

Phactum

“If there is any consistent enemy of science, it is not religion, but irrationalism.”

Stephen Jay Gould
(1941—2002)

The Newsletter of the
Philadelphia Association for Critical Thinking
October 2008

editor: Ray Haupt email: phactpublicity@aol.com www.phact.org

Here we go again! — By Tom Napier

PhACT was founded in 1994 by a group of Skeptical Inquirer subscribers under the aegis of what was then CSICOP. We decided to follow the CSICOP model, defending science, researching pseudo-science and the paranormal, but not concerning ourselves unduly with religion. Religion, to borrow from the immortal Douglas Adams, is "Someone Else's Problem."

CSICOP has a sister organization (then CODESH) which publishes Free Inquiry and does critique religion. No one has taken it upon themselves to found an equivalent organization in the Philadelphia area; those who would like PhACT to change its emphasis are welcome to do so.

PhACT envisages a boundary, albeit an inherently fuzzy one, between what is and is not its concern. Verifiable scientific fact lies on our side of the line, concepts without solid foundation lie on the other. If you claim there is experimental evidence for your position we may examine it. If your only justification for your opinion is faith or revelation then there is no common ground on which to debate.

In the September 2008 Phactum, Don Baldino asks whether PhACT members are rebels who make forays into enemy territory at night. This, of course, is not so. Our boundary may be fuzzy but we respect it. Recognizing its fuzziness, I tend to steer well clear of it and recommend that others do so too. That said, we do defend the boundary. When religious fanatics make forays into the field of science, we fight. If you believe the universe sprang into being six thousand years ago then more fool you. If you demand that this fantasy be taught in schools as "science" then you are invading our territory and we fight back.

Don quotes as writ, "No one can prove a negative." Why on Earth not? If something's existence would produce obvious effects which, in fact, are not observed, the alternatives are: We were incorrect in ascribing the effect to the entity in question or, The entity does not exist. A theologian might make a good living by arguing the former; a scientist would regard the latter as having been established with a high degree of certainty. Besides, a skeptic never needs to prove a negative. The burden of proof lies upon the proponent. Until reasonable evidence has been presented a skeptic is free to suppose that the concept in question is vacuous.



The PhACT Council

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Tom Napier
Harry Rothwell
Becky Strickland

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

If you are not a member/subscriber we invite you to become one by sending \$15 for a one year membership to PhACT, \$10 for students. Donations are welcome.

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

PHACT CALENDAR

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, 17th and Spring Garden Streets, in room S2-03 of the Winnet Student Life Building, the round building on 17th Street just south of Spring Garden Street. **Meetings are free and open to the public unless otherwise noted.** Parking is free at all PhACT events at CCP. Enter the college parking lot on 17th Street which is one way south bound. At the meeting be sure to get a free parking voucher from Dr. Cattell.



Saturday, October 18, 2008 - *We the Person: Evolutionary Psychology and the Many Branches of your Brain.* A central tenet of evolutionary psychology is that the mind consists of a large number of specialized systems, operating semi-autonomously. Here I will review the basic principles of the adaptationist approach to understanding human cognition and argue that 1) a great deal of what goes on in the human mind is not accessible to consciousness, 2) many parts of the human mind are not designed to generate true beliefs, 3) human minds frequently contain mutually incompatible cognitive representations isolated from one another, 4) making the very idea of a unified "self" suspect, and, finally, that 5) these ideas, taken together, explain the omnipresence of human inconsistency, including moral hypocrisy. **Dr. Robert Kurzban**, an Associate Professor in the Psychology Department at the University of Pennsylvania and founder of the Pennsylvania Laboratory for Experimental Evolutionary Psychology (PLEEP), is a leading authority on Evolutionary Psychology and will discuss that aspect of Human Evolution. For more information about Dr. Kurzban's work see <http://www.psych.upenn.edu/~kurzban/>.

Saturday, November 15, 2008 - TBA

Sunday, December 14, 2008 - **Annual PhACT Winter Solstice Party.** This event is free, but is reserved for PhACT members and their guests.

Thursday, October 9, 2008 at 7:00 PM. The Freethought Society of Greater Philadelphia's Monthly Meeting at The Ludington Library: 5 South Bryn Mawr Ave., Bryn Mawr, PA 19010. University of Pennsylvania Professor of Law, **Paul H. Robinson** will discuss **Shared Intuitions of Justice.** Recent social science research suggests that many if not most judgments about criminal liability and punishment for serious wrongdoing are intuitional rather than reasoned. Further, such intuitions of justice are nuanced and widely shared, even though they concern matters that seem quite complex and subjective. Free and open to the public.

Friday, October 10, 2008 at 8 PM. Delaware Valley Mensa General Membership Meeting. "**Say you want a Revolution?**" This month's speaker will be **John A. Nagy.** His book, "**Rebellion in the Ranks Mutinies of the American Revolution**" won the American Revolution Round Table of Philadelphia's Thomas Fleming Book Award for the best book on the American Revolution Era published in 2007.

His talk will be on mutinies primarily in the army highlighting the involvement of Pennsylvanians and events in Pennsylvania. He will provide a window onto the conditions of daily life of the common American Revolutionary soldier or sailor that could lead to mutiny, treats comprehensively specific Army regiments or naval vessels and individuals involved in mutinies, reveals British efforts to encourage and exploit dissension among the ranks, and shows how easily the war could have been lost to the British not only through defeat in battle, but also through mutiny.

John A. Nagy is an expert in antique documents, a consultant for the William L. Clements Library of the University of Michigan on espionage, and a Scholar in Residence at Saint Francis University, Loretto, Pennsylvania. He is President of the American Revolution Round Table of Philadelphia and has appeared on the History Channel, C-Span, local educational TV, and the Pennsylvania Cable Network. He graduated from Saint Francis University, Loretto, PA (BA) and Stevens Institute of Technology, Hoboken, NJ (MMS).

