

Confucius has said, "A wise man question himself, a fool, others."

~ Charlie Chan in
City in Darkness

Phactum

The Newsletter of PhACT, the
Philadelphia Association for Critical Thinking
April/May/June 2019

PhACT supports science, critical thinking and science education, and encourages the scientific investigation of controversial or extraordinary claims.

Editor: Ray Haupt email: phactpublicity@aol.com

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

Angel Hair at Tyler Arboretum

By Don Nigroni

Ten years ago, for my March 2009 *Phactum* article on *Luminous Birds and the Paranormal*, the editor, Ray Haupt, inserted a photo with the caption, "Angel hair is an alleged substance of unknown origin, said to be dispersed from UFOs as they fly overhead." Long ago I spent months trying to find some angel hair, but, alas, to no avail. However, on March 30 of this year, Kim Sheridan, Robb Kerr and I visited a field in Tyler Arboretum in Media, Pennsylvania where this mysterious substance was finally found.

Angel hair has been associated with UFOs and Virgin Mary apparitions but is really spider silk which can be produced by spiderlings for ballooning (see Kim's photos on pages 2 and 3). At the arboretum, spiderlings of the species *Atypus snetsingeri* emerge each spring. These are purse-web spiders. There these teeny tiny spiderlings generate gossamer threads in order to get launched into the air whereupon they are scattered by the wind.

While I have finally seen angel hair, I have yet to see an extraterrestrial spacecraft. Regardless, I will miss seeing *Phactum* and extend my thanks to Ray Haupt for his long years of dedicated service to the best local skeptical newsletter ever!



From *Phactum*, March 2009

Angel hair is an alleged substance of unknown origin, said to be dispersed from UFOs as they fly overhead.

(Continued on page 2)



“Angel hair” draped on plants is the silk produced by *Atypus snetsingeri* spiderlings

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***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

New entry: **BURDEN OF PROOF REVERSAL** - The logical fallacy of shifting the burden of proof occurs when the assumption is made that something is true (or false) unless proven otherwise.

Example: "The six-day creation is the default. You have to prove to me that it isn't true. The burden of proof is on you, not me."



← Gossamer spider silk

→ *Atypus Snetsingeri* spiderlings walk a tightrope of spider silk.



← A spiderling perches on gossamer left behind by other dispersing spiderlings.

→ An amber-hued spiderling glows in the sun



NOTE: All photos were taken by Kim A. Sheridan at Tyler Arboretum on March 30, 2019 and all spiders shown are spiderlings of the species *Atypus snetsingeri*.

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. **Please try to arrive a few minutes early as the College now requires that meeting attendees sign in for security reasons. ID must be shown.**

Saturday, April 20, 2019 - PhACT Lecture.

Our speaker will be Kenny Biddle,

a Paranormal Investigator and writer for Skeptical Inquirer.

His topic will be: *Investigating Mysteries: Out-of-the-Box Thinking that Solved Strange Cases*

This presentation will cover some of the methods Kenny Biddle has used to solve mysteries. Using investigations from his personal case files, Kenny will demonstrate how these techniques provided clues to unravelling mysteries from screaming ghosts wandering hotels to Elvis Presley appearing in the holiday classic 'Home Alone'.

Kenny Biddle is a science enthusiast who investigates claims of paranormal experiences, photos, videos, and gadgetry. He promotes science, critical thinking, and skepticism through his YouTube video blog, "I Am Kenny Biddle." He has been a photography consultant for Mutual UFO Network (MUFON) for almost a decade. He often hosts workshops and lectures on alleged paranormal photography, providing a better understanding of how anomalies have natural explanations. Kenny is a columnist for the Committee for Skeptical Inquiry, with his work appearing in publications around the world. Kenny is open to the idea of paranormal claims and works to test them for validity. He currently offers an Electronic Voice Phenomenon (EVP) Challenge at the White Hill Mansion that comes with a cash prize should anyone pass the challenge.



"If you don't believe in yourself, who will?"

CartoonStock.com

I Am Kenny Biddle, Episode 1 (16 minutes)

<https://www.youtube.com/watch?v=LiASkrNS940>

(Continued on page 5)

Saturday, May 18, 2019 - PhACT Expedition to Indian Rock

At Tyler Arboretum in Delaware County by the picturesque Rocky Run sits a peculiar artifact known, at least since 1907, as Indian Rock. Our guide, Don Nigrone, will relate the theories as to what Indian Rock might really be and we will discuss the local history of the Lenape and a strange document, the Walum Olum, ascribed to them. Robb Kerr will be providing botanical information about this scenic Piedmont site and Kim Sheridan will be photo-documenting the day's activities. We will meet at the Visitor Center by the parking lot at 10:00 AM. Then we will hike from the Visitor Center along the Blue Trail for one mile each way to inspect this mysterious stone.

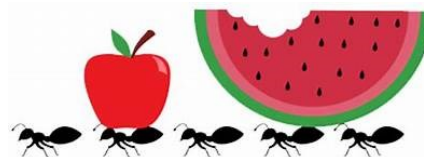
For directions to Tyler Arboretum at 515 Painter Road, Media, PA 19063 go to <https://www.tylerarboretum.org/>. Although we may not figure out what Indian Rock really is, we will learn about the history and natural history of this Piedmont site. Bring insect repellent, sturdy shoes, lunch, and a camera.

The event is free and open to the public.



American Chestnut nursery at Tyler Arboretum.

Saturday, June 22, 2019 - PhACT Picnic 11:00 AM to 3:00 PM at Fort Washington State Park at the Militia Hill Day Use Area



We always have fun visiting, eating, and playing sports. PhACT will supply hotdogs, soft drinks, plastic ware, and napkins. If you desire other things bring them along, you can cook on the grill. And bring stuff to throw such as frisbees if you are so inclined. We have reserved a Pavilion in the Militia Hill Day Use Area.

We will again have a book swap - it is a great free way to build up a science/skeptic book collection - or help someone else do so. **All are welcome. Free.**

How to get there:

The park lies between the towns of Fort Washington and Flourtown along the Bethlehem Pike. It is about two miles from PA Turnpike Exit 339.

GPS Address: Militia Hill Day Use Area, 420 Militia Hill Road, Fort Washington, PA 19034

Saturday, September 21, 2019 - The PhACT Lecture Series begins for 2019/2020. Save the Date

Letters to the Editor

Letters and Rants to the Editor are encouraged.

Send to

PhACTPublicity@aol.com



Editor, Thanks for printing my article. FYI, I'm not a psychologist, but I do teach General Psychology at Rowan College @Gloucester County.

Becky Strickland

Turnersville, NJ

Editor's note: With the awesome power of an editor I gave you a promotion, but no extra pay.

Editor: p. 24 at the bottom: (*Phactum*, January 2019) It's "playwright" (x-wright, a worker skilled in x, like cartwright or shipwright), not "playwrite", even though it's someone who writes plays.

p. 23: In your citation it should be "Monty Hall", like I wrote it, not "Monte Hall" like in Monte Carlo.

Howard J. Wilke

Philadelphia

Editor: What is this fascination you have with gambling? We members are reasonably educated and reasonably intelligent people. We know gambling can be addictive. Are you addicted to gambling? Is that why you

spend so much space on gambling articles? I simply do not understand why you feel so strongly about gambling that you have to include articles and comments constantly. We don't need them.

This last issue was excellent with the articles on the Deccan Traps versus the impact theory. The gambling articles detracted from the rest of the issue.

Tom Conti

Wayne, PA

Editor's response: Thank you for the feedback, Tom, I appreciate it and wish more people would respond as you did, whether favorable or unfavorable.

I am not an addicted gambler and never was. My father was though. His gambling was mainly at the race track or with local bookies. That was before Atlantic City casinos and he had never been in Las Vegas. It was a painful lesson.

I see gambling as a social ill, just as foolish as the so called alternative medicine and anti vaccine movements. I do wish that other skeptics would get onboard as anti-gambling folks.

I have had one other who was critical of my anti gambling stance. I will seriously consider your remarks. Looking back at this *Phactum* I can agree that I did go a bit overboard on gambling snippets. On the other hand, I think that is better to focus on real social problems such as gambling, alternative medicine, and science denial than tiresome further debunking silly propositions such as Bigfoot and Nessie which are fun but not really very problematic to society.

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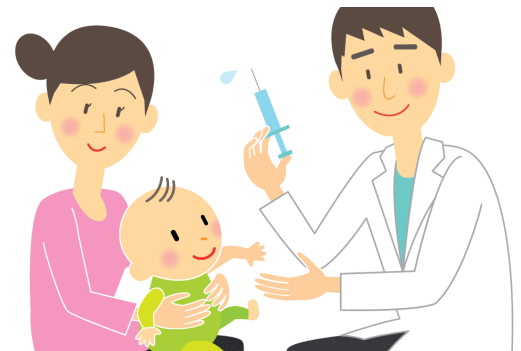
Open letter to Dr. Paul Offit from PhACT member Eric Krieg

Paul,

You did the right thing to really be the first to sound the alarm on the anti vaxer threat to all of us. I remember years back you clearly explained that we are ok for now, but if too many people refuse vaccines we can start to see kids dying again. For all the hatred and scorn you have endured from the ignorant - you can be excused for feeling schadenfreude for the pariah status your haters are now finding. My daughters for years have understood it is not safe to allow their kids to interact with unvaccinated people. I appreciate that my kids and grandkids can live in a time and place where the infant mortality rate is just around 12 per 100,000 - compared with places/times where it ran around 30,000 per 100,000. Thanks for not just directly using real Science to save kids lives, but for also boldly using your voice to fight the ignorance that limits the use of that Science.

Best wishes,

Eric Krieg



Various Ruminations of Woo Woo and Real Science and some Gossip

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

Resigning as Phactum Editor

Dear Phactum Readers, I have been editor of Phactum since April of 2006 and have decided to resign as Editor of this publication. I have found it to be interesting and mainly worth my while to be engaged in this endeavor, but enough for now. If there is a volunteer to take over the newsletter then that would be great but as of now the position is vacant.

I am doing this largely to get myself away from being on a schedule and a deadline. The quarterly format has worked well for me but I am hoping to do more travel and do not wish to schedule those activities around newsletter demands. We will of course still have the website, WWW.PHACT.ORG to announce meeting details.

But perhaps this is not a total resignation, unless a volunteer springs forward. I get a kick out of being a “journalist” of sorts and can envision still producing a modified Phactum published on a random non-scheduled basis. That, of course, if I have essays, meeting reports, letters, and other things to report including announcements of upcoming PhACT activities, but the purpose of announcing activities will be lessened.

This edition of Phactum will be the last with any U.S. Mail distribution and printed copies will only be available at PhACT meetings. The U.S. Mail aspect of the publication has been an annoying downside and good riddance.

So, I invite readers to submit essays and letters to the editor at phactpublicity@aol.com and let's see what happens.

Freethinking Cryptograms

Brooks Rimes very kindly sent me a copy of his book entitled *Freethinking Cryptograms*, a collection of encrypted quotes by various well known people with various alternative thoughts about religion.

The encryption is simple letter substitution such as cryptograms that may often be found in newspapers and magazines. I have not solved cryptograms for quite some time but this little book has rekindled my enthusiasm for those puzzles.

I had intended to include a cryptogram in this edition of Phactum and each one going forward, but since I had decided to resign as editor, I will include four puzzles in this edition, three exactly as Brooks has presented them and the fourth with a minor but slightly sadistic twist designed by me to baffle the problem solver.

No clues for cryptograms one to three, but for number four the letter “P” will translate to “E”. Also, in the fourth cryptogram, punctuation marks will be at the end of a word and likewise carriage return. A spy would not be so kind.

The cryptograms are on page 8 and answers for all four cryptograms are on page 11, but **DON'T PEEK!**

Science Fiction

Frequent *Phactum* contributor Don Nigroni has recently been trying his hand at speculative fiction. He has a short science fiction story now posted at a website called *ASYMMETRY FICTION*.

Don's short story entitled “*Saving Time*” can be found here: <https://www.asymmetryfiction.com/saving-time/>

Gambling Notes:

♣♦♥♠ **USA - Connecticut** - 'Gambling disorder could be linked half to genetics, half to environment'

When asked about how parents can understand if their children will develop a long term addiction or gambling disorder in the future, Professor Mark Potenza of Yale University explained that there was no easy answer, expect that there could be links between genetics and environment. Professor Potenza explained that a disorder could originate 50% through genetics or a family history of addictions. The

PhACT Membership Dues

Please note that as of July 1, 2019 membership dues for PhACT will be \$25.00. Your membership helps PHACT to sponsor quality speakers, annual excursions, and our annual summer picnic, all of which are free and open to all. In addition, every year PhACT sponsors science fair prizes for students from the Carver Science Fair in Philadelphia and the Bucks County Science Fair. PhACT is a 501c3 non-profit and all memberships and donations are tax deductible to the extent of US tax law.

