

For it is the natural tendency of the ignorant to believe what is not true. In order to overcome that tendency it is not sufficient to exhibit the true; it is also necessary to expose and denounce the false. ~ H.L. Mencken (1880 - 1956)

Phactum

The Newsletter and Propaganda Organ of the
Philadelphia Association for Critical Thinking
November/December 2012

editor: Ray Haupt email: phactpublicity@aol.com
Webmaster: Wes Powers <http://phact.org/>

PhACT Meeting - Saturday, November 17, 2012

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.

Parking is available from 12:30 to 6:00 PM in the surface parking lot on 17th Street.

All are Welcome. This event is Free and Open to the Public. Handicapped accessible.

Dr. David Cattell, Chairman of the Physics Department of Philadelphia Community College, will host Kenneth Silber, a political writer and columnist who will discuss:

Science vs. Politics: A Post-Election Look at the Political Climate for Science

Recent years have seen growing concerns and accusations about "anti-science" tendencies in U.S. politics. Books and articles criticize political parties and ideological factions for hostility or ignorance regarding scientific evidence and institutions. Tensions between science and the right are evident over climate change, evolution and embryonic stem cell research, among other issues. Charges that Republicans and conservatives are broadly anti-science have brought countercharges that Democrats and the left are antithetical to science on issues including genetically modified

(Continued on page 2)

MCHUMOR.com by T. McCracken



"So, when do we get to dissect one?"

Paul Kurtz On Skepticism - "I would like to introduce another term into the equation, a description of the religious "unbeliever" that is more appropriate. One may simply say, "I am a skeptic." This is a classical philosophical position, yet I submit that it is still relevant today, for many people are deeply skeptical about religious claims. Skepticism is widely employed in the sciences. Skeptics doubt theories or hypotheses unless they are able to verify them on adequate evidential grounds. The same is true among skeptical inquirers into religion. The skeptic in religion is not dogmatic, nor does he or she reject religious claims a priori; he or she is simply unable to accept the case for God unless it is supported by adequate evidence." ~ From *Why I Am a Skeptic about Religious Claims*

foods, vaccines and nuclear energy.

Kenneth Silber, a political writer and columnist, will provide an opinionated analysis focused on such questions as: (1) Is one political side more anti-science? (2) How has the political climate for science evolved over time? (3) What's the outlook?

Silber is senior editor of *Research*, a magazine for financial advisors, where he writes a political column. His writing, often on science-related issues, has appeared in publications including *Skeptical Inquirer*, *Scientific American Mind*, *Mental Floss*, *Reason*, *Commentary*, the *Weekly Standard*, *ScientificAmerican.com*, *Space.com*, *DailyBeast.com* and *FrumForum.com*. Silber's blog is at quicksilber.blogspot.com

Very conveniently and most coincidentally science writer Shawn Lawrence Otto has written an article discussing science and politics entitled "America's Science Problem" which may be found on page 62 of the November 2012 *Scientific American*.

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"In science it often happens that scientists say 'you know, that's a really good argument, my position is mistaken' and then they would actually change their minds and you never hear the old view from them again. They really do it. It doesn't happen as often as it should, because scientists are human and change is sometimes painful. But it happens. I cannot recall the last time something like that happened in politics or religion."

~ Carl Sagan,
1987 CSICOP keynote address.

* * *

"Darwinism is not a testable scientific theory, but a metaphysical research program."

~ Karl Popper (1902 - 1994)

And a variant of that statement:

"Evolution is not a fact. Evolution doesn't even qualify as a theory or as a hypothesis. It is a metaphysical research program, and it is not really testable science."

Popper later retracted his statement:

"I have changed my mind about the testability and logical status of the theory of natural selection; and I am glad to have an opportunity to make a recantation."

Phactum Table Of Contents

| | |
|--|-------|
| Letters to the Editor | p. 2 |
| Various Ruminations | p. 5 |
| Wagner Free Institute of Science | p. 8 |
| Spring 2013 Adult Education Courses | |
| PhACT Meeting Report | p. 9 |
| What's on Your Mind? - Clear or Fuzzy? | p. 11 |
| The Line in the Sand | |
| By Tom Medero | |
| What is Consciousness | p. 13 |
| By Albert Fried-Cassorla | |
| Long Term Care vs. Dementia | p. 14 |
| By Paul Schlueter III | |
| Captain John Smith and the Green Mermaid | p. 17 |
| Calendar of Events | p. 19 |



They're young... They're in love...
They eat LARD

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Letters to the Editor

Editor: On page 14 of the August/September *Phactum* there's information about how one can become a "weed warrior" and go walking around the woods extirpating so-called "invasive" plant species. I guess the next step is to kill all the sparrows! But wait, what's this? On page 18, there's an invitation to the "Philadelphia Honey Festival", one goal of which is to "raise awareness about the importance of bees to our environment". Didn't those folks get the memo that the honeybee is not native to the Americas? American Indians called it the "European fly". After we're done with the "weeds" and the sparrows, we need to exterminate all the honeybees, too, I suppose!

Howard J. Wilk
Philadelphia

Editor: The October 2012 *Phactum* notes on page 11 that California governor Jerry Brown signed into law a bill banning 'gay conversion' therapy, and concludes, "Let's hope other states follow Brown's lead!" I don't agree.

If we accept (as I do) just about any non-exploitative sexual attraction or behavior, we ought to accept that a person is permitted to want to change their sexuality. We hope for a society free of the kind of sexuality-based discrimination and social ostracism that contributes to a desire to change, but there is nothing wrong with the desire *per se*.

The article quotes Brown as stating "These practices have no basis in science or medicine, and they will now be relegated to the dustbin of quackery." Is it possible to change one's sexuality? I don't know. But let science and medicine and the existing laws against fraud and quackery sort it out, rather than have our lawmakers try to legislate scientific truth.

Howard J. Wilk
Philadelphia

Editor:

Re: "When the people find they can vote themselves money, that will herald the end of the republic", attributed to Benjamin Franklin: Do you really believe Franklin ever said that or wrote that? Read it on the internet? I did—there are about 70,600 Google hits (accessed 17 October 2012) for "When the people find they can vote themselves money, that will herald the end of the republic" "benjamin franklin"!

Anyone can find, or coin, some clever saying, attribute it to some long-dead figure from history, then post it on the internet and find ready acceptance for it among people who are all too eager to find support from a Big Man of History for their own political or other opinions. Post it once, and it spreads like a contagion.

Of course I can't prove that Franklin never said it or wrote it, but I went looking for it in reputable sources and couldn't find it. What I did isn't exhaustive, but it's a start: First, I looked it up in well-regarded collections of quota-

tions. I already had *Bartlett's Familiar Quotations* (16th edition); it ain't in there. I just bought *The Yale Book of Quotations*; it ain't in there either. And for the *Oxford Dictionary of Quotations*, I used Amazon's handy "look inside!" feature; nada. Second, I searched *The Papers of Benjamin Franklin* online <http://www.franklinpapers.org/franklin/> (sponsored by the American Philosophical Society (cofounded by Franklin) and Yale University); ditto.

Here's something you can find (search the *Papers* for "matchcoat"), which evidences an opinion of taxation rather different from the conservative or libertarian faux Founding-Father quotes so beloved of our estimable editor. In a letter to Robert Morris dated 25 December 1783, Franklin wrote:

"The Remissness of our People in Paying Taxes is highly blameable, the Unwillingness to pay them is still more so. . . . All Property indeed, except the Savage's temporary Cabin, his Bow, his Matchcoat, and other little Acquisitions absolutely necessary for his Subsistence, seems to me to be the Creature of publick Convention. Hence the Public has the Right of Regulating Descents & all other Conveyances of Property, and even of limiting the Quantity & the Uses of it. All the Property that is necessary to a Man for the Conservation of the Individual & the Propagation of the Species, is his natural Right which none can justly deprive him of: But all Property of the Publick, who by their Laws have created it, and who may therefore by other Laws dispose of it, whenever the Welfare of the Publick shall demand such Disposition. He that does not like civil Society on these Terms, let him retire & live among Savages.—He can have no right to the Benefits of Society who will not pay his Club towards the Support of it."

PhACT is supposed to be about critical thinking! Enough already with the bogus quotes!

Howard J. Wilk
Philadelphia

Editor: I found a fascinating quote from Ben Franklin that passes all of your truth tests: Not only is it on the internet, it's on the internet quoted from a book! The book is titled *My Life With Benjamin Franklin*, and it's by Claude-Anne Lopez, who, I am assured by the *New York Times Book Review*, 28 October 2012, page 17, is, or was, a Yale University scholar, and "one of the great Franklin scholars of our time." Franklin is quoted thusly: "There is a great danger for the United States of America. This great danger is the Jew." And so on and so forth. (Thank you, Amazon Look Inside!) There are about 16,200 Google hits for the quote together with Benjamin Franklin. Surely it's got to be authentic, no? No. Ms. Lopez uses her critical-thinking faculties and traces the quote all the way back to 3 February 1934, in a publication called *Liberation*, "and most likely the brainchild of William Dudley Pelley, the head of an American Nazi movement."

Howard J. Wilk
Philadelphia

Editor: I've just had a fascinating experience, which I can't explain. Background: In the not-too-distant past, I was thinking about the world's problems with Iran (aka Persia), and a lyric came to me, "Mister we could use a man like Alexander again", sung to the tune of the line from the opening theme song of "All in the Family", "Mister we could use a man like Herbert Hoover again". It's fitting, and it fits.

Now: I was reading the "Arts & Leisure" section of the Sunday, 28 October 2012 *New York Times*, and the line reoccurred to me, but this time, I decided to Google it to see if there was a record of anyone ever thinking of it before. But first, I turned the page, to page 16, and...there's an article entitled "It's a Real Slice Of History, Meathead" about "All in the Family". The first line of the article reads, "Guys like us, we had it made", which is a line (a different line) from the same theme song. Because I'm a critical thinker, I looked at the first 15 pages to see if there was any indication that an article about the show could be found in the section; there wasn't. How do you explain this remarkable phenomenon? And how do you explain the fact that I was reading the Sunday paper on Saturday?

And by the way, I'm claiming dibs on the line "Mister we could use a man like Alexander again". There were no Google hits.

Howard J. Wilk
Philadelphia

Editor's notes: 1.) Reading the Sunday paper on Saturday is sort of like reading the November *Skeptical Inquirer* in October. Perhaps they can answer that remarkable quantum coincidence.

2.) Earlier in 2012 Howard Wilk was thinking about coincidental happenings and shared with us the website of Professor David Spiegelhalter of Cambridge University (<http://understandinguncertainty.org/coincidences#coincidences>) which was noted on page 6 of the May/June/July 2012 *Phactum*. Howard still mulls the matter of coincidence and no doubt we all experience such occurrences.

Editor:

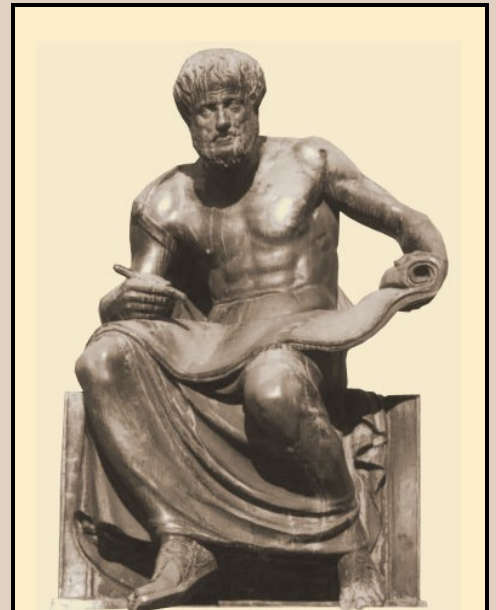
This is getting weird. Last night (5 November 2012) I was thinking about all the news stories that are in need of updates that you rarely see. Like, whatever happened to Whitey Bulger since his arrest in California and extradition to Massachu-

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

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

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

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



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

setts? So I looked him up on Wikipedia and found the page had been revised earlier the same day to read "On November 5, 2012, Bulger was taken to a hospital from his Plymouth prison cell after complaining of chest pains where he is awaiting trial on allegations he participated in 19 murders." The cited reference is the *New York Times*. I checked nytimes.com and there's no such story. So, whether or not the incident happened, and whether or not it appeared in the *New York Times*, I am apparently still stuck in the Twilight Zone.