The General Membership Meeting will be held at the Police Administration Building, 750 Race Street, Philadelphia, PA. This meeting is DVM's only activity specifically open to the public, so feel free to invite your friends and relatives. Door prizes will once again be awarded, sponsored by Chocolate. Free.

Friday, November 4, 2008 (8:00 AM – 3:00 PM). The Leukemia & Lymphoma Society and the Abramson Cancer Center of the University of Pennsylvania will present **Focus on Leukemia, Lymphoma, and Myeloma**, an educational conference for those whose lives have been affected by blood cancers. The content of this program will provide an ideal learning environment for cancer patients, survivors, family members, and health care professionals. This event is free and will be at the Hilton Hotel, 4200 City Avenue, Philadelphia, PA. Self parking is available and will be validated. To register call 1-800-789-7366 or register on-line at: oncolink.org/conference/bloodcancers

PHACT CALENDAR

The Big Questions in Science and Religion: 2008-2009 Metanexus Senior Fellow Lecture Series with Keith Ward

“How Does Morality Relate to Religion?”

Wednesday, November 12 at 7:30 pm

Bryn Mawr Presbyterian Church

Congregation Hall, 625 Montgomery Avenue, Bryn Mawr PA

“Has Science Made Belief in God Obsolete?”

Thursday, November 13 at 4:30 pm

Swarthmore College, Science Center 101

500 College Ave., Swarthmore, PA

“Can the ‘Cruelty and Waste’ of Evolution Be Reconciled with Creation by a Good God?”

Friday, November 14 at 7:30 pm

Chestnut Hill College, Social Room – Fournier Hall

9601 Germantown Avenue, Philadelphia, PA

“Materialism and Its Discontents”

Saturday, November 15 at 11:00 am

Christ Church Ithan

536 Conestoga Road, Villanova, PA

“Is It Still Possible to Speak of the Soul?”

Sunday, November 16 at 4:30 pm

First Unitarian Church, 730 Halstead Road

Wilmington, DE

Keith Ward is a fellow of the British Academy, the Regius Professor of Divinity Emeritus at the University of Oxford, an ordained priest of the Church of England, and a member of the Council of the Royal Institute of Philosophy. He has doctorates of divinity from Cambridge and Oxford Universities. He has written more than twenty highly acclaimed books. He lives in Oxford, England.

All lectures are free and open to the public.

For more information, please contact us at info@metanexus.net or (484) 592-0304.

Every Monday, except holidays, at 7:00 PM .

Socrates Cafe is moderated by PhACT member Sam Frederick at the Springfield Township Library at 1600 Paper Mill Road, Wyndmoor, PA 19038. This discussion group is free and open to the public. Bring an open mind and positive attitude.



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.

Wagner Free Institute of Science

1700 West Montgomery Avenue

Philadelphia, PA 19121

ph 215-763-6529 www.wagnerfreeinstitute.org

Adult Education Course Schedule

Fall 2008 Courses

Courses sponsored by the Wagner Free Institute of Science are free and open to the general public. They are taught at the introductory college level.

An Introduction to Insects and Related Arthropods, Professor Jon K. Gelhaus. 9 Classes beginning Thursday, September 18, 2008, beginning at 6:30 PM. (No class Thursday, October 9, 2008). The Academy of Natural Sciences, 19th Street and the Benjamin Franklin Parkway. This class will explore the diversity of insects and related arthropods. ***This course requires preregistration and is limited to 20 students. To preregister, call 215-763-6529, ext. 23, beginning Monday, September 8, 2008.***

An Introduction to Darwin and Evolutionary Biology, Professor Scott McRobert. 8 classes beginning Monday, September 22, 2008, beginning at 6:15 PM. (No class Monday, October 13, 2008). Wynnefield Branch of the Free Library, 5325 Overbrook Avenue. This course will provide an overview of the history and science of evolutionary biology. ***No preregistration required.***

Molecules that Matter, Professor Erin McLeary. 6 classes beginning Tuesday, October 7, 2008 at 6:30 PM. At The Chemical Heritage Foundation, 315 Chestnut Street. We often point to the role of science and technology in creating the modern world. This course will focus on seven specific molecules that have played key roles in American's lives in the 20th century, putting each into scientific, historical, and cultural perspective.

Surviving "Surviving": The Making of an Exhibit on Human Evolution, Professor Janet Monge. 6 Mondays starting Monday, October 20, 2008, beginning at 6:30 PM. University of Pennsylvania Museum of Archaeology and Anthropology, 33rd and Spruce Streets. This course will explore the topic of evolution as seen through the lens of the exhibit, *Surviving: The Body of Evidence*, which opened at the University of Pennsylvania Museum of Archaeology and Anthropology in April 2008. ***No preregistration required.***

The Institute's free public education courses in science are in their 153rd year, making them the oldest program devoted to free adult education in the United States. The Institute also has a strong commitment to children's education. It offers a range of programs for visiting school groups, and cultivates special partnerships with neighboring inner-city schools.

These courses are all free but donations to The Wagner Free Institute of Science are appreciated.

Letters

Editor: Pardon my skepticism, but can you tell me where Jefferson said those words quoted on page 13 of the September 2008 Phactum?

I've seen the line quoted many times but never with a provenance. The notion of a government "taking care" of anyone other than its rulers sounds like a notion born long after Jefferson's time.

Indeed, the quote sounds like it was invented in the last ten years. (Its earliest occurrence on Lexis/Nexis is 1999).

So prove me wrong!
Peter Freyd
Philadelphia



Thomas Jefferson
(1743 - 1826) Third
President of the United
States

Editor: I wrote too soon.

