

“Science is the only true guide in life.”

Mustafa Kemal Atatürk
(1881 - 1938)
Founder of modern
Turkey

Phactum

The Newsletter of the
Philadelphia Association for Critical Thinking
September 2008

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www.phact.org

On September 20, 1908 Chicago White Sox pitcher Frank Smith pitched his second no-hitter, beating the Philadelphia Athletics 1-0. There was no joy in Philly that day.

September 20, 2008, a century later, promises to be a better day in Philadelphia. The Athletics are no longer here in Philadelphia, but Dr. John Allen Paulos is. Dr. Paulos, a mathematician, philosopher, and journalist will be PhACT's speaker, hosted by Dr. David Cattell, chairman of the Physics Department at Community College of Philadelphia, 17th and Spring Garden Streets, West Building Room W2-48. This event is free and open to the public. 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.

Dr. Paulos is a well known champion for mathematical literacy having written the very popular book *Innumeracy: Mathematical Illiteracy and Its Consequences*. At this meeting Dr. Paulos will be discussing

his new book, *Irreligion: A Mathematician Explains Why the Arguments for God Just Don't Add Up*, and anything else that might be on his mind.

Books by Dr. John Allen Paulos

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

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

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

From Publishers Weekly

Few of the recent books on atheism have been worth reading just for wit and style, but this is one of them: Paulos is truly funny. De-spite the title, the Temple University math professor doesn't actually discuss mathematics much, which will be a relief to any numerically challenged readers who felt intimidated by his previous book *Innumeracy: Mathematical Illiteracy and Its*

(Continued on page 4)

The PhACT Council

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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, West Building Room W2-48. **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, September 20, 2008 - Innumeracy – Math in Society. **Dr. John Allen Paulos** has been a major source of mathematical input to the media for years and has written numerous books including *Irreligion*, *Innumeracy*, *A Mathematician Plays The Stock Market*, *Beyond Numeracy*, *A Mathematician Reads the Newspaper*, *Once Upon A Number*, and *I Think Therefore I Laugh*. You can see more information on John's writings at <http://www.math.temple.edu/~paulos/> and also on page 5 of this newsletter.

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.

Tuesday, September 23 at 7:30 PM at the Free Library of Philadelphia, 19th and Vine Streets. **Brian Greene** will discuss his book *Icarus at the Edge of Time*. Recognized for his groundbreaking discoveries in superstring theory, Brian Greene is also well-known as the host of the Public Broadcasting Service's *NOVA* series based on his book, *The Elegant Universe*. A professor of mathematics and physics at Columbia University, where he researches string theory and quantum gravity, Greene's goal is to make complex scientific principles accessible to general audiences. Visually stunning, with full-color images from the Hubble Space Telescope, *Icarus at the Edge of Time* is a futuristic retelling of the fable of Icarus: instead of the sun, a black hole. \$14 Adult \$7 Student Buy tickets online.

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.



Thursday, October 2, 2008 • 7:00 PM at Eastern University 1300 Eagle Road, St. Davids, PA. Dr. Stanley Hauerwas Professor of Theological Ethics Duke University Divinity School, will present "Pentecost," a talk that is part of the Metanexus Institute Fall Lecture Series. "Pentecost" considers the dignity of difference in a modern world. Christians mark the feast of Pentecost as the birth of a people through the restoration of communication between people of different languages and stories. The Hauerwas talk looks at humanity's prospects of transforming a trend of domination into a culture of communication, where people are free to love one another without fear. For more information, contact Kathy Siciliano at siciliano@metanexus.net or (484) 592-0304 ext. 100

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.

PHACT CALENDAR

University of Pennsylvania Museum of Archaeology and Anthropology

3260 South Street
Philadelphia, PA 19104
215-898-4000

Surviving: The Body of Evidence

Opened April 19, 2008. Through May 3, 2009

Penn Museum takes an up close and personal look at the scientific study of evolution with this challenging new traveling exhibition that puts you—and your fellow humans—at the center of the inquiry, on a journey of self-discovery.

Surviving, an interactive, multimedia exhibition supported in large part by a grant from the National Science Foundation, begins with the premise that you—and your fellow humans—are survivors. Your body holds the evidence. The process of evolution and its outcomes have had a profound impact on every aspect of your daily lives. And the process continues. This exhibition kicked off a city-wide programming initiative: now through May 2009, Penn, Penn Museum, and other Philadelphia cultural organizations join together to present a Year of Evolution programming for the public.