Howard J. Wilk

Philadelphia

Editors note: Perhaps it is not part of "All the News That's Fit to Print".

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Various Ruminations

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

Proof of the afterlife

The Telegraph reported on October 9, 2012 that a prominent brain surgeon, Dr. Eben Alexander, who had been stricken in 2008 with meningitis, experienced a Near Death Experience (NDE) and an Out of Body Experience (OBE) while in a coma as a result of that disease. Alexander states that that he experienced "something so profound that it gave me a scientific reason to believe in consciousness after death." In an essay for American magazine Newsweek Dr

Alexander says he was met by a beautiful blue-eyed woman in a "place of clouds, big fluffy pink-white ones" and "shimmering beings".

The doctor stated that he had heard stories of NDE/OBE from patients and others but never believed them. Now he says that having experienced such an event he has reconsidered his



Quantum Dark-Baloney
Detector

opinion.

That is science? I suppose it is science if one will allow Dadaist notions of science but I am hopeful that no readers of Phactum will do so.

It so happens by the strangest of curious coincidences and Lunar Alignments that Dr. Alexander did write a book about his fascinating experience entitled "Proof of Heaven: A Neurosurgeon's Near-Death Experience and Journey into the Afterlife".

According to Dr. Alexander's website (<http://www.lifebeyonddeath.net/at-a-glance>) he had many recent radio and TV appearances on nationally syndicated programs

where he has been invited to discuss his experience and his book. Still another miraculous coincidence will be the scheduled appearance of Dr. Alexander to discuss his experience at the Edgar Cayce Association for Research and Enlightenment located in Virginia Beach, Virginia on November 17 at 2:30 PM. Meanwhile, at that exact time PhACT will be discussing Science and Politics in Philadelphia. Perhaps during that synchronicity those disparate entities will be united by the Harmonious Vibrations of the Quantum Oneness ... or perhaps not.

See the Telegraph article at:

<http://www.telegraph.co.uk/news/worldnews/northamerica/usa/9597345/Afterlife-exists-says-top-brain-surgeon.html>

Alternative Medicine developer arrested

Dr. Stephen Barrett reports in Consumer Health Digest of October 18, 2012 that:

Dr. Edzard Ernst has reported that Wassil Nowicky, developer of the dubious cancer remedy ukrain, has been arrested on suspicion of commercial fraud. [Ernst E. A telling story about "alternative" cancer cures and their purveyors. Edzard Ernst blog, Oct 14, 2012]

<http://edzardernst.com/2012/10/a-telling-story-about-alternative-cancer-cures-and-their-purveyors/>

The report is the first article posted to Ernst's new blog on "alternative medicine."

Diamond in the Rough

Here is a little gem passed along by PhACT member Howard Wilk.

It seems that Dan Fagnan of St. Croix County, Wisconsin decided that mud from a 120-foot-deep well that his friend had recently drilled was a promising place to prospect for gold. Needless to say, Fagnan, known locally as a "fruit loop" for his gold-panning activities, didn't find any gold. All he found was a 1.22-carat rough diamond. The article goes on to say that the diamond may have been transported south from Canada during the Ice Age. The question now is: will Dan get hit with import taxes? We hope not but wish Dan good luck in his future prospecting efforts.

Here is a link to a Huffington Post article about this find.

http://www.huffingtonpost.com/2012/10/15/wisconsin-man-finds-diamo_n_1967156.html

Where is Judge Jones when you need him?

Apparently Judge Jones, the science literate judge at the Intelligent Design Trial in Dover, Pennsylvania, was not the presiding judge in L'Aquila, Italy on October 22, 2012 when the court sentenced seven scientists to six years imprisonment on man-slaughter charges for the crimes of "inexact, incomplete, and contradictory" information concerning the 2009 devastating earthquake that caused hundreds of deaths in L'Aquila in the Abruzzo region of Italy. It does not seem to matter that exactness in earthquake prediction is currently impossible for scientists.

No doubt the sentence will be repealed and reversed but I find myself scratching my head to divine a lucid rationale supporting a legal trial in the first place and I ask: Why were astrologers and crystal-ball makers not tried and convicted for failing to foresee this devastation?

Here is a link to a Christian Science Monitor article about this situation: <http://www.csmonitor.com/World/Backchannels/2012/1022/Earthquake-predictions-and-a-triumph-of-scientific-illiteracy-in-an-Italian-court-video>

How the Civil War Influenced the American Revolution and Climate Change

On October 21 I attended a lecture by Clarissa Dillon, PhD on the topic “How the Civil War Influenced the American Revolution”. It is a gimmicky title but as a matter of fact the notion is not without some considerable truth. Towards the end of the Civil War and for some years thereafter Northern writers, especially those from New England, had been busy re-interpreting and re-shaping the events leading to the American Revolution and the Revolution itself. They, the Northerners, were the Civil War victors and they took it upon them selves to write the history.

One tactic, says Dr. Dillon, was to downplay the involvement of the South during the revolution. The early part of the war was centered in New England and Middle Atlantic colonies but by late 1778 the British were fought to a stalemate in the North so they shifted strategy and engaged in various Southern Campaigns. Extensive military actions at Charleston, Savannah, the Battle of Cowpens, the Battle of Kings Mountain, and the Battle of Guilford Courthouse have largely been written out of school text books. One exception, too big to ignore, was the Siege of Yorktown which marked the end of British power in the colonies when Lord Charles Cornwallis surrendered.

Historical treatment of prominent leaders of the Revolution differed according to geography. Northern leaders such as John Adams, John Jay, John Hancock, Robert Morris, and Benjamin Franklin were memorialized interchangeably as Americans, New Englanders, and Northerners. That many of those northern leaders were slave holders was conveniently written out of popular books and common knowledge. On the other hand, the new historians were in a bit of a bind when they documented notable figures such as George Washington, Thomas Jefferson and James Madison., figures so towering that they can not be ignored. One solution was

to refer to them as Americans, occasionally as Virginians, but not as Southerners.

Another image popularized by Northerners, New Englanders in particular, was the image of the cozy 18th century cooking hearth complete with a fire, roast on the spit, a curious cat, and musket and powder horn above the fire. What a great idea to store explosives above the fire!!!

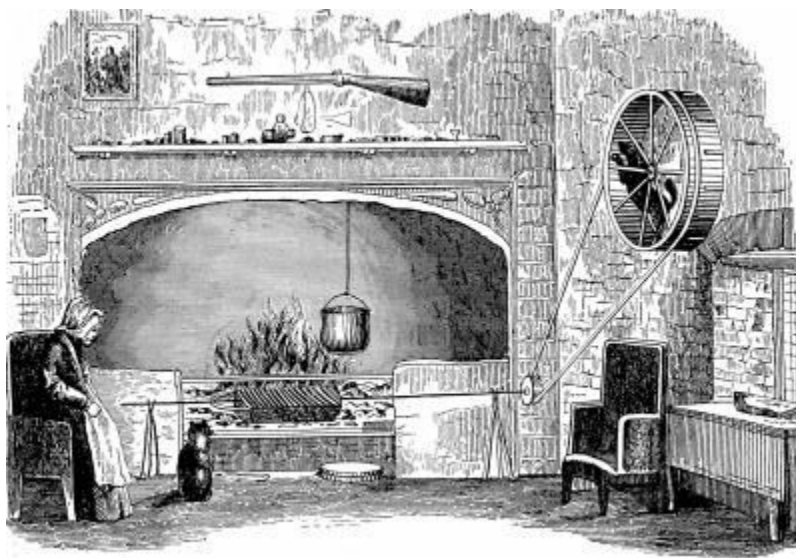
It was a most interesting and enlightening lecture about the myths and misconceptions of American history introduced by the victorious side of another conflict nearly a century later.

A few days later at a lecture sponsored by the American Revolution Round Table of Philadelphia (ARRTOP) I, by yet another Cosmic Confluence of Unlikely Circumstances, did win in a raffle a book entitled “Founding Myths: Stories That Hide Our Patriotic Past”, by Ray Raphael. It that book, Ray Raphael challenges the story of the dismal winter of 1777-1778 suffered by the Continental Army at Valley Forge.

Raphael writes:

The winter of 1777-1778 was not "one of the cruelest winters in our country's history." We have no record of daily temperatures at Valley Forge, but in nearby Philadelphia, only seventeen miles away, temperatures ran slightly above the historic average (see table). On more than half the winter mornings, there was no frost. Soldiers had to endure only one extended, hard freeze—

from December 29 to December 31--and the thermometer dropped below double digits, briefly, only twice. Some snow did fall, but there were no memorable blizzards. Snowfall was "moderate, not heavy," according to weather historian David Ludlum. "On the basis of cold statistics," writes Ludlum, "the winter of 1777-1778 was not a severe one."



Days with Low Temperature Below Freezing Philadelphia

| | 1777—1778 | Historic Average |
|----------|-----------|------------------|
| December | 17 | 21 |
| January | 15 | 25 |
| February | 13 | 22 |
| March | 5 | 14 |

No one doubts that the Continental Army suffered greatly during the Valley Forge encampment but that story like many others is abundantly laced with mythical misperceptions believed to be fact. Personally, I rather like many of the stories I grew up with, but I also like truthful accounts of our history when broadly applied, unlike the savage revisionism of poor old Columbus whose biography has been rewritten from Hero to Crumb.

Paul Kurtz, R.I.P.

Paul Winter Kurtz, philosopher, skeptic, and humanist, born December 21, 1925, died at his home in Amherst, NY on October 20, 2012. Kurtz was a widely acknowledged leader



Paul Winter Kurtz (1925 - 2012)

in both the secular humanist and skeptic communities. He was the founder of the Council for Secular Humanism, the Center for Inquiry, and Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) which is now known as the Committee for Skeptical Inquiry (CSI).

Kurtz had a long list of publications and other achieve-

ments mainly centering around a civilized society not bound by rigid religious dogma or the preposterous pronouncements of pseudoscience. Professor Kurtz was ardently an atheist but called for secular humanism without anger.

Paul Kurtz On Free Inquiry into Science - "Not the least among secular values of course is free inquiry and freedom of scientific research, the very basis of science and technology. Religious censorship or limitation—such as that intelligent-design advocates seek to impose on scientific theories of evolution—is unacceptable. The free mind is vital for the open society. If one wants to pursue scientific inquiry, then one needs to abide by methodological naturalism: objective standards of evidence, rational coherence, and experimental testing are quite independent of the Bible or Qur'an." (from Free Inquiry April/May 2004)

See the obituaries listed here for details of Professor Kurtz's life.

Center For Inquiry http://www.centerforinquiry.net/paul_kurtz_obituary

Freethought Blogs <http://freethoughtblogs.com/almostdiamonds/2012/10/28/the-hand-of-paul-kurtz/>

New York Times <http://www.nytimes.com/2012/10/24/nyregion/paul-kurtz-humanist-and-philosopher-dead-at-86.html>

International Humanist and Ethical Union

<http://www.iheu.org/paul-kurtz-extraordinary-proponent-humanism-1925-2012>

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

By Paul Halpern

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

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

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

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

Edge of the Universe investigates these fascinating questions and more, offering the background behind humanity's search for the frontiers of the universe!

EDGE
of the
UNIVERSE



A VOYAGE TO THE
COSMIC HORIZON AND BEYOND

PAUL HALPERN



Spring 2013 Adult Education Courses

Adult education courses at the Wagner Free Institute of Science are free and open to the public. Courses are taught at the college undergraduate level. For more information: Telephone: 215-763-6529

Email: info@wagnerfreeinstitute.org

Website: <http://www.wagnerfreeinstitute.org>

How Plants Work: Topics in Practical Plant Physiology for Gardeners, Professor Karen Snetselaar. 1 Tuesday and 5 Mondays, January 22 - February 25, 2013, 6:30 - 7:30 PM. Pennsylvania Horticultural Society, 100 N. 20th Street (20th and Arch Streets). This course will examine how plant structure and growth is influenced by water, minerals, and other chemical compounds and provide you with a better understanding of how to meet their needs.

