

Beer is proof that God  
loves us and wants us to  
be happy.  
~ Benjamin Franklin

# Phactum

The Newsletter and Propaganda Organ of the  
Philadelphia Association for Critical Thinking  
July/August/September 2016

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## How Laurel Hill Cemetery Can Teach Us About Beer in Philadelphia by Michael T. Lewandowski

Cemeteries are more than places where we mourn our loved ones upon their passing. They are also places where an area's history is remembered. Laurel Hill Cemetery is no exception. Many aspects of Philadelphia's history can be found at Laurel Hill. This year we celebrate the 500<sup>th</sup> anniversary of the Reinheitsgebot, the famous German "beer purity law." Even echoes of a famous beer law can be found at Laurel Hill in Philadelphia.

Beer was a very important source of nutrition in 1516, so protecting beer quality was of paramount importance in protecting people's health. The Bavarian Duke Wilhelm IV proclaimed that only barley, hops and water should be used in the brewing of beer. Historians have further speculated that a key purpose of the law was to reserve wheat for bread baking, rather than beer brewing. This law has remained in force in Bavaria ever since. Other German states also adopted the law through the years. However, in the aftermath of World War I, Bavaria refused to

adopt the new German Constitution unless the Reinheitsgebot was adopted throughout Germany. The national assembly yielded to Bavaria's demands. Beer culture throughout the world has been influenced by this law.

Water is needed to make beer. Laurel Hill resident Frederick Graff played a key role in developing Philadelphia's water system, thereby allowing Philadelphia to emerge as a leading source of beer in the 18<sup>th</sup> century.

On April 1, 1805 Frederick Graff was appointed superintendent and engineer of the Philadelphia Water Works. The works were located at the modern site of City Hall and run by steam engines which frequently broke down. Additionally, all of the city's pipes were wooden, which limited the pressures they could carry. To overcome these limitations, Graff advocated the construction of a new water system of his own design.



Frederick Graff designed the Fairmount Water Works and a system of cast iron pipes (and the associated fittings like fire hydrants) that were revolutionary. In 1815, the new water works was constructed at the site of the current Fairmount Water Works. A steam engine pumped water up to a large reservoir located at the site of the current art museum. Subsequently feeding water to the city by gravity overcame the mechanical limitations of early steam engines and provided the city (and Philadelphia brewers) with a truly reliable source of water.

In addition to water, malted barley is the second largest ingredient in beer. Laurel Hill resident William Massey was a

## ***Phactum* Table Of Contents**

<a href="#"><u>Upcoming PhACT Events</u></a>	p.	4
<a href="#"><u>Letters to the Editor</u></a>	p.	7
<a href="#"><u>Various Ruminations</u></a>	p.	8
<a href="#"><u>April 2016 Meeting Reports</u></a>	p.	13
<a href="#"><u>At the Wagner Free Institute</u></a>	p.	16
<a href="#"><u>Ending Poverty in America</u></a>	p.	17
by Mike Curtis		
<a href="#"><u>M.A.F.U.B.T.I.M.I.</u></a>	p.	22
by Paul Schlueter III		
<a href="#"><u>CRISPR/Cas9: The New Gene Drive Technique</u></a>	p.	24
By Paul Schlueter III		
<a href="#"><u>The Sunrise Myth</u></a>	p.	26
By Paul Schlueter III		
<a href="#"><u>A Climate Change Manifesto</u></a>	p.	28
By Howard J. Wilk		
<a href="#"><u>PhACT Calendar</u></a>	p.	30

## ***Phactum's* Roster of I.R.E. (Infamous Rational Errors)**

*Phactum* contributor Paul Schlueter III has accumulated over time a vocabulary listing of many of the egregious flaws of thinking, devious tactics of argument, and some pretty cool Latin phrases that might sound impressive used at a social gathering. This listing is nowhere near complete, but has been made into a pamphlet that is available free and only at PhACT Meetings.

Meeting attendees are invited to take one and are invited to participate in expanding the listing in the next edition as it is intended to be a collaborative project. Definitions and examples should be short and to the point and may be submitted to the *Phactum* editor at: [phactpublicity@aol.com](mailto:phactpublicity@aol.com)

**New entry: HINDSIGHT BIAS** - 1. Once an event has happened or a belief is formed, it is simple to look back and "construct" not only a chain of presumptive causes, but also an argument stating why the result could not have been different. (Sometimes applied to justify belief in specific prophecies after they appear to have come true.) 2. The tendency of people to overestimate the statistical likelihood of an event's occurrence after they know the outcome. Also, the tendency to overestimate one's previous expectation of a particular outcome after it has occurred (as in, "I knew it all along.") (See also: Retrofitting)



brewer and malt producer in the 19<sup>th</sup> century. At one time, his malt house produced 100,000 bushels of malt per season.



Massey was born in England, where his father was a successful brewer in a small town near Stoke, England. William emigrated to Philadelphia at a young age and found work at Gray's brewery on Sixth Street. He had great success in several aspects of the brewing industry and was offered a partnership in what was renamed Poultney, Collins & Massey. By 1870, William Massey was the sole owner of the brewery, and sales took off. By 1877, Massey's brewery was the 11<sup>th</sup> largest in the United States.

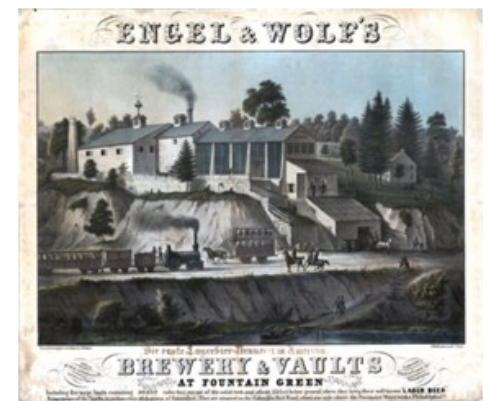
Massey was also a philanthropist who donated large sums of money to the Philadelphia House of Refuge (a home for Philadelphia orphans). Without William's leadership, the brewery fell on hard times and closed by 1894.

In 1516, the role of yeast in beermaking was not well understood. However, advances in microbiology have revealed the importance of yeast to turning malt sugars into alcohol. Modern lager brewing didn't start in Bavaria until the late 1820's and early 1830's. Philadelphia brewers were the first in the United States to adopt their brewing to include the new yeast.

John Wagner brought the first new-world cultures of lager yeast from Bavaria to Philadelphia in 1840. A historical marker at 455 St. John Street in Philadelphia commemorates this revolution in brewing. Wagner attempted to run a brewery out of his house, but the endeavor did not succeed. It is speculated that the lack of brewing capacity limited his commercial viability.

An associate of Wagner obtained a sample of the yeast and convinced Charles Wolf and Charles Engel to begin lager brewing in their sugar refinery. Engel and Wolf were successful and established the United State's first large scale lager brewery (the Engel & Wolf Brewery). Eventually, the brewery moved to the Fountain Green section of Philadelphia in 1849. The Fountain Green location allowed the brewery to excavate the large deep caverns needed to allow lager beer to age at a low temperature without refrigeration.

In 1870, the City of Philadelphia expanded Fairmount Park and bought the site of the Engel & Wolf Brewery. The brewery was then demolished. At this time, Charles Engel dissolved his partnership with Charles Wolf and merged with Gustavus Bergner to form the Bergner & Engel Brewing Company. Bergner & Engel constructed a new brewery at Thirty-Second and Thompson Streets in Philadelphia. At one time, this brewery employed 180 men. Bergner & Engel ceased production as a result of Prohibition.



Berger and Engel are now more than business partners; they are partners in death. Their grave plots are located adjacent to each other at Laurel Hill Cemetery. You can see these plots and other sites related to Philadelphia's beer history at the upcoming **"Pints and Plots: Oktoberfest in the Cemetery"** event on Sunday, September 25. To register visit: <https://thelaurehillcemetery.org/events/pints-and-plots>

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**Mike Lewandowski** grew up in the Philadelphia area and is a graduate of the University of Delaware. He is employed as a civil engineer. He spends portions of his free time: homebrewing, volunteering to lead tours at Laurel Hill Cemetery, and training for the upcoming Rest in Peace 5k Run on October 8 at the cemetery. [See listing on page 35.](#)

# UPCOMING 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 garage on 17th Street which is one way south bound. It opens at 1:00 PM and closes at 6:00 PM. This meeting site is handicap accessible. **PhACT Meetings are Free and open to the public unless otherwise noted.**

Lectures are generally at Community College of Philadelphia in Lecture Room C2-28 in the Center for Business and Industry at the corner of 18th and Callowhill Streets, at 2:00 PM, unless otherwise noted.

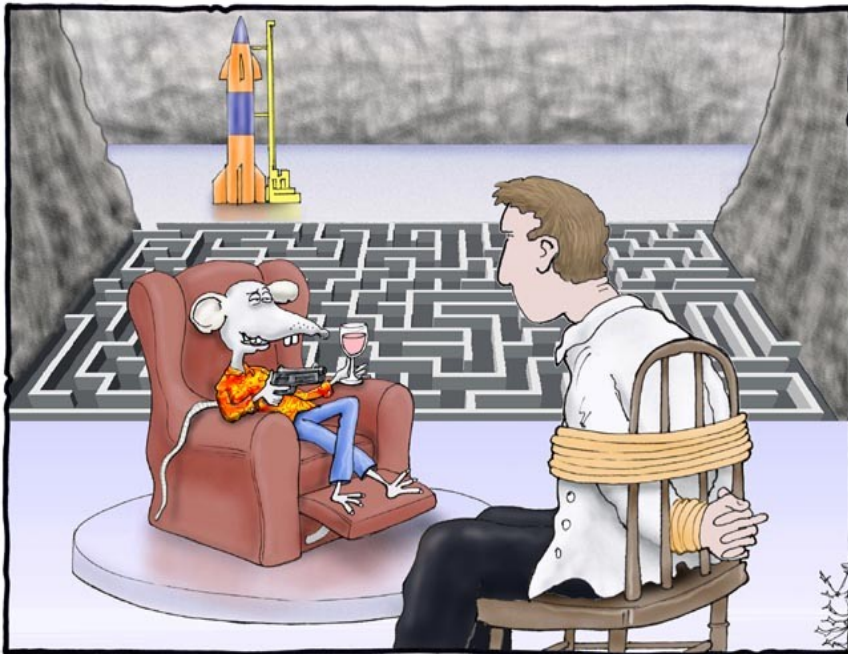


**Saturday, September 17, 2016 at 2:00 PM - In Lecture Room C2-28 in the Center for Business and Industry at the corner of 18th and Callowhill Streets.**

**Dr. Rob Brotherton will discuss:**

## The Psychology of Conspiracy Theories

"Why do people believe conspiracy theories? What's the harm if they do? And just what is a conspiracy theory, anyway? Rob Brotherton provides a psychological perspective on conspiracism. Recent research into cognitive biases and heuristics - quirks in the way our brains are wired - suggests that we're all intuitive conspiracy theorists; some of us just hide it better than others.



*"Such a pity you couldn't find your way through the maze to deactivate my doomsday rocket, Mr Bond. Perhaps now you'll admit that you're not as clever as a well-trained lab-rat."*

**Rob Brotherton** is an academic psychologist and science writer who likes to walk on the weird side of psychology. Rob completed a PhD on the psychology of conspiracy theories with the Anomalistic Psychology Research Unit at Goldsmiths, University of London. He now lives in New York City and teaches classes on conspiracy theories and science communication at Barnard College.

Cartoon by Nick D. Kim, <http://www.lab-initio.com>  
Used by permission.

(Continued on page 5)

## **Suspicious Minds: Why We Believe Conspiracy Theories** by Rob Brotherton

**Publisher: Bloomsbury Sigma (19 Nov. 2015)**

**Hardcover: 304 pages**

**ISBN-10: 1472915615 ISBN-13: 978-1472915610**

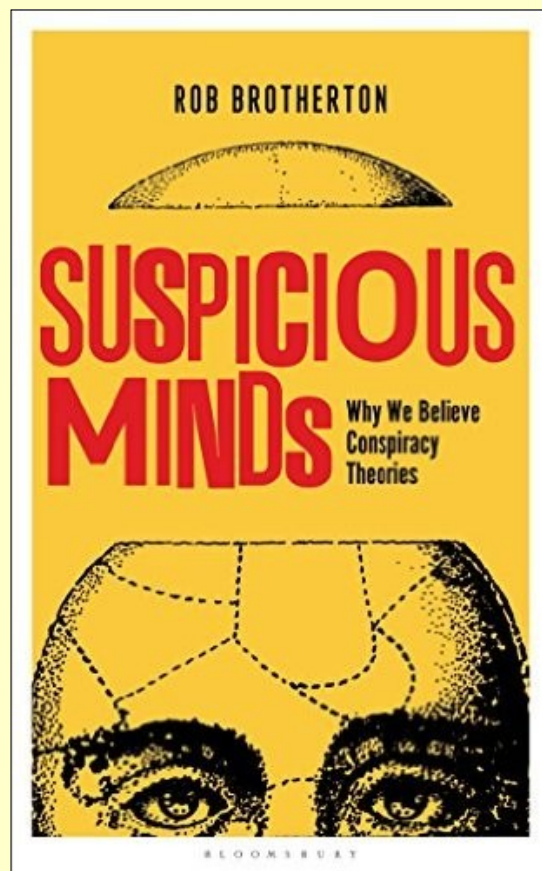
**We're all conspiracy theorists. Some of us just hide it better than others.**

Conspiracy theorists do not wear tin-foil hats (for the most part). They are not just a few kooks lurking on the paranoid fringes of society with bizarre ideas about shape-shifting reptilian aliens running society in secret. They walk among us. They are us.

Everyone loves a good conspiracy. Yet conspiracy theories are not a recent invention. And they are not always a harmless curiosity. In *Suspicious Minds*, Rob Brotherton explores the history and consequences of conspiracism, and delves into the research that offers insights into why so many of us are drawn to implausible, unproven and unproveable conspiracy theories. They resonate with some of our brain's built-in quirks and foibles, and tap into some of our deepest desires, fears, and assumptions about the world.

The fascinating and often surprising psychology of conspiracy theories tells us a lot - not just why we are drawn to theories about sinister schemes, but about how our minds are wired and, indeed, why we believe anything at all. Conspiracy theories are not some psychological aberration - they're a predictable product of how brains work. This book will tell you why, and what it means.

**Of course, just because your brain's biased doesn't always mean you're wrong. Sometimes conspiracies are real. Sometimes, paranoia is prudent.**



**“The strongest passions and most dangerous weaknesses of the human breast; ambition, avarice, vanity, the honorable or venal love of fame, are all in conspiracy against the desire and duty of peace.”**

**~ James Madison, (1751 - 1836)  
Fourth President of the United States**



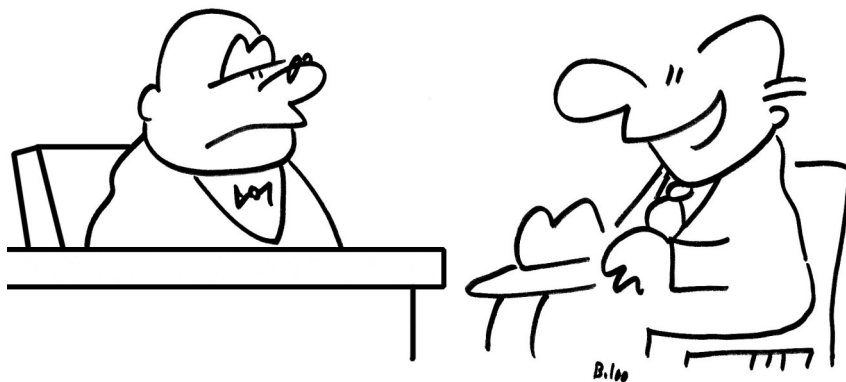
**Saturday, October 15, 2016 at 2:00 PM - In Lecture Room C2-28 in the Center for Business and Industry at the corner of 18th and Callowhill Streets. Richard Saunders will discuss:**

## **Thinking Critically about Money and Investing**

You are the best defense for your own fiscal health. Unfortunately, we are surrounded by both harmful incompetence and those who would scam us out of our money and do harm to our finances. While most are savvy enough to avoid investing in 'machines that turn sand into gold', or 'free energy franchises', there are other scams that, on the surface, seem to make sense. What do you say to an opportunity that seems too good to be true, or offers you a chance to 'get in on the ground floor?' The purpose of this meeting is to empower people with knowledge so they will avoid being victimized. Avoidance is the key because restitution orders, if obtained, are rarely enforced. Mr. Saunders will also discuss steps to avoid identity theft as well as critical thinking concerning money and investing.

**Richard Saunders** worked in an administrative capacity for 25 years for the Philadelphia District Attorney's office and has been with AARP's Consumer Task Force for 10 years.

### **LOAN DEPARTMENT**



**"I need it to fly to Nigeria to pick up my prize."**

**Saturday, November 19, 2016 at 2:00 PM - In Lecture Room C2-28 in the Center for Business and Industry at the corner of 18th and Callowhill Streets.**

### **PhACT Lecture**

**Program and Speaker to be Announced.**

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# Letters to the Editor

Letters to the Editor are encouraged.  
Send to [PhACTPublicity@aol.com](mailto:PhACTPublicity@aol.com)

Editor: I REALLY enjoyed Linda Blythe's article about the Creationists' dino museum. What a great find, and an excellent write-up as well. Any day now, I'm sure someone will present something they claim was associated with a dino fossil AND humans, such as "remains of a saddle" or some such. There's no need for it to be authentic, of course - the true believers are so hungry for "evidence" that they'll swallow nearly anything, I think. I don't detect any such in the two photos in Linda's article (no hang-giders made of Pterosaur wings...) That Argentinosaurus thing is amusing - ironic, that when they DID find fossils of mastodons, they thought they were from Biblical giants, and apparently someone mistook dino fossils for elephant-family fossils. Some of those Biblical quotes (description list) are rather poorly matched, too. A mammoth WOULD feed on grass, have strength in its loins, have power in its belly muscles, and have close-knit thigh sinews, right? And does the Argent. dino actually have "bronze" bones? Iron-like limbs (more so than the mammoth)? Truly nonsense, from every angle. It's kind of cool that T-Rex is coming out to bite Argent.'s tail, though...

