of Forensic Sciences. At 7:00 PM every Monday evening except holidays (on Tuesdays after a Monday holiday) at the Springfield Township Public Library (215-836-5300) at 1600 Papermill Mill Road, Wyndmoor, PA. 19038. This philosophical discussions group is free and open to the public. Join us and share your critical thinking, questions and opinions.



profound impacts on patterns of disease. In fact, our seemingly ordinary life choices can have harmful and lasting effects on the health of our communities. In this colorful, story-filled talk, Dr. Lorber uses real-life examples to show how travel, dietary patterns, use of leisure time, sexual behavior, medical progress, alternative medicine, the weather, and even politics can change patterns of infectious diseases.

Fee for lunch. To register: <http://lorber.eventbrite.com/>

Thursday May 17, 2012 at 6:00-8:30 PM at The Academy of Natural Sciences, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103

www.ansp.org/environmental/

The Next Generation of Urban Manufacturing in Philadelphia

Can Philadelphia's sustainability movement support policies and initiatives to strengthen urban manufacturing? Find out at this Urban Sustainability Forum.

Networking Reception: 6:00-6:30 pm

Program: 6:30-8:30 pm

Urban sustainability requires a strong economy, and manufacturing is a crucial component of Philadelphia's economy. Urban manufacturing is surprisingly strong, green, and competitive as it adapts to worldwide economic change. This Urban Sustainability Forum will describe the strengths and challenges of manufacturing in Philadelphia.

Panelists:

- Shawn Garvin, Regional Administrator, EPA Region 3

Garvin will provide introductions and discuss the EPA's role in supporting urban manufacturing.

- Adam Friedman, Director, Pratt Center for Community Development.

Friedman will present a national perspective on the role of manufacturing in cities and suggest what government and citizens can do to support it.

- Steve Jurash, President & CEO, Manufacturing Alliance of Philadelphia

Jurash will offer insight gained during years of working to support Philadelphia manufacturers.

- Evan Malone, NextFab Studio

Malone will ask how high-tech innovations transition to production and jobs.

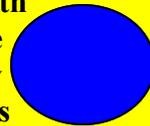
Organized by EPA Region 3, Pollution Prevention Program, in collaboration with the Center for Environmental Policy at the Academy of Natural Sciences of Drexel University

Open to the General Public. Admission \$5.00

Register: urbanmanufacturing-eorg.eventbrite.com/

PhACT Event

Saturday, May 19, 2012 - Join with PhACT for an expedition to the Pine Barrens of New Jersey to scientifically evaluate the "Blue Hole" and perhaps sight the Jersey Devil!!



See [Pages 1 & 2](#) for more details

Saturday, May 19, 2012 at 10:00am at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery>

Tangling Amid Tombstones: A Zentangle Art Workshop

Create art in an artfully beautiful place! Daytime has you running from one task to another; nighttime sees you planning for tomorrow! The week goes by in a flash and the weekend, even faster. Need a little break? Try Zentangle. Zentangle is an engaging new art form that easy to learn and fascinating to do. We'll draw inspiration from the patterns and designs of some of the loveliest sculpture in all of Philadelphia. The best part? It's impossible to make mistakes... And, refreshments are included. This workshop will be led by certified Zentangle artist and instructor, Terri

Greenberg.

\$45/person general admission

Advance registration is required. For more information about the class, or to register, go to <http://teezeetee.blogspot.com> and click on class schedules, or email teezeetee@comcast.net.