Freethinking Cryptograms

ZNX RMSZXI FZEZXF DW EHXVSTE FNDRJI NEYX E

WDRMIEZSDM WVXX WVDH ZNX SMWJRXMTX DW TJXVKB.

-KXDVKX LEFNSMKZDM

CTNEN PR PS NDNEU DRQQZHN Z CJEIT - CTN CNZITNE:

ZSF ZS NOCPSHVPRTNE - CTN IQNEHUBZS.

-DPICJE TVHJ

YAB DJR YP GBB WR CJVYA VG YP GAFY YAB BAB PC NBJGPE.

-WBESJHVE CNJELIVE

QTPSESDPTGMWXSDPCXPQBJEWEQ..GWOMXZPVXXO

E E E E E

ZXBGDMGWOGIPGDQTXRXSMUPWEQJ,GWONCIGBOM

E E

-XRGQTXNMGWODEPM.

E

-ZGBHQIGEW

Answers on page 11

other half could be driven by environmental factors. He explains that if children are allowed to play these (online) games without proper guidance and understanding of their impact, they risk developing an interest in gambling and an addiction which will have dire consequences for the rest of their lives.

Read article: <https://www.newsbook.com.mt/artikli/2019/02/06/gambling-disorder-could-be-linked-half-to-genetics-half-to-environment>

♣♦♥♠ USA - California - Experts Worry Internet Gambling Will Lead to Gambling Crisis

Problem or compulsive gamblers, as well as the service that could assist them are concerned about the introduction of more gambling opportunities. Groups opposed to gambling



"Oh, by the way, as you were on your way down here your lottery ticket won seventeen million dollars."

CartoonStock.com

also worry it may be more difficult for problem gamblers to control their addictions. However, many of these groups aren't being heard because more states are excited about the revenue that comes from opening sports books. Dr. Timothy Fong, director of the UCLA department of psychiatry and biobehavioral sciences, says, "People have argued over and over that these people do it to themselves, that this is an issue of morality and greed." Dr. Fong asserts, "It really isn't. Their brains are built differently."

Read article: <https://www.usaonlinecasino.com/casino-news/experts-worry-internet-gambling-will-lead-to-gambling-crisis>

♣♦♥♠ USA - Alabama - Church returns \$25,000 gift from casino because it doesn't support gambling

An Alabama church damaged by a tornado is returning a \$25,000 donation from a casino because it doesn't support gambling. The pastor of the First Baptist Church of Wetumpka, James Troglen, tells WSFA-TV that church members voted Sunday to return the contribution from

Wind Creek Casinos. Troglen says church members were "extremely moved" by the donation. But Troglen says he doesn't support legalized gambling and church members who share his beliefs thought it would be a conflict to keep the money.

Read article: <https://www.abcactionnews.com/news/national/church-returns-25-000-gift-from-casino-because-it-doesnt-support-gambling>

♣♦♥♠ USA - Illinois - Will increase in game options result in more gambling addiction?

Since video gambling went live in 2012, more than 30,000 video slot and poker machines have been installed in the state and gamblers have lost more than \$5 billion. Yet the state has failed to address the issue of gambling addiction in any meaningful way. Lawmakers introduced and passed the 2009 Video Gaming Act in less than 48 hours, without holding a single hearing or conducting even a cursory study of the potential impact of the massive gambling expansion. Despite promises to increase funding for gambling addiction, Illinois spends less today than it did before legalizing the machines, a ProPublica Illinois/WBEZ investigation has found.

Read article: <https://www.pjstar.com/news/20190223/will-increase-in-game-options-result-in-more-gambling-addiction>

Astro Homeopathy

Get a load of this!!

Here is a website that shameless blends Astrology, Crystal work, and Homeopathy as pathways to healing and "wellness." I suppose that is not so very unusual as one will encounter those things and much more in any New Age bookstore, but I did find the website amusing, and also rather sad that too many people fall for the song and dance routines of alternative "medicine" practitioners who are good at extracting money for dubious advice.

<http://astrohomeopathy.com/crystal-work/4594464088>

Dr. Stephen Barrett Reports in Consumer Health Digest

Dr. Barrett's weekly newsletter, *Consumer Health Digest*, is free and available to all who wish to subscribe. To subscribe send a blank email to:

chd-subscribe@lists.quackwatch.org

Dr. Barrett's main website is: www.quackwatch.org

▶▶▶ Fluoridation benefits and safety reaffirmed

Public Health Ontario has completed an evidence review that reaffirms the benefits and safety of optimally fluoridated water. The report's key messages are:

- ♦ The existing literature (to May 10, 2017) indicates that mild dental fluorosis (generally unnoticeable white

specks on teeth) is the only adverse effect experienced from consuming optimally fluoridated water (Health Canada recommends the optimal level of fluoride in water at 0.7 mg/L).

- ◆ Infant formulas prepared with optimally fluoridated water may increase the chance of the mild form of dental fluorosis if they are the child's main food source. If prevention of mild fluorosis is desired, then infant formula can be occasionally prepared with low-fluoridated bottled water and early exposure to other forms of fluoride (including fluoride toothpaste, fluoride rinse, and fluoride supplements) should be monitored.

The report also notes that the recommended optimal level considers the dose-response relationship between fluoride intake and health effects and provides a trade-off that maximizes benefits and minimizes adverse effects. [Public Health Ontario. Evidence review for adverse health effects of drinking optimally fluoridated water (2010-2017). October 2018 https://www.dentalwatch.org/fl/ca_evidence_review_2017.pdf]

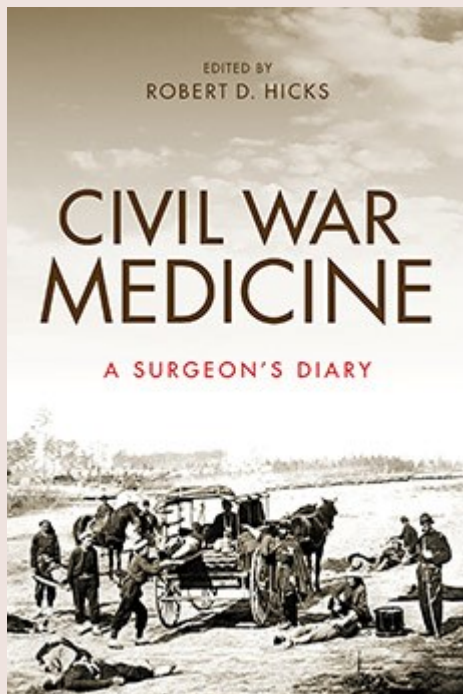
Dental fluorosis is an alteration of dental enamel caused by ingestion of more than the optimal amount of fluoride

during tooth development. In mild fluorosis, the teeth may appear whiter than otherwise but are neither unattractive nor structurally damaged. [Barrett S., Baratz RS. Dental fluorosis: much ado about nothing. Dental Watch, Jan 13, 2019]

▶▶▶ Evidence still lacking for facilitated communication

A systematic review of the scientific literature published since 2014 has concluded that there still is no evidence that facilitated communication is valid. In the FC process, a so-called "facilitator" supports the hand or arm of a nonverbal, disabled person who points to letters, pictures, or objects on a keyboard or communication board. It is clear, however, that the messages originate with the facilitator, not the patients. The researchers concluded: (a) there are still no studies that demonstrate that individuals with communication disabilities are the authors of the messages generated using FC, and (b) substantial peer-reviewed literature is critical of FC and warns against its use.

[Hemsley B and others. Systematic review of facilitated communication 2014–2018 finds no new evidence that



Civil War Medicine A Surgeon's Diary

Edited by Robert D. Hicks

Publisher: Indiana University Press

Publication date: 05/01/2019

Hardback 360 pages

ISBN: 978-0-253-04007-7

This product is currently in production and will be available on 05/01/2019

In this never before published diary, 29-year-old surgeon James Fulton transports readers into the harsh and deadly conditions of the Civil War as he struggles to save the lives of the patients under his care. Fulton joined a Union army volunteer regiment in 1862, only a year into the Civil War, and immediately began chronicling his experiences in a pocket diary. Despite his capture by the Confederate Army at Gettysburg and the confiscation of his medical tools, Fulton was able to keep his diary with him at all times. He provides a detailed account of the next two years, including his experiences treating the wounded and

diseased during some of the most critical campaigns of the Civil War and his relationships with soldiers, their commanders, civilians, other health-care workers, and the opposing Confederate army. The diary also includes his notes on recipes for medical ailments from sore throats to syphilis.

In addition to Fulton's diary, editor Robert D. Hicks and experts in Civil War medicine provide context and additional information on the practice and development of medicine during the Civil War, including the technology and methods available at the time, the organization of military medicine, doctor-patient interactions, and the role of women as caregivers and relief workers. Civil War Medicine: A Surgeon's Diary provides a compelling new account of the lives of soldiers during the Civil War and a doctor's experience of one of the worst health crises ever faced by the United States.

Meeting Reports - January / February / March 2019

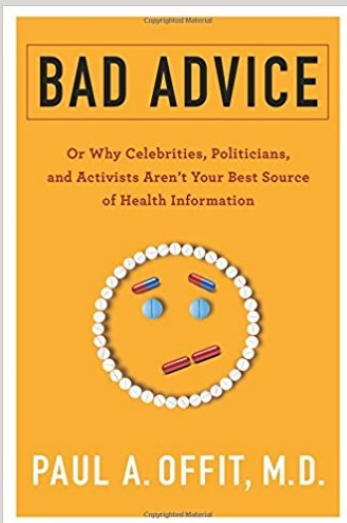
Reported by Josh Hansen and Michael Polinsky, Physics students of
Dr. David Cattell at Community College of Philadelphia.

Paul Offit, M.D., a vaccinologist and pediatrician discussed his book *Bad Advice: Why Celebrities Aren't Your Best Source of Health Information* Saturday, January 19, 2019

Submitted by Josh Hansen

Dr. Paul Offit gave a very polished and engaging presentation if perhaps somewhat poorly named. The topic of “Why Celebrities Aren't Your Best Source of Health Information” was barely broached. I think perhaps this was an attempt at real life “click-bait”. What he did present, which was described in the small print of the flyer, was funny, informative and touching.

By using anecdotes of his own experiences as a science presenter on television and other media sources, he told the tale general degradation of the reputation of science in this country. I found his descriptions of his failures charming, however it struck me as just how unfair the systems in place to inform the public are. The idea that a program such as the “Oprah Winfrey Show” a) exists b) would do a show about an important public health topic c) would invite a b-level actress to speak about it as some sort of authority and d) The notion that an accomplished scientist, author and pediatrician, should be intimidated out of



Bad Advice: Or Why Celebrities, Politicians, and Activists Aren't Your Best Source of Health Information by Paul Offit M.D.

Hardcover: 272 pages Publisher: Columbia University Press (June 19, 2018)
ISBN-10: 0231186983 ISBN-13: 978-0231186988

Science doesn't speak for itself. Neck-deep in work that can be messy and confounding and naïve in the ways of public communication, scientists are often unable to package their insights into the neat narratives that the public requires. Enter celebrities, advocates, lobbyists, and the funders behind them, who take advantage of scientists' reluctance to provide easy answers, flooding the media with misleading or incorrect claims about health risks. Amid this onslaught of spurious information, Americans are more confused than ever about

what's good for them and what isn't.

In *Bad Advice*, Paul A. Offit shares hard-earned wisdom on the dos and don'ts of battling misinformation. For the past twenty years, Offit has been on the front lines in the fight for sound science and public health. Stepping into the media spotlight as few scientists have done—such as being one of the first to speak out against conspiracy theories linking vaccines to autism—he found himself in the crosshairs of powerful groups intent on promoting pseudoscience. *Bad Advice* discusses science and its adversaries: not just the manias stoked by slick charlatans and their miracle cures but also corrosive, dangerous ideologies such as Holocaust and climate-change denial. Written with wit and passion, Offit's often humorous guide to taking on quack experts and self-appointed activists is a must-read for any American disturbed by the uptick in politicized attacks on science.

doing an appearance because Jenny McCarthy will be the other guest, is very unsettling. Dr. Offit spoke of a need for more science advocates, and perhaps that's true, but for every Bill Nye or Neil DeGrasse Tyson there are hundreds of talking heads and thousands of online purveyors of pseudo-science garbage. The public needs to hold media accountable when they step out of their lane. Journalists need to pursue the truth and not clicks. I don't know if either of those things will ever happen again in this country.