The things some people will spend \$1.4 million on!  
Paul Schlueter III  
Dallas, Pennsylvania

Editor: Loved the story (April/May/June 2016) in Ruminations, about the mysterious deer which seem to have been brought to Scotland by stone age people, on boats. It seems that there's less surprise about the cattle and horses which were presumably brought over the same way, at about that time.

It seems to me that if you can get larger cattle and horses onto a boat, you should be able to do the same with smaller deer. Is the surprise perhaps a modern difference of thought, simply because we (in the US, at least) tend to think of deer as entirely wild? In the Old World, herding reindeer is very common, and probably an ancient practice, so would herding other deer be so different? With their natural leaping ability, escapes from domestic care might be more common, leading them to be abandoned as domestic animals, and simply hunted singly. In terms of old legend, the British aristocracy considered deer to "belong to" the King (remember your Robin Hood!) Did ancient British-area Kings "inherit" rights to deer ownership from descent from the original herders to bring them to the Isles?

I hope that discovering the genetic heritage of the Scotland deer will reveal more about who brought them there, and why. We consistently underestimate the cleverness of ancient people, don't we?

Paul Schlueter III  
Dallas, PA



I'VE MISSED YOU TOO, DEER.

## Reader Participation Wanted!!

Writer's Block can seem insurmountable but is rarely as desperate as pictured here. We invite all Phactum readers to participate by sending Letters to the Editor and Articles for Phactum and let your imagination run wild to express your thoughts on some matter that other skeptics might find interesting. Everyone has something to contribute if one can overcome stubborn writer's block or fear of self-expression. Phactum is a friendly forum (mostly) to express ideas and opinions.

We invite articles and letters on almost any matter except partisan politics and unduly harsh criticism of religion. Great topics include human evolution, free energy, alternative medicine and all sorts of mystical and medical quackery. The End of the World is a great topic as is the flatness of the Earth, and one can hardly have too many tales of Nessie and Bigfoot sightings. Original poetry is invited and please send in a great recipe for Lasagna. Suggestions to improve Phactum are very desired.



Please send submissions to the editor by email at: [phactpublicity@aol.com](mailto:phactpublicity@aol.com)

Editor: The article referenced below, recently published in the Washington Post, seems to contradict a statement made in response to a question of mine (at the PhACT lecture on Global Warming and Climate Change by Dr. Tom Delworth, April 2016) on Greenland regarding glacier melt and effect in Greenland.

<https://www.washingtonpost.com/news/energy-environment/wp/2016/04/30/another-typical-day-for-greenland-scientists-find-more-reasons-it-will-melt-faster/>

You may want to consider using some or all in your next edition as a follow up.

Thanks for all the work you do on your publication.

Dan Drozd

Philadelphia

Editor's note: See article by Howard Wilk on page 28.

Editor: Minor coincidence: The Jenkintown train station parking lot is next to the station, and there are more spots in a lot across the road. In the station-side lot there are about 500 numbered spaces, plus more unnumbered ones for employees, etc. On weekday mornings the lot is packed, and you usually have to get a spot far from the ticket office. Once, there were literally no permissible spots on either side of the road, and I mean literally literally, and I had to drive to another station.

On Sunday mornings it's not so packed, and yesterday morning, Sunday, I got a spot, 419, reasonably close to the ticket office. Today, Monday morning, the lot was packed, as expected, with cars stretching to the horizon. I figured I'd have to park out there, but, I reckoned, there must be some people who took a train earlier in the morning and returned later in the morning, and maybe not all their spots were re-taken. So, as I drove towards the horizon, I drove slowly, keeping an eye out for some such spot. I found one, which of course was 419.

Howard J. Wilk

Philadelphia

Editor's note: Cute little coincidence. I get a kick out of those little everyday life haphazard happenings. We probably all have some little similar experience every day if we are alert enough to observe them. Howard Wilk is a collector

and reporter of such coincidental happenings in his everyday life.

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## Various Ruminations of Woo Woo and Real Science and some Gossip

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

### September 17

The first PhACT lecture of the 2016/17 Lecture Series will be on Saturday, September 17, 2016. Dr. Rob Brotherton will discuss: The Psychology of Conspiracy Theories. See page 4 for more details.

Things were a little different on that day of 1916, a century before. Much of the world was at war in Europe although the United States had not yet entered into hostilities against the Axis powers. On that day, a Sunday, a young pilot in the Imperial German Army Air Service (*Luftstreitkräfte*),

Manfred Albrecht Freiherr von Richthofen, scored his first aerial combat victory. He went on to have an illustrious



**The Red Baron**  
Manfred Albrecht Freiherr  
von Richthofen,  
May 12, 1892 - April 21, 1918

**"[...S]cience does not seek 'Truth.' Rather, science seeks, through occasionally giant but typically small, incremental steps to expand humankind's understanding of nature and its works: and, through empirical evidence, augment confidence (but never certainty) in that understanding. [...] Where faith consistently rides to the defense of its 'hypotheses, science ever seeks opportunities to tear down its own edifices as new evidence emerges."**

~ **Michael J. Reynolds, reviewing Francis S. Collins's**

**"The Language Of God" for Skeptical Inquirer, May/June 2016, p. 57**



career as a fighter pilot becoming known as the Red Baron as he amassed an astounding 80 combat victories. Baron von Richthofen was born in Prussia on May 2, 1892 and may well be to this day the most famous of all military fighter pilots. On April 21, 1918 Baron von Richthofen was struck by a single bullet from ground fire, dying twelve days short of his 26th birthday.

### Shark Update

In the April 2016 Phactum we reported on a shark attack resulting in four fatalities and one serious injury, a severed leg, that had occurred a century ago, on July 1, 1916. It was felt at the time that the offending shark was a Great White although that conclusion is a bit uncertain. Fast forward to May of 2016 and a 3500 pound Great White, who is affectionately named Mary Lee, has been detected swimming off shore near Wildwood, New Jersey.

It seems that Mary Lee has her own Twitter account going by the handle [@MaryLeeShark](https://twitter.com/MaryLeeShark). Mary Lee has around 100,000 Twitter followers. In 2012 Mary Lee was tagged by scientists off of Cape Cod and since that time has been swimming in the Atlantic to the tune of 37,000 miles.

As far as we know Mary Lee has not eaten any ocean bathers but her travels, and the travels of many other sharks, can be monitored in real time at: [www.ocearch.org](http://www.ocearch.org)

For an article giving some biographical information about Mary Lee see:

[http://www.nj.com/cape-may-county/index.ssf/2015/05/great\\_white\\_shark\\_spotted\\_10\\_miles\\_off\\_jersey\\_coas.html](http://www.nj.com/cape-may-county/index.ssf/2015/05/great_white_shark_spotted_10_miles_off_jersey_coas.html)

### Organic agriculture is a hoax

PhACT member Eric Krieg set an internet link pointing to an interesting Forbes.com article about the organic foods industry. Eric states, "This explains how most people don't realize that "organic" food uses fertilizers, insecticides, and anti-fungal agents that may well be worse for you than the carefully engineered versions in non-organic food that are at least tested to make sure they don't harm people. I personally have long tried to avoid organic foods, because less effort is made to make sure they are safe. The worst poisons we are exposed to have always been of natural origin".

The article points out that consumers pay very large premiums to obtain more healthful organic foods, organic meaning that the products are generally free of synthetic pesticides although there is a long list of exceptions listed in the Organic Foods Production Act that are perfectly legal for producers to use. Natural pesticides are generally permitted but organic pesticides, like synthetic ones, can be toxic. Organic pesticide residues have the same health risks as non-organic ones according to a claim by evolutionary biologist Christie Wilcox in a 2012 Scientific American article.

To muddy the waters further, many consumers think that certified organic products must be free of GMO ingredients. Wrong. The USDA does not require that organic foods advertised as such be GMO free.

The article is not long and may be viewed here:

**MCHUMOR.com** by T. McCracken



"Just a second.  
I've got a call on telepathic waiting."

© T. McCracken mchumor.com

Cartoon by T. McCracken  
<http://www.mchumor.com/>  
Used by Permission

<http://www.forbes.com/sites/henrymiller/2015/07/29/why-organic-agriculture-is-a-colossal-hoax/#1d8c682338e4>

Commentary about this issue and this article, whether pro or con organic foods, is welcome.

### Which potency should I choose?

Are you confused about which potency to choose for self homeopathic medication? Then look no further as the information all can be found at: <http://homeopathyplus.com/which-potency-should-i-choose/>

From the website:

*The following guidelines apply to home-prescribing for simple, self-limiting complaints.*

- *Low Potencies: 6C and below*
- *Medium Potencies: 30C and 200C*
- *High Potencies: M and above*

*Lower potencies such as 6C cover a wide range of symptoms, so are ideal if you are not certain that you have chosen the best remedy for your symptoms.*

*Higher potencies need to match symptoms more precisely if a curative response is to be triggered.*

*The higher the potency, the longer the effect. A 6C potency may need to be repeated every 1 – 2 hours for a period to improve symptoms while an M potency may only have to be given once.*

*Medium potencies such as 30C are a good choice for home prescribers who have some familiarity with homeopathy. They may be given every 2 – 4 hours until symptoms are relieved, and then only repeated if symptoms return. Improvement should be noticed by 1 – 3 doses if the correct remedy has been selected..*

Phactum readers are likely pretty well informed about the mysteries of homeopathic dilutions, but here is a very brief refresher on some of the nomenclature and practices of homeopathic remedy preparation.

Homeopathic dilution is performed according to several scales, but the most common are designated by the Roman numerals X and C meaning that the “Mother Tincture”, the “medicine,” is diluted in a mixture of water and alcohol by a factor of 10 or 100. A number in front of X or C indicates the number of times the process is performed. A “decimal scale” 6X dilution, for example, indicates that the medicine has been potentized but reduced in percentage of active ingredient to 1 part in a million .... 0.000001. A 6C dilution on the “centesimal scale” would yield a potion diluted to one part in 100 billion .... 0.00000000001 and thus quite powerful according to homeopathic dogma.

The process of dilution, is accompanied with “succussion”, which is a prescribed ritualistic shaking and thumping the vial containing the compound on a leather bound book at each stage of the process as devised by homeopathy’s inventor, Samuel Hahnemann. Hahnemann’s initial scale, by the way, was the centesimal scale.

On occasion one will see a homeopathic remedy dilution listed as the Roman numeral “M” meaning that the concoction has been diluted and succussed 1,000 times. It must be a powerful brew indeed since at roughly 23X or 12C it is unlikely that a single molecule of the original medicine exists in the output product. No matter. The water retains memory, or so homeopathic enthusiasts believe.

There is a third scale, the “quinquagintimillesimal scale” also known as the “fifty millesimal scale” which is designated by “Q” meaning that a compound is diluted by a factor of 1:50,000. A Q6 dilution then would have a ratio of 1/15,625,000,000,000,000,000,000,000 ... a quite meaningless number in this context since not even the Pacific Ocean has insufficient molecules to achieve such a dilution. The beauty of the quinquagintimillesimal scale, which was devised shortly before Hahnemann’s death in 1843, is that fewer dilute/succuss steps need be employed, thus saving time and wear and tear on the leather bound book, no doubt a German language Bible.

### **Burzynski proceedings inching forward.**

At the January PhACT lecture Professor Bob Blaskiewicz discussed the situation of Dr. Stanislaw Burzynski, a very controversial oncologist accused by many in the medical profession of providing ineffective and predatory cancer treatment for about 40 years. Dr. Burzynski is no stranger to legal challenges for unethical medical practices and is now once again engaged in another legal battle in Texas. Dr. Stephen Barrett, no admirer of Dr. Burzynski, reported on

## **Internet Health Scams Survey.**

Dr. Bernie Garrett and his research team at UBC, Vancouver, Canada are studying the incidence of deceptive internet marketed health practices, and need your help. You have probably encountered those annoying side-bar or pop-up advertisements or e-mails selling miracle cures, or sites making unsubstantiated health claims about their products. This is becoming a growing trend, so they would appreciate you filling in a short online questionnaire about your experiences with health-related products and health scams promoted on the Internet.

This questionnaire can be accessed at the following link: <https://survey.ubc.ca/s/healthscams/>

Anyone who fills in the survey will be entered into a prize draw for one of two \$100 Amazon gift Vouchers, if they wish.

What is involved?

The short online questionnaire contains questions to elicit your feedback on the various aspects of health-product advertising and scams promoted through the Internet. It will take about 10 minutes to complete and all respondents are eligible for entry into a prize draw for one of two \$100 amazon gift vouchers.

You will need to enter the identity number: 001 when you fill in the survey (simply to track which responses came through PhACT)

Feel free to pass on this message to any friends or colleagues who may be interested, and please e-mail Dr. Bernie Garrett ([bernie.garrett@nursing.ubc.ca](mailto:bernie.garrett@nursing.ubc.ca)) if you need more information, or if you have any questions, concerns or suggestions about this or any aspect of the study.

this matter in Consumer Health Digest of September 4, 2016:



*The Texas Medical Board's effort to stop Stanislaw Burzynski, M.D. from offering questionable cancer treatments has evolved into an intense legal battle before the Texas State Office of Administrative Hearings (SOAH). In July 2014, the board filed a 202-page amended complaint that criticized Burzynski's management of seven patients. The document described an alleged pattern of substandard care that included (a) improperly accepting retainers prior to providing services, (b) failing to adequately evaluate tumor status, (c) lacking a plausible rationale for his drug regimens, (d) failing to provide adequate informed consent, (e) permitting unlicensed, unqualified individuals whom he misrepresented as doctors to treat patients, (f) doing unnecessary tests, (g) failing to keep adequate medical records, (h) charging exorbitant prices for drugs and services, and (i) billing insurance companies improperly. The board's 78-page closing argument, filed last month in the SOAH proceeding, addresses the details of what is currently being litigated. The board and the FDA have been trying on and off for more than 25 years to curb Burzynski's activities.*

Professor Blaskiewicz had written an article in Skeptical Inquirer on the matter of cancer quackery and Stanislaw Burzynski: [http://www.csicop.org/specialarticles/show/burzynski\\_in\\_court\\_again](http://www.csicop.org/specialarticles/show/burzynski_in_court_again)

### **Intravenous Vitamin Therapy in Vancouver, BC**

Get a load of this!

The Vancouver Sun reports that vitamin therapy in Vancouver is now going intravenous and mobile. Feeling a bit down? Forget vitamin pills. Now you can call for home delivery of IV megadose vitamins and a needle in your arm. Promises of restored vim and vigour are complimentary although a home setting is a not quite usual environment for healthy people to experience a medical procedures such as intravenous infusion.

<http://vancouver.sun.com/news/local-news/iv-vitamin-therapy-hits-the-road-in-vancouver-bringing-a-drip-to-your-door>

The tale gets more interesting in that one of the actors in this drama is Bernie Garrett, Professor of Nursing at University of British Columbia and occasional contributor to Phactum. Bernie was interviewed for this story, in print and in video, to provide an evidence based medicine perspective on the matter of this alternative medicine practice. The other actors include a client receiving IV vitamins and a Naturopathic Doctor, Dr. Erica Kubanek, ND who is apparently an employee of Dr. Heidi Rootes, another naturopath, who is founder and proprietor of IV Wellness Boutique located in Vancouver. Needless to say the scientific evidence based view is far different from the woo-woo testimony of naturopaths running a boutique.

The Phactum Editorial Staff is highly skeptical of the proclaimed health and “wellness” merits of self prescribed high dosage Intravenous Vitamin “therapy”, but we do admit that the home delivery aspect is a nice little touch. Does pizza come with that?

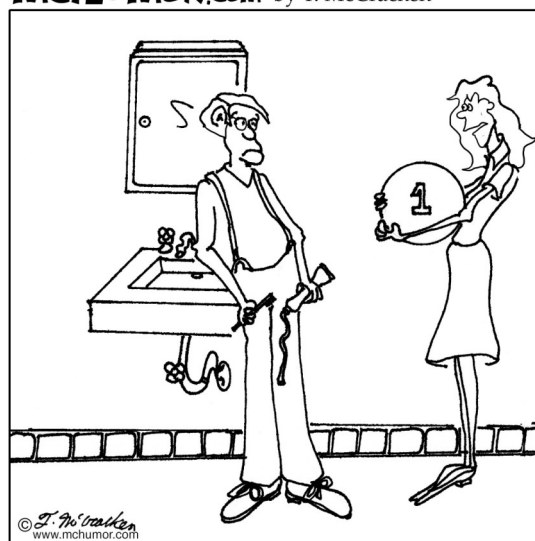
### **Frontline report blasts dietary supplement industry**

On the matter of vitamins and supplements Dr. Stephen Barrett reported in the January 31, 2016 edition of Consumer Health Digest: *Frontline, The New York Times and the Canadian Broadcasting Corporation have co-produced a 55-minute video report that examines problems in the marketing and regulation of vitamins, herbals, and other supplement products. The report spotlights (a) contaminated products that have caused severe harm, (b) irresponsible promotion, (c) regulatory weaknesses, and (d) industry denialists. Frontline report blasts dietary supplement industry:* <http://www.pbs.org/wgbh/frontline/film/supplements-and-safety/>

Dr. Barrett's newsletter, Consumer Health Digest, is free and available to all who wish to subscribe. To subscribe send a blank email to send a blank message to: [chd-subscribe@lists.quackwatch.org](mailto:chd-subscribe@lists.quackwatch.org)  
Dr. Barrett's main website is [www.quackwatch.org](http://www.quackwatch.org)

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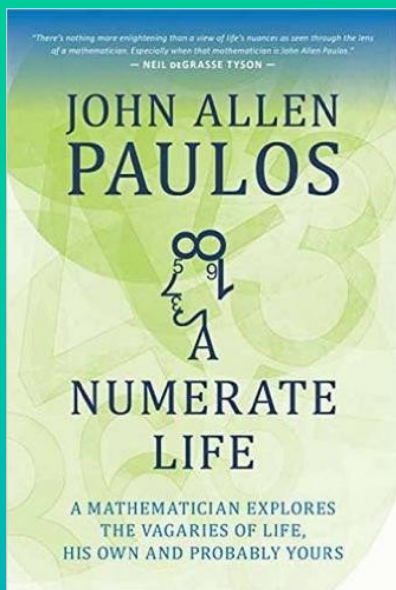
**MCHUMOR.com** by T. McCracken



“Time for your One-a-Year vitamin supplement pill, dear.”