Saturday, May 19, 2012 at 3:00 PM & 6:00 PM - Historic Germantown, Ghosts of the Great Road



Follow your period dressed guide through Germantown to hear of the strange and unexplained tales of events that took place...and still take place... along the Great Road. Join us at 3 PM for the Market Square Tour, beginning at 5501 Germantown Avenue, which explores the neighborhood around Market Square and ends inside a real haunted house – Grumblethorpe! Or choose to explore the Colonial Compound at 6 PM, beginning at Upsala Mansion at 6430 Germantown Avenue. This tour explores the area surrounding Cliveden and ends inside the ghostly Chew House. For more information visit www.ghostsofthegreatroad.com. Cost: \$10

Sunday May 20, 2012 at 10:00 AM

Gravesite placement of veterans' flags at Laurel Hill Cemetery
Meet at the gatehouse of Laurel Hill Cemetery, 3822 Ridge Avenue, in Philadelphia {215-228-8200} at 10:00 AM. The group assembled will place US flags on the graves of veterans' of all wars. As time and manpower permit, the cemeteries to be covered include Laurel Hill, Mt. Moriah, Mt. Peace & St. James the Less. Refreshments and lunch provided. All welcome!

Sunday, May 27, 2012. Annual Memorial Day Observed at Historic Laurel Hill Cemetery, Philadelphia, PA.

Recreating Original G.A.R. Decoration Day Service of 1868:

The traditional Decoration Day service of the Grand Army Meade Post #1 will be recreated at Historic Laurel Hill Cemetery, 3822 Ridge Ave. Philadelphia on Sunday, May 27, 2012 at 12 noon. All are welcome to attend and participate in the ceremony.

Laurel Hill is the site of the first Memorial Day Observance in Philadelphia on this date in 1868.

Special bronze veterans' markers will be dedicated at the graves of veterans. Speakers, ceremonies and pageant will highlight this special ceremony. Afterwards the entourage will gather at the grave of General Meade, hero of Gettysburg to perform the traditional service to honor all veterans who fell defending the Nation. Wreath-laying, speeches, music and honor guards will enhance the ceremony.

Historical groups, veterans, and citizens are urged to participate. Wreaths, military contingents, color guards, music and period civilians are encouraged to participate.

Refreshments served after the ceremony. Tours of the historic cemetery available.

Co-sponsored by the General Meade Society of Philadelphia; Friends of Laurel Hill; American Legion Post #405; Post #1 Society, Union League; Anna M. Ross Camp #1, Sons of Union Veterans. For information, call: 215-228-8200

Wednesday, May 23, 2012 at 5:30 PM at the Wagner Free Institute of Science, 1700 West Montgomery Avenue, Philadelphia, PA 19121
ph 215-763-6529 www.wagnerfreeinstitute.org

Electrifying Philadelphia: Pageantry, Progress, and Power in the City Beautiful

An Illustrated Presentation by Dr. Aaron Wunsch, University of Pennsylvania

Home to Ben Franklin and the site of an innovative Edison plant, Philadelphia has long been in love with electricity. This talk will provide an overview of the city's electrification - its advent, advertising, and spread to institutions like the Wagner in the late nineteenth and early twentieth centuries. Looking at City Hall, the Sesquicentennial, and promotional "home electrics," Aaron Wunsch will examine a moment in history that

owes as much to Barnum as it does to Franklin.

Dr. Aaron Wunsch is a Lecturer in Penn's Graduate Program in Historic Preservation. He holds a doctorate in Architectural History from the University of California, Berkeley. His research focuses on nineteenth-century American architecture and urbanism. His master's thesis focused on the architecture of the American electric power industry and he continued that work as part of a study of the Philadelphia Electric Company (PECO) for the Historic American Buildings Survey.

Free and Open to the Public

Wednesday, May 23, 2012 at 7:15 p.m. at Bringham's Irish Pub and Restaurant, 640 East Germantown Pike, Lafayette Hill, Pennsylvania. (610)828-7351.