The Academy of Natural Sciences

1900 Benjamin Franklin Parkway
Philadelphia, PA 19103
(215) 299-1000

Gregor Mendel: Planting the Seeds of Genetics

Through Sunday, September 28, 2008

Learn the dramatic story of the brilliant 19th century friar who became the father of modern genetics. Recreate Gregor Mendel's famous pea experiment to discover the laws of heredity and meet modern scientists on the cutting edge of genetics. See the real thing: Mendel's botanical specimens, scientific instruments, correspondence and gardening tools. A mobile, collage, and sculpture are some of artists' interpretations of genetics concepts. Videos and hands-on interactive elements make the fundamentals of genetics accessible to everyone.

Gregor Mendel: Planting the Seeds of Genetics and its national tour were developed by the Field Museum in partnership with The Vereinigung zur Förderung der Genomforschung, Vienna, Austria, and The Mendel Museum, Brno, Czech Republic. This exhibit is presented by Villanova University and The Academy of Natural Sciences.

This event is a part of the Year of Evolution, a celebration of the 200th anniversary of the birth of Charles Darwin.

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.

(Continued from page 1)

Consequences. In this short primer (just the gist with an occasional jest), Paulos tackles 12 of the most common arguments for God, including the argument from design, the idea that a moral universality points to a creator God, the notion of first causes and the argument from coincidence, among others. Along the way, he intersperses irreverent and entertaining little chapterlets that contain his musings on various subjects, including a rather hilarious imagined IM exchange with God that slyly parodies Neale Donald Walsch's *Conversations with God*. Why does solemnity tend to infect almost all discussions of religion? Paulos asks, clearly bemoaning the dearth of humor. This little book goes a long way toward correcting the problem, and provides both atheists and religious apologists some digestible food for thought along the way.

Older publications

Innumeracy: Mathematical Illiteracy and Its Consequences

Paperback: 208 pages **Publisher:** Hill and Wang **Pub.**

Date (1988) **ISBN-13:** 9780809058402

A Mathematician Plays The Stock Market

Publisher: Perseus Publishing **Pub. Date:** May 2004 **ISBN-**

13: 9780465054817 **Paperback:** 216 pages

Beyond Numeracy: Ruminations of a Numbers Man

Publisher: Knopf Publishing Group

Pub. Date: April 1992 **ISBN-13:** 9780679738077

Paperback: 285 pages

A Mathematician Reads the Newspaper

Publisher: Knopf Publishing Group **Pub. Date:** March 1996

ISBN-13: 9780385482547 **Paperback** 212pages

Once Upon A Number: The Hidden Mathematical Logic Of Stories

Paperback: 224 pages **Publisher:** Basic Books

Pub. Date: October 1999 **ISBN-10:** 0465051596

I Think Therefore I Laugh.

Publisher: Columbia University Press; **Pub. Date** 1985

ISBN-13: 978-0231119153 **Paperback:** 192 pages

Mathematics and Humor

Publisher: University of Chicago Press

Pub. Date: November 1982 **Paperback:** 116 pages

ISBN-13: 9780226650258

Dr. Paulos website may be found at:

<http://www.math.temple.edu/~paulos/>

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Letters

Editor:

While PhACT doesn't meet in the summer, members and their guests have been getting together for a picnic for the last 6 or 7 years. We've tried various locations over the years, including the very interesting Ringing Rocks Park. This year we met at my favorite location, Mondauk Common Park in Upper Dublin Twp., on July 13.

It was a hot day, but cool under the double shade of a pavilion that sits under a grove of trees. Around 20 people came including several new members. Some played bocci or tossed Frisbees, the rest of us watched and talked. Eric brought sticks from his yard for the grill, which made for tasty hamburgers and hot dogs. The picnics are a terrific opportunity to talk with people we may not have a chance to get to know at the meetings. The date for the 2009 picnic has not been set yet but please plan to come.

Becky Strickland
Turnersville, NJ

Editor:

Unbeknownst to PhACT, I have received numerous responses from around the world to my two essays (see below), both based on my experiences with PhACT, et al. One of these responses is presented below for your consideration as an article for Phactum. It cites the possibility of some very interesting psychological relationships. I am not at liberty to disclose the author's identity, but based on my personal judgment, he is a far better-informed authority on the subject matter than I am, or probably ever hope to be.

The letter follows:

In your two essays on skepticism ("The Pathology of Organized Skepticism", Journal of Scientific Exploration (JSE), Volume 16, No. 1, 2002, and "Organized Skepticism Revisited", JSE, Volume 18, No. 4, 2004, Ed.) I read something very interesting, i.e. most of the skeptics cited are atheists, and had some type of problem with religion, etc. in their youth. I've been researching the motives of atheism, because online atheists/skeptics have a specific use of language, and an easy-to-spot personality. It's not absolute, but most of them have a discernible pattern in their discourse. And I think it has psychological causes.