This course requires preregistration. Preregistration begins Monday, November 26, 2012.

Genetics: From Mendel to Watson & Crick and Beyond, Professor Mary Beth Davis.

6 Wednesdays, January 23 - February 27, 2013, 6:30 - 7:45 PM. Independence Branch of the Free Library, 18 S. 7th Street (between Market and Chestnut). This course is an informal "introduction to genetics" with a focus on learning what genes are and how they function. Practical applications of genetic technology will also be discussed.

No preregistration required.

Vertebrate Anatomy, Professor Jason Downs.

8 Saturdays, January 26 - March 16, 2013, 10:30 AM - Noon. University of Pennsylvania Museum of Archaeology and Anthropology, 33rd and Spruce Streets. This course will examine the vertebrate body and show how biological form reflects function, ontogeny (growth and development), and phylogeny (evolutionary relationships).

This course requires preregistration. Preregistration begins Monday, November 26, 2012.

Avant-garde Science, Avant-garde Art: The Artistic Response to the Scientific Revolutions of the 19th Century,

Professors Michael J. Lewis and David Hewitt.

6 Tuesdays, January 29 - March 5, 2013, 6:30 - 8:00 PM. Pennsylvania Academy of the Fine Arts, 118-128 N. Broad Street (between Arch and Race Streets). This course, a discourse between an art historian and a biologist, will look at the way in which 19th century artists and architects responded to the insights of the natural sciences.

This course requires preregistration. Preregistration begins Monday, November 26, 2012.

Reading the Landscape of Philadelphia, Professor David Hewitt.

6 Mondays, March 25 - April 29, 2013, 6:30 - 7:30 PM. Pennsylvania Horticultural Society, 100 N. 20th Street (20th and Arch Streets). Through a series of illustrated case studies, this course will provide reconstructions of a variety of historic landscapes throughout Philadelphia. Implications for urban greening will also be discussed.

This course requires preregistration. Preregistration begins Monday, November 26, 2012.

MEMBERS ONLY WORKSHOP: Beetle Basics with Professor Robert T. Allen.

8 Thursdays, March 7 - April 25, 2013, 6:30 - 8:00 PM. The Academy of Natural Sciences of Drexel University, 19th Street and the Benjamin Franklin Parkway, Philadelphia. An introduction to the most diverse and prolific group of multicellular organisms on our planet -- Beetles, the Insect Order Coleoptera.

This special hands-on workshop is limited to 10 students. To enroll, you must be a member of the Wagner. In addition, there is a \$25 registration fee. Preregistration begins Monday, January 7, 2013.

Please call 215-763-6529 x13 if you have any questions about this special workshop or membership.

Meeting Report - October 2012

The Shadow Realm of Science by Akim Adams

Akim Adams is a physics student of Dr. David Cattell at Community College of Philadelphia

What is Pseudoscience?

Astrology, ESP, cryptozoology, alternative medicine, creationism, homeopathy, Feng shui and quantum mysticism are just some known examples of what scientists and academics characterize as pseudoscience. But what is pseudoscience and how do we define it? More importantly, how do we distinguish between what is science and what is pseudoscience? Philosophers and scientists have struggled for centuries with what is known as the demarcation problem. Philosopher Karl Popper proposed that “the criterion of the scientific status of a theory is its falsifiability, or refutability, or testability” (Popper). But how do you know when this has happened? Popper’s demarcation criterion often excludes legitimate science, like string-theory or dark matter which remains largely untested, and gives some pseudoscience the status of being scientific, as in the case of astrology which in fact has been tested and thoroughly refuted (Hansson).

Michael D. Gordin, author of *The Pseudoscience Wars: Immanuel Velikovsky and the Birth of the Modern Fringe* and the speaker at the recent PhACT meeting, argues that philosophy is the wrong tool to use when solving the demarcation problem. Echoing the words of philosopher Larry Laudan, Gordin says that “there is no bright pin line of demarcation. We just can’t find a clear boundary that obeys [Popper’s] rules.” Even though people demarcate every day, such as refusing to click on a link of a website because it seems to be full of nonsense, there is just no clear instruction on how we can identify something as pseudoscientific. Instead of using philosophy

as a tool to identify Laudan’s ‘bright pin line’, Gordin states that it is much more efficient to look at examples in the past and learn how people have practiced doing the work of demarcation. The central historical example that Gordin dives into in his book is that of Immanuel Velikovsky, a Russian-born psychoanalyst, catastrophist, and author of the 1950 bestseller, *Worlds in Collision*.

Letter from Albert Einstein to Immanuel Velikovsky

27th August, 1952

Dear Dr. Velikovsky:

The reason for the energetic rejection of the opinions presented by you lies not in the assumption that in the motion of the heavenly bodies only gravitation and inertia are the determining factors. The reason for the rejection lies rather in the fact that on the basis of this assumption it was possible to calculate the temporal changes of star locations in the planetary system with an unimaginably great precision.

Against such precise knowledge, speculations of the kind as were advanced by you do not come into consideration by an expert. Therefore your book must appear to an expert as an attempt to mislead the public. I must admit that I myself had at first this impression, too. Only afterwards it became clear to me that intentional misleading was entirely foreign to you.

With friendly greetings,

Yours,

Albert Einstein

The Velikovsky Affair

Published by Macmillan, a leading publisher of scientific texts, *Worlds in Collision* was Velikovsky’s attempt to reverse engineer mythical events and to explain the natural disasters in the Bible using natural phenomena. He hypothesized that the Solar System was rearranged around 1500BC when Jupiter emitted a comet that passed Earth and disrupted the tilt of its axis, causing numerous catastrophes often described in ancient scriptures and mythologies. Global floods, rains of fire, and the splitting of the Red Sea can all be attributed to this comet which later becomes the planet Venus we know today.

What makes this book enthralling is not so much its daring claim but the hostile reception it received by the scientific community even months before its publication. Gordin says that it was the Velikovsky Affair that was probably responsible in giving the book the energy and publicity to become such an instant hit.

Following the overwhelming rejection of Velikovsky’s thesis, the scientific community forced Macmillan to discontinue its publication and to transfer the book to Doubleday within just two months. Until his death in 1979, Velikovsky received heavy criticism from some of the most

important scientists, including Stephen Jay Gould (Gould) and Carl Sagan. Velikovsky even attempted to win the approval of Albert Einstein who considered Velikovsky “gifted, but uncritical” (Gordin 121).

Conclusions

Studying Velikovsky’s affair, Gordin concludes that the accusations of pseudoscience are highly sensitive historical indicators of when the scientific community feels a potential threat and when particular doctrines take resonance in people. Secondly, the reason why there is no bright pin-line of demarcation is mimesis. “If you tell people that what you need to do is publish a peer-review journal, [because] that’s what distinguishes science from pseudoscience, then like the Velikovskyists you will create peer-review journals. Creationists have peer-review journals. If you tell them that what you need to do is make predictions, like Velikovsky they’ll make predictions. The reason why pseudoscience exists is that it looks like science!”

Demarcation is inevitable and has to happen all the time on a case by case basis, but what this means is that we cannot do it systematically. Pseudoscience can’t be eradicated like cholera or polio, as Carl Sagan envisioned, because pseudoscience, Gordon believes, is “not so much a pathogen

as a shadow. People propose alternative fringe theories because science is something worthy of emulation; it’s something that they want to be like. So the more exciting science is, the more bright, the more forward looking, the more people want to try to produce their own theories that they think are scientific. So pseudoscience paradoxically is a sign that science is healthy, not that it’s sick.”

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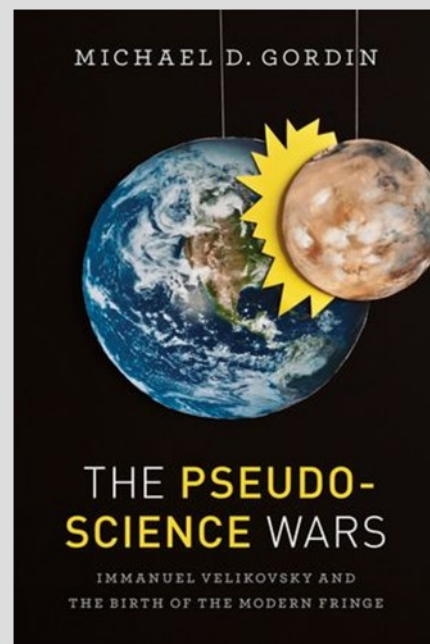
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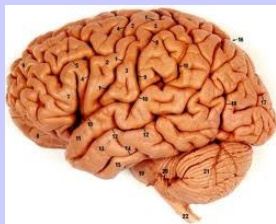
The Pseudoscience Wars: Immanuel Velikovsky and the Birth of the Modern Fringe By Michael D. Gordin

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Properly analyzed, the collective mythological and religious writings of humanity reveal that around 1500 BC, a comet swept perilously close to Earth, triggering widespread natural disasters and threatening the destruction of all life before settling into solar orbit as Venus, our nearest planetary neighbor.

Sound implausible? Well, from 1950 until the late 1970s, a huge number of people begged to differ, as they devoured Immanuel Velikovsky’s major best-seller, *Worlds in Collision*, insisting that perhaps this polymathic thinker held the key to a new science and a new history. Scientists, on the other hand, assaulted Velikovsky’s book, his followers, and his press mercilessly from the get-go. In *The Pseudoscience Wars*, Michael D. Gordin resurrects the largely forgotten figure of Velikovsky and uses his strange career and surprisingly influential writings to explore the changing definitions of the line that separates legitimate scientific inquiry from what is deemed bunk, and to show how vital this question remains to us today. Drawing on a wealth of previously unpublished material from Velikovsky’s personal archives, Gordin presents a behind-the-scenes history of the writer’s career, from his initial burst of success through his growing influence on the counterculture, heated public battles with such luminaries as Carl Sagan, and eventual eclipse. Along the way, he offers fascinating glimpses into the histories and effects of other fringe doctrines, including creationism, Lysenkoism, parapsychology, and more—all of which have surprising connections to Velikovsky’s theories. Science today is hardly universally secure, and scientists seem themselves beset by critics, denialists, and those they label “pseudoscientists”—as seen all too clearly in battles over evolution and climate change. *The Pseudoscience Wars* simultaneously reveals the surprising Cold War roots of our contemporary dilemma and points readers to a different approach to drawing the line between knowledge and nonsense.





WHAT'S ON YOUR MIND?

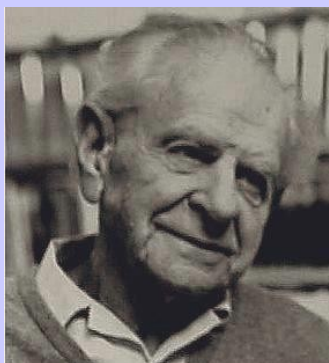
Clear or Fuzzy? The Line in the Sand

By Tom Medero

I was fascinated by Dr. Michael Gordin's talk at our last PhACT meeting. His thesis in exposing Velikovsky (among others) as pseudoscience practitioners was not based in finding fault with their methodology or premises – Gordin's claim forced me back to the basics of the philosophy of science. Dr. Gordin, to my understanding, asserted that it is Popper's criterion of “demarcation” as the doorman who is snoozing as pseudoscience sneaks in. In fact, I understood him to charge Popper's criteria of demarcation with being flawed to the extent that it actually allows nonsense through the door. Well, this assertion was quite astonishing to me, but being a critical thinker I had to hear his thesis out. I immediately went back to basics, to T. C. Chamberlain, Rudolph Carnap, and Karl Popper to find for myself if indeed the criterion of demarcation was flawed to the extent that it almost encourages pseudoscience to claim itself as “real” science. I found myself compelled to re-evaluate Popper's thesis anew, to see for myself if I agreed or not. In fact, this became so disturbing to me that I could not let it rest until I rigorously and critically re-examined it all for myself. This was something I could not let go of, as Popper, et.al. have laid before me trusted scientific foundations for all the work I plan to do in the future. I certainly would not want an original idea (or any idea) to be challenged on such a fundamental basis; that would be sheer embarrassment and an allusion to sloppiness on my part as a scientist-in-training.