Cartoon by T. McCracken  
<http://www.mchumor.com/>  
Used by Permission





## A Numerate Life: A Mathematician Explores the Vagaries of Life, His Own and Probably Yours by John Allen Paulos

Paperback: 200 pages Publisher: Prometheus Books (November 10, 2015)  
ISBN-10: 1633881180 ISBN-13: 978-1633881181

Employing intuitive ideas from mathematics, this quirky "meta-memoir" raises questions about our lives that most of us don't think to ask, but arguably should: What part of memory is reliable fact, what part creative embellishment? Which favorite presuppositions are unfounded, which statistically biased? By conjoining two opposing mindsets--the suspension of disbelief required in storytelling and the skepticism inherent in the scientific method--bestselling mathematician John Allen Paulos has created an unusual hybrid, a composite of personal memories and mathematical approaches to re-evaluating them.

Entertaining vignettes from Paulos's biography abound--ranging from a bullying math teacher and a fabulous collection of baseball cards to romantic crushes, a grandmother's petty larceny, and his quite unintended role in getting George Bush elected president in 2000. These vignettes serve as springboards to many telling perspectives: simple arithmetic puts life-long habits in a dubious new light; higher dimensional geometry helps us see that we're all rather peculiar; nonlinear dynamics explains the narcissism of small differences cascading into very different siblings; logarithms and exponentials yield insight on why we tend to become bored and jaded as we age; and there are tricks and jokes, probability and coincidences, and much more.

\* \* \* \* \*

## Other Books by Dr. John Allen Paulos

All books available at bookstores and online through Amazon, Barnes & Noble, or Booksense.

### *Irreligion: A Mathematician Explains Why the Arguments for God Just Don't Add Up*

Hardcover: 176 pages Publisher: Hill and Wang (December 26, 2007) ISBN-10: 0809059193

### *Innumeracy: Mathematical Illiteracy and Its Consequences*

Paperback: 208 pages Publisher: Hill and Wang Pub. Date (1988) ISBN-13: 9780809058402

### *A Mathematician Plays The Stock Market*

Publisher: Perseus Publishing Pub. Date: May 2004 ISBN-13: 9780465054817 Paperback: 216 pages

### *Beyond Numeracy: Ruminations of a Numbers Man*

Publisher: Knopf Publishing Group  
Pub. Date: April 1992 ISBN-13: 9780679738077  
Paperback: 285 pages

### *A Mathematician Reads the Newspaper*

Publisher: Knopf Publishing Group Pub. Date: March 1996  
ISBN-13: 9780385482547 Paperback 212pages

### *Once Upon A Number: The Hidden Mathematical Logic Of Stories*

Paperback: 224 pages Publisher: Basic Books  
Pub. Date: October 1999 ISBN-10: 0465051596

### *I Think Therefore I Laugh.*

Publisher: Columbia University Press; Pub. Date 1985  
ISBN-13: 978-0231119153 Paperback: 192 pages

### *Mathematics and Humor*

Publisher: University of Chicago Press  
Pub. Date: November 1982 Paperback: 116 pages  
ISBN-13: 9780226650258

## Meeting Reports - April 2016

Reported by Brandon Foltz, a Physics student of Dr. David Cattell at  
Community College of Philadelphia.

### **Dr. Thomas Delworth, a climatologist, discussed: Global Warming and Climate Change - Where Are We Now? Saturday, April 16, 2016**

#### **Reported by Brandon Foltz**

On April 16<sup>th</sup> at the PhACT meeting, Dr. Thomas Delworth spoke about the current state of Climate Change and Global Warming research. His talk highlighted some of the key points in currently available data to help attendees understand the preeminent theories about the causes of and future impacts of Climate Change.

Dr. Delworth began by describing what the greenhouse effect is, and how it relates to our current climate as well as its importance in understanding the effects of Global Warming. He made it clear that the greenhouse effect is a naturally occurring phenomenon, and it is entirely necessary to support life on Earth. The greenhouse effect is what enables Earth to retain overnight some of the energy that is gained from the Sun during the day. This ensures that there are not such drastic temperature fluctuations on Earth as exist on other planets in the solar system. Dr. Delworth emphasized that the greenhouse effect alone is not responsible for Global Warming, but instead described how the amplification of the greenhouse effect by human emissions of CO<sub>2</sub> is the main cause of Global Warming. It was shown that Earth was much warmer in the distant past due to higher CO<sub>2</sub> levels in the atmosphere, but these changes were brought about by natural phenomenon occurring over millions of years. The shocking truth is that the current rate of greenhouse gas addition to the atmosphere dwarfs anything we have record of in the distant past. To put this in perspective, CO<sub>2</sub> increase in the last one hundred years is equivalent to the natural addition of CO<sub>2</sub> from the last twenty-thousand years.

Dr. Delworth went on to discuss the implications of Global Warming and Climate Change, by showing the results of various predictions made by computational models. These predictions were made with a number of different assumptions about the future greenhouse gas emissions from our societies. The more conservative predictions showed that it is still possible to mitigate the worst possible effects of Global Warming by drastically reducing our greenhouse gas emissions in the very near future. The dire predictions however, showed what extreme changes we might expect to see in the environment, and how these effects would linger for thousands of years to come. The effects expected from continued warming include extreme temperature increase around the poles, and increased precipitation over most of the globe but especially at high latitudes.

The presentation ended with Dr. Delworth proposing some actions that can be taken to reduce the effects of Global Warming. The easiest action to be taken is to simply reduce the amount of CO<sub>2</sub> being added to the atmosphere. This can be achieved via clean, renewable energy sources, for example. Another option is to use some technological means to remove CO<sub>2</sub> from the atmosphere and store it, but the technology to do this does not currently exist. A third option is geo-engineering, in which humans would intentionally alter the environment with the goal of eliminating the effects of Global Warming. Dr. Delworth expressed his concerns about the potential unintended negative effects of geo-engineering, and concluded by stating that reducing emissions or removing CO<sub>2</sub> from the atmosphere are much more attractive options.

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**Editor's note:** See story by Howard J. Wilk on this topic on [Page 28](#).



## Saturday, May 21, 2016

# PhACT Expedition to Haycock Mountain

In the 19th and early 20th centuries there were countless peculiar articles about American wild men, reportedly hairy, man-like beings, in newspapers across the country. It was once believed that civilized people who went into the wilderness to live might revert to an animalistic state and grow a coat of fur all over their bodies. And, in the early 20th century, one of these feral men was thought to be haunting 980 foot high Haycock Mountain in Upper Bucks County.

A May 22, 1908 article in *The Bucks County Gazette*, Bristol, Pennsylvania, noted that “James Miller, a dyed-in-the-wool hobo” was “known as the ‘Wild Man of Haycock.’” He “had been in jail a week or so, and upon promising to get out of Bucks county the Court allowed him to go.” However, the March 1, 1911 issue of *The Philadelphia Inquirer* indicated that “James Miller, the ‘wild man of Haycock Mountain,’” had returned to said mountain for which he was sentenced to “twelve months in the county jail” at breaking stones.



**The PhACT Exploration Team**  
Photo by Ned Levi



**Haycock Mountain is an area richly strewn with some rather sizeable boulders. They were not transported and laid down by Ice Age glaciers. The boulders are Triassic diabase, a unique stone found only in parts of Pennsylvania, New Jersey, and South Africa.**

**Photo by Ned Levi**



And an item in the March 26, 1922 edition of *The News-Sentinel*, Fort Wayne, Indiana, stated that the “wild man’ of Quakertown was identified” as “Adam Weaver, the Haycock mountain outlaw” who was wanted for “killing one deputy and wounding two others” 24 years ago.

The 2016 PhACT expedition to Haycock Mountain was meant to investigate rumors (that we started) about a new Wildman inhabiting the mountain and surrounding forests. The day was rainy but our band was intrepid and undaunted in this quest. Our leader, Don Nigrone related some of the history of Wildman legends in Bucks County. On the hike PhACT member Robb Kerr gave a running account of the local botany and Kim Sheridan was available to identify birds and animals that might be sighted.

For the first time a PhACT Expedition has been successful in finding its objective. Shown below are clear photos by skilled wildlife photographer Kim Sheridan of a new Feral Man, the Wildman of Haycock Mountain! We have heard rumors that the New Wildman has given up the tradition of Chicken Thievery, but being skeptics we have

alerted Bucks County farmers.

**Stay tuned for details of the 2017 PhACT Expedition!!**







## At the Wagner Free Institute of Science

1700 W. Montgomery Ave., Philadelphia, PA 19121 215-763-6529 Tuesday-Friday 9am-4pm  
<http://www.wagnerfreeinstitute.org>

**Friday, September 16, 2016 - 5:00 - 7:00 PM**

### Libations with Leidy

#### A Happy Hour and Open House

in the Wagner's yard and museum

New and old friends alike are invited to our yard and museum to celebrate Philadelphia's favorite polymath, Joseph Leidy, and his legacy at the Wagner!

Born in September 1823, Leidy was a celebrated teacher and innovator in many scientific fields. The Wagner is one of the best places in the city to experience Leidy's influence; he led the Institute from 1885 to 1891 and was a central force in advancing the Institute's educational programs and expanding the collection into the systematic display visitors see today.

Thanks in part to Leidy's leadership, we still offer high-quality educational programs for all ages and our collection delights visitors year-round. In his birth month, we are opening our doors to our neighborhood, students, educators, and everyone else to highlight Leidy's legacy and our past and present educational programs for all ages.

This happy hour will feature light fare, alcoholic and non-alcoholic refreshments, and fun for all ages, including museum scavenger hunts, art activities, and displays of Leidy-related artifacts.

This event is FREE to enter but please register.

To partake in alcoholic libations, visitors 21 and over can purchase a wristband for \$10 (\$5 for members and students).

**Wednesday, September 28, 2016, Lecture at 6:00 PM**

### Weeknights at the Wagner -

#### Crash! Why Birds Collide with Buildings in Philadelphia & Beyond

##### Keith Russell, Audubon PA

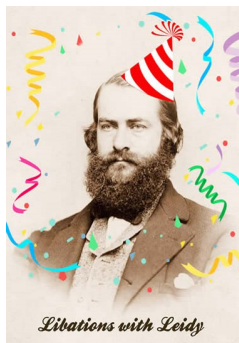
An illustrated Weeknights at the Wagner presentation Bird-building collisions are more common than you think. Join us to discuss this growing conservation issue, local research, and solutions with Keith Russell, Program Manager for Urban Conservation for Audubon Pennsylvania. Registration encouraged.

**Thursday, October 13, 2016, 6:00-8:00**

### Archives Month Philly - Thursday, PM Philadelphia Lantern Slide Salon

**Saturday, October 22, 2016 - Noon-4 PM**

### Wagner on the Weekend - Spooky Creature Feature: Bones!



**Saturday, November 12, 2016 - 5:00-8:00 PM**

### A SIP of SCIENCE - 2016 Benefit Cocktail Party

Honoring Dr. Stephen Tang, President and CEO of the University City Science Center.

Open to the Public. This is a fund raising event.

**Adult Education Fall 2016 Course Schedule**  
**(Wagner courses are FREE and open to the general public.**  
**Contributions are gratefully received.**  
**Courses are taught at introductory college level)**

### The Cosmos: A History of Early Astronomy, Professor Darin Hayton, Haverford College

6 Wednesdays, September 21-November 2, 2016, 6:15 - 7:45 PM. Independence Branch of the Free Library, 18 S. 7th Street (between Market and Chestnut). The history of astronomy is a journey through foreign lands populated with cultures that struggled to understand the heavens, as we still struggle to do today. This course will explore some of these cultures to learn why they invested considerable time and effort in studying the heavens and the uses to which they put their knowledge of the stars and planets.

No preregistration necessary. Register by attending the first course.

### FIELD COURSE - Wild City Plants, Professor Alfred E. Schuyler, Academy of Natural Sciences of Drexel University

First class: Thursday, September 22, 2016, 6:30 - 7:45 PM, at the Pennsylvania Horticultural Society. 5 Saturdays: September 24, October 1, 8, 15, & 22, 2016, 10AM - 1PM in different parts of Philadelphia. This field class will take 5 Saturday walks to different sites in Philadelphia and will focus on plants that grow wild in disturbed habitats and places densely populated by humans.

This course requires preregistration and is limited to 25 students.

Pre-registration opens on Monday, September 12, 2016.

Location information will be provided at the first class. Due to space limitations, preference will be given to people who can attend all 6 class meetings.

### Urban Entomology, Professor Greg Cowper, Academy of Natural Sciences of Drexel University

6 Mondays, October 17-November 21, 2016, 6:15 - 7:45 PM. Fishtown Community Branch of the Free Library, 1217 East Montgomery Ave.

No preregistration necessary. Register by attending the first course.

# Ending Poverty in America

**By Mike Curtis**

**Inspired by Henry George's Progress & Poverty**

**The rich are getting richer while wages for the 99% have been** frozen since the 1960s. The vast majority of the adult population are willing and able to work and would like to exchange their labor for the products and services of other people's labor, but at the beginning of 2016 the percentage of the adult population that was employed is about 59 percent, according to the Bureau of Labor Statistics. That is 4 percent less of the adult population than was working before the recession began in 2008.

**50 years after President Johnson declared "The War onPoverty"**, nearly 15% of Americans are still considered impoverished, and would be affected more greatly if it weren't for more than 125 anti-poverty programs funded by federal, state, or local governments, according to a House Budget Committee Report chaired by Paul Ryan. Poverty in America is alleviated, but the need for such programs continue. According to the report, the total cost to governments is over a trillion dollars per year and growing. That comes to more than 15% of all government spending.

**The anti-poverty programs that have increased expenditures** on healthcare, education, and job training, have definitely made people more productive, but none of these expenditures, nor tax breaks for employers, have created enough new jobs to match the increase in population, nor have they raised the general level of wages. There are more people who need assistance today than there were in 1964 when the war on poverty was declared.

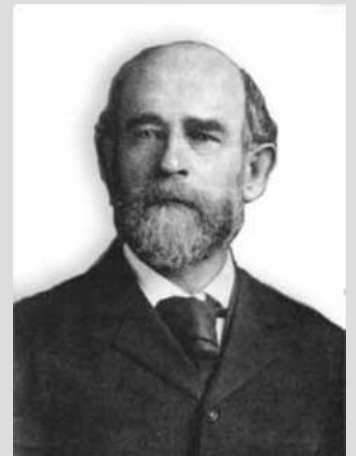
**What is the root cause of poverty?**

**There are many contributing factors when we isolate them** — the lack of education, or self discipline, or alcoholism, or divorce among parents. However, when we compare and contrast communities as a whole there are two primary factors that

## Henry George (1839 – 1897)

Henry George, born in Philadelphia, was an American political economist, journalist, and philosopher. George is famous for popularizing the idea that land/resource rents be captured for public use or shared, in lieu of harmful taxes on labor and productive investment. The philosophy and reform movement were known in George's time as 'Single-Tax'. His immensely popular writing is credited with sparking several reform movements of the Progressive Era and ultimately inspiring the broad economic philosophy that is today often referred to as Georgism, the main tenet of which is that people legitimately own value they fairly create, but that natural resources and common opportunities, most importantly the value of land or location, are rightfully owned in common by individuals in a community, rather than titleholders.

George's most famous work, *Progress and Poverty* (1879), sold millions of copies worldwide, probably more than any other American book before that time. The treatise investigates the paradox of increasing inequality and poverty amid economic and technological progress, the cyclic nature of industrialized economies, and the use of extensive land value tax as a remedy for these and other social problems.





indicate the level and extent of poverty. The first one is unemployment: the lack of job opportunities. Without a job, you have no rightful source of income. However, even with a full time job, if wages are too low in terms of what you can buy or a standard of living you will still be living in poverty. In some places the cost of housing is so much more than the cost of providing it that full time workers with what would otherwise seem like a reasonable wage are living in poverty. In terms of political economy, poverty is a manifestation of unemployment and low wages. That is: low wages in reference to the cost of or a standard of living.

**Technological progress is increasing the results of** everyone's efforts, from the highest paid to the lowest paid workers. Computer users with the latest program, carpenters with nail and screw guns, and the lawn guys with a zero turn mower, are all producing more and more with the same amount of work, but the general rate of wages tend to remain constant. And, whether it's the price of a computer, which does the work of several bookkeepers, typists, and file clerks, or a zero turn lawnmower that does the work of several people with push mowers, the cost of the machinery that increases the results of labor is a small fraction of the increase in its productivity.