When Dr. Offit spoke of his experience as a pediatrician, is when he really had my attention. Presented with the genuine emotion he obviously felt treating children with 100% preventable infections that will forever change their lives, I challenge anyone to stand behind bogus studies and Jenny McCarthy. We don't let people endanger or abuse their children, I think it's clear that this qualifies.

He touched on several other topics, holocaust and climate change deniers, I think flat earth was mentioned. I think this goes back to the core of his presentation. People need to trust facts, or at least the people who make decisions need to trust facts. I think the decline in respect for science has to do with the way it is taught, to lure students into STEM fields the system has made it look easy at elementary levels. As a child uninspired and unchallenged by math and science in K-12, I think it does the opposite. The sciences should be intimidating, young students should feel proud to pass really challenging courses. I also think in a technology focused culture, the history of the people for which our theories, theorems, and equations are named should be taught with passion and conviction. We are all standing on the shoulders of giants and spitting on their graves.

I really enjoyed Dr. Offit, I think he is a fantastic advocate for truth and science.

Earl Bennett, past President of Philadelphia Area Space Alliance. Discussed *The Search for Extra Terrestrial Intelligence* Saturday, February 16, 2019

Submitted by Michael Polinsky

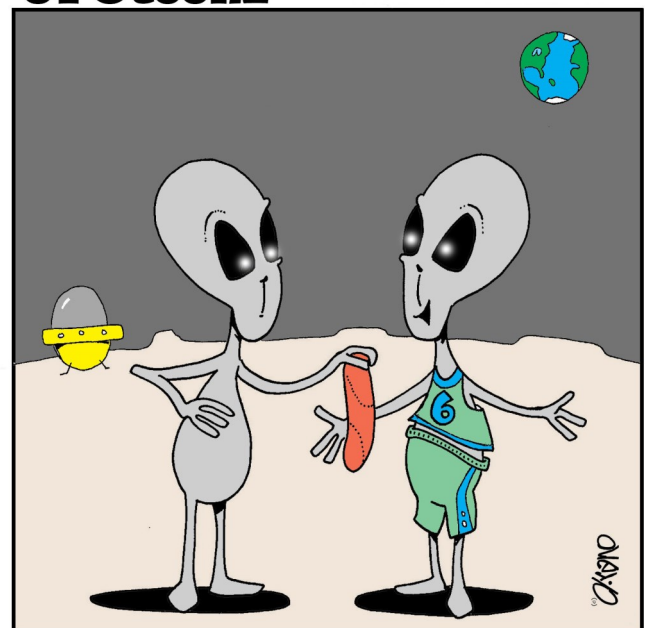
On February 16, National Space Society Philadelphia-area chapter President Earl Bennett spoke to a PhACT audience of more than 60 about SETI, its history, and future.

SETI, the search for extraterrestrial intelligence, exists as a wide range of efforts to find other intelligent beings in the universe. It exists today primarily in three forms. One is the SETI Institute, which is involved across a wide range of fields in encouraging scientific efforts aimed at understanding life in the universe, another is SETI@home, a distributed effort to use processing power from volunteers' computers to crunch SETI data, and the third is the SETI League, of which Earl Bennett is a member. The SETI League is made up of individuals who operate their own amateur radio telescopes, search for signals, and share data.

His talk began with a history of the effort to make contact with extraterrestrial civilizations, from the time of the idea of the "plurality of worlds," to efforts by Gauss and others to create signals on Earth that aliens might see. However, as Mr. Bennett pointed out, their efforts were in vain, as later satellite photography would reveal that such signals would not be discernable at even the distance of Saturn.

Attempts to contact extraterrestrials became more real in the 20th century, with the invention of radio telescopes, Mr. Bennett continued, explaining the phenomenon of the "watering hole" band – a quiet band of the spectrum where it has been theorized extraterrestrials might attempt to make contact. Throughout the talk Mr. Bennett was clarifying the sober reality of SETI, a multifaceted effort, against the popular conception provided by the movies. He explained the Drake equation, a proposed way to "calculate" the likely number of advanced civilizations that could exist at a given time to receive or send a signal, and explained how when, in the 1960s regular pulses were detected from space, though they were

UFOTOONZ



"I'm going to shoot some hoops with members of the Flat Earth Society."

called “LGM” or, “little green men,” they were not honestly taken for proof of alien contact. The pulses of course turned out to be pulsars.

Finally, Mr. Bennett came to the heart of the talk – the telescopes. He went through a set of slides on the various telescopes used in the past, right up to current technology, beginning with Project Cyclops in the 1970s, the first effort at using an entire array of telescopes to search a wider area. Next was Arecibo, used to *send* a message in 1974, which is also the source of data for SETI@home. Then Greenbank, Jodrell Bank, the Allen Array (named for Microsoft cofounder Paul Allen), and the Atacama Large Millimeter Array. It was a fascinating history. Finally, he reached the space telescopes – Kepler, which before the mission ended had discovered 4300 ‘planetary candidates’ and about 40 rocky bodies.

Then he went into the future, explaining Russian billionaire Yuri Milner’s Breakthrough Starshot project to essentially “spam” the universe with tiny advanced life-searching spacecraft that would, Bennett joked, return signals in the lifetime of the younger members of the audience, but not most of them.

He ended his talk on a positive note – “TESS is up,” he reported, referring to the Transiting Exoplanet Survey Satellite, which has already discovered about a dozen planets, and, he added, the James Webb Space Telescope, which its own NASA website calls, “the premiere observatory of the next decade,” will launch in 2021. Like almost all of the tools SETI uses to scan the universe, Webb will be mostly used for non-SETI activities, making the SETI League and SETI@home all the more important.

**Robert Crease, Ph.D., Professor of Philosophy at Stonybrook University
was our speaker. His topic was:
“*Lights Out: The Rise and Fall of Scientific Authority*,”
Saturday, March 16, 2019**

Submitted by Michael Polinsky

There is a war on, and Dr. Robert Crease, Chair of the Department of Philosophy at Stony Brook University believes he has a winning strategy, pulled from the pages of scientific history. At a meeting of the Philadelphia Association for Critical Thinking on March 16 2019, Dr. Crease laid out his vision for combatting science-denialism in our age, based on lessons he sees in the science wars of the past. His talk, “*Lights Out: The Rise and Fall of Scientific Authority*,” focused on the history of science denialism in hopes of finding solutions to the denialism that faces science today, a phenomenon Crease said is a, “fact of the American political landscape.”

Crease stated that great scientists have been battling for thousands of years to bring legitimacy and most importantly, authority, to the sciences. All of them faced opposition from those whose power relied on a worldview that appeared contrary to that put forth by scientific study, and all had to attempt to overcome that. Though Galileo was placed on house arrest, Crease points out that by the end of that century, government-supported science had become a reality. We all know what followed – the industrial revolution and modernization.

So, Crease invites us to wonder, what happened? How have we arrived in an era defined by scientific innovation, in which he says regular laymen and politicians alike, “feel comfortable,” denying science, and what can we do?

Crease’s answer to the first question is that the aspects of organized science that have made it work over the last few cen-



**I would rather have questions that can't be answered
than answers that can't be questioned.**

~ **Richard P. Feynman, (1918-1988),
American Theoretical Physicist**

turies have also made it vulnerable to the sort of attacks we see all around us today. He ran through a list of quotes by prominent politicians and personalities, liberal and conservative, all of whom misunderstand, minimize, and outright attack scientific knowledge. He then listed six aspects of the pursuit of scientific knowledge that can also serve as cannon fodder for opponents of science to create what Crease called a “veneer of legitimacy.”

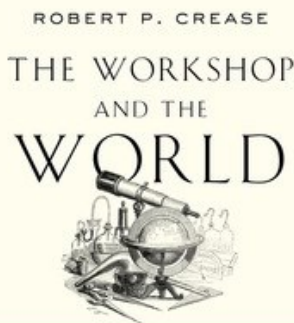
For one, science transforms values. That was on display with Galileo’s challenging of the geocentric view of the cosmos. Science is technical and abstract, requiring usually expensive years of study to be able to comprehend. Science is fallible, and acknowledges that! It also is almost always produced by bureaucratic institutions, which are vulnerable to accusations of agenda, science, as Crease says, “acts into nature,” meaning it transforms out world and environment, and finally, once scientific inquiry has produced new knowledge, that knowledge can usually be passed on and used without the kind of understanding that created it, leading to a situation where people can live in a world shaped by science, but be ignorant of and opposed to scientific progress.

But Dr. Crease’s talk was not ultimately morbid. His answer to the second question, what can we do, was to ask what those Renaissance scientists did to transform the values of their societies? What certainly doesn’t work, according to Dr. Crease, is moralizing, talking about epistemologies, or citing statistics from research papers. As for what does, he cited an episode in which a scientist discussing seatbelts and auto safety was accused by an angry audience member, of ‘only caring about the numbers,’ and ignoring the lives of the people involved. The speaker took a moment, and then responded that when he thinks of vehicle safety, he thinks of the life of his grandchild. Crease paraphrased: “I love the numbers, because I love my grandson.” Ultimately, scientists have to make a human connection with their audiences. They have to tell them a story, they have to stir their emotions. That is the only way to reassert the authority of the sciences.

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The Workshop and the World: What Ten Thinkers Can Teach Us About Science and Authority By Robert P. Crease

March 2019 Publisher: W. W. Norton and Company
Hardcover 272 pages
ISBN 978-0-393-29243-5



A fascinating look at key thinkers throughout history who have shaped public perception of science and the role of authority.

When does a scientific discovery become accepted fact? Why have scientific facts become easy to deny? And what can we do about it? In *The Workshop and the World*, philosopher and science historian Robert P. Crease answers these questions by describing the origins of our scientific infrastructure—the “workshop”—and the role of ten of the world’s greatest thinkers in shaping it. At a time when the Catholic Church assumed total authority, Francis Bacon, Galileo Galilei, and René Descartes were the first to articulate the worldly authority of science, while writers such as Mary Shelley and Auguste Comte told cautionary tales of divorcing science from the humanities. The provocative leaders and thinkers Kemal Atatürk and Hannah Arendt addressed the relationship between the scientific community and the public in times of deep distrust.

As today’s politicians and government officials increasingly accuse scientists of dishonesty, conspiracy, and even hoaxes, engaged citizens can’t help but wonder how we got to this level of distrust and how we can emerge from it. This book tells dramatic stories of individuals who confronted fierce opposition—and sometimes risked their lives—in describing the proper authority of science, and it examines how ignorance and misuse of science constitute the preeminent threat to human life and culture. An essential, timely exploration of what it means to practice science for the common good as well as the danger of political action divorced from science, *The Workshop and the World* helps us understand both the origins of our current moment of great anti-science rhetoric and what we can do to help keep the modern world from falling apart.



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>

Lectures and Other Events at the Wagner

Thursday, April 18, 2019 at 6:00 PM at the Wagner Free Institute of Science, 1700 West Montgomery Avenue, Philadelphia, PA 19121
From Stream to Sewer: A History of Philadelphia's Landscape
Join us for a Weeknights at the Wagner lecture by:
Adam Levine, Historical Consultant for the Philadelphia Water Department

As we walk around the city of Philadelphia, few of us think about the hidden world of streams that once meandered across the city. Adam Levine will present a fascinating illustrated lecture that will uncover part of the city's history that few people ever think about – the drastic changes made in the urban landscape since the city's founding in 1682. Levine has been digging into the history of the city's sewers and drainage systems since 1998. His talk will focus on the systematic obliteration of hundreds of miles of city streams—including Cohocksink Creek in the Wagner's vicinity, Mill Creek in West Philadelphia, and Wingohocking Creek in Germantown. These streams, with watersheds that covered thousands of acres, were wiped off the city's map, buried deep underground in pipes as large as 20 feet in diameter to serve as main drainage arteries in the city's 3,000 mile sewer system. The combined flow of sewage and stormwater in these pipes, which periodically overflow, has environmental repercussions that are still being dealt with today—not only in Philadelphia, but in any older city with a similar sewer system. This lecture is guaranteed to reveal a side of urban infrastructure you have never seen, and change the way you think about cities in general.

Museum open until the talk begins at 6 p.m. Registration is free, but donations (\$5 suggested) are welcomed at the door!
 Free and Open to the Public

Thursday, June 6, 2019 from 5:30 to 8:30 p.m. at the **Wagner Free Institute of Science**, 1700 West Montgomery Avenue, Philadelphia, PA 19121

A SIP OF SCIENCE - 2019 BENEFIT COCKTAIL PARTY

A Sip of Science is the Wagner's signature fundraising party. It draws together Wagner supporters, community leaders, and a distinguished honoree for a night of cocktails and camaraderie amid our sublime natural history collections. Party proceeds allow us to preserve our National Historic Landmark building and collections, and to provide free access to science for thousands of people every year.