The first source I consulted was my trusted fallback, the Stanford University Encyclopedia of Philosophy which, among other revelatory facts about Popper, clearly explained his reasoning behind his demarcation thesis. From this I quote: “Every genuine scientific theory then, in Popper's view, is prohibitive, in the sense that it forbids, by implication, particular events or occurrences. As such it can be tested and falsified, but never logically verified. Thus Popper stresses that it should not be inferred from the fact that a theory has withstood the most rigorous testing, for however long a period of time, that it has been verified; rather we should recognize that such a theory has received a high measure of corroboration, and may be provisionally retained as the best available theory until it is finally falsified (if indeed it is ever falsified), and/or is superseded by a better theory.” (SEP, Karl Popper, the problem of demarcation) Clearly, pseudo-scientific theories such as that the planet Venus was sheared off from the Earth in a cataclysmic collision, that there is no corroboration, there is no opportunity for falsifiability, and beyond Velikovsky's imagination it truly stretches credibility to assert that it is an inference to the best explanation. Selling books by preying on an ignorant (to scientific criteria) public is not my idea of “good” science.

Surely the sheer wild confabulations of Velikovsky and other's theses make these volumes bestsellers. But critical



Sir Karl Raimund Popper (1902 - 1994)

was an Austro-British philosopher and professor at the London School of Economics. He is generally regarded as one of the greatest philosophers of science of the 20th century. He also wrote extensively on social and political philosophy. Popper's works are not only extensive, but they are complex, and will no doubt keep Philosophers employed and arguing for the next several centuries.

thinkers know all too well that in and of itself this speaks in no significant way to the credence of the theses contained therein. Sensation sells books, not dry facts. An audacious theory, whether arrived at properly or completely contrived to sell books will do the job. It matters not whether the author actually believes it or not. Of course he does, particularly in front of his publisher. Too often it seems, we are witnessing confirmation bias run amok. Be certain PhACT members will look twice. But I'm still having a hard time accepting that Popper's demarcation admits or at least eases pseudoscience's admission into the mainstream. Surely all philosophical theses are fodder for argument, but I don't see that much wiggle-room in Popper's declarations.

Let's look at it succinctly then, as defined by the SEP: "Formally, then, Popper's theory of demarcation may be articulated as follows: where a 'basic statement' is to be understood as a particular observation-report, then we may say that a theory is scientific if and only if it divides the class of basic statements into the following two non-empty subclasses: (a) the class of all those basic statements with which it is inconsistent, or which it prohibits—this is the class of its potential falsifiers (i.e., those statements which, if true, falsify the whole theory), and (b) the class of those basic statements with which it is consistent, or which it permits (i.e., those statements which, if true, corroborate it, or bear it out). " (italics added) I simply cannot, for the life of me, see where astrology, crop circles, phrenology, channeling, homeopathy, or Erich von Daniken fit this criterion in either set or class. I can only conclude, then, that admission of a pseudoscientific theory as scientific is not with the assent of scientists who are paying attention; it must be sneaking in the back door, gaining some kind of "folk-credibility", and all

the attention might make a true scientist stop and ask what all the fuss is about. But, in applying the scientific rigor (s)he was (or should have been) trained with, that look should only last mere seconds if he or she is awake.

"For Popper, as well as the rest of us, we admit that the growth of human knowledge proceeds from our problems and from our attempts to solve them. These attempts involve the formulation of theories which, if they are to explain anomalies which exist with respect to earlier theories, must go beyond existing knowledge and therefore require a leap of the imagination." The operative clause here is "with respect to earlier theories". Science is dynamic, building upon previous knowledge in an endeavor to isolate new and ultimate facts about our world. Pseudoscience, except by the thinnest of margins, builds upon fear, imagination, and fantasy and as far as I can see, gains no admission to credibility through Popper's demarcation or any other philosophy of science.

Tom Medero is originally from Long Island, NY, and has lived in Philadelphia for 20 years now. Tom graduated this past Spring from Community College of Philadelphia and is currently studying to complete his B.A. at Temple University majoring in Psychology.

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

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* * * **A few Karl Popper quotes** * * *

In so far as a scientific statement speaks about reality, it must be falsifiable; and in so far as it is not falsifiable, it does not speak about reality.

There is no history of mankind, there are only many histories of all kinds of aspects of human life. And one of these is the history of political power. This is elevated into the history of the world.

No rational argument will have a rational effect on a man who does not want to adopt a rational attitude.

We must plan for freedom, and not only for security, if for no other reason than that only freedom can make security secure.

Whenever a theory appears to you as the only possible one, take this as a sign that you have neither understood the theory nor the problem which it was intended to solve.

In so far as a scientific statement speaks about reality, it must be falsifiable; and in so far as it is not falsifiable, it does not speak about reality.

Darwinism is not a testable scientific theory,



What is Consciousness?

by Albert Fried-Cassorla

In my opinion, consciousness is a genuinely mysterious phenomenon. Simply put, we are inside the phenomenon, and a true explanation of what it is remains very difficult. It is easier to describe aspects of consciousness that to explain what it is.

I believe that most people simply accept consciousness in same way that a fish accepts water - it is there and requires no explanation.

These are some basic facts about consciousness: As individuals, we find ourselves *inside* our consciousnesses. This may be hinted at to other people, but cannot completely be reproduced in another person.

We feel that we are genuinely making decisions, and that our decisions are genuinely free. That is, we feel our decisions are at least one step beyond antecedent circumstances and causes, such as electro-magnetics, genetics, and more.

The phenomenon of consciousness is mysterious because it can in part be described, but it cannot be fully explained.

Consciousness is also mysterious because it apparently originates something from nothing. If the first fundamental mystery of consciousness is that we are inside of our minds, and have no idea why this is so, the second fundamental mystery of consciousness is that our wills -- if they are truly free -- must logically originate something from nothing.

This apparently violates the law of conservation of matter or mass. This states, to quote Wikipedia: "The **law of conservation of mass**, also known as the **principle of mass/matter conservation**, states that the mass of an isolated system (closed to all matter and energy) will remain constant over time."

If we truly make decisions, then we must logically make something from nothing. Otherwise, we are automatons responding to our surrounding circumstances. How this decision-making is possible is unclear. I do not suggest a "spiritualist" answer to the question. I simply state that the answer is unknown.

All of the above does not deny that the physical brain is a necessary precondition for the existence of a mind. The mind

depends on the physical world and hence the brain.

Implicit in the above is that Free Will is depended on consciousness. If we are truly free our originating actions begin with consciousness. Like Descartes' "I think, therefore I am," it also follows, that "I think, therefore I can decide."

Some friends of mine believe that consciousness can be explained. Surely, neural pathways can be traced. Axons and dendrites and the neural cortex can be shown to fire and communicate. But these are the byproducts or epiphenomena of consciousness, not the thing itself.

Can dark matter or quantum physics be at the heart of the consciousness process? Perhaps. But if these hard to comprehend concepts pertain, can they possibly explain consciousness or only at best reveal an aspect of the physical process? I believe they can, in principle, only show an aspect of consciousness

The age-old question of Free Will vs. Determinism itself is conditioned by the nature of consciousness. If we accept that our minds can generate "something from nothing," then the issue is decided in favor of at least the particular existence of free will.

All of what I have said simply points to consciousness as a multi-faceted, multi-dimensional mystery. I remain a materialist. The dialectic of this particular question in involves aspects of the world that most people never question -- but which remain fascinating and essential to our being.

Albert Fried-Cassorla is a teacher for the School District of Philadelphia, is a philosopher, playwright, poet, and in 1999 was a finalist in the Montgomery County (PA) Poet Laureate's Contest.

Editor's note: For more about this topic see the Special Edition of Phactum, The Physics of Free Will, by A. Granville Fonda (published December, 2010).

<http://www.phact.org/special.php>

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"To be conscious that we are perceiving or thinking is to be conscious of our own existence."

~ Aristotle, Nichomachean Ethics

Greek critic, philosopher, physicist, & zoologist (384 BC - 322 BC)

Long Term Care vs. Dementia

by Paul Schlueter III

This Association is largely made up of middle aged folks, so it is likely that many of us have some experience with the complex and disturbing issues of the physical and mental declines of older generations. They are also concerns which we ourselves shall have to face before long, once we reach "elderly" status.

In the ongoing debate about national health care, one of the core issues is the fact that an ever-increasing portion of health care costs are for long term care of the ever-growing segment of our population which is elderly and in decline. Our nation is at the center of developing more and more medical procedures, drugs, and care facilities for the elderly, so our population lives longer than ever before, costing more money than ever before, and spending many more years in demented states than any society has ever known before. The excruciating debate is whether "Life, of any sort" is better than "dying when one's time has come."

In a heartfelt anecdotal article in the Week (June 29, 2012) called "The ending no one wants," Michael Wolff compellingly describes his experiences with his mother's protracted decline into dementia, throughout her 80s.

Here are some statistical facts Wolff offers:

◆ "In 1990, there were slightly more than 3 million Americans over the age of 85. Now there are almost 6 million. By 2050 there will be 19 million -- approaching 5 percent of the population."

◆ "Seventy percent of those older than 80 have a chronic disability, according to one study [not identified]; 53 percent in this group have at least one severe disability, and 36 percent have moderate to severe cognitive impairments."

◆ "There are now more than 5 million demented Americans. By 2050, upward of 15 million of us will have lost our

minds."

◆ "This year, the costs of dementia care will be \$200 billion. By 2050, \$1 trillion."

Wolff goes on to tell the story of his mother's productive life as a journalist and marketing executive, eventually telling of a surgery costing a quarter of a million dollars (paid by Medicare, a.k.a. tax dollars), though she was already in severe mental decline. Now, her heart is healthy enough to keep her alive in diminishing mentation "for years."

Wolff ends the short excerpt (it was originally printed in New York magazine) with this paragraph: "Meanwhile, since, like my mother, I can't count on someone putting a pillow over my head, I'll be trying to work out the timing and details of a do-it-yourself exit strategy. As should we all."

In my own life, at age 50 I've only just begun to experience (from the distance imposed by my incarceration) the loss of relatives following long, dwindling declines in mental health. Recently, a grandmother struggled through long, in-home care by my parents (first in her own home, then eventually in theirs), with each week bringing yet another declining change in her mentality and independence. I've very recently received word that my birthfather (who never knew of my existence until he was nearly 60) succumbed to pneumonia, which he contracted after falling and breaking a hip; he had been in long-term care following a severe car accident seven years ago, after which he never recovered the ability to care for himself, and during which he gradually lost even the ability to recognize his siblings and children -- he was 80.

My birthmother, now a Jehovah's Witness matriarch of her own extended family (also predominantly JWs) has strong, stable family ties with her other three kids, and her

"The baby boomers are getting older, and will stay older for longer. And they will run right into the dementia firing range. How will a society cope? Especially a society that can't so readily rely on those stable family relationships that traditionally provided the backbone of care?"

~ Terry Pratchett, British novelist, born 1948

In December 2007, Pratchett announced that he was suffering from early-onset Alzheimer's disease. Subsequently he made a substantial public donation to the Alzheimer's Research Trust and filmed a program chronicling his experiences with the disease for the BBC.

grandkids are now starting to marry and/or have kids of their own. They'll all be available to help one another. JWs have an unusual insistence on receiving no transfusions of blood products; in general, this may result in diminished life expectancy (major surgeries often require transfusions, so a prohibition of transfusions might preclude otherwise life-prolonging surgeries). On the other hand, I'm pretty sure that no JW would even seriously contemplate "pulling the plug" to assist a loved one's death. She's only approaching the age of 70, so I'm hoping it will be a long time yet before the matter forces itself into her life. My adopted parents, who raised me since infancy, are close to age 80 as well; my mom is beginning to be aware of her own mental decline though she remains able to live independently (with her third husband), and my dad worries with increasing frequency that he might soon begin to lose his intellect (he remains in remarkable good health at this time, along with his second wife).