This we know, but by what mechanism does all the increase in labor's productive power go to a smaller and smaller percentage of the population — what is now being called the asset class?

**When all people have an equal opportunity, and all workers** get everything that results from their individual exertions, that is when those at the bottom will rise out of poverty. That would certainly be an equitable distribution of wealth and would not in any way diminish the incentives that have made this era the most productive in human history.

**But, how can we create an equal opportunity, and how can we** measure the value that results from each worker utilizing those opportunities that are equally available to everyone?

**In a primitive state, the quality of life is directly related** to one's own efforts and the bounty provided by nature. However, as people come together in communities, the potential for satisfaction is many times greater than individuals could produce by themselves.

**With the adoption of agriculture, permanent dwellings,** and the family as the individual unit, land is assigned to each family. In that way each family has a legal or social right to keep securely the product of their labor. **And, as long as each parcel provides an equal quality of** opportunity, it continues. But, as communities grow and new lands are assigned, the potential of each new parcel tends to be potentially less productive will yield less with the same amount of work.

**This is counteracted by the synergy of the group.** The larger the group, the greater the potential for specialization and trade. Each person is far more productive when they make fewer things or even one part of one thing over and over and exchange them for the many products they consume. It enables the accumulation and continuous use of tools and machines designed for each operation in the production of a final product, and it expands the total body of knowledge and skill.

**So, as a result of this synergy, the land available to each** new member may yield as much as naturally superior land previously did when the community was smaller.

**Some land is naturally more desirable and potentially more** productive, not only in fertility, or mineral content, but where rivers join and safe harbors are provided by nature; that is to say, where nature is most conducive to transportation and trade. It is the latter where population tends to become most concentrated, and therefore, enables the greatest degree of cooperation and synergy.

**If thinking men are few, they are for that reason all the more powerful. Let no man imagine that he has no influence. Whoever he may be, and wherever he may be placed, the man who thinks becomes a light and a power.**

~ Henry George

**Whether from the quality of natural opportunity** or the concentration of population, there is a difference between the potential yields to labor on any particular parcel of land and those on the land that is still free. It is this difference which is enjoyed by the owners of superior land, and this potential difference that constitutes the rental value of land.

**New inventions generally increase productivity on all land**, but they increase it disproportionately more on superior land. Farming machines yield more as fertility increases; the yields of mining machinery increase with the richness of the veins; factory machines yield more where populations are dense and there is mutual support among coordinating industries; and commercial activities yield sales and income, which come with the number of potential customers.

**All productivity is enhanced by roads and bridges**, water & sewer systems, gas & electric service, police & fire departments. Not only does the infrastructure permit denser populations, but its cost per person is less as the density of population increases. Because the land that is still free for others is always sparsely populated, the greater density of population and the efficiency of cooperation on superior land increases its productivity and adds to its rental value.

**This dynamic is the basis for the rate of wages (Law of Wages)**, which are everywhere equal to what could be produced on the best land that is still free. This is self-evident, because no one will work for someone else unless they are paid at least as much as they could have produced working for themselves where the land is free.

**The difference between what labor and capital can produce on** the land that is free and what can be produced on any parcel of superior land accounts for its rental value. That portion that is taken by landowners is an unearned income. Therefore, the unearned-income increases with material progress. What people are willing to pay for access to land increases with population and the extension of the free-land opportunities. It increases with each addition to the infrastructure, and the march of invention.

**Title to land is bought and sold, and its price is based on** expectations of future incomes from its ownership. As these incomes and the expectations of future incomes increase, the selling value of land increases as well. That is why people acquire land as an appreciating asset. Sometimes land is completely un-used; too often it is under used; It is held in part or in whole for the increase in its selling value. The faster the potential productivity of a site increases or is expected to increase, the greater the incentive to hold it for future gains. The more land that is un-used and under used, the more it extends the free-land opportunity.

**The United States expanded from the Atlantic to the Pacific** ocean, and by 1867 it had amassed nearly 448 million acres of arable land,. The Federal government was selling it for a dollar per acre (\$20 in 2015 dollars) in the beginning of the 19th cen-

## Progress and Poverty

author: Henry George

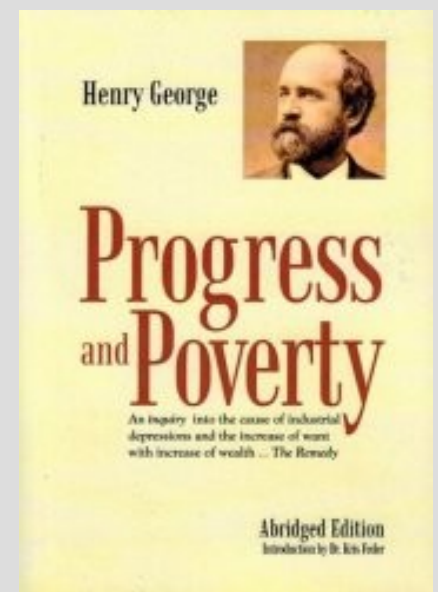
abridged by A. W. Madsen

Paperback 250 pp ISBN: 9780911312102

An Inquiry Into the Cause of Industrial Depressions and of Increase of Want With Increase of Wealth...the Remedy

Many economists and politicians foster the illusion that great fortunes and poverty stem from the presence or absence of individual skill and risk-taking. Henry George, by contrast, showed that the wealth gap occurs because a few people are allowed to monopolize natural opportunities and deny them to others. George did not advocate equality of income, the forcible redistribution of wealth, or government management of the economy. He simply believed that in a society not burdened by the demands of a privileged elite, a full and satisfying life would be attainable by everyone.

Originally published in 1953, this redesigned edition of Madsen's thoughtful abridgment has an introduction by Prof. Kris Feder of Bard College.





ture, and after the Civil War it was practically giving it away under the Homestead acts. By 1893 all but the poorest of arable land was privately owned. There were 35 acres of arable land for every family in the country, but the free-land frontier that had made America the land of opportunity with full employment and the highest wages in the world, was gone.

**In the absence of a free-land opportunity**, wages tend to an amount below which productivity would fall. The wages of the least skilled and educated fall to an amount below which the workers would get hungry and productivity would fall. Wages of superior workers would fall to the point below which the incentive to learn the skills and accumulate the knowledge would diminish and productivity would fall. When there is no free land, the return to buildings, machinery, products in the course of being made and exchanged, tend to an amount below which the supply of such products would decrease and productivity would fall. Without a free-land opportunity, all the increase in material progress goes to the owners of land and other monopolies.

**As long as an individual has a better education than the** average or majority of the workforce, he or she will enjoy higher wages. However, it is not absolute. As the general level of education is raised, the requirements for higher wages rise too. When people that could read and write were the exception, they enjoyed higher pay. Now, reading and writing are requirements for even the lowest paying jobs. Over time, all the benefits of inventions, infrastructure, divisions of labor, and economies of scale go to the owners of land — no matter how much is produced.

**The more land is held for speculation, the more people will** be unemployed and homeless. You can't put two things in the same place at the same time. The increase in the selling value of land does not always go up in the short run. There are periods when it falls for a few years, and in some exceptional instances it takes the better part of a decade to reach its previous high before continuing to rise again in harmony with expected increase in productivity. This has happened every 16 to 20 years for the last two centuries. It is caused when too much land is held for speculation (an appreciating asset). As machines replace workers, there aren't enough places for the workers to be re-employed. The unemployed workers reduce their demand for goods and services, and the demand for land falls as well. Eventually, enough land is sold that most of the unemployed can go to work, and the economy expands again. As the economy expands, the price of land increases with it. The price of land is increased by the extension of credit and low interest rates. When credit is withdrawn, as it is before a recession, it lowers the amount that can be offered and the value of land falls.

### Ending Poverty

**The rental value of land measures exactly the value of the** benefits received by the landowner from the community. Therefore, equity requires that each title to land be conditional upon the payment of its rental value. When this payment is made, it puts no undue burden on the user of land, for the value of land like anything else is set by the willingness of the recipient to pay it. However, anyone who held title to land and left it idle would lose, for the rent would have to be paid and there would be no income from which to pay it.

**With all valuable land being put to its most economic** (highest & best) use cities and suburbs would increase in population, and rural areas would decrease. Not only would this increase the efficiency and the relative value of urban and suburban land, but it would decrease the value of rural land. Significant areas of what is now the least valuable land would have no value at all. Here would emerge a free-land opportunity for people to live and work in a homesteading lifestyle. Whatever standard of living could be enjoyed on a free-land homestead would set the rate of wages everywhere. As inventions and innovations come

**The march of invention has clothed mankind with powers of which a century ago the boldest imagination could not have dreamt.**

**~ Henry George (1839-1897)**

into being, as knowledge advances, the standard of living on the free-land opportunity increases and wages everywhere increase by the same amount.

**It is easy to imagine that the free-land opportunity would soon be overwhelmed,** but because the owners of valuable land will be paying the rent, they will have a great incentive to hire the people who would otherwise go to the free-land opportunity. If they don't hire enough workers, they won't be able to put their land to its most profitable use; if they don't put the land to its most profitable use, they won't be able to pay the rent and get a return on their buildings and machinery etc. Therefore, there is every confidence that the free-land opportunity will remain and continue to offer an increasing standard of living for succeeding generations.

**The density of population creates the potential for the divisions of labor and economics of scale.** And the infrastructure (roads and bridges, pipes and wires that run along them, the preservation of order and public safety) enables a denser population with a far greater efficiency of cooperation. So, much of the rent of land will be spent to maintain the infrastructure and public service. However, the rental value of land is far greater than enough to pay for these and it increases with material progress. Here is a fund out of which we can take care of those who are mentally and physically unable to take care of themselves. Not only will this fund suffice to pay for all the legitimate functions of government, but it would surely be enough to pay for national healthcare and social security. It could pay for medical and environmental research. It could pay off the national debt, and it could eventually offer a cash dividend to all the inhabitants of this country.

**This dividend, when it came, would not be a re-distribution** of wealth from those who produced it to those who didn't, because the rent of land can not be attributed to the efforts of individuals and corporations. The dividend would simply be sharing part of the results of the conscious and subconscious cooperation of the community as a whole. It would be a leveler for those who were blessed with less intelligence, physical strength, or psychological health.

**Collect for social purpose the rental value of land.** Abolish all taxes that confiscate the rightful property of people who work and invest in production. Socialize all business which are in their nature monopolies, in which there cannot reasonably be competition, like the roads and bridges and the pipes and wires that run along them — and abolish all other government granted monopolies.

**If we do that, we will certainly abolish poverty in America.**

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**Mike Curtis** spent many years teaching the thesis of Henry George and is the Vice President of the Henry George Institute. He lives in Arden, Delaware, a land trust village where he grew up and currently serves as its Senior Trustee.



**REFORM — BY GEORGE!**

"With all its drawbacks, and horrors, and shortcomings, the great epoch of the French Revolution, now but a century gone, is about to repeat itself here." — *Extract from Speech by Henry George, at Nilsson Hall.*—N. Y. Sun, October 14.

**From the New York Sun, October 14, 1886**



# M.A.F.U.B.T.I.M.I.

by Paul Schlueter III

The title of this essay is a somewhat obscure acronym sometimes used by hot rodders: Made All F\*\*\*\*d Up, But Then I Modified It. It states a philosophy, really, and says a lot about the sort of person who wears the letters on his greasy T-shirt.

In late 1984, I purchased a new Yamaha RZ350 motorcycle, which turned out to be the last two-stroke model ever made for street use in the USA (also sold in 1985). It was a water-cooled twin, kick-start only, 6-speed, 370 lbs. with 5 1/2 gallons of gas and a pint of 2-stroke oil in it. Bright yellow with a black & white racing stripe, it bore the signature of Yamaha race team hero Kenny Roberts on the tree-mounted "racer" fairing, and it was as nimble as it was flashy. It made about 50 horsepower, at just below 8,000 rpm, which fell off sharply at 9,000 because its factory twin exhausts contained the industry's first exhaust treatment, ceramic honeycombs that heated up enough to light a cigarette (!) and burn off the clouds of 2-stroke smoke that made that engine type an environmental offense. It topped out at about 115 mph, in factory trim.

As soon as I had carefully paced it through the break-in period, I challenged a Honda sportbike to a "race," sporting only in the silliest sense since that other bike was a 1000cc racer I had no chance of keeping up with. He and his passenger played gamely along with me while we drove into a treacherous curved section of highway through town, until my bike began sliding (gradually, responsively, but inevitably) toward him. He burped his throttle to get ahead of me, clearing the path for my slide to continue across both lanes and onto the shoulder. I only regained full control inches from the outer guardrail. My heart rate was somewhere on a par with the engine revs!

So, my very first mod to that machine was a pair of Metzeler tires, sport compound in front, for much better traction than the factory rubber provided. I never had another problem with traction again.

Yet, the RZ's top speed annoyed me some. It would only reach about 6500 rpm in top gear, and then would not pull further. The gearing was a bit high but well-suited to the lower gears, probably to keep riders from flipping the torquey ride over backwards at every stoplight. But I soon learned that Toomey made a set of matched, race-tuned expansion chamber exhausts with a custom airbox, which was affordable. Suddenly, my motor wound to 14,000 rpm, pulling strongly the whole way, and it was able to get over the speed hump and top out at around 130mph. Getting rid of EPA-mandated, smoke-controlling factory mufflers gave me



a cycle that ran like the engineering team had designed it to run, and I finally had the bike I expected when I paid \$2,500 for it. The mods, combined, cost about another \$1,000. All in all, it was a decent bargain for a crazy sport rider in his early 20s, living on a budget.

I had several occupations then, one of them motorcycle mechanic. I knew Yamahas and Kawasakis best, having been a small dealership's Service Manager for a while. Before that, I had cut my teeth on Jap bikes at a mostly-Harley custom cycle shop in my town, right around the time when the movie Mad Max (and its several "cafe racer" modified Japanese cycles) was released.

In '84, the world was just getting to know the Kawasaki Ninjas, especially the 600cc models, which were the latest in an ongoing series of tech leaps in street racer technology. Still, sporty 550s were the norm, having a power:weight ratio that made them extremely fun on rural back roads. Yamaha had just introduced the V-Max, a hot rod cruiser that less-moderate owners were wrecking often due to its 6,000 rpm carb trick that poured on power suddenly, often causing the rear wheel to spin wildly. BMW was just releasing the first wave of antiskid brakes on cycles. Inverted forks were still the stuff of racer fantasy, but monoshock rear suspensions had already pushed aside the traditional dual-shock swingarms. My choice of the RZ was based largely on its earlier cousins, Yamaha RDs in 125, 250, 350, and 400cc displacements, among which had been my very first 11111 motorcycle.

On most street racers of that era, the engine was more than powerful enough, and the recommended first mod for hot rodders was generally related to tire and suspension improvements. The Japanese factories were still offering medium-grade components in these areas to keep showroom prices low, knowing that most serious riders would soon upgrade them to suit their own preference anyway. Aftermarket exhausts (by Hooker, Kerker, etc.) were also a perennial favorite among sport riders, as were replacement air filters permitting greater intake flow. A serious sport rider chose the

bike that gave him the best STARTING POINT for his budget, then later upgraded as he had the cash, until (almost inevitably) totaling his current bike, and (assuming survival) upgrading to the newest hot model. This was the norm for us "squids," young men who lusted for the thrill of speed on a cycle.

This brings me back to M.A.F.U.B.T.I.M.I. It wasn't just a term for squid bikers; it applied to car hot rodders, too, which were by far the more common variant of the motor-head species. It applied to guitarists, who (following the lead of shredders like Eddie VanHalen) often took their guitars apart and replaced pickups and bridges in an ongoing quest for high distortion, harmonic-laden tone, and dive-bombing vibrato. For yet another class of consumers, it applied to do-it-yourself homeowners who added decks, gazebos, bay windows, and even whole master suites to their existing homes. Remember some female models/actresses, and consider the way they altered their clothing, painted their faces, and/or went under the knife to alter the appearance of the Original Equipment at Manufacture (OEM).

In the modern age, we are perhaps less likely to modify what we buy. Much of it is so integrally manufactured that mods are more expensive than simply buying a different, upgraded item. Still, we can custom-order our cycles and cars, our computers, our guitars/amps, and our prefab homes to meet our own personal preferences, because manufacturers have recognized that we are all individuals, and one size DOES NOT fit all. We custom-order our dates on the internet, listing desired characteristics (even though we may feel the need to over-state our own characteristics, in order to measure up to the high standards of our desired catch!) We shop for the schools our kids will attend, according to how well they teach our ideals (or, if we can't trust the schools, we home-school!)

NOW I arrive at the part of this discussion that directly involves Critical Thinkers. I propose that we have now moved to a stage of personal social engineering that might as well be called "custom philosophy."

Are you a Free Thinker? Well, what KIND would that be, the kind who matches the Thomas Jefferson stereotype, or the kind who defines his own thinking individually? If you're a member of an organization, do you conform to the ideas and goals of your fellow members, or do you devote lots of energy to developing cliques within the organization, trying to build consensus in numbers so that your combined influence can shift the organization's focus more toward the purposes that most suit your own interests?

When was the last time that you read ANY book with which you agreed? It was most likely a textbook on some subject in which you have little expertise, because otherwise, we Critical Thinkers seem to be highly inclined to pick apart every statement made, every position taken, to measure it against our own idea of right thinking. Sometimes the inclination is stronger, sometimes weaker, but if you're at all like me, you often find yourself challenging the root philosophy of nearly every idea, and picking apart the train of logic lead-

ing to nearly every conclusion, modifying what you've read to make it more appealing to your own philosophical position.

Sometimes, just maybe, I'll even modify my own philosophy to adopt a new concept I've read somewhere. How about you?