Reading the book "The Irrational Atheist" written by Vox Day (I recommend that book to you: it's the best critical response against the "New Atheism" of Dawkins, Harris, Dennet and Hitchens. It isn't a defense of religion or god, but a detailed demolition of new atheists' arguments and fallacies. As agnostic, I enjoyed that book), Day documents the fact that many atheists suffer from Asperger Syndrome (AS). In fact, if you search in Google for "Asperger Syndrome + atheism", you'll see that many atheist bloggers confess they're Aspergers. It seems that most of them are.

There is a free online version of Vox Day's book here:

<http://www.irrationalatheist.com/files/TheIrrationalAtheist.pdf>

If you search information on AS (a type of autism), you'll see that patients have the traits of many skeptics/atheists:

1) They're intelligent (Asperger doesn't affect cognitive abilities)

2) They lack social skills and have communicative problems (most skeptics/atheists attack other people beliefs, and are rejected by society)

3) They use technical language and seem to be pedantic people (remember skeptic/atheist use of fallacies, scientific terminology to impress, use of fallacies in Latin, etc.)

4) They lack empathy (atheist/skeptics can insult you without interest in the emotional damage they can cause you). They have obsessive interest in specific topics (atheist/skeptics focus their efforts on the paranormal, religion, and other similar topics)

Of course, not all Aspergers are atheists. But that syndrome, by its own nature, predisposes Asperger's patients to choose atheism as a worldview (due to the elitism, scientific jargon, and arrogant/pedantic tone of current ideological atheism). It's a very interesting hypothesis.

Dave, I'd like to ask you if, in your personal meetings with skeptics, you think that most of them suffer from AS. Please, try to compare AS's typical symptoms with the behaviour and personality of atheists/skeptics that you have known.

I have strong interest in the psychology of atheism/skepticism, and I want to discover their causes and motives. Let me know your comments.

Anonymous

David L. Leiter
Willow Grove, PA

Editor:

Creation porn: Yes, the Creation Museum's Eve (July/August 2008 Phactum) is cute but she's also fair-skinned and apparently Caucasian. Is there a subtle point being made here?

While Adam's navel has been debated for centuries, I've never seen a reference to his foreskin. Was Adam circumcised or did this tribal mutilation not become obligatory until the time of Abraham?



Albrecht Durer. Adam and Eve. 1507. Oil on panel. Museo del Prado, Madrid, Spain.

Gas prices, freedom of choice and God-given rights: Is reducing speed limits, as recommended in the July/August 2008 Phactum, a valid way to reduce oil imports? Not if you take the driver's time into account. At my hourly rate, if I cut a trip time by half an hour by burning five more gallons, I'd come out well ahead. After all, no one forces you to drive fast if you don't want to, other than the irate drivers piling up behind you. Speed limits in Europe, where gas costs two to three times more than here, are significantly higher than in the USA.

For generations European governments have used heavy taxation to reduce the demand for imported oil. Here the local and federal taxes are derisory but still there has been a call to eliminate them to help Americans exercise their God-given right to drive gas-guzzling behemoths. In a free and democratic society you certainly have that right, provided you bear the concomitant costs without complaint.

\$4 gas is incredibly cheap by world standards. A good way to reduce the cost of imported oil would be to tax gas at a significant rate, say \$2 a gallon. Demand, and the price of a barrel of oil, would both fall. This tax would be en-

tirely devoted to that much-needed task, the repair of roads and bridges. Still we can hardly expect Congress to make unpopular but rational choices in an election year.

Tom Napier
North Wales, PA

Editor: NPR found only bamboo vinegar and minerals in the {Enoki "detox" foot}pads, with no significant difference between the unused and the used pads and no evidence of "detoxification". NPR also found that simple steam caused the pad to turn black with no skin contact at all.

Yet, these pads are still sold at places like Linens & Things and Bed, Bath and Beyond for \$19.99.

Link to NPR page with audio report: <http://www.npr.org/templates/story/story.php?storyId=93710963>

Caveat emptor yet again.

Doreva Belfiore
Philadelphia

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“Platitude: an idea (a) that is admitted to be true by everyone, and (b) that is not true.”
H. L. Mencken (1880 - 1956)

Various Ruminations

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

Alexander Isayevich Solzhenitsyn, R.I.P.

Alexander Solzhenitsyn, the Nobel Prize-winning Russian author whose books chronicled the horrors of communist dictator Josef Stalin's slave labor camps, died of heart failure, on Sunday, August 3, 2008 in Moscow. said Monday. He was 89.