My parents (I count six!) will not enjoy the benefit of my help in their aging years; Life incarceration in PA means I will never be eligible for parole, and even if I were released tomorrow, I've lost over 26 of my working years, and would have to re-enter the workforce at minimum wage (and owing in excess of \$15 million on a civil wrongful death judgement); my care could only extend to my presence, and whatever physical assistance I could muster.

One of the points Wolff's article made was that we Baby Boomers will become an extremely numerous burden on our relatives, and the health care system, as we become elderly ourselves. We are only now beginning to witness what our parents are going through, with artificially-extended lifespans and extraordinary (historically unprecedented) medical interventions to keep our hearts beating just a few more years, and then (with helpful and expensive machines) perhaps even for years beyond their hearts' function. We can surely expect the film industry to explore (and probably proselytize) this unprecedented social issue more and more. Though Dr. Kevoorkian himself has died, his efforts and message left an indelible impact on our collective consciousness (whichever side we may take in the matter of the ethics of assisted suicide). The internet has developed an extensive (and largely anonymous) database of means and methods of ending one's own life, should we so wish.

Wolff elected to forego the purchase of Long Term Care insurance for himself, with the idea that he really doesn't want to go *through* what he sees his mother experiencing. He cites the costs of her care at some \$17K per month. Yet, in this day of mandatory care and treatment for even the uninsured, would he really go untreated and simply die a quick and undramatic death, solely for lack of insurance coverage for extended, expensive care? More likely, he'll be treated, and treated again, and placed in publicly-funded care facilities (most likely to experience overcrowded facilities, underpaid staff, and unguessed predations), all the while being mercilessly hounded by medical bill collectors. Is that a better way to go? Or does Wolff really believe that he'll follow his own "exit strategy," by which he'll avoid the accumulated debt, the mental decline, and the "dwindler" existence he dreads?

The question for Wolff, and others who think like him, might be: At *which* milestone of your life will you decide to "quit while you're ahead," exiting the game of life with your mentality and economic status intact, trading off the potential enjoyments of continued life in the effort to beat dementia to the final punch?

As a Lifer, I live with around 500 other life-incarcerated men (and 1,500+ more who have sentences with definite end dates, many of which extend far beyond reasonable life expectancies). Leave alone the question of what we collectively "deserve" for our criminality. We are unquestionably an example of what society at large will face as the Baby Boomers age out. We tend to present with physical and mental health approximately ten years beyond our chronological ages. We cost more and more (purely for our health care needs) as we grow older in the correctional system's "socialized medical care"

paradigm. I wrote Hilary Clinton, then a First Lady looking into health care reform issues during her husband's Presidency, and suggested she examine the nation's correctional systems for practical and REAL examples of state-funded health care.

Here's a trend nobody seemed to anticipate; as SOME people grow older and unable to care for themselves, where can they turn for three hot meals and a roof over their heads, heat and running water, health care which is (if not exemplary) at least above and beyond that provided for the vast majority of the world population? Just commit a felony in PA, and the prison system will take care of you until you

MCHUMOR.com by T. McCracken



"Really, Grandpa, I don't need to know about bubbles' surface tension, pressure and elasticity to enjoy blowing them."

Cartoon by T. McCracken
<http://www.mchumor.com/>
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die (I am quite certainly NOT kidding).

When I was awaiting trial, there were certain County Jail inmates who would commit minor misdemeanors each fall, and receive free room and board in jail until Spring; they'd be released, summer near the local dumpster (residing in a box under the bridge), and bum whatever drugs and booze they could get, until repeating the cycle next year. County Jails got wise, and began charging repeat offenders for their room and board, on a sliding scale that increased with each repeat offense (I have no statistics on how successful counties have been in collecting on such debts). I'm really not making any of this up!

So, there's one "exit strategy" available to Americans who figure they can tolerate life in a 6' x 10' cage. Is it really so different from the life one must contemplate living if disabled, struck down with dementia, and unable to fend for oneself on the outside? The benefit is, in prison there is a large (well-paid and securely benefitted) unionized correctional staff (plus a semi-privatized medical staff) who is obliged to protect and look after your needs, up to a point. Why burden your kids and siblings, becoming the chore they must dread each and every day, when PA will take over? Or, if you don't like PA's standard of care, commit a Federal felony, and let Uncle Sam look after you. Your family can go on about their own lives, until it becomes THEIR time to follow your example (what, you weren't aware of the growing number of relatives who are currently incarcerated together?) It costs you a little more in tax dollars right now, but you save that expenditure by NOT needing to sign up for long term care insurance, or even basic health care coverage (that dreaded "individual mandate"). Instead of your family covering your medical costs, those costs get spread out across the entire society. It could very well become the new socialized geriatric care, via the Correctional System! PA could actually achieve its apparent goal of hiring half the state's population to work as prison staff, watching over the other half of the population! (Yes, I'm NOW being facetious.)

All Schlueterisms aside, our society will very soon need to open a serious and clear-eyed dialogue, looking for a solution to the dilemma of how to handle caring for 5% of the population whose lives are medically extended long past their natural expectancy, into dementia and beyond. Sooner or later, SOMEBODY will need to decide when the best interests of society outweigh the automatic presumption that EVERY person's life should be protracted to the fullest extent of current medical ability. Someone will need to make a cost vs. benefits analysis. Someone will need to weather the public outcry about "Death Panels" and establish a disinterested, rational, PUBLICLY ACCOUNTABLE authority empowered to make the hard decisions necessary when it's simply (in Wolff's words) time "to help her go where she was going." Death, no matter how much we want to postpone it, is

the natural fate of all living things. We recognize that suffering is needless when it involves the end of a beloved pet's life, yet we somehow cannot let go of another HUMAN life, regardless of how little they wish to go on; in fact, police may use deadly force to PREVENT you from ending your own life! What is UP with that?

I've listened to one Correctional Officer's personal opinion that prisoners (lifers in particular) should NOT be given chronic care medication (think insulin shots for diabetics, AZT for HIV-positive inmates, stents and open-heart surgery for the elderly with hardened arteries, etc.), but rather should be allowed to succumb to disease if that is their fate. Even though his point of view is rarely expressed out loud, I'm relatively sure he's not the only one to feel that way. It's a frightening prospect (I, for one, am insulin-dependent), but I have to acknowledge the pure social logic that supports such a position.

What actually WILL happen to me, if I somehow avoid "the big one" and live long enough to fade into dementia in prison, surrounded by my: fellow convicts and staff who may (or may not) feel like I should live to see the next day, regardless of my potential contribution to prison society? Would it be very different, after all, if I were to somehow be released and face my declining years out there, with all of you?

And more important (at least, to YOU): What will YOU do, when it's YOUR turn to stare out of uncomprehending eyes, unable to control your bodily functions or feed yourself, forced to endure the indignity of daily care at the hands of whichever person happens to get the chore? Have you devised YOUR "exit strategy?" Do you have your "fallback plan," in case an unforeseen and sudden event makes it impossible for you to control your own fate? Are you working, TODAY, to ensure that you'll have the legal right to even MAKE such decisions for yourself? Do you REALLY want the vocal moralists and religious fundamentalists setting out the rules on this issue, according to THEIR inclinations? Just food for thought...

NOTE: On June 28, 2012, the Affordable Care Act (a.k.a. "Obamacare") was held to be constitutional, particularly with respect to the "individual mandate" issue. It is not yet clear what impact this ruling will have (if any) on the cost to an individual family for long term care, such as that discussed in the preceding article on dementia.

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

**I am a very foolish fond old man,
Fourscore and upward, not an hour more
nor less;
And to deal plainly,
I fear I am not in my perfect mind.**

**~ William Shakespeare (1564–1616),
Lear, in King Lear, act 4, sc. 7, l. 59-62.**



Captain John Smith.

Captain John Smith and the Green Haired Mermaid

by Don Nigroni

Various paranormal researchers have said the famous explorer Captain John Smith, President of Virginia and Admiral of New England, claimed to have once seen a mermaid in the region of the West Indies. Could this have been a simple case of misidentifying an Antillean manatee?

In *Hidden Animals: A Field Guide to Batsquatch, Chupacabra, and Other Elusive Creatures* (2009) by Michael Newton, we read:

1614: Six years after he was saved from execution by Pocahontas, British sea captain John Smith met a mermaid in the Caribbean. She had "large eyes, rather round, a finely shaped nose (a little too short), well-formed ears, rather too long, and her long green hair imparted to her an original character by no means unattractive." Smith was smitten until he saw that "from the waist down the woman gave way to the fish."

And E. Randall Floyd in *Great Southern Mysteries* (1989) noted:

One of the most famous descriptions of a mermaid in southern waters was provided in 1614 by Captain John Smith. Upon spotting the strange creature, Smith said the "upper part of her body perfectly resembled that of a woman, and she was swimming about with all possible grace near the shore." His meticulous observation continues: the sea-beast had "large eyes, rather too round, a finely shaped nose (a little too short), well-formed ears, rather too long, and her long green hair imparted to her

an original character by no means unattractive."

What is being described in these accounts is surely a mermaid, not a manatee. Could this then have simply been a hoax by Smith? Apparently not for in the September 22, 1849 issue of the *Gazette of the Union* appeared the beginning of a story by Alexandre Dumas entitled the *Nuptials of Father Polypus*. Dumas is the noted author of *The Count of Monte Cristo* and *The Three Musketeers*. In Chapter I, MERMAIDS AND SYRENS, of this serialized work, Dumas wrote:

Captain John Smith, an Englishman, saw in 1611, off an island in the West Indies, a syren, with the upper part of the body perfectly resembling a woman. She was swimming about with all possible grace, when he descried her near the shore. Her large eyes, rather too round, her finely shaped nose, somewhat short, it is true, her well-formed ears, rather too long however, made her a very agreeable person, and her long green hair imparted to her an original character by no means unattractive. Unfortunately the beautiful swimmer made a slip, and Captain Smith, who had already begun to experience the first effects of love, discovered that from below the stomach

the woman gave way to the fish. It is true that this fish had a double tail; but two tails are not exactly calculated to make amends for two legs.



Hans Christen Andersen's
The Little Mermaid
1836

E. Keble Chatterton in *Captain John Smith* (1927) noted

that historians have hotly disputed two of Smith's controversial claims, namely, his accounts of his exciting experiences in Eastern Europe and of the famous Pocahontas affair, but Chatterton made no mention of any debate over Smith claiming to have seen a mermaid nor even that such a contention had ever been made by him. Chatterton also wrote that Smith was in the West Indies in March and April of 1607 on his voyage to Virginia but that was apparently the only time he was in that area.

Hence, Captain John Smith evidently was not even in the region of the West Indies in either 1614 or 1611. Also, by their use of quotation marks, Newton and Floyd are indicating that they are quoting John Smith but by the phrases used they are either quoting Alexandre Dumas, directly or indirectly, or Dumas is quoting Smith but not indicating such by his lack of quotation marks. I strongly suspect the former. And the fact that no one writing about this strange and wondrous event ever provides the specific source in the published or unpublished writings of Captain John Smith is awfully suspicious. However, I think that

might be easily explained by the simple fact that there is no mention whatsoever of the incident by John Smith himself.

In conclusion, I believe the story of Captain John Smith's encounter with the green haired mermaid can ultimately be traced back to a work of fiction by Alexandre Dumas and that not only did the encounter never happen but that Smith never even contended that it ever happened. Evidently this incredible fictional tale took on a life of its own until it eventually became accepted as a real historical account!

Don Nigroni received a BS in economics in 1971 from St. Joseph's University and a MA in philosophy from Notre Dame in 1973. He retired in 2007 after working for 32 years as an economist with the US Bureau of Labor Statistics. He now spends much more time hiking, mountain biking, kayaking and bird watching.