Each year, a Sip of Science honors a leader who has made significant contributions in a field represented in the Wagner's mission—science, architecture, preservation, or the history of science—and is committed to sharing his or her work with the public.

HONORING ROBERT MCCRACKEN PECK

Academy of Natural Sciences of Drexel University

Our honoree for 2019 is Robert McCracken Peck, the acclaimed author, naturalist, and historian of science whose books show us the glories of the natural world—and of scientific discovery.

Robert McCracken Peck is a modern-day embodiment of the 19th century naturalist. A fearless explorer with a sharp eye and a notebook, Peck chronicles his findings and his field expeditions in sensitively-written books aimed at the general public. In his writings, he encourages us to embrace a sense of wonder—just as the Wagner set out to do in 1855. As Senior Fellow at the Academy of Natural Sciences of Drexel University, he has participated in scientific expeditions to South America, Africa, and Asia, and lectured and published widely on the history of science and the history of exploration. His books include *Specimens of Hair: The Curious Collection of Peter A. Browne* (2018) and *A Glorious Enterprise: the Academy of Natural Sciences of Philadelphia and the Making of American Science* (with Patricia T. Stroud). A species of South American frog, *Eleutherodactylus pecki*, was named in his honor.

Note: The lecture is free but please register to attend the Cocktail Party.

Adult Education Winter/Spring 2019 Course Schedule

Fermentation: An Introduction
Professor Karen Snetselaar

Extreme Plants: Radical Adaptations in the Vegetable Kingdom
Professor Jordan Teisher

6 Tuesdays, March 26 – April 30, 2019, 6:30 - 7:30 PM. Pennsylvania Horticultural Society, 100 N. 20th St. (20th and Arch Sts.).

This course will examine some of the most dramatic examples of plant adaptations, including carnivory, parasitism, mimicry, and drought tolerance. By exploring the biology underlying these extreme evolutionary innovations, students will gain an understanding of the basic challenges facing all plants and a greater appreciation for the diversity and ingenuity of plant form and function.

Register online or call 215-763-6529 x23.

Genetic Engineering and Its Impact on Society
Professor Mary Beth Davis

6 Wednesdays, April 3 – May 8, 2019, 6:15 - 7:30 PM. Independence Branch of the Free Library, 18 S. 7th St. (between Market and Chestnut).

The Human Genome Project was completed in 2003. This course will look at some of the discoveries from human genome research, especially rapid, low-cost DNA-sequencing, and examine the ethical, legal and social implications of emerging technologies in genetic engineering.

No preregistration necessary. Register by completing a form at the class.

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Wagner lectures and courses are FREE and open to the general public. Contributions are gratefully received. Courses are taught at introductory college level.

The First CRISPR Kids

by Paul Schlueter III

It was quite recently that I offered an essay here (Phactum, July 2018, page 24), on the new method of genetic engineering called CRISPR-Cas9. This method allows scientists to modify the genome of an organism, either to remove faulty genes or to add new genes. It can be used to affect the "germ line," meaning that the genetic change can pass along to future generations as well. Scientists have made many comments about the potential dangers of this technology, and among those is the possibility that the human genome would be altered, for better or for worse. Many people have proposed that nobody should experiment with the human genome for the time being, but there has been no serious effort to prevent someone from doing so. There's no law against it, and there are many people around the world who have motivation to give it a try. In such situations, it's really just a matter of time and determination, and at some point we could be certain that someone with the means would pursue the goal. Somebody would inevitably be "the first." *Science News* reports that the girls are "twins."

On December 7, 2018, *The Week* ran a short article reporting that "a rogue Chinese scientist" named Dr. He Jiankui has claimed to have reached that goal. Dr. He claims that two baby girls were born in November, 2018, who have been genetically engineered to be resistant to HIV (the virus which causes AIDS). He claims to have used CRISPR to alter their genetic code, producing the first human kids with genetic immunity to a disease via human manipulation of their genome.

Dr. He began with eight couples, each with an HIV-positive man and a woman without HIV infection, all of whom volunteered for this experiment. The plan is to monitor these two girls for eighteen years, in order to observe the consequences of this genetic experiment.

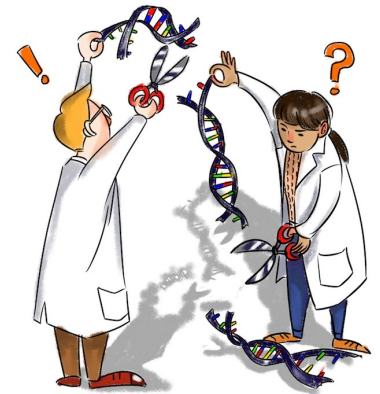
Dr. He, who claims that both girls are "normal and healthy," has been employed as a researcher at the Southern University of Science and Technology, in Shenzhen, China. An American bio-engineer, formerly He's "adviser" at Rice University, is being investigated to determine whether he knew of or assisted He in this work. Meanwhile, 122 Chinese scientists signed a letter "condemning the experiment."

One week later, *The Week* further reported that Dr. He has now "gone missing." The December 14 article reports that Dr. He "hasn't been seen or heard from since" giving the presentation of his research claim in Hong Kong on November 28, 2018. Chinese media has reported that Dr. He has been placed under house arrest, back in Shenzhen. His college, which claims it didn't know what Dr. He was working on, has declined to comment on He's possible detention.

It appears that other scientists aren't convinced that Dr. He has actually altered the girls' genome as he claims. Based on slides Dr. He used at his Hong Kong announcement presentation, unidentified others claim that Dr. He "likely has not protected the girls from future HIV infection and may have left them with debilitating gene mutations."

These two articles were mere one-paragraph pieces, found in the International section of two issues. But in the second issue, *The Week* expanded on this news in remarkable editorial fashion. On 12/14, Managing Editor Theonis Bates used the opening "Editor's Letter" to exclusively discuss the CRISPR kids and Dr. He's work. Bates points out that He's data hasn't been published or peer reviewed, but that scientists have been experimenting with human DNA for "the past decade;" all that work has been done under circumstances which have carefully avoided any actual pregnancy. "A U.S. team last year altered the DNA of embryos to replace defective genes that cause a hereditary heart condition," though those embryos were never implanted in a womb. Bates argues that "[t]his technology could eventually wipe out all hereditary diseases." He (Bates) then goes on to use the second half of his editorial describing the potential dark side of human genetic manipulation gone wild, restating several familiar speculations.

Later, on p. 12 of the 12/4 issue, *The Week* ran a summary of an article from *The Washington Post* by Marc Thiessen.



Thiessen calls human gene editing "an enormous threat" to humanity, and claims that Dr. He's "premature" work has earned the outrage of the scientific community. The real question he asks is, "Should we be doing this at all?"

Thiessen points out that there's a difference between gene therapy (treating individual patients suffering from genetic disease) and gene editing (permanently changing the genetic code of a human being). Yet, this writer wonders if only the sick are entitled to the potential benefits of CRISPR gene splicing? Is this some sort of genetic compensation package? Shouldn't everyone have such opportunities?

In essence, the public response to this announcement of Dr. He's work is reported to be one of worry. As countless authors have already speculated at length, the ability to custom-design human children is likely to be used to produce kids with all the best characteristics we desire, and none of the ones we find "common." Somehow, we've adopted the belief that ALL such manipulation is inherently bad, yet who doesn't want the best possible kids with the fewest possible flaws?

In their year-end issue (Dec. 22, 2018, & Jan. 5, 2019, p. 20) *Science News* printed nearly a full page of coverage, announcing this story as the #2 subject of the year (behind half a degree rise in global temperature). Tina Hesman Saey gave some depth and balance to what little is actually known. Dr. He had announced his success in an interview with the AP (and online) on Nov. 25. His announcement was just days before the Nov. 27 - 29 Second International Summit on Human Genome Editing (the best possible venue for his report, right?). He revealed the work there, as well as announcing that there is one additional woman in the early stages of pregnancy" with a CRISPR- edited baby (SN Online, 11/28/18).

In SN, we learn that Dr. He had edited the gene CCR5, which encodes a protein that "allows the most common version of the HIV virus to enter cells." Some people have a natural variant of this gene which gives them partial resistance to HIV infection, which the Dr. has tried to "copy" into these twin girls' genomes. Dr. He stated at the Summit that millions of babies are at risk from HIV infection, and there is no HIV vaccine to protect them; he feels proud to have performed these experiments trying to disable CCR5 and improve children's resistance to the virus. Among the problems raised by others in the field: Not enough evidence was revealed at the Summit (held at the University of Hong Kong) to verify that Dr. He's editing was successful, or that it didn't harm other genes. CRISPR/Cas 9 editing sometimes "misses" various cells in an embryo, leaving the subjects vulnerable to the target disease. Also, people with missing or altered CCR5 genes sometimes have increased risk of West Nile virus infections. Even if perfectly true, these points pale in comparison to the potential side effects of many prescription drugs advertised daily on TV; there are precious few treatments in medicine which are actually "risk free."

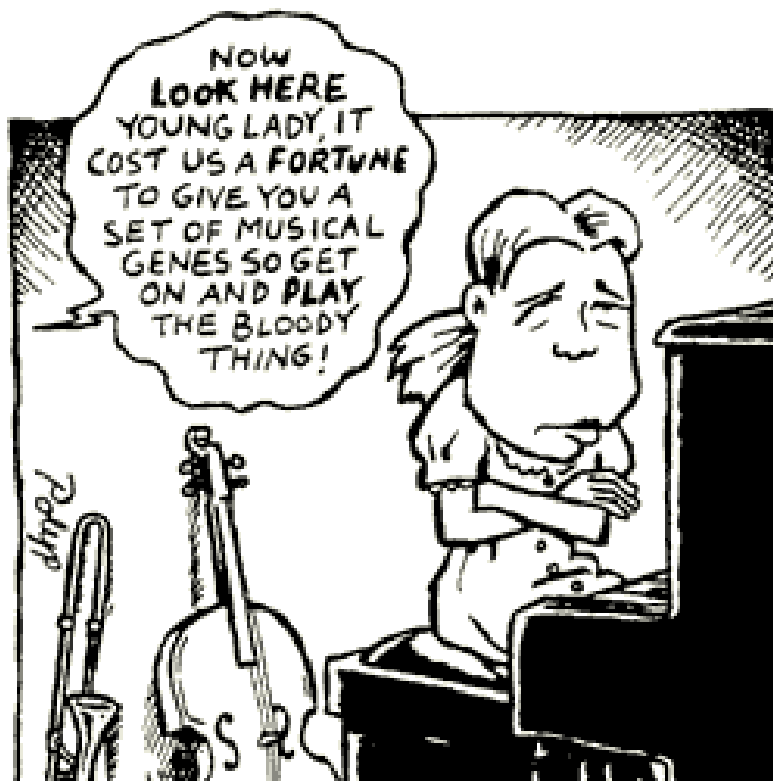
China's Ministry of Science and Technology (in Shenzhen) has announced that Dr. He's work "violated China's relevant laws and regulations." Nothing more specific was cited in *Science News*, except to repeat that authorities are investigating. Summit organizers have released "a statement agreeing that it's time to set standards for future clinical trials that would produce gene- edited babies to correct diseases." We can observe that scientists are interested in pursuing such work. Dr. He has made

the first claim of success (simple envy may explain the objections of some); others will surely follow soon.

Because genetic engineering is likely to remain quite expensive, its use will likely be directed by wealthy clients, leaving the middle class and poor families of the world "unimproved" (and thus, disadvantaged). Perhaps this financial unfairness is the root of our worries? With the current division between the 10% who control the vast majority of the world's wealth and resources, versus the 90% (the rest of "us") who struggle to survive by working three jobs and forgoing retirement, it's not difficult to imagine even greater division between the haves and the have-nots based on genetic advantage (over and above the privileges of family wealth and political power).

Humanity may be on the cusp of developing a true "superior race" of (wealthy, entitled?) children who all have great intelligence, health, beauty, talent, and ambition.