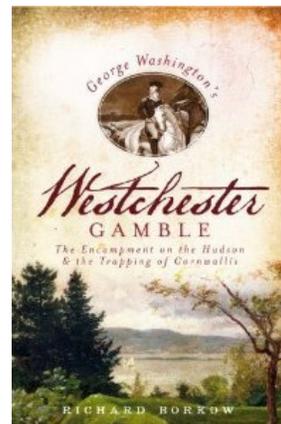
American Revolution Round Table of Philadelphia (ARRTOP)

<http://www.arrtop.com/>

Richard Borkow will speak on his book **George Washington's Westchester Gamble: The Encampment on the Hudson and the Trapping of Cornwallis**

A group of members and most of the ARRTOP Advisory Board will meet for dinner at 5:30 p.m. at Brittingham's and we share dinner with our guest speaker and you are cordially invited.

Meetings are free and open to the public.



Wednesday, May 23, 2012 at 6:00 p.m. at the Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106

Tel: 215-925-2222 • <http://www.chemheritage.org>

Fellow in Focus: "Beyond Genius, Before Theory: Recovering the Lost World of Practice in 19th-Century Chemistry"

We have often been told that chemistry was built on theory by genius. But what did 19th-century chemists know? What could they do, and how could they do it? Jackson's talk outlines an entirely new account of the development of organic chemistry. This history recovers a lost world of chemists in laboratories filled with glassware—a world of purification, characterization, and standardization; of reliable reactions and inescapable risks; of textbooks and manuals of practice; of training and labor. By about 1900, synthetic chemists had acquired a remarkable mastery over nature, but their achievements were not driven by theory. Organic synthesis—this vast, uniquely creative practice—was essential to stabilizing productive theories of structure and reactivity. Chemists achieve great things, but they do so for reasons beyond genius, using methods before theory.

About the speaker

Catherine Jackson is the 2011–12 Gordon Cain Fellow at the Chemical Heritage Foundation, where she is working to complete the manuscript of her academic monograph *Material World: Analysis, Synthesis, and the Making of Modern Chemistry*, a new history of the origins and development of synthetic organic chemistry.

Jackson began her working life as a research chemist before becoming a project manager in the petroleum industry and later teaching chemistry and history of chemistry at University College London. She is a member of the Royal Society of Chemistry and has been honored with a Chartered Chemist award. She has been a visiting scholar at the Max Planck Institute for the History of Science in Berlin and holds honorary appointments in the Department of Science and Technology Studies at University College London and in the Centre for the History of Science, Technology and Medicine at Imperial College London.

Jackson has published on the history of chemistry in leading European journals, including *Notes and Records of the Royal Society*, and is coeditor, with Hasok Chang, of *An Element of Controversy: The Life of Chlorine in Science, Medicine, Technology and War* (British Society for the History of Science, 2007).

Jackson holds Ph.D.s in both organic chemistry (University of Cambridge, 1989) and history of chemistry (University of London, 2009). This event is Free and open to the Public.

Friday, May 25, 2012 at 10:00am at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery>

Laurel Hill: The Hot Spots and Storied Plots

Join us for this informative overview of Laurel Hill's long and colorful history, which will include many of the marble masterpieces, stunning views and legendary stories that afford the cemetery its WOW factor. This is the ultimate tour for first-time visitors to Laurel Hill, and anyone else who likes beautiful art, stimulating history, and just enjoying life...even amongst the dead. The walking tour will be led by Dr. Michael Brooks, author of John Ruskin and Victorian Architecture, and Subway City. NEW Hot Spots and Storied Plots will be presented monthly as part of Laurel Hill Cemetery's Fourth Friday tour series, which take place on the fourth Friday of every month at 10:00am.

\$8/general admission; \$5/members

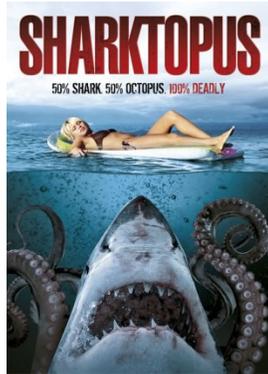
Tickets can be purchased at the door, or in advance online, or by calling 215.228.8200.