Humans are the species that modify our environment to suit our wishes, rather than simply tracking some prey species on its migration to keep them within hunting range. We domesticate the land, not with natural species but with crops and livestock carefully bred to enhance desired characteristics. We don't just live in whatever cave or burrow we find, but custom-build our domiciles, and less and less do our homes conform to any cultural tradition in design or decoration. When we find it necessary to change locations, we try to pick out our favorite sort of place, but then we ADD to that place our own expected electrical, water, sewage, and internet connections. Our very existence is an expression of the M.A.F.U.B.T.I.M.I. concept!

To really understand one another, perhaps we need to consider the other guy's M.A.F.U.B.T.I.M.I. scheme. We like the scientific pursuit of knowledge, but some perceive that as an elitist construct of arcane mumbo-jumbo, and so they substitute their "different way of knowing," proclaiming belief in six impossible things before breakfast, describing impossible encounters with impossible creatures at every unwitnessed moment, and declaring that THAT is the philosophy that "makes sense to them" (in effect, nothing other than a modified reality!) We consider CAM to be a wasteful use of (often limited) financial resources for zero medical benefit, while devoted users swear that the placebo effect is good enough for them, as long as somebody is being nice to them and holistically sympathizing with their discomfort. We like to get to the explanation beneath every mystery, while others prefer to remain mystified, and hate it when we reveal "magic" to be no more than "a trick or illusion."

Perhaps we ALL just customize our philosophies to suit our tastes, dissatisfied with the wisdom we have inherited from our forbears. Yes, tastes differ (sometimes profoundly), but isn't it all part of trying to find a satisfying way to get through the day? I think we should take into account that similarity in purpose, even when the results are diametrically opposed. We all have a reasonable right to pursue our follies. When telling others how to think/live, we should remember to allow them as much leeway to modify their realities as our own health and safety permits.

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**Paul Schlueter III** is serving Life in Prison in NE Pennsylvania. His supporters have created a website about him.  
[www.jaybird.org](http://www.jaybird.org)



# CRISPR/Cas9: the new Gene Drive Technique

by Paul Schlueter III

If you have an interest in genetic engineering, you've been following 2015's news on CRISPR/Cas9. This is a new technique whereby scientists have begun to experiment with making permanent changes in an organism's genome. CRISPR RNA essentially guides new nucleotide sequences to a specific spot on the DNA helix, where the Cas9 enzyme breaks the genome apart. As the cell "heals" the broken DNA, the new sequence becomes incorporated into the genome, altering the target DNA.

The compelling aspect of this technique is the fact that it then spreads itself to other chromosomes in the organism. Each organism inherits one set of chromosomes from each parent, so a change/mutation in any chromosome normally has a 50/50 chance of being passed along to the next generation when the chromosomes split for reproduction. CRISPR/Cas9 alters both of a subject's paired chromosomes, and then when its altered egg/sperm cell joins with its complement at the time of future fertilization, the gene drive technique's aftermath also alters the complementary single chromosome from the other parent! This results in much greater likelihood of transmission to subsequent generations, EACH of which then alters unaffected chromosomes it encounters during reproduction.

GMOs involve changing the DNA of a single generation in the lab, then growing that generation in domestication for later harvest, all avoiding natural reproduction. In stark contrast, gene drives alter an organism's genome, and then DEPEND ON subsequent natural reproduction to spread the alteration throughout the breeding population, species-wide. If a GMQ were a controlled "campfire," gene drives would be the deliberate setting of sweeping "wildfires." It is part of human nature to modify our world (see: M.A.F.U.B.T.I.M.I., this issue), but CRISPR/Cas9 might easily get out of hand!

In its Dec. 19, 2015 issue, Science News ran 4 separate stories which addressed CRISPR/Cas9 studies. In one, experiments suggested that CRISPR/Cas9-modified organisms would be capable of transferring engineered DNA to an entire breeding population within the next dozen generations! This new technique is so game-changing that CRISPR/Cas9 only missed the first spot in Science News's Top 25 stories of 2015 because the flyby of Pluto was determined to be slightly more compelling.

Let me point out that there have been no releases of CRISPR/Cas9 organisms into the environment... yet. Scientists are rightly concerned about the immense power this

technique might have, particularly since it could turn out to have consequences which, once released, cannot be recalled. One example could be a case where introduction of European carp has become an environmental problem in its adopted homes; perhaps using CRISPR/Cas9 to introduce a species-specific killer gene could wipe them out, but then what would happen if somehow the altered species got reintroduced back in Europe, and wiped out the carp in their native habitat as well? Suddenly, a good idea might not be such a good thing, after all. Numerous other invasive species come quickly to mind, here in the U.S.: Tiger mussels and Asian carp, and even the snakehead fish, might be good targets for genetic eradication efforts. (NOTE: Even the humble earthworm was an "introduced species" in the New World, and conservationists try to prevent its spread to areas it has not yet invaded by prohibiting its use as fishing bait in remote lakes.) Yet, if gene drive- altered specimens are accidentally returned to their homelands, changing the species there could become an environmental nightmare.

Anopheles stephensi mosquitoes carry the malaria virus, spreading this lethal disease among people in warm climates around the globe. Not many people would mourn the extinction of mosquitoes, but they also happen to be an important food source for other insects, birds, and bats, so removing them from the food chain might have unforeseen consequences. How many fish eat mosquito larvae in the water? Who can say how many struggling species would crash and also go extinct just from the loss of this food item? Do mosquitoes help to keep some other species in check, perhaps by some form of predation or competition for resources? Would that species then run rampant, with unknown consequences?

Scientists are just "a hop, skip, and jump away from actual gene drive candidates for eventual release," says a Harvard synthetic biologist, Kevin Esvelt (Science News, 12/26/15, "Mosquitoes designed to repel malaria," by Tina Hesman Saey, p. 6). The report states that "researchers have made a genetic vaccine that will continually inject itself into mosquitoes' DNA," as described in an online article Nov. 23, '15, in Proceedings of the National Academy of Sciences. Scientists successfully tested the gene drive technique on fruit flies in a lab during 2015, at the University of CA, San Diego, and found it to be sweepingly effective among the test population (though imperfectly transmitted in a few individuals). Other tests, on human cells, found that the supposedly "precise" guide RNA which makes up the CRISPR portion of

the method found its single target gene on chromosome 2, but ALSO mis-targeted several other genes on other chromosomes. "Effective" does not yet mean "perfected."

Scientists are deeply engaged in ethical evaluations of this technique.\* However, we live in an era of terrorism and the misuse of knowledge. Asimov's famous "Three Laws of Robotics" (see: "I, Robot") are fine and sufficient in a fictional world, but they're only effective if engineers actually design those rules into their creations. Terminators, designed by other artificial intelligences at war with humanity, have no hesitation when targeting humans, do they? In the real world, robots and AI are not quite developed enough to make their own decisions about killing humans, but our own military uses semi- autonomous drone aircraft to track, surveil, and sometimes kill opponents on the battlefield, and Police are adopting the technology for domestic use, as well. It's only a matter of time before we hear of "collateral damage" Police drone killings in the U.S., and/or the deliberate remote execution of minority "suspects."

Simply having an "ethical analysis and dialogue" among the designing scientists does not necessarily rule out misuse of a technology by bad actors in the future. Einstein warned U.S. authorities of the potential for unforeseen devastation when the nuclear bomb was being developed; North Korea has just recently proclaimed the successful underground test of an H-bomb, specifically noting that they felt the technology necessary as a "defense against American imperialism."

The recent Ebola outbreak in western Africa had Americans worried. Experts have noted that the virus responsible for that disease is only a few "random mutation" steps away from potentially evolving the ability to transmit itself through the air (rather than only via direct contact with infected fluids). If the organism is so close to that ability, what really prevents bioterrorists from using a gene drive to make the last couple genetic alterations, producing an air-transmitted strain, and releasing it on the (upwind) U.S. West Coast (perhaps even at sea, outside our territorial limits)? Remember how worried we were, just after 9/11, about the vulnerability of our water supply to bioterrorist attacks, such as Anthrax contamination?

Valentino Gantz and Ethan Bier (the UCSD scientists who tested the gene drive on fruit flies) teamed up with Anthony James (Univ. of CA) to test a gene drive in mosquitoes. They added mosquito anti-malaria antibodies, CRISPR/Cas9 genes, and a gene that makes mosquito eyes glow red under UV light, to a test population in the lab. Of nearly 26K specimens screened, ONLY 2 MALES CARRIED THE ALTERATION. Yet, by the third generation, 98.9% of males descended from those original 2 carried the gene drive! It didn't work very well in the females, however, and since it's biting females that transmit the disease, that means the intended purpose for the gene drive failed. All but three of nearly 1.8K females screened had white eyes, a sign that Cas9 had cut their chromosomes, but the CRISPR RNA had not been successfully delivered. It's back to the drawing board for that particular effort; again, "effective" does not

mean "perfected."

Gene drives, a group of techniques of genetic engineering that includes CRISPR/Cas9 and older techniques (as well as possible future, improved techniques), stand to offer profound benefits in several areas of biology, from pest control to the potential eradication of many diseases. They might turn up in food crops and/or livestock, potentially improving our food supply. But they may also be abused, misused-in-good-faith, or be accidentally released.

Our ethical discussions should include review of our Security protocols in screening those with access to the research programs (much as scientists and support staff were screened for the Manhattan Project), to at least impede the transfer of knowledge of these techniques to those who might have motive to seek destruction of our biosphere, our food supply, or our progeny.

We should continue to study such matters, and to experiment with new technology. But we should also remember that anything that can go wrong, will. Are we proceeding with due caution?

#### **\*And more on the debates:**

In early December, 2015, an "international summit of experts" was convened by leading scientific organizations from China, the U.S., and the U.K., to discuss the ethics of gene drive experimentation. As reported by Tina Hesman Saey, Science News Dec. 26, 2015, pp. 12 & 18, U.S. Rep. Bill Foster warns: "We're on the verge of a technological breakthrough that could change the future of mankind, and we should not blindly charge ahead."

The CRISPR/Cas9 gene drive allows scientists to create a new genetic modification in mere days, instead of the weeks or months other older techniques require. It has already been used to modify the genomes of "rhesus macaques, mice, zebrafish, fruit flies, yeast, and some plants" in the lab. 62 genes were edited at once in a single experiment on pigs (SN: 11/14/15, p. 6), removing viruses which were confounding pig-to-human transplants.

The possibility of the technology being used to edit human germ line DNA (material capable of transmission via inheritance) led the summit's attendees to declare a precautionary restraint against experiments on any human material which could result in a subsequent pregnancy. Ex vitro embryos remain accessible to experimenters; the Chinese have already claimed limited experimental success in editing human embryo genes (SN Online: 4/23/15). Laws in the U.S. block such research from receiving federal funding.

The "no pregnancies" recommendation of the International Summit on Human Gene Editing (Dec. 3, 2015) is not legally binding, nor even a ban or moratorium. It is a set of "recommendations [that] should be revisited on a regular basis."

Scientists are hoping that "peer pressure," perhaps such as prohibiting journal publication of disfavored experimental

*(Continued on page 27)*



# THE SUNRISE MYTH

BY PAUL SCHLUETER III

When we speak of the beginning of the new day, we almost universally describe a celestial event we call "sunrise." We speak of the sun "coming up." After sunrise, we describe the sun as "traveling across the sky," sometimes even "going behind/coming out from the clouds." At the end of the day, the sun "goes down," and we observe another event which we call "sunset."

All of these terms are mythical. They describe events we have misperceived for millenia. Sunrise does not take place in actual Reality. The terms we usually use do not describe Reality, no matter how universally we use the mythical language. We KNOW that we are misusing language to describe what we experience each and every day of our lives! The ancient myths we prefer predate even the Egyptian pyramids.

Reality is, the sun travels in a circle too immense to ac-

curately imagine within our frame of human reference, orbiting the black hole at the center of the Milky Way galaxy. In our turn, we ride the Earth as it orbits the sun once each year. Around 365 times in each yearly orbit, our Earth revolves around its own axis, spinning like a top once each day. As THE EARTH SPINS, we who find ourselves essentially stuck on the Earth's huge surface (so large most of us can scarcely even imagine its vastness) think that everything we see revolves around our own insignificant position in space and time. We have no intuitive perception of our spinning orbital motion within another orbit, all of which also moves at great speed through the overall Universe. We think that "common sense" is enough to understand what is happening, when in fact it takes an extensive education in Astrophysics just to accurately describe the course our own bodies traverse

## Sneak the sunrise past a rooster

Attempt something that's impossible, or be slick enough to do something by stealth. This predominantly Southern expression was famously used by California Angels first baseman Joe Adock, who said that "trying to sneak a pitch past [Atlanta Braves hitting great] Hank Aaron is like trying to sneak the sunrise past a rooster."



in space time, including direction, speed, and a handful of other relevant factors. The scientific perspective refutes the myths on every detail, and is the only method known to accurately describe our motion in the Universe.

Very few people living today deny that the sun is the center of our solar system, or that we orbit the sun. Very few people deny that the moon, in turn, orbits the Earth, even though very few can set up even a basic model of how the moon's orbit around the Earth, lit by sunlight, causes the different so-called "phases of the Moon." We know that it works somehow, as a matter of shadows and angles and points of view, even without having a clear grasp of how to reproduce that system in a miniaturized model for demonstration purposes. We accept and acknowledge that Science has successfully figured out how this system works, and we know that there are scientists nearby who can demonstrate it better than we can. We don't debate with those scientists; their knowledge exceeds ours in this matter.

Yet, when it comes to the far more complex system that encompasses the entire Universe, over a stretch of time in-

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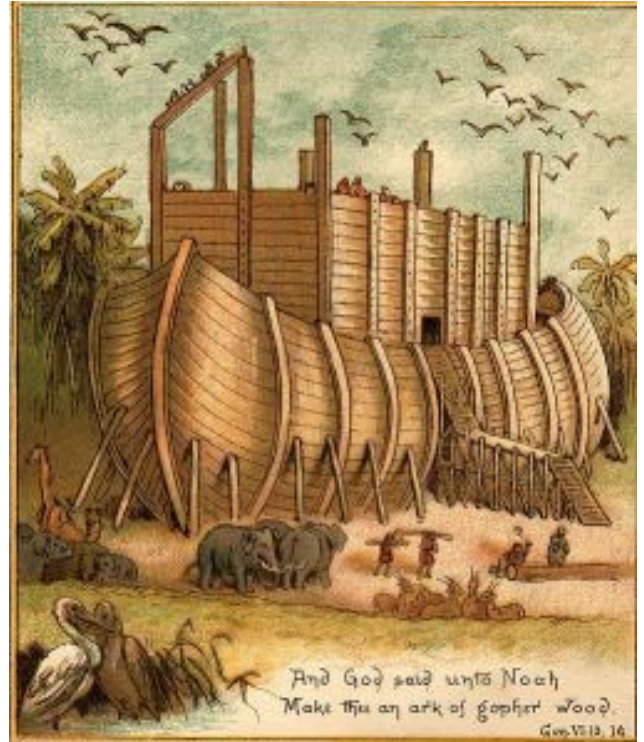
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02-07-2014

### MOSES AND NOAH HAVING AN ARGUMENT

volving 14.7 Billion years, some feel that **THEY KNOW BETTER** than Astrophysicists; they feel qualified to testify

to all those around them that a Special Creation event took place, only some 6,000 years ago. They insist that somehow,



a tribe of Bronze Age agrarians with no knowledge of Geometry, Algebra, or Calculus, no science of Physics, and no concept that the world was even a globe, were "inspired" to write a superior explanation down in a book over 5,000 years ago. That book, known as the Torah / Old Testament, is to them a sweeter Belief than the Truth our most brilliant scientists have figured out after over 5,000 more years of building facts upon facts. That's not myth, it's sheer fantasy.

Sunrise is a myth. So are most of the Bible, the Koran, and the Torah (throwing in a mix of parable and actual historical bits does not make the Mythology true - you know better than that, even if you hate to admit it). If you want to glimpse Truth and Reality, move beyond ancient Mythology and start studying real Science.

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(Continued from page 25)

results, will prevent abuses. We probably don't have to worry much about single "mad scientists," but how does that deter experiments sponsored by "rogue states," fanatical religious organizations, or mega-wealthy "philanthropists" seeking to "perfect" the human race without peer review?

We've had two U.S. Presidents who are perfectly willing to flaunt international conventions against the torture of prisoners, and the massive production of greenhouse gasses; why would even our own government hesitate to dabble in human genetic redesign (to create superior soldiers, geniuses, laborers, artists, etc.)? If our own government is undeterred by convention, why should we expect that any foreign authorities are different?

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# A Climate-Change Manifesto

by Howard J. Wilk

There are number of questions about climate change that ought to be asked, and some issues that have not been adequately discussed.

What does it mean to say the Earth is warming or cooling? There's no simple answer. Consider a baseball analogy: As I write this, in early August, we're about 100 games into the major league baseball season. Say a team is 50-50, they've won 7 of their last 10 games, but they've lost 3 in a row. How's the team doing? So-so, because they're 50-50? Pretty good, because they've won 7 of their last 10? Lousy, because they've lost 3 in a row?