I personally hope that the Dr. He story will not be concealed from the world's curiosity. Will this be banned from press coverage by the Chinese authorities? Will scientists somehow keep the data and consequences concealed in special-access files? Has Dr. He been disappeared (from the ordinary people of the world), to be squirreled away in some special clinic where only the rich and powerful can exploit his discoveries in secrecy? Have we learned all



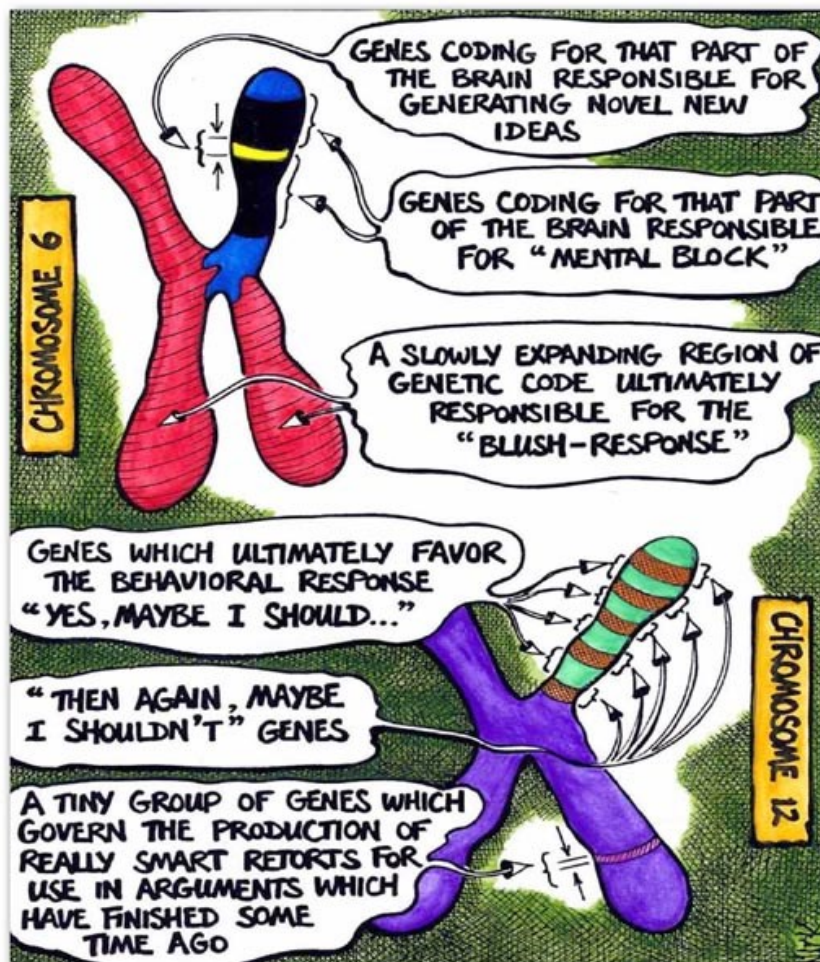
we're going to learn of this inevitable first event?

Or, will prying eyes and curious minds ferret out the facts, and reveal the full story? Will Dr. He's work open the door to ever more experimentation and discovery in human genetic engineering?

Will tens of millions of "perfect embryos" be made available to couples who wish to have such babies, and raise them as "ordinary people"? Will the world's governments produce a widely-variant sample of human potential, to place it on a space ship, and launch it into the cosmos to preserve our species from whatever fate we'll bring upon ourselves here on Earth?

The idea of genetic engineering has so many possible outcomes that even the cleverest fiction writers can barely guess at what might happen. For better or for worse, Dr. He has (supposedly) taken humanity across yet one more line into the future of technology. Knowledge will continue to grow, and in the end somebody might look back and wonder what we could possibly have been thinking... or, how we could have shown such foresight? As humanity tries to determine its own fate, we'll make both mistakes and achievements; only in hindsight will we discover which was which.

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Specialized regions in a couple of human chromosomes.

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

How NOT To Proselytize

by Paul Schlueter III

A brief story in *The Week*, Dec. 7, 2018, reported on the untimely passing of an American missionary, John Chau, aged 27. Chau made the choice to approach a remote and hostile tribe located on the North Sentinel Island, India, located in the Andaman Sea.

Chau's first attempt to contact the locals left him wounded by multiple arrows; this is presumably one of the reasons why India bans outside interactions with the island's inhabitants (also, reportedly, to protect the inhabitants from the world's diseases).

Chau returned to the fishing boat which had brought him to the forbidden zone. Despite his wounds, Chau used his canoe to return to the island for a second visit, so the locals burned his canoe.

No comment was offered on how Chau got back to the fishing boat, or how he returned to the island for his third visit, but while he was there the third time, the locals murdered the missionary, ending his unwelcome series of attempts to bring them the Holy Word. Crew on the fishing boat witnessed the islanders bury Chau's mortal remains on the beach.

The Indian government was reportedly considering whether or not to recover Chau's body; there are understandable safety issues involved.

Our lesson from Chau's efforts might be this: Having been shot on your first visit, and then having your ride torched on your second, think very carefully before you again attempt to bring your particular system of beliefs to those who clearly aren't trying to hear them!

It may seem unlikely, having read the above story, but it is actually now the year 2019. May YOUR efforts be more rewarding throughout the year.

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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. Please try to arrive a few minutes early as the College now requires that meeting attendees sign in for security reasons. ID must be shown.**

Saturday, April 20, 2019 at 2:00 PM PhACT Lecture.

Our speaker will be Kenny Biddle, a Paranormal Investigator. His topic will be: *Investigating Mysteries: Out-of-the-Box Thinking that Solved Strange Cases*
See Page 4

Saturday, May 18, 2019 at 2:00 PM PhACT Expedition to Indian Rock ,
See page 5 for more details.

Saturday, June 22, 2019 – PhACT Picnic

11:00 AM to 3:00 PM at Fort Washington State Park at the Militia Hill Day Use Area
See page 5 for more details.

Saturday, September 21, 2019 - The PhACT Lecture Series begins for 2019/2020. Save the Date

See website: www.phact.org

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>

Lectures and Other Events of Interest for Skeptics Around Philadelphia

Saturday, April 13, 2019 at 12:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia
<http://www.thelaurehillcemetery.org>

The Revolutionary War Veterans of Laurel Hill: Service and Wreath Laying Ceremony. Presented by the St. Andrews Society of Philadelphia.

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

Free.

Saturday, April 13, 2019 at 1:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia
<http://www.thelaurehillcemetery.org>

Liberty or Death: Revolutionay War Patriots of Laurel Hill

For more information see website.

Fre215-228-8200e parking is located in the lot across the street from the Gatehouse.

The cost is \$15/person.

Thursday, April 18, 2019 at 6:00 PM at the Wagner Free Institute of Science, 1700 West Montgomery Avenue, Philadelphia, PA 19121
www.wagnerfreeinstitute.org

From Stream to Sewer: A History of Philadelphia's Landscape

Join us for a Weeknights at the Wagner lecture by:

Adam Levine, Historical Consultant for the Philadelphia Water Department

As we walk around the city of Philadelphia, few of us think about the hidden world of streams that once meandered across the city. Adam Levine will present a fascinating illustrated lecture that will uncover part of the city's history that few people ever think about – the drastic changes made in the urban landscape since the city's founding in 1682. Levine has been digging into the history of the city's sewers and drainage systems since 1998. His talk will focus on the systematic obliteration of hundreds of miles of city streams—including Cohocksink Creek in the Wagner's vicinity, Mill Creek in West Philadelphia, and Wingohocking Creek in Germantown. These streams, with watersheds that covered thousands of acres, were wiped off the city's map, buried deep underground in pipes as large as 20 feet in diameter to serve as main drainage arteries in the city's 3,000 mile sewer system. The combined flow of sewage and stormwater in these pipes, which periodically overflow, has environmental repercussions that are still being dealt with today—not only in Philadelphia, but in any older city with a similar sewer system. This lecture is guaranteed to reveal a side of urban infrastructure

you have never seen, and change the way you think about cities in general.

Museum open until the talk begins at 6 p.m. Registration is free, but donations (\$5 suggested) are welcomed at the door!

Free and Open to the Public

Thursday, April 18, 2019 at 7:30 p.m. at the Free Library of Philadelphia, 1901 Vine Street, 19103

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

Emily Bazelon | Charged: The New Movement to Transform American Prosecution and End Mass Incarceration

Emily Bazelon is the author of *Sticks and Stones*, “a humane and closely reported exploration” (*Wall Street Journal*) of school bullying and the empathetic steps students, parents, and teachers can take to mitigate this cruel phenomenon. A staff writer at *The New York Times Magazine* and a former senior editor at *Slate*, she is a lecturer at Yale Law School, where she is also the Truman Capote Fellow for Creative Writing and Law. In her new book, Bazelon proffers a major critique of the American criminal justice system, arguing that prosecutors have vast and unchecked power over defendants' charges and sentences.

Cost: FREE.

**Saturday, April 20, 2019
2:00 PM**

PhACT Lecture. Our speaker will be Kenny Biddle, a Paranormal Investigator. His topic will be: Investigating Mysteries: Out-of-the-Box Thinking that Solved Strange Cases

See page 4

TUESDAY, APRIL 23, 2019 at 6:00 PM at Suzanne Roberts Theatre, 480 South Broad St., Philadelphia

Penn Lightbulb Café

<https://penntoday.upenn.edu/news/penn-science-and-lightbulb-cafe-lecture-series-spring-2019>

Beth Wenger, Moritz and Josephine Berg Professor of History and History Department Chair, School of Arts and Sciences

“American Jewish Men and the Anxieties of

Breadwinning, 1850-1940”

Beth Wenger's teaching interests vary widely from broad surveys of modern European and American Jewish history, to courses on Holocaust memory, contemporary Jewish culture, American religious history, gender, and Jewish history, as well as many others. A specialist in American Jewish history, Wenger's interests also include European Jewish culture, American religion and ethnicity, and cultural, social and gender history.

Free and Open to the General Public

Saturday, April 26, 2019 at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia
<http://www.thelaurehillcemetery.org>

Laurel Hill: The Hot Spots and Storied Plots

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

The cost is \$12/person.

Monday, April 29, 2019 at 7:00 PM at Scoogi's Italian Kitchen & Bar

738 Bethlehem Pike Flourtown, PA 19031

American Revolution Round Table of Philadelphia,

<http://arrtop.org/>

Join us on Monday, April 29th, as we proudly welcome noted historical archaeologist **Wade Catts** as he presents his talk on **Archaeology and the Exploration and Preservation of Revolutionary War Battlefields.**

See website for program details.

Free and Open to the Public.

Tuesday, April 30, 2019 at 12:00 p.m.–1:00 p.m. at the Science History Institute, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.sciencehistory.org>

Saccharin: A Chemical between Food and Drug

Lunchtime Lectures

Beginning with its emergence in the Progressive era, saccharin has been a controversial sweetener in the United States. Unlike many of the controversial additives of the early 20th century, such as the preservatives benzoate of soda and borax, debates around saccharin reemerged in the postwar era, culminating in its dramatic ban in 1977.

Across this 80-year span a central tension in saccharin's identity persisted. Although often used as a sugar substitute by households and food manufacturers to cut costs, it also had significant medical applications in the dietetic treatment of diabetes and obesity. In the postwar era, as ideas about the connection between body weight and health transformed American cultures of dieting, this

tension took new form. Focusing on the debates of the 1970s, this talk will explore how saccharin crossed the line between food and drug and the significant implications this held for the federal government's authority to regulate its use. Ultimately, this case lets us explore the shaping of the cultural authority of science and the regulatory powers of the state when faced with demands for consumer choice.

Free and Open to the Public

Tuesday, April 30, 2019 at 6:30 PM-8:00 PM at The Academy of Natural Sciences of Drexel University, 1900 Benjamin Franklin Parkway, Philadelphia 19103

www.ansp.org 215-299-1108

Academy Town Square: Cold Hard Science in Antarctica: A Paleontology Adventure with Ted Daeschler

What's it like to dig for fossils in one of the most inhospitable places on earth? Academy Curator of Paleontology Ted Daeschler recently returned from his second action-packed expedition to Antarctica in search of Devonian-age fish.

Join Daeschler in his conversation with Maiken Scott, host of WHYY's *The Pulse*, as he reveals the complex logistics and challenging conditions he and his team endured to reach a treasure trove of fossils they hope will shed new light on the origins of life.

Free with registration

Tuesday, April 30, 2019 at 7:30 p.m. at the Free Library of Philadelphia, 1901 Vine Street, 19103

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

Nicole Weisensee Egan | Chasing Cosby: The Downfall of America's Dad

A 14-year veteran crime reporter for the Philadelphia Daily News, Nicole Weisensee Egan was the first journalist to delve into Andrea Constand's 2005 sexual assault allegations against Bill Cosby. As other news organizations lost interest, she dug deeper, developing sources and discovering details that ultimately influenced the prosecution of "America's Dad" a full decade later. Pulling back the curtain on pop culture, media responsibility, and an initially indifferent criminal justice system, *Chasing Cosby* is the ultimate insider's account of the stunning fall from grace of one of America's most celebrated cultural icons.