In a 1802 letter to Thomas Cooper, Jefferson wrote:

"If we can prevent the government from wasting the labors of the people, under the pretence of taking care of them, they must become happy."

I found it on <http://etext.lib.virginia.edu/jefferson/quotations/foley/>

They have nothing, though, for the phrase "predict future happiness".

Peter Freyd
Philadelphia

Editors note: I found the Jefferson quote on the internet. The internet is never wrong!

Editor: I have to respond to the very silly letter about atheism and Asperger's Syndrome (AS) in the September newsletter. If the letter is intended to be satire, it isn't funny. "Asperger's Syndrome is a profoundly debilitating condition, not to be made fun of." I think, however, that the author of the letter was actually serious.

The writer's point mostly boils down to this: People with AS have poor social skills and lack empathy, and *in his opinion*, atheists also have poor social skills (they reject the majority opinion and get rejected in turn) and lack empathy (they offend the sensibilities of believers by questioning their beliefs). Therefore most atheists must have AS. Where to start refuting this nonsense?

Among the diagnostic criteria for AS, atheism is not to be found. I know of no reason to believe that people with AS are especially likely to be atheists.

Just in terms of numbers, the frequency of AS in the population is thought to be about a quarter of a percent. The number of atheists world-wide is estimated to be at least an order of magnitude greater. So even if every person with Asperger's were an atheist, a proposition for which there is no evidence, that would leave at least ninety percent of atheists without AS as an excuse. In America, as much as fifteen percent of the population professes no relig-

ion (numbers are hard to come by), and in Europe the number is even higher. All these people could not possibly have such a rare condition as Asperger's.

People with AS have no choice but to swim against the tide of society. They simply lack the mental capacity to interact in the way the rest of us do. Atheists may be swimming against the popular tide in most circles of society, but that is because of a decision they make to hold and profess certain beliefs. That represents neither lack of social skills nor lack of empathy. People with AS usually try very hard to fit in, despite the social rejection that so often comes with their disability. Atheists who face social rejection are choosing to do so, on principle. That's very different.

One might argue that the writer, by associating atheism with a mental disability, is showing his own lack of empathy for the sensibilities of atheists. In reality, people with such different world-views as atheists and believers often have difficulty understanding the feelings of the other. It has nothing at all to do with AS.

David Wilkins
Philadelphia

Editor: In his recent letter to Phactum, David Leiter discusses anecdotal evidence that skeptics and atheists disproportionately suffer from Asperger syndrome. I considered for a while whether this diagnosis might apply to me, but ultimately concluded that it didn't fit. The therapist I was seeing at the time concurred. I hope it's not necessary to add that, whatever psychological correlates may be found for particular beliefs, they tell us nothing in themselves about those beliefs' validity or lack thereof.

Assuming for the sake of discussion that this correlation does exist, I don't think the hypothesis of Leiter's anonymous correspondent, which might be summed up as "arrogance attracts arrogance," holds water -- not only because no clear mechanism is proposed, but because to my knowledge atheists, agnostics, and skeptics have not been shown to be any more "arrogant" than the general population. I suspect this attribution may simply reflect that some people are offended by anyone's willingness to state their disagreement with prevailing opinion.

Instead, I conjecture the following: like any cognitive ability, recognition of social cues is most efficient and useful if it can function unconsciously. But this has the side effect of sometimes disadvantageous consequences. Since beliefs are a kind of social behavior that can be "mirrored" much like others, unconscious recognition of social cues may result in increased susceptibility to adopting other people's beliefs without perceiving any need to verify them independently, especially if they are beliefs that are prevalent in one's social environment (like theism). In this view Asperger's may be a double-edged sword, offering the advantage of reduced gullibility along with the drawback of greater difficulty in social interactions.

Perhaps next month's speaker will have something to say about this.

Eric Hamell
Philadelphia

I believe that banking institutions are more dangerous to our liberties than standing armies. If the American people ever allow private banks to control the issue of their currency, first by inflation, then by deflation, the banks and corporations that will grow up around [the banks] will deprive the people of all property until their children wake-up homeless on the continent their fathers conquered. The issuing power should be taken from the banks and restored to the people, to whom it properly belongs.

Thomas Jefferson (1743 - 1826), Letter to the Secretary of the Treasury Albert Gallatin (1802)

Editor: The Internet Phactum is great. You continue to demonstrate that you're an improvement over the previous editor, the chump.

I know I have been away from PhACT for a while, but it is good to see some things never change. I will always appreciate the efforts of Phactum regulars Don Baldino, Becky Strickland and Tom Napier.

I also see Mr. Leiter is still milking his two essays in the Journal of Scientific Exploration as a means of bashing skeptics. Now we see more armchair psychology from the man who claims he could diagnose the "pathology" of skepticism from surreptitiously evaluating select members (and without revealing his methods or sample size). The quality of science is revealed in its practice, and I've always thought his essays said more about the standards of JSE than the character of PhACT members. Mr. Leiter's latest diatribe by proxy adds further weight to my suspicions.

Even with the presence of our "resident gadfly," this was a fine issue of Phactum. I particularly enjoyed Tom Napier's article, but (and I think I might have been waiting years to say this!) he's wrong on one thing. Merriam-Webster does, indeed, call "Nuk-you-ler" a questionable pronunciation. "New-clear," however, is not acceptable, at all, unless you pronounce "clear" in two syllables. The most acceptable pronunciation is "new-klee-urr." I suspect "new-clear" might be part of a backlash against Bush II -- a sort of over-exaggerated rejection of Bushist sensibilities and a desire to separate oneself from the taint of American provincialism. According to my observations on Internet message boards, people who say "new-clear" are often the victims of substandard grammar education, humoral imbalance, and mothers who didn't love them. Of course, I have no objective evidence for that and linguistics isn't my field of expertise. Perhaps I'll submit it to JSE as an essay.