Saturday, May 26, 2012 at 9:00 AM to 3:00 PM at the John Heintz National Wildlife Refuge located near Philadelphia International Airport. **Weed Warrior Training Program.** Learn about invasive species of plants and be part of a volunteer program to clear this NWR of those plants. <http://www.friendsofheinzrefuge.org/weedwarriors/intro.html>. The refuge may be called at: 215-365-3118

Thursday, May 31, 2012 from 6:30 PM to 10:00 PM at The Academy of Natural Sciences, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103.

Mega Bad Movie Night!!

Join us at the Academy after hours to watch this "awesomely awful" movie! The Academy's own experts will be on stage to comment on the many scientific absurdities--think Mystery Science Theater 3000! Sharktopus! Reception: 6:30* - 8pm *NEW earlier time! Grab some snacks and a beer, and then check out the many cool things on display at the Academy. We'll have some amazing shark and octopi specimens from our Ichthyology and Malacology collections. Tickets are \$15 and should be reserved in advance.



For more information see www.ansp.org/environmental/

June 1, 2012 - June 10, 2012 - Special Event at the American Philosophical Society

Sic Transit Glorious: A Transit of Venus Celebration

American Philosophical Society, Independence National Historical Park
The Transit of Venus is both an astronomical phenomenon and a landmark in the history of American science.

The American Philosophical Society, in collaboration with Independence National Historical Park will be putting on a number of events both celebrating the historical scientific importance of the Transit of Venus as well as viewing the actual transit on June 5th.

Friday, June 1, 2012 at 6:00 to 8:00 PM at the American Philosophical Society Benjamin Franklin Hall, 427 Chestnut St., Philadelphia, PA 19106

Chasing Venus: The Race to Measure the Heavens

Author Andrea Wulf will present an illustrated lecture based on her forthcoming book on the history of the Transit of Venus. Her preceding book was *Founding Gardeners: The Revolutionary Generation, Nature, and the Shaping of the American Nation*, published in spring 2011.

RSVP for lecture to rsvpmuseum@amphilsoc.org.

Saturday, June 2, 2012 at 8:00pm at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery>

The Bailey Hounds:

BYOB Concert in the Cemetery

The Bailey Hounds are a Philadelphia-based band that fall somewhere in the musical realm of Gothic Americana, playing folk and blues inspired songs with lyrics of a melancholy and sometimes macabre nature. Join us for this summer concert under the stars at Laurel Hill, where The Bailey Hounds will be playing an intriguing set of music on the cemetery grounds for your listening and viewing pleasure. Bring your own blankets or beach chairs, snacks if you wish, and don't forget to also BYOB! To learn more about The Bailey Hounds, or to listen to their music, visit www.thebaileyhounds.com.

The cost is \$10/person general admission. Advance registration is recommended, and can be made by calling 215.228.8200. Tickets can be purchased at the door, or online. In the case of inclement weather, all tickets are transferable to our rain date of Saturday, June 9, 8:00pm.

Wednesday, June 6, 2012 at 6:00 PM at University of Pennsylvania Museum, 3260 South Street, Philadelphia, PA 19104

Great Riddles in Archaeology Lecture

The Maya and 2012: Fact, Fantasy, and Phenomenon

In recent years there has been a gathering storm of publicity surrounding an "end of time" arriving in December 2012, based on the nearing conclusion of a Maya calendar. What did the ancient Maya really believe would take place? Dr. Simon Martin, Research Specialist, Penn Museum, helps to form a more accurate picture of ancient Maya beliefs.

Admission: \$10 at the door; \$5 with advance registration; free for Penn Museum members with advance registration.