Solzhenitsyn served as an artillery officer in the Red Army during World War II. He had written some unflattering remarks about Josef Stalin and for that, in the closing weeks of the war, was arrested and spent seven years in brutal labor camps in Kazakhstan and three more years in internal exile in Central Asia. During his years of exile he began to write about the suffering and injustice of life in Stalin's gulag - a Soviet abbreviation for the slave labor camp system. He became a teacher of mathematics in the Russian city of Ryazan which currently has a population of about a half million, situated about 120 miles southeast of Moscow.

In 1962 he wrote his short novel *"One Day in the Life of Ivan Denisovich,"* which was published in 1962 by order of Soviet leader Nikita Khrushchev, who was eager to discredit the abuses of Stalin, his predecessor. It was that book that propelled Solzhenitsyn to fame. He wrote many others and in 1970 was awarded the Nobel Prize for Literature. Khrushchev was out of power by this time and Soviet authorities prevented Solzhenitsyn from claiming his prize until 1973. In 1974 he was exiled from the Soviet Union and eventually settled in the United States in Cavendish, Vermont in 1976.

Solzhenitsyn lived in the United States for two decades but was highly critical of western culture for what he considered weakness and decadence. He hated western popular music.

In 1994 Solzhenitsyn returned to Russia vowing to remain vocal telling the truth as he saw it, wherever it took him.

Solzhenitsyn is survived by his wife, Natalya, who acted as his spokesman, and his three sons, Stepan, Ignat, and Yer-

molai. All live in the United States and are US citizens.

There is a Philadelphia connection to Alexander Solzhenitsyn. His son Ignat is a well regarded pianist and is currently in his fourth season as Music Director of the The Chamber Orchestra of Philadelphia, a 33-member ensemble, which is a founding resident company of The Kimmel Center for the Performing Arts. The Orchestra, founded in 1964 by Marc Mostovoy, has a well-established reputation for distinguished performances of repertoire from the Baroque period through the twenty-first century.

Maestro Solzhenitsyn is a member of the piano faculty and serves on the Board of Trustees and Board of Overseers of the world renowned Curtis Institute of Music located at 18th and Locusts Streets in Philadelphia.



A photo of Solzhenitsyn taken upon his release from the Gulag in 1953

The Chamber Orchestra of Philadelphia web site is:

<http://www.chamberorchestra.org>

The Curtis Institute of Music website is:

<http://www.curtis.edu/html/10000.shtml>

Geographically Challenged Cuisine

I recently had a delicious dinner at a delightful little Chinese restaurant called Lucky Star. My lucky numbers were 14, 28, 34, 35, 36, and 61 and I ordered Mongolian Seafood.

New water lily species called proof of evolution ...

That was the headline for an article in the Winnipeg Free Press, August 13, 2008. <http://www.winnipegfreepress.com/life/story/4211921p-4804623c.html>

The article states that a hybrid water lily, formed from two other common species, was found in Manitoba has recently evolved. I thought this to rather

exciting since one common creationist argument is that no one has observed evolution actually occur.

I therefore emailed Dr. Andrew Petto, an expert in matters concerning evolution. I asked him if new hybrids really do represent evolution in action.

He replied: *"In a sense, yes. That sense is that what you now have is a new founder for a new population with a combination of genes that did not exist before. Assuming that this plant leaves descendants (which it now can do because it is not sterile and because, like most plants, it has reproductive organs for both "sexes" --- ovaries and stamens), it creates a new evolutionary branch, set to pass on its particular combination of genes to future generations."*

So evolution had occurred in this instance. I was a bit deflated when I reread the article. I had missed the point that this happened about 2,000 years ago. My error was in think-

Gaiety is the most outstanding feature of the Soviet Union.

Joseph Stalin (1879 - 1953)





ing that this happened in the past 20 years and was observed by scientists.

I am under the impression that evolution has indeed been observed by scientists and would be very interested in learning of those cases. They are powerful points in the evolution/creation issue and Phactum is a good place to report those things. If you can describe such an event write please it up and send it in.

By the way, what is the current count of Steves?

Warning From Quackwatch

Warning issued about homeopathic "look-alikes." Consumer Reports has found that some consumers are confused by the display of similarly packaged homeopathic products adjacent to genuine over-the-counter (OTC) drugs. The editors advise: "Check whether over-the-counter products are labeled homeopathic. If they are, don't buy them." [Homeopathic drugs: Look-alike medicines. June, 2008.]

<http://www.consumerreports.org/health/natural-health/homeopathic-drugs/overview/homeopathic-drugs-ov.htm>

Big Snake Oil?