You can find a pronunciation guide here:

www.merriam-webster.com/dictionary/nuclear

Greg Lester
Jenkintown, PA

Editor: In the Sep 08 Phactum, p5, Tom Napier makes good points on the value of time vs. the cost of gasoline, and I agree with all of them. The only caveat is that cutting down on the amount of petroleum used is a benefit. Not only is a limited resource made to last longer, but lower demand cuts the price. Tom is to be congratulated on leaving out any nonsense about emitting less CO2 since there is not and has never been any danger from elevated levels of it.

However, on p10, the cold fusion reaction that Pons and Fleischmann achieved was this one: $2\ ^2\text{H} \longrightarrow 4\text{He}$ (They were not trying to make neutrons. The heat was unexpected by F. and P. and comes from the slightly lower mass of He compared with 2 D. D = deuterium.)

A fairly accurate mass spectrometer was needed to confirm this. The anomalous heat effect was observed in 31 papers from 7 different countries by 1999. See: Charles G. Beaudette, *Excess Heat: Why Cold Fusion Research Prevailed*. South Bristol, Maine, Oak Grove Press, 2000. See reviews of the book on www.Amazon.com and *J. Sci Exploration*. How can this evidence be ignored?

And on p11 the existence of radiation hormesis was ignored despite 3000 papers showing it. See: *The Health Effects of Low-Dose Ionizing Radiation*, T.D. Luckey, Ph.D. <http://www.jpands.org/jpands1302.htm> This does not include reviews, such as: Joel M. Kauffman, "Radiation Hormesis: Demonstrated, Decon-

structed, Denied, Dismissed, and Some Implications for Public Policy", *J. Scientific Exploration*, 17(3), 389-407 (2003).

<http://www.scientificexploration.org/jse/v17n3.php>.

Joel M. Kaufman, PhD

Berwyn, PA

Editor: Notwithstanding that it was probably intended as a dig at creationists, your use of the term "porn" (Phactum September 2008, Letters) to describe the Creation Museum's depictions of Adam and Eve is incorrect and unfortunate.

Webster's defines pornography as "materials depicting erotic activity intended to cause sexual excitement." That doesn't fit the images reproduced in Phactum. I would have no objection if it did, but I think it's socially harmful to employ a usage that equates nudity with sex. This promotes the kind of prudery that gets in the way of enlightened behavior, either by private actors or by government.

Eric Hamell

Philadelphia

Editor: Here are two clerihews to stir the pot:

A physicist named Tom Napier
Had a mind keen as a rapier,
But writing these too often
Has caused his head to soften.

And before Tom has a chance to skewer me in response, allow me to skewer myself:

A skeptic of skeptics, Dave Leiter,
Is a very pesty PhACT-fighter.
He touts SSE ad nauseam,
Justifying us in avoiding him.

David L. Leiter

Willow Grove, PA

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Various Ruminations

Collected/written by Ray Haupt, editor
(with help from others)

Steve

In the September Phactum I somewhat cryptically asked, "What is the current count of Steves?". Glenn Branch, the Keeper of the Count, and Deputy Director of NCSE, the National Center for Science Education, did respond informing me that the it is a moving target currently at 944. Thanks, Glenn. It would be a splendid testimonial to reach 1000 by February 12, Charles Darwin's 200th birthday.

The NCSE website is <http://www.natcensci.ed.org/>.

Ayurvedic Medicine

If you were to do a google search of the internet for "ayurvedic medicine" you will find hundreds of websites selling ayurvedic products and waxing rhapsodic about the healthy virtues of that form of alternative medicine. The following paragraph is a sample.

"Ayurveda, considered the most ancient existing medical system, is a 4,000 year-old Indian method of healing that includes

diet, natural therapies and herbs dependent on body type. Ayurvedic medicine places equal emphasis on body, mind, and spirit, and strives to restore the innate harmony of the individual."

There are other websites that are much less enthusiastic about the offerings of ayurveda. An article at one website called Neuroscience for Kids, <http://faculty.washington.edu/chudler/ayur.html> is brief and to the point. Researchers reported that of 70 ayurvedic medicine products tested 14 (20%) contained dangerous levels of lead, mercury, and arsenic. Lead poisoning can cause headaches, stomach pain, confusion, memory problems, kidney and neurological damage. Mercury poisoning can cause brain, lung and kidney damage. Arsenic poisoning can damage the gastrointestinal system, cardiovascular system and nervous system.

Is it not long past time for the FDA to assert controls on CAM products? If not for efficacy, at least for safety.

Autism and vaccine quackery again

Dr. Stephen Barrett's newsletter of September 30, 2008 refers to a new book written by Dr. Paul Offit who was PhACT's speaker this past February.

Book blasts anti-vaccination scaremongers.

Autism's False Prophets exposes the opportunism of lawyers, journalists, celebrities, practitioners, politicians, and miscellaneous cranks who are promoting the myth that vaccines cause autism. Written by Paul A. Offit, M.D., co-developer of the rotavirus vaccine, the book chronicles the irresponsible behavior of Andrew Wakefield, M.D., Mark Geier, M.D., Geier's son David, Congressman Dan Burton, author David Kirby, former Playboy bunny Jenny McCarthy, Robert F. Kennedy, Jr., and other misguided zealots and reveals how lawyers and "experts" involved in anti-vaccine litigation have collected large amounts of government money. Offit also castigates Oprah Winfrey, Larry King, "Good Morning America," and other major news outlets for giving McCarthy widespread and undeserved exposure. The book can be purchased at <http://www.amazon.com>.