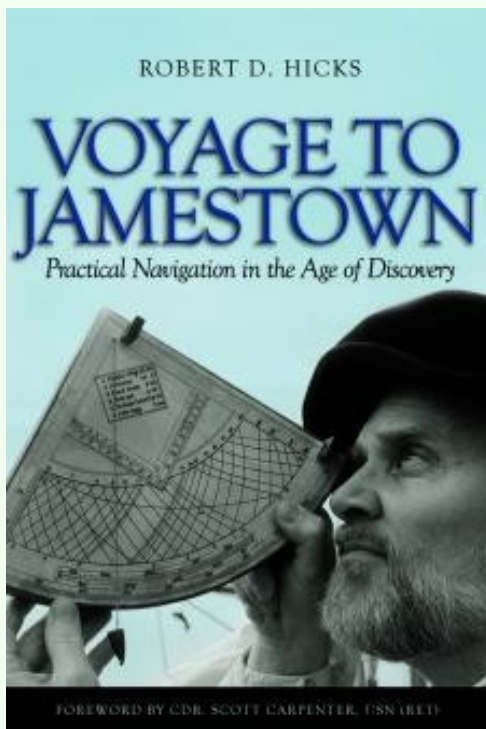
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VOYAGE TO JAMESTOWN

Practical Navigation in the Age of Discovery

By Robert D. Hicks, Foreword by CDR Scott Carpenter, USN (Ret.)

ISBN/SKU: 9781591143765 Hardcover 256 pages
Published: October 2011



Voyage to Jamestown explores how sea navigation was accomplished during the era of discovery. Navigational methods and tools are presented within the setting of their use during a sea voyage of the period. While this voyage features a fictional crew and ship, it is carefully reconstructed from actual events, circumstances, narratives, and historical figures, which demonstrates the challenges of marine navigation within the cultural experience of people who actually traveled the oceans centuries ago. The fictional voyage follows the merchant galleon Guyft from Bristol, England, to Virginia in 1611, captained by Tristram Hame. With this narrative technique, the reader can absorb seafaring and navigation as practiced in the seventeenth century as if they were on board the ship. Navigational theory, methods, and instrumentation of the era are all engagingly presented within economic, political, scientific, and religious contexts to portray how the early navigator experienced his world.

Robert D. Hicks is currently Director, Mütter Museum/Historical Medical Library in Philadelphia, PA. He was PhACT's speaker October 2011.

PHACT CALENDAR

PhACT Events

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



Saturday, November 17, 2012 - Kenneth Silber, a political writer and columnist will discuss, **Science vs. Politics: A Post-Election Look at the Political Climate for Science.**

See Page 1 for more details

Saturday, January 19, 2013 - TBA

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

Saturday, September 21, 2013 - AIDS Denialism - Nicoli Natrass of South Africa will talk on AIDS denialism. Hundreds of thousands of people are thought to have died based on misinformation concerning AIDS and treatments. Learn about how science is reducing the deaths and spread of the disease even though irrationalism has been doing the opposite.



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

group is free and open to the public. Join us and share your critical thinking, questions and opinions.

A New Reading Circle: The Institute for Religion and Science.

Our Reading Circle is meeting from 6:30 pm – 8:00 pm beginning in November on the second Monday of the month in the William Walker Room of the Logue Library to discuss **Ilia Delio's *The Emergent Christ***. If you are interested in joining us, please contact us at Institute4RS@chc.edu

See website: www.irands.org

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



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

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

Sunday, November 11, 2012 at 1:00pm at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurehillcemetery.org>

From Sails to Steel: Shipbuilders of Philadelphia

Description forthcoming. This program will be led by Laurel Hill Cemetery Program Associate Daniel Dailey, and Philadelphia genealogist and author, Ken Milano.

In observance of Veterans' Day, all active and retired servicemen and women with ID receive FREE admission.

\$12/person; \$10/seniors + students; \$9/members

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

Monday, November 12, 2012 from 6 to 8 PM at The Franklin Institute Penn Genome Frontiers Institute's next public lecture will be held on the **Genomics of Autism Spectrum Disorders**. The speakers will be Drs. Maja Bucan, Ellen Giarelli and Gerard Schellenberg. The second part of the evening will feature a Q&A session with the speakers, joined by panelists Drs. Edward Brodtkin and Judith Miller. Larry Blumenthal, the Executive Producer for Health at Philly.com, will emcee the evening.

This event is **Free**.

Register to reserve a seat at <http://www.surveymonkey.com/s/ZJGRJ6Z>

Monday, November 12, 2012 at 6:00 p.m. at National Mechanics, 22 S. Third Street, Philadelphia, PA 19106

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

"Winging it in Mongolia"

Stephen Mason, Entomologist, Academy of Natural Sciences

In Mongolia, herding livestock is a tradition, but how does this practice affect insects? This July, Academy Entomology Curatorial Assistant Stephen Mason along with Academy Curator and Drexel Professor Jon Gelhaus carried out two studies measuring how grazing impacts aquatic insects in neighboring streams and butterflies inhabiting nearby meadows. The researchers added their specimens to the Academy's extensive holdings of Mongolian insects, developing one of the largest collections of Mongolian butterflies in the new world.

Stephen Mason is the newest Entomologist at Academy of Natural Sciences of Philadelphia. He joined the Academy in 2009. He is interested in the biogeography of diurnal Lepidoptera, specifically in the New Jersey Pine Barrens, and systematics of butterfly fauna in central Asia.

This month's Science on Tap is presented by the Academy of Natural Sciences.

Free and Open to the public (age 21+).

Tuesday, November 13, 2012 - 12:00 to 1:00 p.m. at the Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106

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

Brown Bag Lecture: "Fraud and Suspicion in the Atlantic Sugar Trade"

A talk by David Singerman

Toward the end of the 19th century new devices and types of people

began to appear in the crucial sites of the Atlantic sugar economy. As costly machines replaced animals and humans within the sugar mill, chemists promised owners vast gains in efficiency if they only would hand authority to chemical knowledge, methods, and instruments. In the United States a mix of diversely interested advocates claimed for those practices and instruments the power to drive rampant corruption from customs houses in Boston, Philadelphia, and New York. Such corruption was allegedly made easier by the same confusing changes to centuries-old methods of production in Caribbean factories. But everywhere the chemists' supervision of the sugar trade did far more to fuel suspicions of corruption and fraud than it did to dampen them. It enabled the consolidation of economic and political power: by factory owners over the farmers from whom they purchased their sugar cane and by the American Sugar Refining Company over the whole industry, and even the government of the United States.

David Singerman is a Ph.D. candidate at MIT's Program in History, Anthropology, and STS. In 2011–12 he conducted research in the United Kingdom and Puerto Rico with the support of the National Science Foundation and Social Science Research Council.

Free and Open to the Public.

Wednesday, November 14, 2012 at The Franklin Institute Science Museum, located in Center City Philadelphia, at the intersection of 20th Street and the Benjamin Franklin Parkway.

Rittenhouse Astronomical Society

"Take Two Pills and Call me if Mars has Entered Libra".

Speakers: **Annie Brogan** MLIS. Librarian The College of Physicians of Philadelphia and **Dr. Robert D. Hicks PhD**. Director of the Mutter Museum /Historical Medical Library William Maul Measey Chair for the History Of Medicine. See review of Dr. Hicks' book on page 18.

Today's syndicated horoscopes furnish mindless entertainment, but once upon a time physicians considered astronomical events and configurations in arriving at medical diagnoses and recommending therapies. One of the most successful scientific models in history—the Ptolemaic cosmos with its humoral theory of health and personality—presented a logically consistent model of medical understanding that incorporated astronomy and astrology. This presentation explores this world of thought and practice by examining rare treatises on medicinal astrology in the Historical Medical Library of The College of Physicians of Philadelphia.

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

FREE. Open to public, no admittance fee. Membership not required.

<http://www.fi.edu>

Wednesday, November 14, 2012 | 12:00n – 1:00PM at College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia, PA 19103, (215) 563-3737 x304

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

Food & Thought: "Take 2 Dogs and 3 Cats and Call Me in the Morning: An Overview of the Health Benefits of Pet Ownership"

More than 30 years ago, the results of a single landmark study appeared to indicate that pet owners were more likely to survive for one year following a heart attack than non-owners. In the ensuing years, continued research has elaborated and expanded upon those original findings, as well as shedding light on some possible mechanisms that could account for the salutary effects of pet ownership on people. This presentation will provide an overview of this developing field and its implications for the 'One Health' initiative.

Speaker: James A Serpell, PhD, Director, Center for the Interaction of Animals and Society; Marie A. Moore Professor of Humane Ethics & Animal Welfare Chief, Section of Behavior and Human-Animal Interactions, Ryan Veterinary Hospital, the University of Pennsylvania School of Veterinary Medicine

Wednesday, November 14, 2012 at 6:00 pm at University of Pennsylvania Museum, 3260 South Street, Philadelphia, PA 19104

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

MAYA 2012 Lecture Series

Maya Majesty: Kings and Queens of the Classic Period

Simon Martin, Co-Curator, MAYA 2012: Lords of Time and co-author, Chronicle of the Maya Kings and Queens: Deciphering the Dynasties of the Ancient Maya, is the featured speaker in this program. Between 300 and 900 CE, the ancient Maya developed an elaborate royal culture, imbuing men and women of appropriate birth with the conventions of authority and a quasi-divine status. This talk explores the intricate ties between royalty and ritual, where the performance of religious rites not only advertised regal status, but was also the lifeblood that sustained legitimacy and power. The costuming, regalia, and ritual acts of Maya kings and queens represent a code that we can read to reveal their relationship to particular gods and mythic events, as well as to their own place within the Maya cosmos. Admission: \$5, general public; free for Penn Museum members.

Thursday, November 15, 2012 at 7:30PM at the Free Library of Philadelphia, 1901 Vine Street, 19103

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

David Nasaw | The Patriarch: The Remarkable Life and Turbulent Times of Joseph P. Kennedy

Patriarch of one of the greatest political dynasties in the United States, Joseph Patrick Kennedy was an indomitable figure whose ferocious drive and ingenuity were matched only by his dreams of advancement for his nine children. With unrestricted access to archives on three continents, celebrated historian David Nasaw tells Kennedy's incredible life story in his new book, *The Patriarch*. Nasaw's other books include *Andrew Carnegie*, a New York Times Notable Book of the Year and a finalist for the Pulitzer Prize, and *The Chief: The Life of William Randolph Hearst*, winner of the Bancroft Prize in History. "A meticulous researcher and a cool analyst," (New York Times Book Review), Nasaw is the Arthur M. Schlesinger, Jr. Professor of History at the Graduate Center of the City University of New York.

Free.

PhACT Event

Saturday, November 17, 2012 - at 2:00 PM

**Writer Ken Silber will speak on
"Politics Vs Science".**

Please visit his web site at:

<http://www.advisorone.com/author/kenneth-silber>

See Page 1 for more information

Sunday, November 18, 2012 at 1:00pm at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

Love of Country Leads:

Union League of Philadelphia, Marking 150 Years

What could you accomplish in 47 days? Our city and country were in dark, dark times. There were eating clubs, Copperheads, political disputes, slavery, division...war. Come and hear the story of how a league of gentlemen came together to save and preserve our Union. Oh...and did I mention raisins??? This discussion and walking tour, marking the 150th anniversary of the founding of the Union League of Philadelphia, will be led by Friends of Laurel Hill Cemetery board member, Laura Symczyk. It will conclude with wine, spirits and hors d'oeuvres.

All active and retired servicemen and women with ID receive FREE admission.

\$12/person; \$10/seniors + students; \$9/members

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

Friday, November 23, 2012 at 10:00am at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

Laurel Hill: The Hot Spots and Storied Plots

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

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

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



Monday, November 26, 2012: at 7 PM at Chestnut Hill College, the East Parlor, St. Joseph Hall, 9230 Germantown Avenue, Philadelphia, PA 19118. <http://www.irands.org>

"Journey of The Universe," a film created by Mary Evelyn Tucker and John Grim, both of Yale University School of Forestry and Environmental Studies in. Mary Evelyn and John will be present to respond to the film and lead a discussion.

If skies are clear, Chestnut Hill College's observatory will be open that evening from 8:30 pm.

This lecture is presented by The Institute for Religion and Science hosted by Chestnut Hill College.

Open to the public. For those who are able to contribute to our efforts, a Free Will Donation is requested.