Cost: FREE

Wednesday, May 1, 2019 at 6:00PM - 7:00PM at University of Pennsylvania Museum, 3260 South Street, Philadelphia

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

THE STUFF BEYOND: THE GREAT MAYA COSMOS

Simon Martin, Lead Curator, upcoming Mexico and Central America Galleries

People, whether ancient or modern, seek out ordering principles to the world, an understanding of the forces of nature and celestial phenomena. Foremost among these are the structure of the universe and the perceived meaning of both life and the afterlife, as governed by hidden hand of the divine. This talk explores the multi-dimensional world of the ancient Maya cosmos and how this preeminent New World civilization

sought to set humanity within a far greater scheme of space and time.

Admission: \$10 per lecture; Members, \$5.

Space is limited; advance online reservations strongly suggested

Thursday, May 2, 2019 at 6:30 PM – 9:00 PM at College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia

<https://collegeofphysicians.org/events>

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 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.

Dr. Mangione is back at the College with this fascinating lecture. This event has sold out in the past. Pre-registration is highly encouraged.

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

Saturday, May 4, 2019 at 11:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurelhillemetery.org>

Yoga in the Cemetery

Find inner tranquility and balance during a one-hour yoga session in the peaceful backdrop of Laurel Hill Cemetery, overlooking the Schuylkill River. Sessions will be led by experienced yoga instructor, Emily Tara Sabalbaro. Emily teaches an all-levels slow flow class that enhances alignment, strength and balance. Students are encouraged to honor the energy that surrounds them as they form a deeper connection with their minds and bodies throughout the meditative practice. Emily has been practicing yoga since 2004 and teaching since 2011 at sites throughout the city. She currently teaches weekly at OpenBox Athletics and Philly Dance Fitness. To see her full

teaching schedule, visit www.inspireenjoy.com. Please bring your own mat and water. Sessions will be held outdoors on the pavement, along Millionaires' Row. All levels of experience are welcome.

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

The cost is \$15/person.

Saturday, May 4, 2019 at 1:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Phila.

<http://www.thelaurelhillemetery.org>

Behind the Name: Philadelphia Schools

By the start of the 1900's, the practice of naming Philadelphia public schools after well-known civic leaders, industrialists and military figures was commonplace. From the victor of Gettysburg and a Philadelphia mayor; to an abolitionist and an educational reformer; this walking tour will visit the graves of some of Philadelphia's most prominent figures for whom our city's schools are named after. In honor of Teacher Appreciation Week, teachers will receive a discounted ticket price.

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

The cost is \$15/person.

Tuesday, May 7, 2019 at 6:00 PM – 7:00 PM at Eastern State Penitentiary, 2027 Fairmount Avenue, Philadelphia

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

Topic TBA

Free and Open to the Public.

A reception will follow the lecture.

Wednesday, May 8, 2019 at 7:30 p.m. at the Free Library of Philadelphia, 1901 Vine Street, 19103

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

Susan Hockfield | The Age of Living Machines: How Biology Will Build the Next Technology Revolution

The first woman and the first life scientist to head the Massachusetts Institute of Technology, Dr. Susan Hockfield now serves as the esteemed institution's President Emerita. A pioneering neuroscientist whose work included the discovery of a gene linked to the spread of brain cancer, she has

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>



earned the Edison Achievement Award, a number of honorary degrees, and election to the American Academy of Arts and Sciences. She is the chairman of the American Association for the Advancement of Science and recently served as science envoy with the U.S. Department of State. In *The Age of Living Machines*, Hockfield describes a contemporary biotech convergence leading to the bleeding edge products that will help us overcome some of our greatest human and environmental challenges.

Cost: FREE

Thursday, May 9, 2019 at 6:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Phila.

<http://www.thelaurelhillemetery.org>

Pistols, Poisons, Prisons, and Persons of Interest

As Sherlock Holmes observed in *The Copper Beeches*, "It is my belief, Watson,... that the lowest and vilest alleys in London do not present a more dreadful record of sin than does the smiling and beautiful countryside." Laurel Hill Cemetery just might be the most perfect spot in Philadelphia to see the truth in Holmes' opinion. The bucolic landscape and soaring Victorian monuments belie the stories of murder, deception, larceny, and violence buried within. This true crime tour will bring visitors to the numerous final resting places of criminals, victims, and those whose lives and deeds remain a mystery to this day.

During this two-hour walking tour, visitors will be presented with the facts in each case before having the chance to discuss and deduce over a light reception back in the cemetery's gatehouse. Meet the wealthy heiress and suspected victim of a poisoning, whose case helped birth modern forensics. Meet the victim of a gun duel fought over a woman's honor... and the man who shot him. Meet a headless corpse, a good old fashioned con artist, and Laurel Hill's only victim of grave robbery - among many other stories. Bring a sense of adventure, and a keen eye for detection. Deerstalker caps and calabash pipes are (of course) optional, but highly encouraged!

The tour will take place on Thursday, May 9 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; or \$18/students and seniors and \$17/members. Advance registration is requested. Tickets should be purchased online.

For more information see website.

Saturday, May 11, 2019 at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurelhillemetery.org>

Laurel Hill: The Hot Spots and Storied Plots

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

The cost is \$12/person.



Saturday, May 11, 2019 at 11:00 a.m.–12:00 p.m. at the Science History Institute, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.sciencehistory.org>

Interpreting the Periodic Table through Art

Saturday Speaker

Science History Institute

Sculptor and lecturer Rebecca Kamen hosts this month's Saturday Speaker Series. Her two-year research journey to find meaning and inspiration for interpreting the periodic table through art took her from the Science History Institute to as far as India and Bhutan. Join us for a lively talk, as Kamen shares her insights and discoveries about the transformational power of the periodic table from an artist's point of view.

This program is presented in celebration of the International Year of the Periodic Table.

Free and Open to the Public

Saturday, May 11, 2019 at 12:00 p.m.–2:00 p.m. at the Science History Institute, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.sciencehistory.org>

WikiSalon

With science topics ranging from medical history to the environment, Wikipedia's content reaches more than 500 million people around the globe.

Interested in joining the ranks of this online encyclopedia's volunteer editors? Stop by for our monthly WikiSalon, a casual gathering of Wikipedia enthusiasts and those interested in learning more. Participants can edit articles of their own choice and suggest articles needing improvement to the group.

You provide your own laptop; we provide coffee, tea, and plenty of opportunity for spontaneous discussion and collaboration.

Free and Open to the Public

Monday, May 13, 2019 at 6:00 PM at National Mechanics, 22 S. Third Street, Philadelphia

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.

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

<http://scienceontapphilly.com/>

Tuesday, May 14, 2019 at 12:00 p.m.–1:00 p.m. at the Science History Institute, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.sciencehistory.org>

To Victory with Vanadium! Technology, Mining, and Latin American Science

Lunchtime Lectures

Join us for a Lunchtime Lecture by Rocio Gomez, a Science Institute Fellow.

While historians of science emphasize scientists in Europe, such as Marie Curie and Alexander von Humboldt, scientists in Latin America rarely receive a mention. Even historians of Latin America neglect scientists in their discussions of institutions.

Using letters and scientific treatises, this project examines the work of chemist and engineer Andrés Manuel del Río (1764–1849). This

research argues that del Río encountered bias against Mexican science despite his discovery of the element vanadium. This finding coincided with the turmoil of the Wars of Independence in Mexico (1810–1821), which emphasized geopolitical rifts and a break with European institutions. Vanadium's importance reaches into the 20th century as it becomes crucial to the steel industry and the war effort. This talk will examine how del Río's discovery shaped technology in the Wars of Independence in Mexico and the World War II effort while spurring the mining industry on both sides of the border.

Free and Open to the Public

Tuesday, May 14, 2019 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/>

Tuesday, May 14, 2019 at 7:30 p.m. at the Free Library of Philadelphia, 1901 Vine Street, 19103

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

George Packer | Our Man: Richard Holbrooke and the End of the American Century

George Packer won the 2013 National Book Award for *The Unwinding*, a biographical examination of the seismic shifts in economics and politics over the past three decades that have brought the United States to the brink. A longtime New Yorker staff writer possessed of a "far more coherent worldview than most reporters" (*The New York Times Book Review*), he was honored with two Overseas Press Club awards in 2003 for his coverage of the war in Iraq and his reporting on the civil war in Sierra Leone. His books include the bestselling *The Assassin's Gate: America in Iraq*, a finalist for the Pulitzer Prize; and *Blood of the Liberals*, winner of the Robert F. Kennedy Book Award. In *Our Man*, Packer charts the rise and fall of diplomat Richard Holbrooke, the brilliant but self-absorbed architect of the Dayton Peace Accords that ended the Balkan wars.

Cost: \$15.00

Buy Tickets Online | Ticket and Subscription Packages

Meelya Gordon Memorial Lecture

Tuesday, May 14, 2019 at 6:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurelhillemetery.org>

For more information see website.

Philadelphia Gothic, the Crucible of American Horror

Philadelphia was more than just the birthplace of American democracy and independence. From the country's inception, writers from this city were just as interested in the nightmares inherent in our revolutionary society. While Early Republic Philadelphia was a city of high culture in the arts, sciences, publishing and government, inside the cradle of liberty lurked a darkness and it found its expression in Philadelphia Gothic. In his novels, Charles Brockden Brown rose as the first signifi-

cant practitioner of this new take on the traditional European Gothic. Across the decades of the antebellum period, as Philadelphia became a city of continuing violence and unrest, authors George Lippard and Edgar Allan Poe explored the monsters beneath the surface of William Penn's Holy Experiment. This fascinating look at how these early Philadelphian authors imagined our collective nightmares will be followed by a cemetery tour that features some of the authors and associates of the tradition of Philadelphia Gothic.

About the Speaker

Edward G. Pettit is the Philly Poe Guy and his work on Poe has garnered national attention and resulted in several Poe-themed events, from literary debates to full-scale dramatic productions, and has been featured on television, radio and in print, including the New York Times. Pettit is the Sunstein Manager of Public Programs at The Rosenbach where he is teaching a course on Philadelphia Gothic in Spring 2019.

This talk will take place on Tuesday, May 14, 2019 at 6 pm, meeting at Laurel Hill Cemetery's Gatehouse located at 3822 Ridge Avenue, Philadelphia PA 19132. Free parking is located directly across the street from Gatehouse.

Friday, May 17, 2019 at 8:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

For more information see website.

Ghosts Among Our Graves (Presented by the Free Spirit Paranormal Investigators)

Is there anything on the other side? What becomes of our life energy after we die? Professional ghost hunters, Free Spirit Paranormal Investigators, have conducted numerous investigations of historic Laurel Hill Cemetery in search of answers to these questions. Join FSPI for this unique event, as they cover some of the basics in the field of ghost hunting. Participants will then have the opportunity to experiment firsthand with ghost hunting equipment, while joining FSPI team leaders on group investigations of some of the cemetery's most reportedly active sections. After the hunt, refuel with complimentary snacks and refreshments.

The program will take place on Friday, May 17 at 8:00pm, 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 \$40/person general admission or \$37/member. Advance reservations are requested, as space is limited. Tickets can be purchased online. Visit Free Spirit Paranormal Investigators online at <http://www.freespiritpi.com>

Sunday, May 19, 2019 at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

For more information see website.

Volunteer Flag Placement: Preparing to Honor America's Heroes

The General Meade Society of Philadelphia, in conjunction with the Friends of Laurel Hill Cemetery, call all volunteers to assist in preparing for the nation's Memorial Day commemoration. Those assembled will be assigned to place American flags on the gravesites of Veterans that served

in all of our nation's wars. As time and manpower permit, in addition to Laurel Hill, cemeteries covered may include Mount Moriah, Mount Peace and St. James the Less. Free refreshments will be provided to all.

The flag placement will take place on Sunday, May 19 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, May 18, 2019
2:00 PM**

PhACT Expedition to Indian Rock

See page 5

Tuesday, May 21, 2019 at 12:00 p.m.–1:00 p.m. at the Science History Institute, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.sciencehistory.org>

“Only the Initiates Will Have the Secrets Revealed”: Software Packages in Computational Chemistry

Lunchtime Lectures

Join us for a Lunchtime Lecture by Alexandre Hocquet and Frédéric Wieber, Otlet Fellows at the Science History Institute.

Computational chemistry is a scientific field within which the computer is a pivotal element. This scientific community emerged in the 1980s and was involved with two major industries: the computer manufacturers and the pharmaceutical industry, the latter becoming a potential market for the former through molecular-modeling software packages.