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Autism's False Prophets: Bad Science, Risky Medicine, and the Search for a Cure by Paul A. Offit, M.D.

Hardcover 328 pages \$24.95

Publisher: Columbia University Press

First edition (September 5, 2008) ISBN-10: 0231146361

Reviews

A definitive analysis of a dangerous and unnecessary controversy that has put the lives of children at risk. Paul A. Offit shows how bad science can take hold of the public consciousness and lead to personal decisions that endanger the health of small children. Every parent who has doubts about the wisdom of vaccinating their kids should read this book. -- Peter C. Doherty, Ph.D., St. Jude's Children's Research Hospital and Nobel Laureate in Medicine for fundamental contributions in Immunology

In his latest book Paul A. Offit unfolds the story of autism, infectious diseases, and immunization that has captivated our attention for the last decade. His lively account explores the intersection of science, special interests, and personal courage. It is provocative reading for anyone whose life has been touched by the challenge of autism spectrum disorders. -- Susan K. Klein, MD, Ph.D., Case Western Reserve Hospital, and Rainbow Babies and Children's Hospital, Case Medical Center

No one has been more vocal-or courageous-than Paul A. Offit in exposing the false and dangerous claims of the growing antivaccine movement. Offit's latest book lays waste to the supposed link between autism and vaccination while showing how easily Americans have been bamboozled into compromising the health of their own children. *Autism's False Prophets* is a must read for parents seeking to fully understand the risks and rewards of vaccination in our modern world. -- David Oshinsky, winner of the Pulitzer Prize in History for *Polio: An American Story*

Béla Ferenc Dezsó Blasko was born 126 years ago on October 20, 1882 in Lugos, Hungary, now part of Romania. The October 2008 PhACT meeting is on October 20 only 11 days before Halloween. Who better to remember at this time of year than Béla Ferenc Dezsó Blasko, better known as Bela Lugosi?



Bela Lugosi shot to stardom in the title role of the 1931 film version of Bram Stoker's *Dracula* and set the standard for movie vampires. A successful stage actor in his native Hungary and in Germany, he emigrated to the United States in the 1920s and played various character roles until grabbing the lead in the stage production of *Dracula* in 1927. Lugosi's talent for playing a villain led to a career of playing monsters and mad scientists, and it's generally accepted that he made a lot of bad choices. Some of his more memorable movies include *The Black Cat* (1934), *Ninotchka* (1939, starring Greta Garbo), *The Wolfman* (1941) and *Abbott and Costello Meet Frankenstein* (1948). In 1955 Lugosi committed himself to an institution, admitting an addiction to methadone. In his last years his personal life and career were on the skids, but he still worked a little in television and low-budget films. He died while working on what has been called one of the worst movies ever made, *Plan 9 From Outer Space* (released in 1959).

Beware the Boogeyman and Explosive Rats!

By Don Nigroni

During the Phenomenal Week of 1909, the Jersey Devil left the Pine Barrens to haunt the Delaware Valley from Sunday, January 17 to Friday, January 22, 1909. During this period, he was seen and his mysterious footprints were found in the snow in numerous places throughout the area. While the panic ended abruptly, there apparently were some notable aftereffects of the hysteria.

A story appearing in *The Mansfield News* from Mansfield, Ohio on February 5, 1909 stated:

A thirteen-year-old Philadelphia girl, being asked on the witness stand if she knew what would happen to her if she told a lie, promptly replied: "Yes, sir, I know. The Jersey devil will get after me." She was permitted to testify.

Clearly the Jersey Devil was already being used as a boogeyman to control children in Philadelphia shortly after the Phenomenal Week just as he had presumably been used in the Pine Barrens by parents for donkey's years.

Nevertheless, our second story is much scarier. There was a syndicated article which appeared in newspapers as far away as *The Marshfield Times* from Marshfield, Wisconsin on May 5, 1909 and *The Oelwein Daily Register* from Oelwein, Iowa on May 12, 1909. According to the newspaper account, just as Trenton, New Jersey was recovering from the panic caused by the "Jersey 'devil bird'", the city was hit by another wave of hysteria.

The warden at the Mercer county workhouse, located a few miles from Trenton, discovered that a sack of dynamite, which was used for quarrying, had been opened and most of its contents had been removed. An investigation revealed that none at the officials at the workhouse was involved and the Mercer County Board of Freeholders began to fear that Black Handers, Italian immigrant extortionists, were planning to

blow up the buildings. A loud explosion then occurred near the administration building and the only thing found at the scene was a badly mutilated dead rat. Fearing that the rats might have eaten the dynamite, the officials examined the body of the dead rat and found some unexploded dynamite in its stomach. They now came to the conclusion that the missing dynamite had really been eaten by their rats. By firing off guns, burning powder and using other unspecified methods, they were able to drive the rats away from the workhouse and they were seen fleeing towards the city.



A Loud Explosion Took Place.

The people at the workhouse were enormously relieved at the success of their efforts. However, hysteria once again quickly gripped Trenton as the people there came to believe that a horde of rats was now running around their city with stomachs full of dynamite. People restrained their dogs and cats. Needless to say, you wouldn't want your cat catching an explosive rat which would then blow up your pet. Housewives un-baited their rat traps. Needless to say, you wouldn't want to catch an explosive rat in your rat trap because when the device snapped shut, it would detonate the rat and could then blow up your kitchen. Apparently there were no more explosions and this hysteria, like the one in Trenton less than four months before caused by the Jersey Devil, also abruptly came to an end.

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 last year after working 32 years as an economist for the US Bureau of Labor Statistics and now has much more time to enjoy hiking, mountain biking, kayaking and bird watching.