Tuesday, November 27, 2012 - 12:00 to 1:00 p.m. at the Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106

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

Brown Bag Lecture: "The Art in Imitation Flavors': Flavor Chemistry and Scientific Craft"

A talk by Nadia Berenstein

This talk will consider changing American tastes between the late 19th century and the 1960s by looking at the people responsible for making flavors: the technicians, pharmacists, and chemists who developed, compounded, and manufactured synthetic flavor additives for use by the rapidly expanding food and beverage industry. In particular, Berenstein's research describes the emergence of the "flavorist" as a scientific craft profession—one whose members defined themselves not only in terms of chemical expertise, techno-scientific mastery, and corporate affiliation but also creativity and craftsmanship. Using handbooks and manuals for flavor production as well as material from the Society of Flavor Chemists, Berenstein considers recruitment, apprenticeship, and professional development among flavor chemists in an era when the science of flavor was dramatically transformed by the introduction of new instrumentation, including gas-liquid chromatography and mass spectroscopy.

By examining the professional lives of flavorists, this discussion will shed light on changing social and cultural understandings of natural and artificial, synthetic and organic, and of flavor itself—as well as the role of scientific knowledge in defining "good taste."

Nadia Berenstein is a graduate student at the University of Pennsylvania, where she calls the Department of History and Sociology of Science home. In the past she has written about the disappearance of the passenger pigeon, the electrocution of Topsy the elephant, and the phenomenon of birds fatally colliding with buildings. Her most recent work documents the history of flavor chemists and flavor additives in the

United States.
Free and Open to the Public.

Wednesday, November 28, 2012 at 7:15 PM at Brittingham's Irish Pub and Restaurant, 640 East Germantown Pike, Lafayette Hill, Pennsylvania. (610)828-7351.

American Revolution Round Table of Philadelphia,

<http://arrtop.com/>

K. Lynn King will portray Caroline Herschel, 18th Century Astronomer - A Cinderella Story.

Wednesday, November 28, 2012 at 7:30PM at the Free Library of Philadelphia, 1901 Vine Street, 19103

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

William Ecenbarger | Kids for Cash: Two Judges, Thousands of Children, and a \$2.8 Million Kickback Scheme

Journalist William Ecenbarger won a Pulitzer Prize for his coverage of the Three Mile Island disaster for the Philadelphia Inquirer and a George L. Polk Award for his coverage of corruption in the Pennsylvania Legislature. In Kids for Cash, Ecenbarger exposes a shocking case that made headlines across the country. Two Pennsylvania judges were convicted of accepting \$2.6 million in bribes from the owners of privatized juvenile detention centers in exchange for sentencing thousands of kids to jail, some as young as 11 years old. Kids for Cash illustrates what happens when corruption undermines the systems that are designed to protect the most vulnerable members of American society.

Free.

Thursday, November 29, 2012 at 4:30 pm at University of Pennsylvania Museum, 3260 South Street, Philadelphia, PA 19104

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

Lecture - "One Small Step for Tourism: Protecting America's Lunar Exploration Heritage"

Forty years after the first landings by American astronauts on the surface of the moon, the now-famous sites of exploration face obliteration at the hands of well-meaning explorers, adventurers, and entrepreneurs. For decades, these pristine sites of exploration—sites of undeniable historical and national significance—were protected from damage by their remoteness and the airless environment of the Moon's surface. They now face destruction, and protecting cultural heritage on land claimed by no nation, 250,000 miles away from the nearest archeologist, has proven extremely challenging. Dr. Matthew Hersch, Department of History and Sociology of Science, University of Pennsylvania, speaks at this program, sponsored by the Penn Cultural Heritage Center. Free admission. For more information, call 215.746.4475.

Friday, November 30, 2012, 6 - 7:30 PM at Academy of Natural Sciences of Drexel University, The Commons (ground floor), 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103

Telling the Stories of Science

We struggle to keep pace with changes in science, changes that radically affect our lives. How can we be well-informed enough to manage the ongoing impact of scientific change? Three experts will share their experiences producing media and scholarship that interpret science and its history for the general public.

Join us for a panel discussion featuring

Ivan Amato is a writer, editor and facilitator of DC Science Café, a quasi-monthly forum in which the public can directly engage the science and technology communities. Amato has worked as a writer and manager on several magazines, including *Science*, *Science News*, *Chemical & Engineering News*, *Time* and *Fortune* and has dabbled beyond print media during stints with *Discovery Science Channel* and *National Public Radio*. He is currently writing his fourth book, which is about the Navy's role in the overall American space program.

Faye Flam is an award-winning science writer. She has a degree in geophysics from the California Institute of Technology. Flam writes a new online science column and blog called Lightning Rod. It appears on the NewsWorks website, associated with WHYY. She has also written about science for the *Economist*, *Science*, *Science News*, *New Scientist* and the

Philadelphia Inquirer, where she wrote a weekly column about evolution. Her writing has covered everything from the discovery of the Higgs boson to the sex lives of giant squids. She's author of the book *The Score, How the Quest for Sex Shaped the Modern man*.

Dr. Bruce V. Lewenstein teaches at Cornell University and studies how science and technology are reported to the public and how the public understands controversial scientific issues and emerging technologies such as biotechnology and nanotechnology. He also studies outreach projects in which citizens fully participate in the scientific process by gathering, entering, and analyzing scientific data.

This event is free and open to the public

Please register to attend at: www.pachs.net

For more information, email info@pachs.net

Tuesday, December 4, 2012 at noon to 1:00 p.m. at the Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106

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

Brown Bag Lecture: "Agricultural Reform in Print and Practice: Slavery and the Metcalfe Plantation Enterprise"

A talk by Ian Beamish

In the decades before the Civil War planters in the American South were anxious about the economic future of their region, despite the incredible expansion of the cotton economy. The agricultural reform movement, which many planters saw as the one way to keep the plantation South from falling behind the industrializing Northern states, laid out many grand ambitions for a complete renewal or overhaul of plantation agriculture. Historians have long dismissed agricultural reform as a complete failure since it did not realize its lofty goal, but this approach obscures the significant changes wrought by agricultural reform. This talk will explore how the intellectual and scientific debates within the reform movement were translated to daily plantation practice, using the case of the Metcalfe family plantation enterprise in Mississippi from the 1840s through the Civil War. The Metcalfe family owned thousands of acres of cotton land and held hundreds and hundreds of slaves on their plantations, all of whom felt the results of the Metcalfe family's interest in agricultural improvement keenly.

Ian Beamish is currently completing his dissertation "Saving the South: Printing Agricultural Reform in the American South, 1819–1865" in the history department at Johns Hopkins University. He is in residence at the Chemical Heritage Foundation for 2012–2013, completing his dissertation.

Free and Open to the Public.

The Delaware Valley Amateur Astronomers

is a group of enthusiastic hobbyists who live in and around Philadelphia. The DVAA's monthly meetings are free and the public is invited to attend. Meetings always feature a short talk on "what's up" in the sky currently, as well as a talk by a professional astronomer or members of the DVAA or a neighboring club.

Unless otherwise announced, monthly meetings will be held on the third Friday of each month at the Freedom Hall, in the Upper Merion Township Building, 175 W. Valley Forge Road, King of Prussia, PA 19406

Meetings start at 7:00 with time for informal socializing. Announcements and the main talk begin at 7:30 sharp. Refreshments are provided. Upcoming club events are listed on the DVAA website: <http://dvaa.org>

Tuesday, December 4, 2012 at 7:30PM at the Free Library of Philadelphia, 1901 Vine Street, 19103

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

Jon Meacham | Thomas Jefferson: The Art of Power

A highly regarded commentator on history, politics and religion in America, Jon Meacham is executive editor at Random House and co-anchor of *Need to Know* on PBS, as well as the former editor of *Newsweek*, where he started as writer in 1995 and was appointed editor in 2006. His book, *American Lion: Andrew Jackson in the White House*, debuted at no. 2 on the *New York Times* bestseller list and was awarded the 2009 Pulitzer Prize in Biography. Meacham's other books include the *New York Times* bestsellers *American Gospel: God, the Founding Fathers, and the Making of a Nation* and *Franklin and Winston: An Intimate Portrait of an Epic Friendship*. *Thomas Jefferson: The Art of Power* vividly portrays our third president as an artful politician and flawed "embodiment of noble ideals" (Walter Isaacson).

Cost: \$15 General Admission, \$7 Students

Wednesday, December 5, 2012 at 6:00 pm at University of Pennsylvania Museum, 3260 South Street, Philadelphia, PA 19104

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

"Great Battles" Evening Lecture

Was there a Trojan War? Assessing the Evidence from Recent Excavations at Troy

In the course of the latest campaign of excavations at Troy, in northwestern Turkey, archaeologists have uncovered a wealth of evidence that enables us to situate the site within the political and military history of the late Bronze Age (14th/13th centuries BCE). Dr. C. Brian Rose, Curator, Mediterranean Section, Penn Museum, speaks at this "Great Battles: Moments in Time that Changed History" series lecture program. Admission with advance registration: \$5, general public; \$2, Penn Museum members; \$10 at the door based on availability. To register, visit www.penn.museum/greatbattles. For more information, call 215.898.2680.



Wednesday, December 5, 2012 at 7:00 pm (doors open 6:00 pm) at American Philosophical Society Museum, Philosophical Hall, 104 South Fifth Street, Philadelphia, 215-440-3442

IT'S ABOUT TIME: SHORT FILMS FROM THE SECRET CINEMA ARCHIVE.

The program will explore the subject of time through vintage educational, experimental, industrial and dramatic films, from the 1930s through the 1970s. The screenings are inspired by the APS Museum's current exhibition *TEMPUS FUGIT: TIME FLIES*, which explores how we try to capture, measure, and find meaning in the midst of time's inevitable passage.

Admission: FREE

TIME PIECE (1966) - This fast-moving series of visual gags, abstract animation and unclassifiable slices of the filmmaker's imagination loosely detail the travails of one man's daily grind. Starring and directed by Jim Henson.

TRAVELLING THROUGH TIME (1965) - Pan-Am sponsored this Technicolor educational film that looks at man's long history of measuring his days (as well as the impact of developments in air travel that effectively shrank the size of our world).

AN OCCURRENCE AT OWL CREEK BRIDGE (1963) - Expertly filmed depiction of Ambrose Bierce's short story about a Civil War prisoner's last moments as he faces execution, and treasures each second of living. This popular, legendary film won best short film honors at both Cannes and the Oscars, and was the only external production to be shown

on television's *THE TWILIGHT ZONE*.

SECRETS OF THE PLANT WORLD (1956) - Gorgeous Technicolor time-lapse photography shows a wide array of flowers and plants as they blossom and maneuver for survival, all skillfully edited to classical music.

THE TIME MACHINE trailer (1960) - Original theatrical "coming attractions" preview for this sci-fi time travel classic.

DRIVE-IN COUNTDOWN CLOCK (1960s) - Colorfully animated snack foods fill the minutes between the clicking of this giant projected clock, which kept drive-in theater audiences apprised of the time remaining until the main feature's start.

Plus more!

Admission: FREE

Saturday, December 8, 2012 at 1:00pm at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA 19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

Lasting Impressions: The Memorable Monuments of Laurel Hill

In 1881, *The New York Times* remarked that the monument of William J. Mullen, temporarily on display at the 1876 Centennial before being installed at Laurel Hill was constructed in "...attitudes ranging from the sublime to the ridiculous." Over 130 years later, we still can't stop talking about it. Monuments come in all shapes, sizes and compositions in Laurel Hill Cemetery, but some stand out prominently among the rest. Join us as we visit the final resting place of Mr. Mullen and many more of Laurel Hill's most unusual Victorian memorials. If you've ever wanted insight into cemetery symbolism, this is the tour for you! This walking tour will be led by board member of the General Meade Society of Philadelphia, Jerry McCormick. It will conclude with cookies and refreshments. \$12/person; \$10/seniors + students; \$9/members. Tickets can be purchased at the door, or in advance online, or by calling 215.228.8200.