<http://www.penn.museum/events-calendar>

Monday, June 11, 2012 at 6:00 PM - Science on Tap takes place at 6pm on the second Monday of every month at National Mechanics, 22 South Third St., Philadelphia 19106

"Do-It-Yourself Evolution: A Historian's Guide to Amateur Plant Breeding"

Helen Anne Curry, Mellon/ACLS Dissertation Completion Fellow, Chemical Heritage Foundation; Graduate Program in History, Yale University

You might not think of gardening as science. But home gardeners have long been enthusiasts for experimentation of all kinds, and gardens have often doubled as experimental laboratories. This talk will describe the efforts of amateur gardeners to create their own new varieties of flowers, fruits, and vegetables throughout the twentieth century—using techniques taken straight from the latest in genetics research. These include everything from straightforward techniques such as selection and hybridization to more unusual approaches such as x-raying seeds, spraying shoots with toxic chemicals, and exposing flower buds to radioisotopes. You might even get inspired to try your own hand at evolution!

Science on Tap is a monthly gathering that features a brief, informal presentation by a scientist or other expert followed by lively conversation.

<http://scienceontapphilly.com/>

This science café is FREE, open to the public.

Come for dinner and conversation.

Ages 21+ or accompanied by a chaperone 25 years or older

This month's Science on Tap is presented by the Chemical Heritage Foundation.



Wednesday, June 13, 2012 at 7:30 PM at Frankford Hall, 1210 Frankford Avenue.

Philadelphia Nerd Nite

Good food, good beer, science lectures, and plenty of fellow Nerds.

<http://philadelphia.nerdnite.com/updates/>

Wednesday, June 13, 2012 at 7:15 PM at the Franklin Institute.
Rittenhouse Astronomical Society meeting. Free.
See website: <http://www.rittenhouseastronomicalsociety.org/>

June 16, 20, & 23, 2012 at 8:00 PM. Delaware Valley Opera Company performance of Englebert Humperdinck's masterpiece, **Hansel and Gretel**. See Page 14 for more details.

Wednesday, June 27, 2012 at 7:15 p.m. at Brittingham's Irish Pub and Restaurant, 640 East Germantown Pike, Lafayette Hill, Pennsylvania. (610)828-7351.

American Revolution Round Table of Philadelphia (ARRTOP)

<http://www.arrtop.com/>

Christian McBurney will speak on his book The Rhode Island Campaign.

A group of members and most of the ARRTOP Advisory Board will meet for dinner at 5:30 p.m. at Brittingham's and we share dinner with our guest speaker and you are cordially invited.

Meetings are free and open to the public.

Friday, June 22, 2012 at 10:00am at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery>

Laurel Hill: The Hot Spots and Storied Plots

Join us for this informative overview of Laurel Hill's long and colorful history, which will include many of the marble masterpieces, stunning views and legendary stories that afford the cemetery its WOW factor. This is the ultimate tour for first-time visitors to Laurel Hill, and anyone else who likes beautiful art, stimulating history, and just enjoying life...even amongst the dead. This walking tour will be led by Laurel Hill Cemetery guide, Jeff Wiernik. NEW Hot Spots and Storied Plots will be presented monthly as part of Laurel Hill Cemetery's Fourth Friday tour series, which take place on the fourth Friday of every month at 10:00am.

\$8/person; \$5/members

Tickets can be purchased at the door, or in advance online, or by calling 215.228.8200.

Sunday, June 24, 2012 at 1:00pm at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery>

Philadelphia's Fearless Architect 100 Years Later: Remembering Frank Furness

Though many of his significant architectural masterpieces were demolished in the 20th century when his bold style fell out of fashion, Frank Furness has gained renewed interest and appreciation in recent decades. Prolific in his day, Furness designed more than 600 buildings; the Pennsylvania Academy of Fine Arts, the First Unitarian Church of Philadelphia, and the Girard Trust Company Building are among those surviving. Furness put his architectural career on hold when the Civil War broke out; his heroism in battle earned him the Medal of Honor. Upon his passing on June 27, 1912, Furness was buried with his family at Laurel Hill Cemetery. As part of citywide commemorations throughout the city in 2012 to mark the 100th anniversary of his passing, Laurel Hill will be offering a retrospective tour on his life and work. Also included will be other members of the Furness family who played important roles in Philadelphia's cultural life throughout the 19th century, such as divisive abolitionist family patriarch William Henry, and renowned Shakespearean scholar Horace. The program will culminate with a brief ceremony at the Furness graveside, followed by refreshments. This walking tour and program will be led by Dr. Michael Brooks, author of *John Ruskin and Victorian Architecture and Subway City*. It will conclude with a toast to Frank Furness, accompanied by refreshments.