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"THE LINE BLURS..."

by Paul Schlueter III

Critical thinkers may often find conversation leading into the realm of pseudoscience. When people espouse theories, arguments, or potions which they support with fancy-sounding jargon, vague credentials and spurious institutions, or various manipulations of science that the layman can't distinguish from the real thing, you have pseudoscience. Some of those who distort matters by applying this veneer of false science do so for monetary reasons. Others do so because they have adopted the false science "on faith", and simply don't know any better. Either way, pseudoscience serves no one, and often ends up wasting money. It may even cost lives, when the desperate rely on it, rather than valid medical therapies, to cure diseases.

Magnet Therapy has long been one of my standard examples of pseudoscience. Magnet Therapy includes magnetic insoles for your shoes; magnetic strips worn against your body with straps, or attached to your clothes; magnetic bed padding; or, other devices that involve the use of magnets to supposedly effect some sort of therapeutic treatment of disease or malaise. I have often said that you can pretty much declare such products scams, and the claims made in their support are "pseudoscience". Our Editor has found "The New Zealand Skeptics Guide to Magnetic Therapy Products", a pamphlet available through <http://skeptics.org.nz> in the land down under, which lists several examples.

Well, now the line has blurred considerably, and it looks like reliable reporting has brought legitimate magnetic medical therapy into the limelight. In the August 16, 2008, issue of Science News, Janet Raloff reported on nanomagnets being used to treat cancer. First off, let's distinguish these from magnets applied to the body externally; such uses appear to remain useless!

Nanomagnets are globes of iron-cobalt, a millionth of a millimeter in diameter, which are introduced internally. They are guided to cancerous cells by coating them with an artificial layer which contains antibodies specific to the disease, so the nanomagnets bind ONLY to diseased cells. Then, a powerful magnetic field is applied externally, which causes the nanomagnets to become hot. The temperatures cited are 45° to 50°C (113° to 122°F), which is hot enough to kill the diseased cells adjacent to the nanomagnetic particles (as in a highly localized fever) without injuring healthy tissue. Eventually, external magnets can be placed next to the

skin to draw the nanomagnets out of deep tissues, where they can be removed from just below the skin. Those who understand real scientific explanation will recognize the presence of a plausible theory of action in this description, a hallmark of sound scientific research.

Ms. Raloff further identifies individual researchers, competing biotech companies, and universities which are involved in this area of research, and peer-reviewed journals which have published related papers. One is in the April 1, 2008, issue of Journal of Applied Physics, which contains a report by Michael McHenry's group at Carnegie Mellon University, in Pittsburgh, PA. Another related paper was published by the Journal of the American Chemical Society, in mid-July of '08. MagForce Nanotechnologies AG, of Berlin, and Aduro Biotech, of Berkeley, CA, are two of the specific companies named in ongoing research. Several others are mentioned as well. Kenneth Scarberry, of the Georgia Institute of Technology in Atlanta (one of the JACS article's authors) is quoted as suggesting that preliminary data on using nanomagnets to bolster HIV/AIDS therapy "looks promising."

None of these treatments are ready for use in your local hospital, yet. In yet another hallmark of valid scientific procedure, these studies are progressing first through test tube and animal studies, prior to human trials. These researchers are following the established protocols, not just proclaiming their miraculous voodoo snake oils for sale in unregulated health food stores.

So, it looks like there's room for magnetism in medicine, beyond the recognized and established MRI technology. The proponents of Magnet Therapy will surely latch onto this research, proclaiming falsely that it supports their own farcical cure-alls, so we should begin to familiarize ourselves with the distinguishing characteristics between this legitimate new technology and the old mumbo-jumbo stuff, so we can carry on with informed discussions, and guide our less-informed friends and family. This may be an important area of debate in the near future.

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



Magnetic Water Wand

"The magnetic water wand is 14cm (5¼ inch) long and looks like a pen with a ball at the end. The long lasting, lime scale resistant rhodium coating protects the 2 bipolar magnets inside, totalling 2300 gauss (230 m Tesla, super strength magnets). Because you are actually placing the magnets directly into the water the magnetic field penetrates the water extremely quickly. This is the fastest and most efficient way to magnetise water."

Monstrous Life: An Evolutionary Demonstration

By Lyld Wells

Tutor, St. John's College, Santa Fe, NM

In terms of biological practice, the second half of the 20th century will doubtlessly be remembered for Watson and Crick's decipherment of the double-helical structure of DNA, from which much of modern molecular biology derived its impetus, and for Stanley Miller's experimental work on the abiotic synthesis of protein constituents, thereby dignifying in one fell swoop research into the origins of life – and of man – from inorganic precursors. Yet a time will come, I think, when these famous experiments will be overshadowed by one far less appreciated: the laboratory evolution of a virus into a monster, undertaken in 1967 by Solomon Spiegelman and coworkers (Mills, Peterson and Spiegelman, *Proceedings of the National Academy of Sciences USA* **58**: 217-224, 1967). From this experiment hints begin to emerge about the nature of a *question* – What is life? – that simultaneously provides the foundation and justification of the work of Watson, Crick and Miller while serving as the most substantial criticism of their projects.

To explain, let me begin by describing what Spiegelman and coworkers did. They were working with a relatively simple virus that consisted essentially of a protein coat surrounding a small, RNA genome of a few thousand base pairs. Normally, the virus, called Q β , required a bacterial host to make copies of itself, but Spiegelman and coworkers figured out how to get it to reproduce without a host. They realized that, to make a copy of its genome, Q β needed an enzyme called, appropriately enough, a “replicase.” The basic instructions for making this enzyme were among the few genes encoded on Q β 's genome. In the presence of this enzyme, if a few raw materials (to make RNA) and an original genome (to serve as a template) were provided, Q β could make copies of its genetic information without a bacterial intermediate. In short, it was possible for a parasite to exploit a set of *conditions* rather than a *host*.