It's true the Earth was warmer during the Jurassic Period, and we may be headed for another ice age, eventually. (It being understood that "eventually" can be a very long time.) The November/December *Skeptical Inquirer* p. 65 mentioned an "upward trend superimposed on all those other well-known natural cycles", which is a too-infrequently heard application of precision to a simplistic "the earth is warming" or "the earth is cooling". Personally, I'm interested, as a matter of science, but don't much care, as a matter for setting policy, what the Earth's temperature was in the past, or what it will be in 100,000 years, when we might all be living on Ganymede, for all I know. It's the decade-by-decade change that's of most concern to me, and on that time scale the trend is definitely upward, to which human activity is the cause, or at least a major contributor. Year-by-year the same is often but not always true; most markedly, "volcanic winter" global cooling for several years can be the consequence of (unpredictable) major volcanic eruptions such as that of Mount Pinatubo in 1991. In 1815 Mount Tambora in Indonesia erupted and 1816 was known as "the year without a sum-

mer" and "eighteen hundred and froze to death". The phenomenon was first described by Benjamin Franklin, who attributed unusually low temperatures in 1783-1784 to volcanic activity in Iceland.

It's been said that "Everyone is entitled to his own opinion, but not his own facts." Well, I don't agree that everyone is entitled to his own opinion, at least to an opinion that anyone should pay any attention to. Being a politician or a talk radio show host are insufficient qualifications for holding influential opinions on scientific matters. Senator James Inhofe said that "the arrogance of people to think that we, human beings, would be able to change what He is doing in the climate is to me outrageous." So the gentleman from Oklahoma presumes to know the will of God. Who's being arrogant, Senator?

How did this even get to be a political question? The now-established, fundamental science of how increased atmospheric carbon dioxide from the burning of fossil fuels causes an increase in the surface temperature of the Earth was first described in 1896 by the Swedish chemist Svante Arrhenius (who went on to win the Nobel Prize in Chemistry in 1903). This wasn't on the radar of politicians of the time, to use an anachronism, or of hardly anyone else for that matter. But once back-to-nature anti-industrial hippie types in the latter years of the last millennium picked up on it, I think what happened is that the erroneous belief arose in the minds of conservatives that the-Earth-is-warming-and-we-need-to-do-something-about-it is purely an invention and continuing delusion of the tree-hugging crowd.

It's impossible to attribute any single weather event, such as a major hurricane, to global warming, and I *do* wish that peo-

ple who accept the reality of global warming would stop making the attributions. It only encourages the likes of politicians with their publicity stunts like standing outside in deep snow after a blizzard hits Washington, DC, citing the situation as evidence that the Earth isn't warming up.

Nor does global warming mean a warmer climate everywhere on the face of the Earth. The modeling is complex and there can be reasonable disagreement about the details, but there can be no *rational* disagreement with the fundamental science supporting overall warming, unless you also want to give up your computers and smartphones, the medications you take, and the jets you fly on, because the same laws of nature apply across-the-board. This is understood by the vast majority of people who study science and give us our 21<sup>st</sup>-century better things for better living.

Is global warming (or cooling) necessarily bad (or good)? In nature, some species will prosper, some will suffer. For us, among other consequences, climate affects agriculture. Of course, carbon dioxide is plant food, not poison! This has been widely understood since the 18<sup>th</sup> century, but it's a revelation that "they" don't want you to know, some conservative politicians seem to believe. With global warming vast

stretches of northern Canada and Siberia might be brought under cultivation, while Sub-Saharan agricultural productivity suffers as a result of desertification. Even if the effects of the former exceed the latter, for some years now the problem of hunger has been one of food distribution, not food production, so with global warming food production could be adversely affected where it's most needed. Remember also that carbon dioxide is plant food to weeds as well as to crops!

Climate change is a scientific matter, but whether it's "bad" or "good" is not, though it's an opinion that ought to be informed by science. Arrhenius thought global warming was good – for Sweden.

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**Howard J. Wilk** is a chemist and a long-time skeptic living in Philadelphia.

Editor's note: See this Slate article, coincidentally written just after Howard Wilk's article, about the 1815/1816 volcanic activity of Mount Tambora: [http://www.slate.com/articles/health\\_and\\_science/science/2016/08/can\\_we\\_use\\_volcanoes\\_to\\_cool\\_the\\_earth\\_off.html](http://www.slate.com/articles/health_and_science/science/2016/08/can_we_use_volcanoes_to_cool_the_earth_off.html)

## Svante August Arrhenius (1857—1927) - A Global Warming Pioneer



Over a century ago, Swedish physicist and chemist Svante Arrhenius began considering the effects of carbonic acid, meaning carbon dioxide, in the atmosphere and how it acted to heat or cool the Earth. Arrhenius was not a climatologist but he did perform calculations predicting that to increase carbonic acid in the air to 2.5 to 3 times the present level would increase temperatures in the Arctic by 8 or 9 degrees Celsius, and a reduction of carbonic acid by a third or half would produce a 5 or 6 degree reduction in temperature.

Arrhenius published a non-technical book, "Worlds in the Making" where he first describes the "hot-house theory" of the atmosphere, stating that the Earth's temperature is about 30 degrees warmer than it would be due to the "heat-protection action of gases contained in the atmosphere".

By 1904, Arrhenius became concerned with rapid increases in anthropogenic carbon emissions and recognized that "the slight percentage of carbonic acid in the atmosphere may, by the advances of industry, be changed to a noticeable degree in the course of a few centuries." He eventually made the suggestion that an increase in atmospheric carbon dioxide due to the burning of fossil fuels could be beneficial, making the Earth's climates "more equable," stimulating plant growth, and providing more food for a larger population.

Arrhenius had a wide range of interests, climatology being but a minor sideline. In 1903 The Nobel Prize in Chemistry was awarded to Svante Arrhenius "in recognition of the extraordinary services he has rendered to the advancement of chemistry by his electrolytic theory of dissociation".

see also: <http://earthobservatory.nasa.gov/Features/Arrhenius/>  
[http://www.nobelprize.org/nobel\\_prizes/chemistry/laureates/1903/](http://www.nobelprize.org/nobel_prizes/chemistry/laureates/1903/)

# PHACT CALENDAR

## Upcoming 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 on the free parking garage on 17th street on the left hand side before Callowhill Street. It opens at 1:00 PM and closes at 6:00 PM. 17th Street is one way south bound. This meeting site is handicap accessible. **PhACT Meetings are Free and open to the public unless otherwise noted.**



**Saturday, September 17, 2016 at 2:00 PM - Lecture**

**Dr. Rob Brotherton will speak on The Psychology of Conspiracy Theories**  
**See Page 4 for more details.**

**Saturday, October 15, 2016 at 2:00 PM - Lecture**

**Richard Saunders will speak on Thinking Critically about Money and Investing**  
**See page 6 for more details**

**Saturday, November 19, 2016 at 2:00 PM - Lecture.**

**Topic and Speaker TBA**

**Saturday, January 21, 2017 at 2:00 PM - Lecture.**

**Topic and Speaker TBA**

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](mailto: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 an extensive 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>

**Tuesday, September 6, 2016 - 6:00pm - 7:00pm** at Eastern State Penitentiary, 2027 Fairmount Avenue, Philadelphia, PA 19130 phone: (215) 236-3300

<http://www.easternstate.org/home>

**The Searchlight Series: Discussion Topic TBA.**

This event is part of Eastern State's ongoing Searchlight Series of events addressing issues in contemporary corrections. The Searchlight Series discussions take place the first Tuesday of every month, free and open to the public. No reservations required.

The Searchlight Series is supported in part by a grant from The George W. Rentschler Foundation.

Free. Reception to follow

**Saturday, September 10, 2016 at 8pm-12am at Laurel Hill Cemetery**, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurehillcemetery.org>

**Into the Veil (presented with Atlas Obscura)**

**“Life is eternal. Death is merely a change in condition...”**



Join Atlas Obscura and Laurel Hill Cemetery for an immersive evening as we explore the liminal world that exists between the land of the living and the realm of the dead. Inspired by the innovative event originated by Atlas Obscura and Brooklyn's Green-Wood Cemetery in 2015, the souls of Laurel Hill invite you to contemplate the veil between life and the afterlife. An evening of hidden art, music, cocktails and entertainment will await under the cover of night as you choose your own path of discovery through the Cemetery's enchanting hallowed grounds.

Cocktail attire is encouraged! We'll be heading fairly deep within the Laurel Hill Cemetery grounds, so sensible footwear is recommended, as is a flashlight. The event will take place on Saturday, September 10 from 8pm-12am (with a pre-scheduled rain date of Sunday, September 11, 8pm-12am), departing from

Laurel Hill Cemetery's Gatehouse entrance at 3822 Ridge Avenue, Philadelphia, PA 19132. Free parking is located in the lot across the street from the Gatehouse.

The cost is \$50/person; or \$45/members. Advanced reservations are strongly suggested. Tickets may be purchased at the door, or online through Atlas Obscura.

**Monday, September 12, 2016 at 6:00 PM at National Mechanics, 22 S. Third Street, Philadelphia, PA 19106**  
**Science on Tap**

A monthly gathering that features a brief, informal presentation by a scientist or other expert followed by lively conversation. Good food and beer.

This month's Science of Tap is brought to you by the American Philosophical Society.

Must be 21 or accompanied by parent. Free and open to the Public.

<http://scienceontapphilly.com/>

**Tuesday, September 13, 2016 at 6:00 - 7:00 PM** at World Cafe Live, 3025 Walnut Street, Philadelphia

<http://www.upenn.edu/pennnews/science>

**PENN LIGHTBULB CAFÉ**

John Lapinski, associate political science professor, School of Arts & Sciences, director of Penn's Program on Opinion Research and Election Studies

**“The 2016 Election, Research & Data”**

John Lapinski directs Penn's Program on Opinion Research and Election Studies and the Elections Unit at NBC News. The latter projects races for NBC and analyzes and produces election-related stories through exit polls for NBC News, MSNBC, CNBC, Telemundo and NBC's digital properties. Lapinski will provide an overview of the 2016 presidential race from the perspective of covering it from the Decision Desk at NBC News, along with a look at pre-election polling.

Free and Open to the Public.

**Wednesday, September 14, 2016 at 7:15 PM** at the Fels Planetarium, The Franklin Institute, 222 North 20th Street,

Philadelphia, PA 19103

**The Rittenhouse Astronomical Society**

Astronomy lecture open to the General Public. See website for more details: <http://www.rittenhouseastronomicalsociety.org/>

**September 16 & 17, 2016 at 8pm at Laurel Hill Cemetery**, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurehillcemetery.org>

**Death is a Cabaret, Ol' Chum**

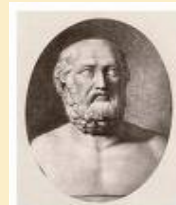
The show that Philadelphia City Paper calls “pretty damn ideal” and “A TOTAL BLAST” is back (from the dead) by popular demand. After rave reviews from audiences and critics alike and selling out multiple shows, New York-based REV Theatre Company will return to Laurel Hill Cemetery to again delight the crowd. Re-conceived and re-created by REV's Co-Artistic Director, Rudy Caporaso, directed by Co-Artistic Director, Rosey Hay and musically directed by Rob Borchert; Death is a Cabaret Ol' Chum features Felicia Anderton, Michelle Pauls and Rudy Caporaso as three witty and mysterious souls departing for their journey between this world and the next. Join us for a haunting evening: sip free cocktails as darkness falls and wait for the (singing) souls to appear through the mists of Laurel Hill Cemetery for a toe-tapping, spine-tingling good time. This program will be presented as part of the 2016 Philly Fringe Festival. Bring your own blankets or beach chairs, picnics, and/or beverages.

Two weekends of performances are scheduled at Laurel Hill Cemetery: September 16, 17, 23 and 24 (with prescheduled rain dates of September 18 and 25). All performances begin at 8:00pm, and will kick off with cocktails at 7:30pm. Ticket holders can check in at Laurel Hill Cemetery's Gatehouse entrance, 3822 Ridge Avenue, Philadelphia, PA 19132. Free parking is located in the lot directly across the street from the Gatehouse.

The cost for the program is \$25/person general admission. Advance reservations are requested. Tickets can be purchased at the door, or through the Fringe Festival Box Office at <http://fringearts.com/>.

**SOCRATES CAFE** is nationwide network of philosophical discussion groups. Free and open to the Public. All are welcome.

- 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 1200 E. Willow Grove Avenue, Wyndmoor, PA. 19038.
- At 2 PM on the first Thursday of each month and at 7 PM on the third Thursday of each month at Glenside Free Library, 215 S. Keswick Avenue, Glenside, PA.
- At 10:30 AM to Noon on the second Wednesday of each month at Abington Free Library, 1030 Old York Road, Abington, PA.



## PhACT Lecture

Saturday, September 17, 2016

Dr. Rob Brotherton will speak on  
The Psychology of Conspiracy  
Theories.

See Page 4 for more details.

Saturday, September 17, 2016 at 3:30PM -  
4:30PM at University of Pennsylvania Museum,  
3260 South Street, Philadelphia, PA 19104

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

**ARMED AND DANGEROUS: AN  
ICONOGRAPHY OF PROTECTIVE  
MIDDLE AND NEW KINGDOM DEMONS**  
Date

**Dr. Kasia Szpakowska**, Associate Professor of Egyptology at Swansea University, Wales, and Director of the Ancient Egyptian Demonology Project, presents at this American Research Center in Egypt, Pennsylvania Chapter program. The practices and beliefs associated with medicine, magic, and religion in Ancient Egypt were integrated into daily life rather than separated as they are in many parts of the world today, and a wide range of demons were held to blame for ailments, diseases, and conditions both physical and psychological. Dr. Szpakowska shares information about Egyptian demons, and introduces participants to a unique database under construction: DemonBase: The Imaginal Realm of Ancient Egyptian Supernatural Beings.

Admission: \$10 for the general public, \$7 for Penn Museum members and PennCard holders, \$5 for students with ID, and free for ARCE members and children under 12.

Saturday September 17, 2016 at 7PM -  
Humanist Association of Greater Philadelphia

(HAGP)

[www.HAGP.org](http://www.HAGP.org)

**The Book Club: Chasing the Scream: The First and Last Days of the War on Drugs by Johann Hari**

Barnes and Noble 102 Park Ave, Willow Grove, PA

Wednesday, September 21, 2016 at 6:15PM -  
7:15PM at University of Pennsylvania Museum,  
3260 South Street, Philadelphia, PA 19104

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

**DIGITAL TECHNOLOGIES ARE  
CHANGING THE FACE OF 21ST  
CENTURY ARCHAEOLOGY**

**Neil Asher Silberman**, archaeologist, author, and managing partner of Coherit Associates, speaks at this evening program sponsored by the Philadelphia chapter of the Archaeological Institute of America. His illustrated lecture highlights some of the recent discoveries and ongoing controversies in the Americas, Europe, and Asia that exemplify the dramatic new directions that archaeology is taking in our globalized, internet age.

Dr. Silberman argues: there's a revolution happening today in the way we value, discover, and imagine the past. On the negative side, ancient sites by the thousands—not only in the Middle East but all over the world—are being bulldozed, looted, vandalized, or blown up. Feature films, bestsellers and specialized cable documentaries hopelessly muddle archaeological fiction and fact. Yet on the positive side, advanced satellite imagery and LIDAR sensors are uncovering complex civilizations in deserts and jungles where none were assumed ever to exist. Virtual reality environments and 3d digital reconstructions are now used both for scientific documentation and immersive museum experiences. And the sheer social reach of Facebook, Twitter, and research-by-crowdsourcing is offering archaeologists unprecedented opportunities to engage the general public in their work.

Free Admission

Wednesday, September 21, 2016 at 6:00pm to  
7:00pm at the American Philosophical  
Society, Benjamin Franklin Hall, 427 Chestnut  
Street, Philadelphia

<http://www.amphilsoc.org/>

**Susan O. Montgomery Lecture: The Burger Court and the Rise of the Judicial Right**

Linda Greenhouse's new book, *The Burger Court and the Rise of the Judicial Right*, is a fresh and revelatory look at the Warren Burger Supreme Court. Greenhouse and her co-author Michael Graetz find that it was not a "moderate" or transitional court, as often portrayed, but a conservative one that still defines the constitutional landscape we live in today.

When Richard Nixon campaigned for the presidency in 1968 he promised to change the Supreme Court. With four appointments to the court, including Warren E. Burger as the chief justice, he did just that. In 1969, the Burger Court succeeded the famously liberal Warren Court, which had significantly expanded civil liberties and was despised by conservatives across the country.

The Burger Court is often described as a "transitional" court between the liberal Warren Court and the Rehnquist and Roberts Courts, a court where little of importance happened. But the Burger Court veered well to the right in such areas as criminal law, race, and corporate power. Even while declaring a right to abortion in *Roe v. Wade*, it drew the line at government funding for poor women. The authors excavate the roots of the most significant Burger Court decisions and show how their legacy affects us today.

Linda Greenhouse, recipient of the Pulitzer Prize and other major journalism awards, covered the Supreme Court for *The New York Times* for nearly thirty years. Since 2009, she has taught at Yale Law School and written a biweekly op-ed column on the Court as a contributing writer for the *Times*. She is a graduate of Radcliffe College, Harvard, and earned a master of studies in law degree from Yale Law School. This is her fourth book about the Supreme Court.

The Susan (Susie) O. Montgomery Lecture Series honors a remarkable Friend of the American Philosophical Society and a great champion of Benjamin Franklin's founding mission of "promoting useful knowledge."

Free and Open to the Public.

Wednesday, September 21, 2016 at 7:30 p.m.  
at the Free Library of Philadelphia, 1901 Vine  
Street, 19103

<http://libwww.freelibrary.org/authorevents/>

**The American Presidency | Neil Oxman | The Spot: How Political Spots Are Made and Their History**

President and Co-Founder of the Campaign Group, Neil Oxman, will show political spots from the 1952 Eisenhower-Stevenson contest and share examples of his own work. He will also discuss the history of political messages on TV and explain how they're made.