We will address the difficult relationships between scientific modeling methods and the software that implemented these methods throughout the 1990s. Developing, using, licensing, and distributing software leads to multiple tensions among the actors in intertwined academic and industrial contexts.

In order to understand these tensions, we explore the Computational Chemistry List. This mailing list, created in 1991, constitutes a natively digital kind of corpus that reveals how issues of theories, methods, code, reproducibility of results, epistemic transparency, intellectual property, user management, and the commercialization of software are articulated

Free and Open to the Public

Friday, May 24, 2019 at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

Laurel Hill: The Hot Spots and Storied Plots

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

Calling All Astronomers! Rittenhouse Astronomical Society

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

The Rittenhouse Astronomical Society the third Tuesday 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/

The cost is \$12/person.

Sunday, May 26, 2019 at 12:00 PM at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

For more information see website.

Memorial Day Parade, Service & Reception (presented by the General Meade Society)

The traditional Decoration Day service of the Grand Army Meade Post #1 will be recreated at historic Laurel Hill Cemetery, the site of the first Memorial Day Observance in Philadelphia in 1868. The entourage will gather at the resting place of General George Gordon Meade, hero of the Battle of Gettysburg, to perform the traditional service honoring all veterans who fell defending the nation. A wreath-laying, speeches and honor guards will enhance the ceremony. The event is co-sponsored in part by the General Meade Society of Philadelphia and the Friends of Laurel Hill Cemetery. Complimentary beer and refreshments courtesy of the Kearney Kommissary will be served after the service.

The event will take place on Sunday, May 26 at 12pm sharp. Visitors can enter through Laurel Hill's Gatehouse at 3822 Ridge Avenue, Philadelphia, PA 19132. Free parking is located in the lot across the street from the Gatehouse.

Admission to the event is FREE and open to the public; a \$5 donation at the door in support of Laurel Hill Cemetery's work and preservation is suggested and would be much appreciated. Your RSVP is requested.

Thursday, May 30, 2019 at 6:30 PM at College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia, PA

<https://collegeofphysicians.org/events>

The Leslie Nicholas, MD Lecture

Book Launch & Signing for Civil War Medicine: A Surgeon's Diary by Robert Hicks, PhD, Director of the Mütter Museum

Join us for the world launch of Civil War Medicine: A Surgeon's Diary by Dr. Robert Hicks, based on the diary of a Civil War surgeon who participated in the Battle of Gettysburg and including essays about the diary by foremost historians of the medical Civil War. The subject of the book is Assistant Surgeon James Fulton, 143rd Pennsylvania Infantry Regiment. Dr. Hicks' illustrated talk will be followed by Q & A moderated by Anna Dhody, Curator of the Mütter Museum and Director of the Mütter Research Institute.

The Civil War Exhibit of the Mütter Museum will be open for this event. A light reception and book signing will follow the program. Books will be available for purchase.

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

Monday, May 30, 2019 at 7:00 PM at Scoogi's Italian Kitchen & Bar

738 Bethlehem Pike Flourtown, PA 19031

American Revolution Round Table of Philadelphia,

<http://arrtop.org/>

Join us on Monday, May 20th was we welcome Dr. Bruce M. Venter who will be speaking about his book **The Battle of Hubbardton: The Rear Guard Action that Saved America .**

See website for program details.

Free and Open to the Public.

Saturday, June 1, 2019 at 11:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

Yoga in the Cemetery

Find inner tranquility and balance during a one-hour yoga session in the peaceful backdrop of Laurel Hill Cemetery, overlooking the Schuylkill River. Sessions will be led by experienced yoga instructor, Emily Tara Sabalbaro. Emily teaches an all-levels slow flow class that enhances alignment, strength and balance. Students are encouraged to honor the energy that surrounds them as they form a deeper connection with their minds and bodies throughout the meditative practice. Emily has been practicing yoga since 2004 and teaching since 2011 at sites throughout the city. She currently teaches weekly at OpenBox Athletics and Philly Dance Fitness. To see her full teaching schedule, visit www.inspirejoy.com. Please bring your own mat and water. Sessions will be held outdoors on the pavement, along Millionaires' Row. All levels of experience are welcome. For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

The cost is \$15/person.

Saturday, June 1, 2019 at 6:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

For more information see website.

Music for the Hearing Eye: Concert Atop the Crypts (presented by The Divine Hand Ensemble)

ble)

This summer the Divine Hand Ensemble returns to Laurel Hill for their annual performance atop the crypts. Witness Mano Divina, leader of the Ensemble, harness electricity with his fingertips and draw music out of the air as master of the Therman, an early electronic musical instrument controlled without discernible physical contact from the player. In addition to this rare instrument, the Ensemble includes a string quartet, classical guitar, two harps, a glockenspiel, a soprano and a tenor, together rendering an unforgettable listening experience. Bring your own blankets or beach chairs, picnics, and/or beverages.

The Ensemble has performed at venues throughout the region including Sellersville Theater, PhilaMoca, The Franklin Institute and a special concert for Pope Francis during the World Meeting of Families in 2015. Their music has been described as hypnotic, breathtaking and mesmerizing, an "amalgamation of magic, science and music." There are thus few more appropriately ethereal settings to take in the power of this performance than historic Laurel Hill Cemetery, where the Ensemble will be performing a selection of contemporary and classical compositions for the twenty-first century audience.

This twilight concert will take place on Saturday, June 1 at 6:00pm, (with a prescheduled rain date of Sunday, June 2 at 6:00pm.) Gates open at 5:00pm. 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. Advance reservations are requested. Tickets can be purchased at the door or online. 19103.

Sunday, June 2, 2019 at 1:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

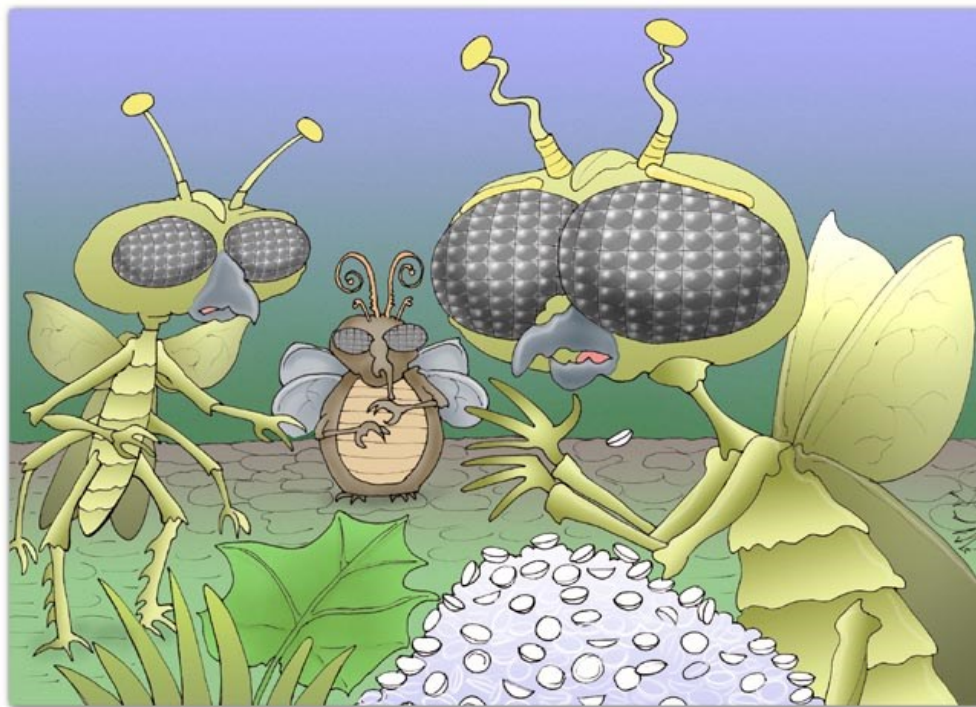
For more information see website.

Sacred Stonework: Laurel Hill as a Sculpture Garden

The sandstone sculptural group Old Mortality and His Pony greets daily visitors to Laurel Hill, establishing the cemetery's place as a unique outdoor sculpture garden. Look beyond this impressive work, and you'll find many other breathtaking monuments, some of which were exhibited as artworks prior to their placement in the cemetery. Who were the sculptors, and how did they shape our final view of those now resting peacefully beneath richly carved or poured materials? Funerary art can be a reflection of the departed and the times they lived in. This tour will showcase Laurel Hill as both a sculpture garden, and as a place of remembrance.

The tour will take place on Sunday, June 2 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 \$15/person; \$13/students and seniors; or \$12/members. Tickets can be purchased at the door or online.



"Nobody move! I've dropped my contacts!"

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

Tuesday, June 4, 2019 at 6:00 PM – 7:00 PM at Eastern State Penitentiary, 2027 Fairmount Avenue, Philadelphia

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

Topic TBA

Free and Open to the Public.

A reception will follow the lecture.

Wednesday, June 5, 2019 at 6:00PM - 7:00PM at University of Pennsylvania Museum, 3260 South Street, Philadelphia

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

WHOSE STUFF IS IT, ANYWAY? DECOLONIZATION AND THE ROLE OF MUSEUMS IN CONTEMPORARY SOCIETY

Tukufu Zuberi, Lead Curator, upcoming Africa Galleries

Looking at African artistry and craftsmanship, and the impact of the European colonial mentality in the collection of African Art and crafts, Dr. Zuberi will consider the current redesign of the Africa galleries at the Penn Museum, one of the oldest ethnographic museums in the US. The foundational works that constitute the Penn Museum Africa Galleries were collected prior to the end of World War II. They were collected at a time in which the world was divided into the colonizer and the colonized. Most of the contributions were collected by ethnologists of the time who tended to be gentlemen travelers and professional men and their wives or antiquarians and amateur historians. These decolonization efforts and the struggle for liberation which culminated in independence in north, south, west, and east Africa. During these formative years the Penn Museum Africa Galleries were curated in ignorance, or denial, of the social movements of Pan-Africanism (in the Anglophone colonies), Negritude (in the Francophone colonies), and Pan-Arabism (in the Maghreb and North Africa colonies) transforming the world, specifically, Africa's relationship to the World. Re-considering this institutional legacy of colonialism, and thus challenge the idea that the works in the Penn Africa Galleries magically give us access to African history and culture untainted by the imperial desires from parts of Europe and the United States of America.

Admission: \$10 per lecture; Members, \$5.

Space is limited; advance online reservations strongly suggested

Thursday, June 6, 2019 at 6:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

For more information see website.

Unlisted: Laurel Hill's Most Mysterious Graves

This tour is open exclusively to members of The Friends of Laurel Hill Cemetery.

During an evening of intrigue and mystery, members will learn about the most mysterious stories of residents here at Laurel Hill Cemetery and enjoy a lite reception afterwards.

The tour will take place on Thursday, June 6 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. Free for Members.

Tour Guide: Pattye Stringer

Thursday, June 6, 2019 from 5:30 to 8:30 p.m. at the Wagner Free Institute of Science, 1700 West Montgomery Avenue, Philadelphia, PA 19121

www.wagnerfreeinstitute.org

A SIP of SCIENCE - 2019 BENEFIT COCKTAIL PARTY

A Sip of Science is the Wagner's signature fundraising party. It draws together Wagner supporters, community leaders, and a distinguished honoree for a night of cocktails and camaraderie amid our sublime natural history collections. Party proceeds allow us to preserve our National Historic Landmark building and collections, and to provide free access to science for thousands of people every year.

Each year, a Sip of Science honors a leader who has made significant contributions in a field represented in the Wagner's mission—science, architecture, preservation, or the history of science—and is committed to sharing his or her work with the public.

HONORING ROBERT MCCRACKEN PECK Academy of Natural Sciences of Drexel University

Our honoree for 2019 is Robert McCracken Peck, the acclaimed author, naturalist, and historian of science whose books show us the glories of the natural world—and of scientific discovery.

Robert McCracken Peck is a modern-day embodiment of the 19th century naturalist. A fearless explorer with a sharp eye and a notebook, Peck chronicles his findings and his field expeditions in sensitively-written books aimed at the general public. In his writings, he encourages us to embrace a sense of wonder—just as the Wagner set out to do in 1855. As Senior Fellow at the Academy of Natural Sciences of Drexel University, he has participated in scientific expeditions to South America, Africa, and Asia, and lectured and published widely on the history of science and the history of exploration. His books include *Specimens of Hair: The Curious Collection of Peter A. Browne* (2018) and *A Glorious Enterprise: the Making of American Science* (with Patricia T. Stroud). A species of South American frog, *Eleutherodactylus pecki*, was named in his honor.

Friday, June 7, 2019 at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

Laurel Hill: The Hot Spots and Storied Plots

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

The cost is \$12/person.