While admission to the program is FREE, advance registration is requested. RSVP by calling 215.228.8200 or emailing tours@thelaurelhillemetery.

Thursday, June 28, 2012 at 6:00pm at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery>

Coming to America: The Story of Laurel Hill's Immigrants Beyond the Golden Door

America has always been a land of immigrants... So, too, is her first National Historic Landmark Cemetery. Laurel Hill's original Superintendent, Thomas Drinnan – the person to first break cemetery ground – was himself an Irish immigrant. Many of the illustrious Philadelphians who would later make Laurel Hill their final place of rest were not native to the city. Henry Disston, whose name graces the largest of the cemetery's mausolea, immigrated while still an impoverished child from England before building his Saw Works fortune. Over the past 175 years, Laurel Hill has come to bear the remains of men and women from races, creeds and countries around the world, with some of our most recent burials including immigrants from Asia, Eastern Europe and the Middle East. Laurel Hill's founding mission as a nonsectarian retreat of peace and splendor echoes the American promise of opportunity and equality that continues to beckon immigrants to our shores. As we prepare to celebrate Independence Day, we honor those individuals whose life stories reflect that promise – proud of their native lands, but choosing American soil as their final homes. This walking tour will be led by history buff, financial advisor and young Armenian-American, Paul Sookiasian. It will conclude with 4th of July refreshments, beer and hot dog roasting. \$20/person; \$18/seniors + students; \$17/members. Advance registration is requested. Tickets can be purchased at the door, or in advance online, or by calling 215.228.8200.

PhACT Event

Saturday, July 7, 2012

Annual PhACT Picnic.

See [Page 3](#) for more details



Monday, July 9, 2012 at 6:00 PM - Science on Tap takes place at 6pm on the second Monday of every month at National Mechanics, 22 South Third St., Philadelphia 19106

"Flash! A Quick History of Photography in Motion"

Jane E. Boyd, Independent Curator

Ever wanted to stop time? For centuries, artists, scientists, and dreamers have tried to seize the fleeting moment, to picture phenomena that occur too fast for the human eye and brain to perceive. When photography arrived on the scene in the 1830s, it amazed people with its ability to render a scene in meticulous detail. Though the first photographic processes were slow, ingenious photographers were soon capturing events never before recorded: a horse's gallop, a bullet's path through the air, a wave crashing on the shore, a meteor's track across the night sky, and much more. Join us for a swift flight through the remarkable story of photography in motion, from its earliest days to today's advanced digital techniques.

Art historian Jane E. Boyd, Ph.D., is an independent curator and freelance writer, editor, and translator in Philadelphia. She specializes in the history and visual culture of science, technology, and medicine. Dr. Boyd has worked on projects for all five of the Science on Tap sponsoring institutions. Visit her website at www.jane-e-boyd.com for more information and links.

Science on Tap is a monthly gathering that features a brief, informal presentation by a scientist or other expert followed by lively conversation.

<http://scienceontapphilly.com/>

This science café is FREE, open to the public.

Come for dinner and conversation.

Ages 21+ or accompanied by a chaperone 25 years or older

This month's Science on Tap is presented by the APS Museum

Wednesday, July 11, 2012 at 7:30 PM at Frankford Hall, 1210 Frankford Avenue.

Philadelphia Nerd Nite

Good food, good beer, science lectures, and plenty of fellow Nerds.