Free and Open to the Public

Wednesday, September 21, 2016 at 6:30 PM -  
8:30 PM at The Academy of Natural Sciences,  
1900 Benjamin Franklin Parkway, Philadelphia  
19103

[www.ansp.org](http://www.ansp.org)

at Eastern State Penitentiary, 2027 Fairmount Avenue Philadelphia, PA  
19130

Phone: (215) 236-3300



**The Searchlight Series: Conversations About Crime, Justice,  
and the American Prison System**

Eastern State Penitentiary Historic Site partners with nationally recognized penologists and educators to present an ongoing discussion series about crime, justice, and the American prison system. The Searchlight Series discussions take place the first Tuesday of every month, free and open to the public. No reservations required. See website at:

<http://www.easternstate.org/searchlight-series>

### The Richard Hopper Day Memorial Medal Award Presentation and Talk by Elizabeth Kolbert

The Academy of Natural Sciences will award the Richard Hopper Day Memorial Medal to author Elizabeth Kolbert to recognize her outstanding contributions in interpreting natural science and making discoveries in natural history more accessible to the public.

Following the award presentation Kolbert will discuss her latest work, *The Sixth Extinction: An Unnatural History*, which won a Pulitzer Prize for general nonfiction. She will share her research arguing that we are currently experiencing the most devastating extinction event since the asteroid impact that wiped out the dinosaurs. Learn how and why human beings have altered life on the planet in a way no species has before. After her talk copies of *The Sixth Extinction: An Unnatural History* will be available for purchase and signing. Go to website to register.

This event is part of the Academy of Natural Sciences of Drexel University's 2016 Town Square series, made possible by Warren Environmental Counsel. This series of evening programs is designed to engage and provide relevant educational content to the public on environmental issues.

**Thursday, September 22, 2016, 7 PM** at Commonwealth Chateau, Chestnut Hill College, 9230 Germantown Avenue, Philadelphia, PA 19118

#### The Institute for Science and Religion

<http://www.irands.org>

#### Do Humans Have Minds? Neuroscientific and Biblical Issues

**Nancy Murphy, PhD**, looks briefly at theological views of human nature and at critical points in history when science influenced these views. The major emphasis will be to illustrate the many ways neuroscience is calling body-soul or body-mind dualism into question, and promoting a physicalist account—that is, describing humans as purely physical organisms. However, the claim that we are composed of matter must not be taken to imply that higher human faculties are simply determined by material laws.

Free and Open to the Public. A free will donation is requested.

**Sunday, September 25, 2016 at 1pm** at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA 19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

#### Pints and Plots: Oktoberfest in the Cemetery

Oktoberfest is the world's largest beer festival, held annually in Munich, Germany. The 16-day festival begins in mid-September and has been replicated in cities all over the world, including in Philadelphia. In the spirit of the season, this autumnal walking tour will focus on the history of beer in the city, and the residents of Laurel Hill who produced, distributed and enjoyed it. Led by award-winning homebrewer

and certified beer judge, Mike Lewandowski, the walking tour will conclude with a special tasting sponsored by Philly Homebrew Club. Raise a glass and say "Prost!" to your neighbor, as you sip on a frothy beverage and enjoy a sampling of Oktoberfest-inspired treats.

The tour and tasting will take place on Sunday, September 25 at 1:00pm, departing from Laurel Hill Cemetery's Gatehouse entrance at 3822 Ridge Avenue, Philadelphia, PA 19132. Free parking is located in the lot across the street from the Gatehouse.

The cost is \$20/person general admission. Space is limited and advanced reservations are suggested. Tickets can be purchased at the door or online.

Tour Guide: Mike Lewandowski

**Note: See the article by Mike Lewandowski on Page 1.**

**Sunday, September 25, 2016 at 1:30 -** Humanist Association of Greater Philadelphia (HAGP)

[www.HAGP.org](http://www.HAGP.org)

#### HAGP Speakers Series: Amanda Knief from American Atheists

PM Upper Moreland Library 109 Park Avenue, Willow Grove, PA

**Monday, September 26, 2016 at 12:00pm - 1:00pm** at the Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.chemheritage.org>

#### Brown Bag Lecture:

#### Publishing a Scientist's Correspondence: Joys and Sorrows

Please join us for a talk with **Robert Anderson**, CHF's Interim President and CEO.

As many of us have discovered, written correspondence can be very revealing. In the case of letters to and from scholars, evidence is frequently found which is difficult, or even impossible, to glean from published papers or books but which nevertheless is significant in considering their work. In recent years, editions of letters of Michael Faraday, Joseph Banks and Erasmus Darwin have appeared, and Charles Darwin's has been partly published. This paper will deal with issues, some of which were tricky to deal with, surrounding the production of the correspondence of the Scottish chemist, Joseph Black (1728-99), which appeared in 2014. What the benefits are of having his letters in print will be briefly discussed.

Free and Open to the Public.

**Monday, September 26, 2016 at 6:30 PM** 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](http://www.collphyphil.org/prog_calendar.htm)

Pre-registration for all programs and events is strongly urged.

#### When the Smoke Clears: Why the Tobacco Pandemic Endures

**Surgeon General's Warning: This presentation may be hazardous to your preconceptions.**

More than fifty years after the publication of

the landmark Surgeon General's report on smoking and health, the toll taken by cigarettes remains devastating. Dr. Luther Terry's indictment of cigarettes in 1964 as the leading cause of lung cancer should have marked the beginning of the end for the Marlboro Man. But far from riding off into the sunset, the tobacco industry has met the challenge of maintaining the nicotine addiction of nearly 50 million Americans. The tragic result is that cigarette smoking is still the nation's number one avoidable health problem, accounting for 480,000 deaths a year. This richly illustrated presentation by a pioneering anti-smoking activist, who was awarded the Surgeon General's Medallion by Dr. C. Everett Koop, explores the reasons why failures have exceeded successes in the effort to end the tobacco pandemic. His proposal for a different strategy may be hazardous to your preconceptions.

Sponsored by the Section on Medicine and the Arts & the Section on Public Health and Preventive Medicine in honor of the 100th birthday of a remarkable Surgeon General and College Fellow, C. Everett Koop, MD.

**Thursday, September 29, 2016 at 6:00pm - 8:00pm** at the Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.chemheritage.org>

#### Synthesis Lecture: Jan Golinski

Jan Golinski, former CHF distinguished fellow, presents a talk based on his new book, a biography of Humphry Davy.

Golinski's new book, *The Experimental Self: Humphry Davy and the Making of a Man of Science* (University of Chicago Press, 2016), explores the life of one of the 19th century's most famous men of science. Davy was known for discovering sodium, potassium, and other elements, and for inventions including the miners' safety lamp. But he was an enigmatic figure to his contemporaries and has continued to elude the efforts of biographers to classify him. Golinski argues that Davy's life was a prolonged process of self-experimentation. He follows Davy through his youthful escapades breathing nitrous oxide and his self-fashioning as a popular scientific lecturer. He explores Davy's dramatic discoveries in the laboratory and his authorship of a travel narrative that was also a work of speculative philosophy. What emerges is a portrait of Davy as the creator of his own identity through a lifelong series of experiments in selfhood.

Free and Open to the Public. Register online.

**Monday September 26, 2016 at 7:00 PM** at MaGerks Pub and Grill, 582 South Bethlehem Pike, Fort Washington, Pennsylvania 19034.

#### American Revolution Round Table of Philadelphia, <http://arrtop.com/>

**Elizabeth Beatty of Fort Mifflin, Philadelphia**  
Free and Open to the Public.

**Monday, September 26, 2016 at 7:00 PM** in the community room at the Ludington Library, 5 South Bryn Mawr Avenue,, Bryn Mawr, Pennsylvania.

Freethought Society. <http://www.ftociety.org/>





### To the Cross and Back

Author **Fernando Alcántar** will take the audience on a journey of discovery, analyzing the cultural barriers and psychological consequences of organized religion which lead to bigotry, prejudice, and harm. Through his personal story ascending up the ranks of Christian leadership in North America, Alcántar will flesh out the systematic institutionalization of a religious system that promotes the withering of critical thinking, homogenization of cultural values, and the promotion of attacks on minority communities, such as the LGBT and ethnic populations.

Alcántar is a former denominational state leader for the Foursquare Church in Mexico, the United Methodist Church in the United States, and missionary leader for Azusa Pacific University — the second largest evangelical college in the nation.

Free and open-to-the-public

**Tuesday, September 27, 2016 at 6:00 PM - 7:00 PM** at World Cafe Live, 3025 Walnut Street, Philadelphia

<http://www.upenn.edu/pennnews/science>

#### PENN SCIENCE CAFÉ

Vijay Balasubramanian, the Cathy and Marc Lasry Professor of Physics, School of Arts & Sciences

#### “Decoding Your Mental GPS: Transcendental Numbers in the Brain”

The brain uses specialized neurons known as place and grid cells to keep track of location. The discovery of the latter earned researchers a Nobel Prize, but the way the brain encodes and decodes this information is still a mystery. Now, a team of University of Pennsylvania researchers, led by Vijay Balasubramanian, has a theory for how grid cells work together to pinpoint an organism's location on a mental map. He'll explain how the brain's many overlapping grids are connected by a special ratio, organizing them into something akin to the decimal system.

Free and Open to the Public.

**Wednesday, September 28, 2016, Lecture at 6:00 PM** at the **Wagner Free Institute of Science**, 1700 West Montgomery Avenue, Philadelphia, PA 19121

[www.wagnerfreeinstitute.org](http://www.wagnerfreeinstitute.org) ph 215-763-6529

#### Weeknights at the Wagner - Crash! Why Birds Collide with Buildings in Philadelphia & Beyond

with Keith Russell, Audubon Pennsylvania.

Free and Open to the Public. Contributions are welcome.

**Thursday, September 29, 2016 at 6:00pm - 8:00pm** at the Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.chemheritage.org>

#### Synthesis Lecture: Jan Golinski

Jan Golinski, former CHF distinguished fellow, presents a talk based on his new book, a biography of Humphry Davy.

Golinski's new book, *The Experimental Self: Humphry Davy and the Making of a Man of Science* (University of Chicago Press, 2016), explores the life of one of the 19th century's most famous men of science. Davy was known for discovering sodium, potassium, and other elements, and for inventions including the miners' safety lamp. But he was an enigmatic figure to his contemporaries and has continued to elude the efforts of biographers to classify him. Golinski argues that Davy's life was a prolonged process of self-experimentation. He follows Davy through his youthful escapades breathing nitrous oxide and his self-fashioning as a popular scientific lecturer. He explores Davy's dramatic discoveries in the laboratory and his authorship of a travel narrative that was also a work of speculative philosophy. What emerges is a portrait of Davy as the creator of his own identity through a lifelong series of experiments in selfhood.

Free and Open to the Public. Register online.

**Friday, September 30 at 7pm at Laurel Hill Cemetery**, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurehillcemetery.org>

#### The Dead Milkmen in Concert

Philadelphia's beloved satirical punk-rock band, The Dead Milkmen, are performing in the most fitting of venues: Laurel Hill Cemetery. Formed in 1983, the band released their debut album *Big Lizard in My Backyard* in 1985 and made a name for themselves in the local underground punk scene. Their original lineup consisted of vocalist and keyboardist Rodney Linderman (“Rodney Anonymous”), guitarist and vocalist Joe Genaro (“Joe Jack Talcum”), bassist Dave Schulthise (“Dave Blood”) and drummer Dean Sabatino (“Dean Clean”). “Punk Rock Girl,” a single from their 1988 album entered MTV rotation and led the band to international success. Though the band broke up in 1995, they reunited in 2008 with Dan Stevens on bass. Since then, they've toured to great acclaim and released a number of limited-issue vinyl EPs. This fall, the band will return to the city of the dead for what promises to be an unforgettable performance. Bring your own blankets, beach chairs and/or picnics.

The concert will take place on Friday, September 30 at 7:00pm (with a prescheduled rain date of Saturday, October 1 at 7:00pm). Gates open at 6:00pm. Ticket holders can check in at Laurel Hill Cemetery's Gatehouse entrance, 3822 Ridge Avenue, Philadelphia, PA 19132. Free parking is located in the lot directly across the street from the Gatehouse.

The cost is \$20/person general admission. Purchasing advance tickets is suggested. Tickets can be purchased at the door or online.

**Friday, September 30, 2016 at 7:00PM - 8:30PM** at University of Pennsylvania Museum, 3260 South Street, Philadelphia, PA 19104

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

#### TURKISH FILM FESTIVAL: ISTANBUL UNVEILED

Explore Istanbul in this 2013 travel documentary

film produced in English. Scriptwriter Şerif Yenen co-produced the film with Saadet Özen and co-directed it with Levent Ayasli.

Turkish cinema is a rich and flourishing aspect of contemporary Turkish culture. In honor of the Museum's special exhibition *The Golden Age of King Midas*, featuring treasures from the Republic of Turkey, the Museum offers this festival of Turkish films September 30 through October 9, co-sponsored by the Turkish American Friendship Society of the U.S. (TAFSUS).

Admission: \$10 per film.

**Monday, October 3, 2016 at 12:00pm - 1:00pm** at the Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.chemheritage.org>

#### Brown Bag Lecture with Ingemar Pettersson.

See online for more details.

Free and Open to the Public.

**Tuesday, October 4, 2016 at 6:00 PM** at College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia, PA 19103

[http://www.coliphil.org/prog\\_calendar.htm](http://www.coliphil.org/prog_calendar.htm)

Pre-registration for all programs and events is strongly urged.

#### Poe: An Immersive Performance of the Masque of the Red Death

On the week of the anniversary of Edgar Allen Poe's death, the Mütter Museum presents an immersive performance of his short story "The Masque of the Red Death," to be followed by a discussion of the representation of illness in Poe's works. The event begins at 6pm, upstairs in our beautiful ballroom.

Dress for the occasion!

**Tuesday, October 4, 2016 at 7:00 PM** at Washington Memorial Chapel, on Route 23 in Valley Forge.. Friends of Valley Forge Park

<http://www.friendsofvalleyforge.org/speaker-series.shtml>

#### Whatever Did They Eat?

**Clarissa F. Dillon, Ph.D.**

With two armies nearby, foraging and hungry, families in Eastern Pennsylvanians during the winter of 1777–78 found themselves severely pinched for food.

Free and Open to the Public.

**Tuesday, October 4, 2016 - 6:00pm - 7:00pm** at Eastern State Penitentiary, 2027 Fairmount Avenue, Philadelphia, PA 19130 phone: (215) 236-3300

<http://www.easternstate.org/home>

#### The Searchlight Series: Lecture.

#### Dee Hibbert-Jones and Nomi Talisman: Last Day of Freedom

An award-winning animated short film telling the story of Bill Babbit's decision to stand by his brother in the face of war, crime and, eventually, capital punishment. (32 minutes followed by Q&A with the filmmakers).

This event is part of Eastern State's ongoing Searchlight Series of events addressing issues in contemporary corrections. The Searchlight Series

discussions take place the first Tuesday of every month, free and open to the public. No reservations required.

The Searchlight Series is supported in part by a grant from The George W. Rentschler Foundation. Free. Reception to follow

**Wednesday, October 5, 2016 at 6:00PM - 8:00PM** at University of Pennsylvania Museum, 3260 South Street, Philadelphia, PA 19104

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

#### Great Beasts of Legend Lecture Series

#### ANZU: THE LION-HEADED EAGLE WHO WANTED TO RULE THE UNIVERSE

Dr. Steve Tinney, Associate Curator, Babylonian Section, Penn Museum

The Penn Museum's popular monthly evening lecture series kicks off with a fresh theme: Great Beasts of Legends. Throughout history, great beasts and monsters fabled or not have terrorized, enchanted, and eluded humans. Join leading Penn scholars on an exploration of some of the best stories from the around the world, and meet some memorable beasts, including Centaurs, Hobbits, and Sphinxes. Dr. Steve Tinney, Associate Curator, Babylonian Section, starts off the series with an in-depth look at Anzu, one of ancient Mesopotamia's iconic monsters, a giant eagle with a lion's head, depicted in art from as early as 2500 BCE. As a symbol of the gods and friend of heroes, Anzu's early career seems benign, but somewhere along the way his ambition gets the better of him. Dr. Tinney follows Anzu from artistic masterpiece to cosmic threat to his eventual ignominious demise by a fatal twist..

Admission: nine lecture series subscription \$40 (\$15 Penn Museum members); \$5 single lecture advance ticket (\$2 Penn Museum members); \$10 at the door.

**Saturday, October 8, 2016 at 10 am** at **Laurel Hill Cemetery**, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

#### The Hot Spots and Storied Plots

In life and in death, we all have stories to tell and what better place to hear tales of wonder than Philadelphia's most famous home of the dead? Join Laurel Hill Cemetery for an 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 perfect tour for first-time visitors to Laurel Hill, and anyone else who enjoys beautiful art, scenic nature and fascinating history. "The Hot Spots and Storied Plots" will be presented monthly as part of Laurel Hill Cemetery's Fourth Friday and Second Saturday tour series.

The walking tour will take place on Saturday, June 11 at 10:00am, departing from Laurel Hill Cemetery's Gatehouse entrance at 3822 Ridge Avenue, Philadelphia, PA 19132. Free parking is located in the lot across the street from the Gatehouse.

**Saturday, October 8, 2016 at 5pm** at **Laurel Hill Cemetery**, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

#### 8th Annual Rest in Peace 5K Run

Trick or treat...move your feet! Kick off your Halloween season the right way. Organized by the Friends of Laurel Hill Cemetery with the help of Presenting Sponsor, East River Bank, the Rest in Peace 5K Run is the ONLY Halloween costume run and after-party in a Cemetery at night in the region!