Saturday, June 8, 2019 at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

Laurel Hill: The Hot Spots and Storied Plots

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

The cost is \$12/person.

Saturday, June 8, 2019 at 12:00 p.m.–2:00 p.m. at the Science History Institute, 315 Chestnut Street, Philadelphia

<http://www.sciencehistory.org>

WikiSalon

With science topics ranging from medical history to the environment, Wikipedia's content reaches more than 500 million people around the globe.

Interested in joining the ranks of this online encyclopedia's volunteer editors? Stop by for our monthly WikiSalon, a casual gathering of Wikipedia enthusiasts and those interested in learning more. Participants can edit articles of their own choice and suggest articles needing improvement to the group.

You provide your own laptop; we provide coffee, tea, and plenty of opportunity for spontaneous discussion and collaboration.

First-timer? No problem! One of our experienced guests will coach you through the process.

Free and Open to the Public

Monday, June 10, 2019 at 6:00 PM at National Mechanics, 22 S. Third Street, Philadelphia

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.

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

<http://scienceontapphilly.com/>

Tuesday, June 11, 2019 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/>

Friday, June 14, 2019 at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

Laurel Hill: The Hot Spots and Storied Plots

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

The cost is \$12/person.

Saturday, June 15, 2019 at 1:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

For more information see website.

To Set Them Free: Abolitionism and Laurel Hill Thursday, June 13, 2019 at 6:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia

<http://www.thelaurehillcemetery.org>

For more information see website.

Arborists Angle: The Specimen Trees of Laurel Hill

Laurel Hill cemetery is more than a burial ground – it is a historic landscape and public garden that has provided Philadelphian's an unmatched horticultural retreat from the city for the last 182 years. John Jay Smith, the founder of Laurel Hill, was an avid horticulturalist and designed the cemetery to feature rolling lawns and specimen trees and shrubs. The legacy of Smith's vision can be seen today in trees that likely date back to the original plantings, as well as new plantings designed to emulate the original historic landscape design.

An Arborist's Angle, a walking tour through Laurel Hill Cemetery, will highlight some of the most impressive and interesting trees of the cemetery. Join Aaron Greenberg, Arborist of Laurel and West Laurel Hill Cemeteries, in a discussion of some of his favorite specimens. Special attention will be given to trees with historical significance to Laurel Hill and Philadelphia horticulture, as well as trees exhibiting excellent fall color! Aaron is a Certified Arborist by the International Society of Arboriculture, and will be available to answer questions about any of the beautiful trees of Laurel Hill Cemetery.

The tour will take place on Thursday, June 13 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. Reservations are suggested. Tickets can be purchased at the door or online.

Saturday, June 15, 2019 at 1:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia <http://www.thelaurelhillemetery.org>

For more information see website.

To Set Them Free: Abolitionism and Laurel Hill

Philadelphia played a central and indelible part in the struggle to end the evil that was slavery, even as the city itself was sharply and fiercely divided on the issue. Many Philadelphians who made it their purpose to crusade against the institutionalized bondage of African-Americans did so against great opposition and often, great personal danger. Yet, they fought unflinchingly, eventually leading to the Emancipation Proclamation issued on January 1, 1863. On this tour, hear the tales of their struggles and courage as we remember those who fought the good fight against that terrible scourge.

This walking tour will take place on Saturday, June 15 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 \$15/person; \$13/students and seniors or \$12/members. Tickets can be purchased at the door or online.

Tour Guide: Russ Dodge

**Saturday, June 22, 2019
11:00 AM**

**PhACT Picnic at
Fort Washington State Park**

See page 5

Friday, June 21, 2019 at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia <http://www.thelaurelhillemetery.org>

Laurel Hill: The Hot Spots and Storied Plots

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

The cost is \$12/person.

Sunday, June 23, 2019 at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia <http://www.thelaurelhillemetery.org>

For more information see website.

Heavenly Intonations: Laurel Hill's Musical Legacy

Whether we can hear it or not, music hangs in the air at Laurel Hill Cemetery—heavenly intonations of the singers, musicians, lyricists and composers buried within. Visit the gravesites of those who contributed in some way to the musical legacy of America. In some cases, we'll even hear their work. This includes the composer who created the first serious American symphonic work and was also the first music critic in the United States; the woman who wrote the first words that Thomas Edison uttered into his recently invented phonograph; and the "Bruce Springsteen of Early 20th Century American Opera," who riled up audiences everywhere from Philadelphia's Academy of Music to Teddy Roosevelt's White House to the opera houses of Australia circa 1913.

The walking tour will take place on Sunday, June 23 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.

The cost is \$15/person; \$13/students and seniors; or \$12/members. Tickets can be purchased at the door or online.

Tour Guide: Rich Wilhelm

Monday, June 24, 2019 at 7:00 PM at Scoogi's Italian Kitchen & Bar

738 Bethlehem Pike Flourtown, PA 19031

American Revolution Round Table of Phila.

<http://arrtop.org/>

Join us on Monday, June 24th as we welcome award winning author **Bob Brury** who will be speaking about his book **Valley Forge**

See website for program details.

Free and Open to the Public.

Friday, June 28, 2019 at 10:00 AM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia <http://www.thelaurelhillemetery.org>

Laurel Hill: The Hot Spots and Storied Plots

For more information see website.

Free parking is located in the lot across the street from the Gatehouse.

The cost is \$12/person.

Sunday, June 30, 2019 at 1:00 PM at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia <http://www.thelaurelhillemetery.org>

For more information see website.

Cryptic Crypts: Egyptian Symbolism at Laurel Hill

Discover ancient symbols and architectural styles that have survived since the time of the pharaohs on this walking tour through Laurel Hill's historic tombs. Along the way, meet the individuals who revered such symbols enough to eternally memori-

alize them: like a former defamed Egyptologist, the founder of the Penn Museum of Archaeology, and even Indiana Jones. Afterwards, sip on the drink of the Gods and enjoy Mediterranean-inspired fare in the Cemetery's historic Gatehouse. The walking tour will take place on Sunday, June 30 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 \$15/person; \$13/students and seniors; or \$12/members. Tickets can be purchased at the door or online.

Tour Guide: Beth Savastana

Tuesday, July 2, 2019 at 6:00 PM – 7:00 PM at Eastern State Penitentiary, 2027 Fairmount Avenue, Philadelphia

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

Danielle Sered: Reckoning with Violence: Mass Incarceration, Restorative Justice, and the Road to Repair

Free and Open to the Public.

A reception will follow the lecture.

Saturday, July 13, 2019 at 12:00 p.m.–2:00 p.m. at the Science History Institute, 315 Chestnut Street, Philadelphia, PA 19106

<http://www.sciencehistory.org>

WikiSalon

With science topics ranging from medical history to the environment, Wikipedia's content reaches more than 500 million people around the globe.

Interested in joining the ranks of this online encyclopedia's volunteer editors? Stop by for our monthly WikiSalon, a casual gathering of Wikipedia enthusiasts and those interested in learning more. Participants can edit articles of their own choice and suggest articles needing improvement to the group.

You provide your own laptop; we provide coffee, tea, and plenty of opportunity for spontaneous discussion and collaboration.

Free and Open to the Public

Tuesday, August 6, 2019 at 6:00 PM – 7:00 PM at Eastern State Penitentiary, 2027 Fairmount Avenue, Philadelphia

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

Danielle Sered: Reckoning with Violence: Mass Incarceration, Restorative Justice, and the Road to Repair

Free and Open to the Public.

A reception will follow the lecture.

**Saturday, September 15, 2019
2:00 PM**

**The PhACT Lecture Season
2019/2020 will begin.**

Mark your Calendar

Philadelphia Area Lecture Host Websites

This listing is likely incomplete. If there is a site you wish listed or a link is erroneous then please email the Phactum editor at phactpublicity@aol.com

Academy of Natural Sciences

Monday, January 13, 2013 at 6:00 PM-8:00 PM at The Academy of Natural Sciences, 1900 Benjamin Franklin Parkway, Philadelphia 19103
www.ansp.org

American Philosophical Society

, Benjamin Franklin Hall, 427 Chestnut Street, Philadelphia
<http://www.amphilsoc.org/>
Free and Open to the Public

American Revolution Roundtable of Philadelphia (ARRTOP)

at MaGerks Pub and Grill, 582 South Bethlehem Pike, Fort Washington, Pennsylvania
<http://arrtop.com/>
Last Monday of most months.
Free and Open to the Public

College of Physicians of Philadelphia

19 South Twenty-Second Street, Philadelphia, PA
http://www.collphyphil.org/prog_calendar.htm

Delaware County Institute of Science

11 Veterans Square, Media, PA 19063
<http://delcoscience.org>

Delaware Valley Opera Company at the Venice Island Performing Arts Center, located in the Manayunk section of Philadelphia. Turn onto Cotton Street from Main Street and use the Venice Island public parking lot.
www.dvopera.org
2017 Summer Opera Festival

Delaware Valley Amateur Astronomers in the Radnor Township Municipal Building, 301 Iven Ave, Radnor, Pennsylvania 19087
<https://dvaa9.wildapricot.org>

Free and Open to the Public.

Eastern State Penitentiary

2027 Fairmount Avenue, Philadelphia, PA
First Tuesday of every month.
<http://www.easternstate.org/home>

Franklin Institute -
<http://www.fi.edu>

Free Library of Philadelphia (FLOP)

1901 Vine Street, 19103
<http://libwww.freelibrary.org/authorevents/>

Freethought Society

<https://www.ftociety.org/>

Friends of Valley Forge - first Tuesday of the month

<http://www.friendsofvalleyforge.org/speaker-series.shtml>
Free and Open to the Public.

Humanist Association of Greater Philadelphia (HAGP)

www.HAGP.org

Institute for Science and Religion

<http://www.irands.org>
Free and Open to the Public. A free will donation is requested.

Laboratory for Research on the Structure of Matter - Science Cafe

<http://www.lrsm.upenn.edu/events/sciencecafes/index.html>

Laurel Hill Cemetery

3822 Ridge Avenue, Philadelphia,
<http://www.thelaurelhillcemetery.org>

Nerd Nite -

<http://philadelphia.nerdnite.com/>
Email us at: nerdnitephilly@gmail.com

Penn Science Cafe & Lightbulb Cafe

at World Cafe Live, 3025 Walnut Street, Philadelphia
<http://www.upenn.edu/pennnews/science>
Free and Open to the Public.

Penn State University Abington

112 Woodland Building at 1600 Woodland Rd | Abington, PA 19001
<http://abington.psu.edu/cultural-community-events>

Pint of Science

<https://pintofscience.us/city/philadelphia>

Rittenhouse Astronomical Society

at the Fels Planetarium, The Franklin Institute, 222 North 20th Street, Philadelphia
Astronomy lecture open to the Public.
Third Tuesday of every month.
www.rittenhouseastronomicalsociety.org/

Science History Institute

315 Chestnut Street, Philadelphia, PA 19106
<http://www.sciencehistory.org>

Science on the Hill at St. Joseph's University

at Landmark Americana Tap & Grill at 54th and City Avenue, Philadelphia 19131 at St. Joseph's University
<http://scienceonthehill.weebly.com/>
Free and Open to the Public.

Science on Tap

2nd Monday of each month at 6:00 PM
National Mechanics, 22 S. Third Street, Philadelphia, PA 19106
<http://scienceontaphilly.com/>

University of Pennsylvania Museum

3260 South Street, Philadelphia, PA 19104
<http://www.penn.museum/events-calendar>

Wagner Free Institute of Science

1700 West Montgomery Avenue, Philadelphia,
www.wagnerfreeinstitute.org
Free and Open to the Public



I support the aims of PhACT and would like to join/rejoin for the next year. The annual membership is \$25.

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

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The Philadelphia Association for Critical Thinking is grateful for the hospitality extended by Community College of Philadelphia and especially Dr. David Cattell, Chair of the Physics Department, for hosting PhACT and giving us access to such excellent facilities. Part of CCP's mission is to serve Philadelphia as a **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.

Statement of Purpose

The Philadelphia Association for Critical Thinking (PhACT) supports science, critical thinking and science education. It encourages the scientific investigation of controversial or extraordinary claims and disseminates factual information through its newsletter, *Phactum*, and a lecture series held at the Community College of Philadelphia.

Phactum is distributed 4 times a year and is the main propaganda organ for the Philadelphia Association for Critical Thinking.

If you are not a supporting member/subscriber we invite you to become one. \$15 for a one year membership to PhACT with email *Phactum* subscription. Donations are welcome.

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phactpublicity@aol.com

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Who would set a limit to the mind of man? Who would dare assert that we know all there is to be known?

~ Galileo Galilei (1564-1642)