<http://philadelphia.nerdnite.com/updates/>

Friday, July 13, 2012 at 9:00pm at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurehillcemetery>

Cinema at the Cemetery

The Secret Cinema project began in 1992 when film collector, Jay Schwartz, realized the need to expose new audiences to neglected films of all kinds. Since then, The Secret Cinema has shown films in dozens of locations around Philadelphia, ranging from private living rooms to 1000-seat capacity 19th century burlesque theaters. This summer, the grainy joys of the film experience will be brought to audiences at everyone's favorite neighborhood cemetery. Join us on the evening of Friday the 13th at Laurel Hill for this summer screening under the stars. Films to be shown will be announced in the near future, but are certain to be rare, celluloid treasures replete with lasting impressions and campy content for conversation. Bring your own blankets or beach chairs, snacks if you wish, and don't forget to also BYOB! To learn more about The Secret Cinema, visit www.theseccinema.com.

The cost is \$10/person general admission. Advance registration is recommended, and can be made by calling 215.228.8200. Tickets can be purchased at the door, or online. In the case of inclement weather, all tickets are transferable to our rain date of Friday, July 20, 9:00pm.

July 14,18 & 21, 2012 at 8:00 PM. Delaware Valley Opera Company performance of Vincenzo Bellini's romantic opera, **La Sonnambula**. See Page 14 for more details.

Friday, July 27, 2012 at 10:00am at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurehillcemetery>

Laurel Hill: The Hot Spots and Storied Plots

Join us for this informative overview of Laurel Hill's long and colorful history, which will include many of the marble masterpieces, stunning views and legendary stories that afford the cemetery its WOW factor. This is the ultimate tour for first-time visitors to Laurel Hill, and anyone else who likes beautiful art, stimulating history, and just enjoying life...even amongst the dead. This walking tour will be led by Civil War historian and administrator of Findagrave.com, Russ Dodge. NEW Hot Spots and Storied Plots will be presented monthly as part of Laurel Hill Cemetery's Fourth Friday tour series, which take place on the fourth Friday of every month at 10:00am.

\$8/person; \$5/members

Wednesday, August 8, 2012 at 7:30 PM at Frankford Hall, 1210

Frankford Avenue.

Philadelphia Nerd Nite

Good food, good beer, science lectures, and plenty of fellow Nerds.

<http://philadelphia.nerdnite.com/updates/>

August 4,8 & 11, 2012 at 8:00 PM. Delaware Valley Opera Company performance of Giuseppe Verdi's popular opera, **Rigoletto**. See Page 14 for more details.

August 17 - 18 - 19, 2012

BATTLE OF BELMONT PLATEAU

West Fairmount Park, Philadelphia

Amazing site with easy access on and off I-76 .Fairmount Park is the largest city park in the country comprising over nearly 10,000 acres with a great view of the Philadelphia skyline; miles of horse friendly trails and a superb battlefield.

During the Battle scenarios spectators will have a complete 19th century view with no modern intrusions. The battlefield is sweeping and free of holes with access to the woods and trails. The camps composed of federal , confederate and civilian areas and the drill fields are secure and enclosed by a fence. The local roads adjacent to the camps will be closed. Wood, hay and water will be provided. There is a horse and artillery bounty; a vet and farrier will be on call. Emergency stable available within one mile and plenty of parking for trucks and trailers. Modern restrooms also available. No specialty impressions permitted without prior approval. Preregistration is \$10 dollars and required. All registration monies above cost will be donated to historic preservation.

'Battle of Belmont Plateau' - Civil War Reenactment

LIVING HISTORY & BATTLE REENACTMENT – Commemoration of the 150th Anniversary of the Civil War

Belmont Grove, West Fairmount Park, Philadelphia, PA

August 17 – 18 – 19, 2012

Portraying: Authentic Civil War Battles and 'Living History featuring Philadelphia's participation

Camps open daily at 9AM - Battles at 1:30PM on Saturday and Sunday

- * Many authentic military and civilian reenactors are expected;
- * Visit both Union and Confederate camps where troops will demonstrate camp life and discuss aspects of Civil War history and military topics;
- * See troops drilling, mounted cavalry, artillery
- * Living history presentations, period music;
- * Sutlers tent village selling period items, jewelry, crafts, military items, souvenirs etc.
- * Food vendors plus picnic facilities
- * Parking lots close to all of the action
- * Fun and educational for every member of the family;
- * Free Admission for spectators and Free Parking!