Unique and challenging, the run winds through the headstones in Laurel Hill Cemetery. Participants and spectators alike are encouraged to attend in Halloween attire. Don't forget your wallets... Directly following the run, prizes are awarded for the best costume as well as to the winners of the run at an after-party that features food, free beer, live music and a chance to win top-notch prizes.

Proceeds benefit the Friends of Laurel Hill Cemetery, a nonprofit dedicated to the preservation of Laurel Hill Cemetery, a National Historic Landmark. In addition to being a good time, the run is also a very community minded event, connecting runners, local businesses and organizations together through fellowship, fitness and fun! For those looking for a charity fitness event that is cool albeit creepy, the RIP 5K is the perfect choice!

The RIP 5K Run will take place on Saturday, October 8 at 5:00pm (registration opens at 4:00pm), and is a rain or shine event. Runners and spectators should enter via Laurel Hill Cemetery's Gatehouse entrance at 3822 Ridge Avenue, Philadelphia, PA 19132. Free parking is located in the lot across the street from the Gatehouse.

Runners can register at [www.rip5k.org](http://www.rip5k.org). Advance, online registration is \$35/adults 20+; \$20/teens 13-19 years; and \$15/children 8-12 years. Cost includes complimentary gift bag and t-

shirt. Walk-ups are welcome, but t-shirt sizes cannot be guaranteed. Day-of registration for adults is \$40. For additional information, please call (215) 228-8200 or email [info@rip5k.org](mailto:info@rip5k.org).

**Sunday, October 9, 2016 at 10am-3pm** at **Laurel Hill Cemetery**, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

#### Cruise-In Car Show

Take a trip down memory lane on a crisp, autumn afternoon in the Cemetery. Presented by the Roxborough Ridge Runners, the Cruise-In Car Show is open to all clubs and lone wolves with antiques, classics, hot rods, customs, muscle cars, lowriders and any other vehicle that is mobile and interesting. No entry fee required; simply come and display your rolling work of art along the meandering lanes of historic Laurel Hill Cemetery.

The show will take place on Sunday, October 9 from 10:00am - 3:00pm, departing from Laurel Hill Cemetery's Gatehouse entrance at 3822 Ridge Avenue, Philadelphia, PA 19132. Exhibitors must check in upon arrival. For more info, please contact 215-228-8200. Free parking for spectators is located in the lot across the street from the Gatehouse.

The event is FREE and open to the public; refreshments will be available for purchase.

**Monday, October 10, 2016 at 6:00 PM** at **National Mechanics**, 22 S. Third Street, Philadelphia, PA 19106

#### Science on Tap

A monthly gathering that features a brief, informal presentation by a scientist or other expert followed by lively conversation. Good food and beer.

This month's Science of Tap is brought to you by the American Philosophical Society.

Must be 21 or accompanied by parent. Free and open to the Public.

<http://scienceontaphilly.com/>

**Monday, October 10, 2016 at 6:30 PM** at College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia, PA 19103

[http://www.collphyphil.org/prog\\_calendar.htm](http://www.collphyphil.org/prog_calendar.htm)  
Pre-registration for all programs and events is strongly urged.

#### Leonardo at 500

Leonardo da Vinci was arguably the most creative person who ever lived. Exquisitely gifted in both arts and science, he practiced them as a "scientist of art and an artist of science." Five hundred years later, his anatomical drawings



## 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](http://www.rittenhouseastronomicalsociety.org)

remain testimony to his unique way of engaging the world both artistically and scientifically. From pioneering the injection of molten wax into ventricles, to multiple views of specimens, to the recurrent use of cross-sections and cutouts, those drawings remind us of a brain that always thought in pictures. Yet, they also challenge us to understand what made Leonardo so creative. This may be especially worthwhile in times when medical education has been accused of hindering creativity.

This event is part of Ciao Philadelphia.

**Tuesday, October 11, 2016 at 5:30 PM** at College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia, PA 19103

[http://www.collphyphil.org/prog\\_calendar.htm](http://www.collphyphil.org/prog_calendar.htm)

Pre-registration for all programs and events is strongly urged.

Exposed: Philadelphia Physicians in Photographs, an Archives Month Event

Save the date for the Historical Medical Library's Archives Month Philly event. The Library will be displaying highlights from its rarely shown collection of photographs featuring physicians, patients, and all things medicine in the 19th and early 20th centuries.

Tickets are extremely limited.

**Wednesday, October 12, 2016 at 7:15 PM** at the Fels Planetarium, The Franklin Institute, 222 North 20th Street,

Philadelphia, PA 19103

**The Rittenhouse Astronomical Society**

Astronomy lecture open to the General Public. See website for more details:

<http://www.rittenhouseastronomicalsociety.org/>

**Thursday, October 13, 2016 at 6:00-8:00 PM** at the **Wagner** Free Institute of Science, 1700 West Montgomery Avenue, Philadelphia, PA 19121

[www.wagnerfreeinstitute.org](http://www.wagnerfreeinstitute.org) ph 215-763-6529

**Archives Month Philly -**

**Philadelphia Lantern Slide Salon**

Free and Open to the Public. Contributions are welcome.

**Thursday, October 13, 2016 - 7:00pm to 10:00pm** at The Franklin Institute Science Museum, located in Center City Philadelphia, at the intersection of 20th Street and the Benjamin Franklin Parkway.

<http://www.fi.edu>

**NIGHT SKIES IN THE OBSERVATORY**

**SETI/AstroBiology**

**Fels Planetarium, Bloom Observatory, Franklin Theater**

Hosted by Franklin Institute Chief Astronomer Derrick Pitts, Night Skies in the Observatory is a monthly stargazing event held in the Joel N. Bloom Observatory. View celestial objects in the night sky, including stars, planets, nebulae, and if conditions are right, a galaxy or two, from 5 different rooftop telescopes in the Observatory. The evening includes shows in the Fels Planetarium and a lecture or presentation appropriate for ages 8 and up on an astronomical or space science topic. The Observatory is staffed with knowledgeable observers and free star maps

are provided.

Due to the popularity of this event, we strongly recommend that you purchase tickets in advance as capacity is limited and it may sell out.

**Friday, October 14 & Saturday, October 15, 2016 at 7pm** at **Laurel Hill Cemetery**, 3822 Ridge Avenue, Philadelphia, PA 19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

**Soul Crawl: Haunted Halloween History Tours**

Laurel Hill Cemetery's classic Halloween flashlight tours have become a mainstay of the season. Experience the enchanting art and landscape after dark, as an experienced tour guide leads you along winding, dimly-lit pathways. The extended nighttime walking tours will focus on the cemetery's rich history, and of course, some of the liveliest spirits buried within. Tours will last approximately two hours, and will be followed by seasonal refreshments and cocktails aside blazing fire pits.

Two evenings of the Soul Crawl: Haunted History Halloween Tours are scheduled at Laurel Hill: Friday, October 14 and Saturday, October 15 at 7:00pm, sharp. Attendees are advised to wear comfortable clothes and shoes, and to bring a flashlight.

The cost for Soul Crawl is \$20/person general admission. Purchasing tickets in advance is suggested, and appreciated. Tickets can be purchased at the door or online.

Upon arrival, register at Laurel Hill Cemetery's Gatehouse entrance, 3822 Ridge Avenue, Philadelphia PA, 19132. Free parking is located in the lot directly across the street from the Gatehouse.

## PhACT Lecture

**Saturday, October 15, 2016  
at 2:00 PM**

**Richard Saunders will speak on  
Thinking Critically about Money  
and Investing**

**See page 6 for more details**

**Saturday, October 15, 2016 at 3:30PM - 4:30PM** at University of Pennsylvania Museum, 3260 South Street, Philadelphia, PA 19104

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

**CRAFTS AND CONSUMERISM IN  
PREDYNASTIC EGYPT**

Dr. Emily Teeter, Egyptologist, Research Associate, and Coordinator of Special Exhibits at the Oriental Institute, Chicago, speaks at this American Research Center in Egypt Pennsylvania

## Night Skies in the Observatory at the Franklin Institute

**Every second Thursday**

**About Night Skies in the Observatory**

Hosted by Chief Astronomer at The Franklin Institute, Derrick Pitts, the Joel N. Bloom Observatory is open late to the public and offers 5 different telescopes for you to view celestial objects in the sky, including stars, planets, nebulae, and if conditions are right, a galaxy or two. The evening includes a Fels Planetarium show and a lecture or presentation (appropriate for ages 5 and up) on an astronomical or space science topic. The Observatory is staffed with knowledgeable observers and free star maps are provided. Meet some BIG STARS on the second Thursday of each month at The Franklin Institute! Admission is \$5.00. Members are free. Advance reservations are not needed. Tickets are sold on-site when you arrive.

<http://www2.fi.edu/exhibits/permanent/>

Chapter program. A close look at artifacts of Egypt's Predynastic Period (ca. 4500-3100 BC), Dr. Teeter asserts, have the potential to tell us much about life and society in the era before writing. Changing styles of stone vessels, the decoration of painted pottery, and the choice of specific materials all attest to early consumerism, links between craftsmen and the market, and to claims of status through personal possessions. The rich archaeological record documents an ancient society marked by surprising similarities to today's consumerism.

Admission: \$10 for the general public, \$7 for Penn Museum members and PennCard holders, \$5 for students with ID, and free for ARCE members and children under 12.

**Sunday, October 16, 2016 at 1pm** at **Laurel Hill Cemetery**, 3822 Ridge Avenue, Philadelphia, PA 19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

**The Worlds of Thomas Jefferson at Laurel Hill**

Adopted sons, signers of the Declaration, painters, sculptors, men of science, ladies of belle letters, famous physicians, pariahs of free press, purveyors of fine wine and, of course, political provokers both friend and foe: all recognized by Thomas Jefferson as luminaries in our nation's early "Constellation of Worthies." They now rest peacefully at Laurel Hill; but their stories refuse to conform to those tenets, boldly demanding to be told. This walking tour will be led by foremost Jefferson scholar and acclaimed portrayer of America's third President, William David Barker ([www.thethomasjefferson.com](http://www.thethomasjefferson.com)), who will be visiting Laurel Hill from his home in Williamsburg, Virginia.

The tour will take place on Sunday, October 16 at 1:00pm, departing from Laurel Hill Cemetery's Gatehouse entrance at 3822 Ridge Avenue, Philadelphia, PA 19132. Free parking is located in the lot across the street from the Gatehouse.

The cost is \$12/person, \$10/students and seniors, or \$9/members. Tickets can be purchased at the



door or online.  
Tour Guide: Bill Barker

**Monday, October 17, 2016 at 12:00pm - 1:00pm** at the Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.chemheritage.org>

Brown Bag Lecture with Mark Waddell

See online for more details.

Free and Open to the Public.

**Monday, October 17, 2016 at 6:30 PM** at College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia, PA 19103

[http://www.collphyphil.org/prog\\_calendar.htm](http://www.collphyphil.org/prog_calendar.htm)

Pre-registration for all programs and events is strongly urged.

**Perfect Vessels: Skulls, Symbols & Symmetry**

For his series **Perfect Vessels**, Los Angeles artist David Orr photographs then mirrors a human skull to create perfectly symmetrical results. David will speak about influences for this work (including the Memento Mori and the Vanitas traditions in classic art; the use of human skulls as bowls in ancient cultures; symmetry as a cultural signifier of perfection; links to transcendental mysticism) as well as the individual histories of some of the skulls he has photographed from the Hyrtl Collection at the Mütter Museum.

**Tuesday, October 18, 2016 at 6pm** at **Laurel Hill Cemetery**, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

**Seven Deadly Sins**

The Victorian era is often noted for moral, straitlaced behavior—but Laurel Hill residents had their share of vices. Underneath all of the proper behavior lurked the temptation of the seven deadly sins: greed, lust, wrath, envy, pride, sloth and gluttony. Join us for an after-work twilight tour of the grounds to hear more about the residents who gave into temptation! A sinful spread of desserts and cocktails will follow in the Cemetery's Gatehouse.

The tour will take place on Tuesday, October 18 at 6:00pm, departing from Laurel Hill Cemetery's Gatehouse entrance at 3822 Ridge Avenue, Philadelphia, PA 19132. Free parking is located in the lot across the street from the Gatehouse.

The cost is \$20/person, \$18/students and seniors, or \$17/members. Tickets can be purchased at the door or online.

Tour Guide: Sarah Hamill

**Tuesday, October 18, 2016 at 6:00 PM - 7:00 PM** at World Cafe Live, 3025 Walnut Street, Philadelphia

<http://www.upenn.edu/pennnews/science>

**PENN LIGHTBULB CAFÉ**

Michael Leja, professor of history of art, and graduate group chair, School of Arts & Sciences

**“A History of Print Advertising in the Presidential Race”**

Michael Leja is a visual arts scholar in various media from the 19th and 20th centuries, including painting, sculpture, film, photography, prints and

illustrations. His work focuses on understanding visual artifacts in relation to contemporary cultural, social, political and intellectual developments and in a historical context. In this Café, Leja will explore what it was like when presidential candidates first began using print advertisement

Free and Open to the Public.

**Wednesday, October 19, 2016 at 7:30 p.m** at the Free Library of Philadelphia, 1901 Vine Street, 19103

<http://libwww.freelibrary.org/authorevents/>

**The American Presidency | Curt Smith | King of the Hill Meets the Sultans of Swat: Presidents and Baseball**

A leading authority on politics and sports, Curt Smith, will cover baseball, the presidency, and the complex relationship between the two. Mr. Smith is an author, media host, columnist, and former Presidential speech writer. His new book about the topic will be published in spring 2017.

Introduced by Doug Bauer, President of the Clark Foundation.

Free and Open to the Public.

**Wednesday, October 19, 2016 at 5:30 PM** at College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia, PA 19103

[http://www.collphyphil.org/prog\\_calendar.htm](http://www.collphyphil.org/prog_calendar.htm)

Pre-registration for all programs and events is strongly urged

**Grand Rounds: Tobacco, Retail Stores, and the Marketing of Disease**

by The College of Physicians of Philadelphia

Tobacco is heavily marketed in retail spaces, particularly in urban communities. Combined with ready availability, advertising can increase consumption of unhealthy products and contribute to poor health. In particular, outdoor and point-of-sale tobacco advertising has been shown to increase smoking initiation among adolescents, undermine smokers' quit attempts, and promote relapse among former smokers. In this Grand Rounds, panelists will discuss retail tobacco advertising in Philadelphia, its role in Philadelphia smoking rates and disease, and solutions for addressing the problem.

This event is free to the public, but requires pre-registration.

**Friday, October 21, 2016 at 7pm.** **Laurel Hill Cemetery**, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

**Gravediggers' Ball**

The Gravediggers' Ball is the annual fundraiser of the Friends of Laurel Hill Cemetery, a 501(c)(3) nonprofit organization working to preserve, interpret and promote the site for which it exists. Since its establishment in 1836, Laurel Hill Cemetery has been maintained as a free and fully accessible educational, environmental and recreational resource for both nearby communities and

faraway visitors. It has served equally as a place of enjoyment for the living and one of peaceful rest for the dead for 180 years. All proceeds from the Gravediggers' Ball directly support the ongoing public accessibility, preservation and interpretation of historic Laurel Hill Cemetery.

To learn more about the 12th Annual Gravediggers' Ball, please visit [gravediggersball.org](http://gravediggersball.org).

**Saturday, October 22, 2016 at 9:30 AM to 2:30 PM** at the 1696 Thomas Massey House in Broomall, PA.

**An 18th century hearth-cooking workshop  
A mid-autumn meal.**

**Cost: \$35.00**

**For information call Clarissa Dillon ... 610-642-4269**

**Monday October 24, 2016 at 7:00 PM** at MaGerks Pub and Grill, 582 South Bethlehem Pike, Fort Washington, Pennsylvania 19034.

**American Revolution Round Table of Philadelphia**, <http://arrtop.com/>

Free and Open to the Public.

**Monday, October 24, 2016 at 7 PM** at Commonwealth Chateau, Chestnut Hill College, 9230 Germantown Avenue, Philadelphia, PA 19118

**The Institute for Science and Religion  
Outsourcing Memory? Can we Upload our  
Memory to a Computer?**

**Noreen Herzfeld, PhD**

Professor Herzfeld will examine how our increasing dependence on computers as our outsourced memory alters not only our recollection of the past but the present as well, affecting how we relate to one another and how we understand ourselves.

<http://www.irands.org>

Free and Open to the Public. A free will donation is requested.

## PhACT Lectures

**Saturday, November 19,  
2016 at 2:00 PM**

**Saturday, January 21, 2017  
at 2:00 PM**

**Programs TBA**



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**.

Membership dues of \$ \_\_\_\_\_ enclosed to pay for \_\_\_\_\_ years of membership.

Donation of \$ \_\_\_\_\_ enclosed for additional support

Donation of \$ \_\_\_\_\_ dedicated for High School Science Fair prizes

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ E\_mail \_\_\_\_\_

**Mail checks to:**  
**PhACT**  
**653 Garden Road**  
**Glenside, PA 19038**

or to pay online go to  
[www.PhACT.org](http://www.PhACT.org)

## 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 **premier** learning institution and PhACT is pleased to support this goal by having talks on wide ranging, engaging, and educational topics. Students and faculty are invited to be active participants in our activities.

### The PhACT Council 2016/17

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The PhACT website is: [www.phact.org](http://www.phact.org)

*Phactum* is distributed 4 times a year beginning January 2014 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. 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](mailto:phactpublicity@aol.com).

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*Phactum* Editor, Ray Haupt  
[phactpublicity@aol.com](mailto:phactpublicity@aol.com)



In science, fact can only mean confirmed to such a degree that it would be perverse to withhold provisional assent. I suppose that apples might start to rise tomorrow, but the possibility does not merit equal time in physics classrooms.

~ Stephen Jay Gould (1941 - 2002)