Monday, December 10, 2012 at 7:30PM at the Free Library of Philadelphia, 1901 Vine Street, 19103

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

Bob Woodward | The Price of Politics (A)

Regarded as "one of the finest journalistic investigators of our time" (*Los Angeles Times Book Review*), Bob Woodward is a longtime Washington Post reporter and currently associate editor there. In 1972 he teamed with Carl Bernstein to unravel the Watergate scandal, doing much of the original reporting that led to numerous government investigations and the eventual resignation of President Nixon. Woodward is the author of a dozen *New York Times* number one bestsellers, including *All the President's Men* and *The Final Days*, both coauthored with Bernstein; *The Brethren: Inside the Supreme Court*; *Veil: The Secret Wars of the CIA, 1981-1987*; as well as sweeping portraits of Presidents Clinton, George W. Bush, and Barack Obama. Drawn from memos, meeting notes, and in-depth interviews, *The Price of Politics* is an intimate examination of how President Obama and high-profile Republican and Democratic leaders in Congress attempted to restore the American economy.

Cost: \$32 General Admission

Buy tickets online | Ticket and Subscription Packages

Ticket price includes a signed copy of the book.

* Limit of 2 tickets per person

Tuesday, December 11, 2012 at noon to 1:00 p.m. at the Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106

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

Brown Bag Lecture: "Black Boxing Women: The Computerization of Natural Family Planning and the Consequences of an App-Driven World"

A talk by Deanna Day

Personal medical care in the 21st century is increasingly organized around the principle of quantified self-surveillance; the standard biomedicalization narrative describes how a technologically implicated tracking impulse moves from the domain of professionals into the hands of lay users as tools become cheaper, smaller, and more accessible. This talk historicizes this trend by examining the practice of natural family planning, a method of determining fertility that has been practiced since the early 20th century but has become increasingly computerized in the last two decades.

Performing the intimate work of charting daily symptom tracking has enabled practitioners to understand natural family planning as a holistic and natural approach to health care, while at the same time they increasingly came to describe their bodies as “walking biological computer [s].” In the early 21st century this metaphor of the body as a computer has become literal: computerized fertility thermometers seek to incorporate the interpretive labor of natural family planning (previously performed by individual women) into the black box of their processors, reducing output to a single point—a red or green light. The computerization of natural family planning did not result in less work for women, however, or in a more reliable awareness of their internal chemistry, as manufacturers of thermometers like the Lady-Comp claim. Instead, by altering what kind of data women receive about their bodies, computerized thermometers merely re-form women’s bodies and reconfigure their relationships to them and their medical tools. New bodily expectations and gendered labor practices result.

Deanna Day is a doctoral candidate in history and sociology of science at the University of Pennsylvania, where she researches the history of consumer medical technologies. Her dissertation research centers around the roles of gender and patient labor in the history of the medical thermometer.

Free and Open to the Public.

Wednesday, December 12, 2012 at 6:00 at University of Pennsylvania Museum, 3260 South Street, Philadelphia, PA 19104

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

MAYA 2012 Evening Lecture Series

The End of Time: The Maya Mystery of 2012

Dr. Anthony F. Aveni, author of the bestselling book, *The End of Time: The Maya Mystery of 2012*, explores theories about the widely prophesied “end of the world” in December 2012 by measuring them objectively against the evidence of archaeology, iconography, and epigraphy. Dr. Aveni considers information from the earth sciences and astronomy about the likelihood of worldwide Armageddon. Finally, the prophesies are placed in the broader cultural and historical context of how other cultures, ancient and modern, thought about the “end of things” and why cataclysmic events enjoy wide spread appeal in contemporary American pop culture. This program is presented in conjunction with our current exhibition, *MAYA 2012: Lords of Time*. Admission: \$5, general public; free for Penn Museum members. For more information, call 215.898.2680.

Wednesday, December 12, 2012 at 7:15 PM. Rittenhouse Astronomical Society at The Franklin Institute Science Museum located in Center City Philadelphia, at the intersection of 20th Street and the Benjamin Franklin Parkway.

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

Dr. Paul H. Halpern from University of the Sciences has published “Edge of the Universe”. He joins us to talk about what we find at the edge, and what possibly lies beyond. Cosmology, the science of the universe, is undergoing a startling revolution.

Colossal flows of galaxies, large empty regions called voids, and other unexplained phenomena offer clues that our own “bubble universe” could be part of a greater realm called the multiverse!

See review of Dr. Halpern’s book on page 7.

Open to the Public, Free no admittance fee.

Thursday, December 13, 2012 at 7:30PM at the Free Library of Philadelphia, 1901 Vine Street, 19103

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

James H. Cone | The Cross and the Lynching Tree

With the publication of his seminal work, *Black Theology and Black Power*, Dr. James H. Cone was dubbed the father of black liberation theology, a movement which takes root in 1960s civil rights activism. Cone’s work addresses God as concerned with the poor and the weak, and attempts to make the gospel relevant to the lives and struggles of American blacks. The Charles A. Briggs Distinguished Professor of Systematic Theology at the Union Theological Seminary, Rev. Cone’s twelve books include *God of the Oppressed* and *Martin and Malcolm in America*. Of *The Cross and the Lynching Tree*, which received the 2012 Nautilus Silver Award, Huffington Post editors wrote: “Cone forces us to look hard at suffering, oppression and, ultimately, redemption.”

Free.

Tuesday, December 18, 2012 at 7:30PM at the Free Library of Philadelphia, 1901 Vine Street, 19103

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

Kevin Phillips | 1775: A Good Year for Revolution

A Pulitzer Prize finalist for history, Kevin Phillips is a regular commentator for NPR and has been a political and economic commentator for four decades. He served as chief political strategist for Richard Nixon during the 1968 election, and in his 1970 work *The Emerging Republic* Majority, he accurately forecasted a major shift to the right in electoral politics. His bestselling works include *Bad Money*, called “frighteningly persuasive” (*New York Times*); *Wealth and Democracy: A Political History of the American Rich*; *American Dynasty*, about the ascent of the Bush family; and *American Theocracy*. *1775* upends conventional wisdom, arguing that the titular year—not the commonly mythologized 1776—was the critical launching point of both the revolutionary war and American independence.

Cost: \$15 General Admission, \$7 Students

Buy tickets online | Ticket and Subscription Packages

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

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

Food & Thought: "To Frack or Not to Frack"

Hydraulic fracturing is a hot topic in Pennsylvania and elsewhere along the Marcellus Shale. Gas companies claim that this technology produces good jobs, taxable income for municipalities, and wealth to individual leaseholders. Fractivists contend that the technology is irredeemably atrocious, producing contaminated groundwater, local air pollution, and global warming methane releases. The talk will review the facts, set forth the pros and cons, and set responsible bounds on how policies should be implemented to reach the best outcome for the future of fracking.

Speaker: Carr Everbach, PhD, Professor of Engineering, Swarthmore College

Calling All Astronomers! Rittenhouse Astronomical Society



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

www.rittenhouseastronomicalsociety.org/

Friday, December 28, 2012 at 10:00am at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

Laurel Hill: The Hot Spots and Storied Plots

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

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

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

Monday, December 31, 2012 at 12:00 NOON at Laurel Hill Cemetery, 3822 Ridge Avenue, Philadelphia, PA19132. 215-228-8200

<http://www.thelaurelhillemetery.org>

General Meade Birthday Celebration: Parade, Service and Reception

The annual General Meade Birthday Celebration will mark the 197th anniversary of the birth of General George G. Meade, commander of the Union Army at the Battle of Gettysburg. A parade of Civil War reenactors, civilians in period attire, special dignitaries, heritage groups and participants will advance to Meade's final resting place and memorialize his services to his nation. A 21-gun salute and champagne toast will cap off the program at graveside, and will be followed by a reception in the Cemetery Gatehouse. A tour of historic Laurel Hill will be offered following the festivities (weather permitting). This year holds special significance as we continue to commemorate the Sesquicentennial of the American Civil War. Dr. Andy Waskie, president of the General Meade Society of Philadelphia, will serve as master of ceremonies. Beer and full refreshments will be served after the service, and tours of Laurel Hill will be available.

The event is FREE and open to the public. Additional information may be obtained by calling 215.228.8200, or online at

www.generalmeadesociety.org.

Wednesday, January 2, 2013 at 6:00 pm at University of Pennsylvania Museum, 3260 South Street, Philadelphia, PA 19104

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

"Great Battles" Evening Lecture

Gettysburg: History and Hype

It is conventional to depict Gettysburg as a decisive Union victory, the turning point in our Civil War. But that conflict dragged on for nearly two years after Gettysburg, and the fierce resistance mounted by Confederate armies in Virginia and Georgia in the spring and summer of 1864 almost caused a war-weary Northern public to lose its will to continue fighting and turn Abraham Lincoln out of the White House. This lecture compares



this battle with other truly decisive Union victories, and considers our distorted view of what the Civil War was really like—which blinds us to the kind of nation that the war produced. Dr. Gregory J.W. Urwin, Department of History, Temple University, speaks at this "Great Battles: Moments in Time that Changed History" series lecture program.

Admission with advance registration: \$5, general public; \$2, Museum members; \$10 at the door based on availability. To register, visit www.penn.museum/greatbattles. For more information, call 215.898.2680

Tuesday, January 15, 2013 - 6:00 PM-8:30

PM at The Academy of Natural Sciences of Drexel University, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103 www.ansp.org

Networking reception: 6:00 pm, Program: 6:30 pm

Biologist, author and environmental advocate Sandra Steingraber will discuss water-borne toxins and human health.

Environmentalist, author, and cancer survivor, Sandra Steingraber is an internationally recognized authority on the environment links to cancer and human health. She is the author of *Living Downstream: An Ecologist's Personal Investigation of Cancer and the Environment* and *Having Faith: An Ecologist's Journey to Motherhood*. She is a columnist for *Orion* magazine and is currently a scholar in residence at Ithaca College in Ithaca, New York.

Thursday, January 17, 2013 at 6:15 pm at University of Pennsylvania Museum, 3260 South Street, Philadelphia, PA 19104

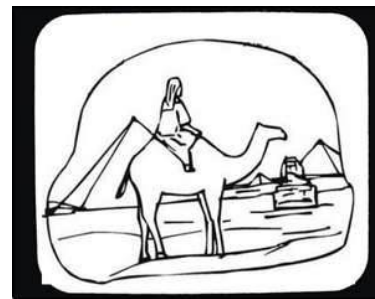
<http://www.penn.museum/events-calendar>

Evening Lecture

Secret of the Great Pyramid

The Great Pyramid of Giza is one of the greatest unsolved mysteries of all time. Egyptologists simply do not know how ancient builders raised thousands of two-ton blocks to the top of a 480-foot pyramid. Beginning in 2003, Dr. Bob Brier, Senior Research Fellow, Long Island University/LIU Post, worked with French architect Jean Pierre Houdin to find evidence for a theory—that hidden inside the pyramid is a mile-long ramp, still waiting to be discovered, which was used to build the structure to such great heights. In this lecture, Dr. Brier discusses recent findings that offer support for this theory. Sponsored by the Philadelphia Chapter of the Archaeological Institute of America.

Free admission. For more information, call 215.898.2680.



PhACT Event

Saturday, January 19, 2013 at 2:00 PM

Lecture: Topic to be announced

Wednesday, January 23, 2013 at 7:15 PM at Brittingham's Irish Pub and Restaurant, 640 East Germantown Pike, Lafayette Hill, Pennsylvania. (610)828-7351.

American Revolution Round Table of Philadelphia,

<http://arrtop.com/>

Mike Kochan will speak on his new book *The Turtle*.

Tuesday, February 5, 2013 (Snow Date: February 19, 2013) at 7 PM at Chestnut Hill College, Commonwealth Chateau (Bldg. 20), Sugar Loaf Campus, 9230 Germantown Avenue, Philadelphia, PA 19118.

<http://www.irands.org>

"Darwin and Religion: Rumors of Warfare in a Post-Darwinian Age," Edward Davis, Ph.D., Professor of the History of Science and Director, Central PA Forum for Religion and Science, Messiah College. Respondents: David Contosta, Professor of History and Patrick McCauley, Ph.D., Professor of Religious Studies, both of Chestnut Hill College.

This lecture is presented by The Institute for Religion and Science hosted by Chestnut Hill College.

Open to the public. For those who are able to contribute to our efforts, a Free Will Donation is requested.

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

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

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

PhACT's High School Science Fair Student Prize Funds

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

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

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

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

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

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The PhACT Council 2011/12

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