Near Exit off I-76 Schuylkill Expressway

Directions to Belmont Plateau and Belmont Grove Camp area in West Fairmount Park:

<http://www.epru.org/news/directions.php?d=40>

Further details and online registration: <http://www.civilwarphilly.net/reenactment>

Questions: reenactment@civilwarphilly.net or call 215 563 6500 x6461

Co-sponsored by the Philadelphia Civil War Consortium and Union League of Philadelphia.

Friday, October 12, 2012. Eighth Annual Gravediggers Ball: To benefit the Friends of Laurel Hill Cemetery Historic Preservation Efforts The Friends of the Laurel Hill Cemetery will again 'resurrect' the Gravediggers' Ball on Friday, October 12, 2012.

This black-tie or costumed event will be held at the Crystal Tea Room at Wanamaker's and will include cocktails, dinner, dancing and musical entertainment by a dynamic 11-piece dance band. All proceeds go towards the continued restoration and preservation of historic Laurel Hill Cemetery (burial site of General Meade and many Civil War veterans!).

Cost: \$175 donation per person, At Meade Society Table: \$150 per person!

For info call 215.228.8200, or visit theundergroundmuseum.org



Calling All Astronomers! Rittenhouse Astronomical Society



Monthly Meetings! Bring all of your out-of this -world questions!

Join The Rittenhouse Astronomical Society the second Wednesday of each month at 7:30 p.m. in the Fels Planetarium at the Franklin Institute. The society offers all persons an opportunity to participate in the activities of an astronomical group at the laymen's level. They aim to spread knowledge, awareness and enjoyment of astronomy and astronomical issues. It is a popular science club that keeps its members up-to-date on the latest developments. No experience is necessary to attend the FREE meetings. Come with your astronomy questions!

www.rittenhouseastronomicalsociety.org/

I support the aims of PhACT and would like to join/rejoin for the next year. The annual membership is \$15 and \$10 for students which includes e-mail delivery of Phactum.

If you wish **US Mail delivery annual membership is \$25.** Checks should be payable to **PhACT.**

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The Philadelphia Association for Critical Thinking is grateful for the hospitality extended by Community College of Philadelphia and especially Dr. David Cattell, Chair of the Physics Department, for hosting PhACT and giving us access to such excellent facilities. Part of CCP's mission is to serve Philadelphia as a premiere learning institution and PhACT is pleased to support this goal by having talks on wide ranging, engaging, and educational topics.

PhACT's High School Science Fair Student Prize Funds

Prizes awarded in 2010	= \$ 300.00
Prizes awarded in 2011	= \$ 500.00
Prizes awarded in 2012	= \$ 150.00
Total 2013 Prize Fund	= \$ 163.00

Please donate. Small contributions are preferred and donations in excess of the 2013 goal will be applied to the 2014 Prize Fund or some other youth science education project not yet determined.

ALL money collected for this project will be used for student prizes. PhACT members and others are invited to participate as judges. Contact Eric Krieg for more information: erickrieg@verizon.net

Phactum is, in theory, distributed 6 times a year and is the main propaganda organ for the Philadelphia Association for Critical Thinking.

If you are not a supporting member/subscriber we invite you to become one. \$15 for a one year membership to PhACT with email Phactum subscription. \$25 for US Mail subscription. \$10 for students, email only. Donations are welcome.

Send letters of rebuttal, ideas, short essays, poetry, opinion pieces, complaints, and lavish praise to Ray Haupt, Phactum editor, at phactpublicity@aol.com.

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