But their work didn't stop there. What would happen to the Q β genome under these circumstances if selective pressure were exerted for fast reproduction? Spiegelman and coworkers decided to do a series of transfers, taking a small and random sample of viral genomes from the first test tube and using it to seed a second test tube. This second tube contained the raw materials, including the replicase enzyme, but no original genome to serve as template. The template thus came from the small sample taken out of the prior test tube.

After waiting a few minutes, the second test tube would in turn be used to seed a third one, etc. We might think of each test tube as effectively representing a “generation” of viruses. Since the seeding sample was small and the time interval between transfers short, selective pressure was exerted that favored viruses that reproduced faster than others. After all, the viruses that reproduced fastest were likely to have the most copies of themselves included in the sample that inaugurated the next “generation.”

Under these selective conditions, what happened to Q β ? One way to make copying go faster is to make what you're copying smaller. Imagine if you were in a contest to see who could write 100 copies of a sentence fastest. Who do you think would win – the person who chose to copy a sentence with 30 words in it, or the one who copied a sentence with 2 words in it? In the case of Q β , random mutations that had the effect of reducing the size of the genome – i.e., the number of words in the sentence – were likely to be favored. All else being equal, it would take less time to copy one of these shortened genomes than it would take to copy the original, “complete” genome. Thus, in the fixed amount of time between transfers, more copies of short genomes would be produced than long ones. Moreover, there was no penalty for losing genetic information: in this, albeit peculiar, system, everything that Q β required to make genetic copies of itself was provided. Q β 's genes didn't need to be expressed (i.e., converted into protein); its genetic information only needed to be copied.

When Spiegelman and coworkers finally stopped their serial transfers – on the 75th test-tube – Q β had evolved in such a way that only 17% of its genome remained. Everything else had been lost under selective conditions that not only didn't penalize such debauchery, but in fact favored it. The virus that kept its “complete” genome effectively went extinct. It couldn't compete under these circumstances. Instead, a diminutive, exploitative rascal endured. This descendent of the original Q β was colorfully nicknamed “Spiegelman's monster.”

It's tempting to learn little from this experiment, to chalk it up to a laboratory curiosity and artifact. If Q β 's evolution into Spiegelman's monster suggests that evolution enforces a fundamental contingency and conditionality on all living things – perhaps even as their defining feature, if that isn't a paradox – surely it does so only in the unrealistic setting of a laboratory with a marginal entity like a virus. After all, what conditions exist in the “real world” that will ever favor losing most or all of your genome?

It turns out you don't have to look far; the nearest mirror will do. One of the surprise discoveries of the human genome project was that about 5% of our genome is viral in nature.

Sol Spiegelman
(1914 - 1983)



Sol Spiegelman was a pioneering molecular biologist whose discoveries accelerated the study of gene action and laid the foundations of recombinant DNA technology.

The entities in question are called “Human Endogenous Retroviruses” or HERV. Statistically (and fallaciously) speaking, then, in a roomful of 20 people, one of them is completely composed of HERV. Moreover, of the identified HERV in our genomes, the best represented families of them lack functional copies of most or all of their genes. So on the one hand, they’re successful, judging from the number of copies of them inside of us; on the other hand, they’ve jettisoned an enormous amount of information that, under other circumstances, we would consider essential to their being viruses. How did this happen? The likely answer is that their genetic information, being redundant with environmentally supplied materials, was unnecessary – just as in the case of Spiegelman’s monster. The less genetic information they encoded, the faster they could reproduce: the selective conditions that favored the debauchery of specific HERV families were probably similar to those that favored Q β ’s dereliction. If at some point we are uncomfortable calling Spiegelman’s monster or certain HERVs “viruses,” we should at least endeavor to understand why. Does our discomfort ultimately stem from evolution’s disregard for our categories and definitions? But then – why should evolution abide them?

A mirror will suffice to represent a second example of a Spiegelman’s-monster-like phenomenon. All animals, including us, are composed of eukaryotic cells. Contained within the eukaryotic cell are small organelles called mitochondria. Yet mitochondria are thought to have once been free-living bacteria. One of the most convincing pieces of evidence for this is that they contain tiny genomes whose sequences are most similar to certain bacterial genomes, though the bacterial genomes are much bigger. It appears, then, that mitochondria, like Spiegelman’s monster, threw away most of their genetic information, presumably because it was redundant – and therefore unnecessary – in their particular cellular and selective milieu. (One reason it was redundant was because a lot of their genes were transferred to the nucleus, an observation that ultimately strengthens my argument.) Indeed, there even exist some eukaryotic organisms whose mitochondria-derived organelles appear to lack a detectable genome altogether. Is it possible for a living thing to evolve away its *genome*?

In short, let me suggest that what Spiegelman’s monster

"It's not the job of scientists to create a universe. It is simply their job to describe it. Scientists are the catalysts of the inevitable. I call this my principle of dispensability."

--Sol Spiegelman, in a 1975 interview

forces us to confront is a certain antinomy between the notions of “life” and “evolution.” No single characteristic of a living thing – such as, in these examples, a genome – is sufficient to define its “liveness,” unless that characteristic itself is recalcitrant to evolution. If not recalcitrant, selective conditions may eventually be encountered that favor the characteristic’s loss. The secret of life is not, as it happens, DNA or its structure, as Crick or especially Watson might have maintained; nor is it to be found in an assortment of amino acids synthesized from inorganic precursors, despite Miller’s initial successes. The secret of life is perhaps that there is no secret: that the question “What is life?” demands an answer that is forever contingent and conditional, for reasons that are not essential, but evolutionary.

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Ringin Rock Boulder Fields in SE Pennsylvania

By Andrew E. Stroud

In the wooded hills north of Philadelphia lies a curious geologic phenomenon: the ringin rock boulder fields. These fields are composed of large igneous boulders that ring like bells when struck by a hammer or other hard object. There have been nearly a dozen of these ringin rock boulder fields that have been identified in the hills of southeastern Pennsylvania and New Jersey. The majority of them, however, are either currently on private property or have been destroyed by development and mining activities. Fortunately there are three excellent boulder fields that have been preserved and are located on public land. These include the Ringin Rocks County Park near Upper Black Eddy, the Stony Garden near Applebachsville, and Ringin Hill Park outside of Pottstown. **Ringin Rocks County Park, Bridgeton Township, Bucks County**

The Ringin Rocks County Park in Bridgeton Township is world famous and has been the object of numerous travel articles, television shows, and even YouTube videos. The park is located 1.5 miles west of Upper Black Eddy by Bridgeton Hill Road, then onto Ringin Road. The boulder field is accessible by good trail. Beyond the boulder field is High Falls, a small but impressive waterfall that is popular as a picnic site.

The Stony Garden, Haycock Township, Bucks County

The Stony Garden boulder field is located 8 miles west of the Bridgeton site, and is the least known of the three sites. At the north end of Nockamixon State Park take Durham Road (Highway 412) west, then south on Stony Garden Road. Access is from a Pennsylvania Game Commission parking area on Stony Garden Road. There are actually three boulder fields that make up the Stony Garden site. The Stony

Garden #1 field is about a half mile walk along a good trail that crosses a small creek. Boulder fields #2 and #3 are directly south of field #1, however no trail was found leading to them. The easiest access is to follow the creek to the south of the trail. Between the fields can be seen numerous exposed boulders of olivine diabase that have been 'captured' by the forest.

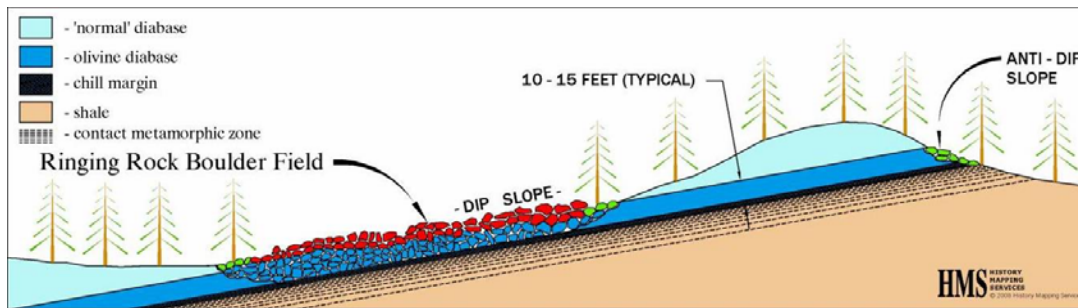
Ringling Hill Park, Lower Pottsgrove Township, Montgomery County

The Ringling Hill Park is owned and operated by the Ringling Hill Fire Company. Follow North Charlotte Street approximately three miles northeast of Pottstown and turn east onto White Pine Lane. The boulder field is situated just below the main fire station, and does not require any hiking.

Geology of the Boulder Fields

There are several different types of rock that develop ringing abilities, including limestones, shales, and several igneous varieties, however these three sites are exposures of a rock type referred to as olivine diabase. Approximately 200 million years ago stretching of the Earth's crust allowed basaltic magma to travel up from the mantle and inject as sills into a series of shale formations. Phenocrysts of two minerals that had crystallized in the upper mantle, olivine and hypersthene, quickly settled out of the magma and collected along the base of the sills. When fully solidified this crystal-rich layer formed a separate rock unit 10'-15' thick that is significantly harder, denser, and more resistant to weathering than the upper portions of the diabase sills. All of the observed boulder fields formed in dip-slope situations where the olivine diabase unit dips with the slope of ground. This provided wide exposures where various forces combined to create the boulder fields.

Ringling rocks only occur within the boulder fields. The



ringing is a result of internal elastic stresses within the rock. Although various theories have been proposed to the source of the stress, it is most likely that this was imparted when the rock initially crystallized. The dry environment of the boulder fields prevents the stresses from being dissipated by weathering. The ringing tones have been described as that of striking bells or old boilers, and are basically a ceramic sound. The tones appear to be more sensitive to the amount of residual stress than the shape of each individual boulder. The lack of weathering rinds on the boulders in the interior of the fields allows the rocks to resonate.

Facts about the ringing rocks:

- The boulder fields are natural geologic features and were not created by human activities, meteors, or 'mysterious' forces;
- The boulder fields are 'in-place' and the boulders were not transported by glaciers and streams;
- The boulders do not have unusual energy fields, such as extreme magnetism or radiation, and do not disrupt communication frequencies;
- The olivine diabase rock does not have an unusually high iron content; and
- The boulders are not hollow

Mr. Stroud was born in Easton, Pennsylvania and attended the Montana School of Mines in Butte, Montana for Geological Engineering. As a geologist he studied the petrology of the Ringling Rocks Complex near Whitehall, Montana. Currently Mr. Stroud lives in Virginia City, Nevada, and works as a water rights and mapping consultant.

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I think we've been through a period where too many people have been given to understand that if they have a problem, it's the government's job to cope with it. 'I have a problem, I'll get a grant.' 'I'm homeless, the government must house me.' They're casting their problem on society. And, you know, there is no such thing as society. There are individual men and women, and there are families. And no government can do anything except through people, and people must look to themselves first. It's our duty to look after ourselves and then, also to look after our neighbour. People have got the entitlements too much in mind, without the obligations. There's no such thing as entitlement, unless someone has first met an obligation.

Margaret Thatcher, talking to *Women's Own* magazine, October 31 1987

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