In 1991 Senator Tom Harkin of Iowa was suffering from allergies. So was I. I consulted an allergy specialist and though not fully cured was for the most relieved of symptoms. Senator Harkin was smarter, he is a Senator after all. He took a concoction called Aller Bee-Gone, a bee pollen product sold by an Arizona firm, Browns's CC Pollen Company, and was cured.

Harkin was convinced that this non-traditional allergy remedy cured his malady. Harkin decided to use his clout as a US Senator to set in motion a government department dedicated to the study of alternative and non-traditional healing methods. He inserted \$2.0 million into the National Institute for Health (NIH) budget for Fiscal Year 1992 for that purpose and thus was born OAM, the Office of Alternative Medicine. Later that year Brown's CC Pollen Company was fined \$200,000 by the Federal Trade Commission for false claims that his bee pollen products could cause consumers to lose weight, alleviate permanently their allergy symptoms, and reverse the aging process.

In FY 1993 another \$2.0 million was allocated to OAM, then \$3.4 million, \$5.4 million, \$7.7 million, \$12.0 million, and in FY 1998 \$19.5 million. This surely must be a thriving proposition showing revenue growth that would be envied by any private sector corporation.

In FY 1999 the name was changed to National Center for Complimentary and Alternative Medicine, NCCAM, and

along with the name change was a massive budget change to \$50.0 million. The NCCAM budget grew like a weed until FY 2005 when it reached \$123.1 million. Since then the annual budget for NCCAM has been stalled at about \$122 million per year.

Over the years nearly \$1.1 billion dollars have been spent by US taxpayers for the study of alternative and complimentary medicine. Hopefully we get our moneys' worth in the form of verification of folk medicine and novel treatments for diseases that still baffle modern science. One would hope that is the case. Reality is quite different.

NCCAM is big in the realm of nutritional supplements, of which there are some 29,000 on the market making various unsubstantiated claims. Of this 29,000 products only two have been shown to have some promise of efficacy and they are readily available from food sources - omega-3 fatty acid and vitamin D.

In 2001, Saul Green, PhD, formerly a researcher at the Memorial Sloan-Kettering Cancer Center in New York, published the results of a detailed review of NCCAM studies. In it he notes: "*To my knowledge, and based on a review of abstracts published by the OAM/NCCAM, no report stated that a treatment did not work. In the past nine years, no negative result has been published, nor have any of the methods studied been shown to work to the satisfaction of the medical science community.*"

In 2005 and 2006 some better studies were performed which concluded that the dietary supplements Echinacea, saw palmetto, and chondroitin and glucosamine were ineffective remedies.

For a concise and interesting read on the matter of NCCAM and dietary supplements see on the internet:

<http://wanderingprimate.blogspot.com/2007/06/nutritional-supplements-and-nccam.html>

NCCAM and Reiki

NCCAM has an elaborate internet website that is open to the public: <http://nccam.nih.gov/>. The home page, at the time of this writing, had a Highlights section which had an entry: **Reiki: An Introduction**. If you followed that link you would discover: "*Reiki is a healing practice that originated in Japan. Reiki practitioners place their hands lightly on or just above the person receiving treatment, with the goal of facilitating the person's own healing response. In the United States, Reiki is part of complementary and alternative medicine (CAM).*"

The website goes on to explain more about Reiki and states: "*No special background or credentials are needed to receive training. However, Reiki must be learned from an experienced teacher or a Master; it cannot be self-taught. The specific techniques taught can vary greatly.*" and furthermore "*no licensing or professional standards exist for the practice of Reiki.*"

In other words, a Reiki practitioner must learn his trade from a master who has no license or standards

who in turn learned his trade from a Master who had no license or standards who learned

A bit further along in the NCCAM website there is a listing of NCCAM-Funded Research projects investigating the efficacy of Reiki for various ailments. They include:

- *How Reiki might work*
- *Whether Reiki is effective and safe for treating the symptoms of fibromyalgia*
- *Reiki's possible impact on the well-being and quality of life in people with advanced AIDS*
- *The possible effects of Reiki on disease progression and/or anxiety in people with prostate cancer*
- *Whether Reiki can help reduce nerve pain and cardiovascular risk in people with type 2 diabetes.*

And sure enough if you investigate a bit further you will discover five studies funded by taxpayers funding NCCAM, the titles and Clinical Trials Identifiers being:

- *Effects of Reiki on Stress (NCT00346671)*
- *Reiki/Energy Healing in Prostate Cancer (NCT00065208)*
- *The Use of Reiki for Patients With Advanced AIDS (NCT00032721)*
- *Effects of Reiki on Painful Neuropathy and Cardiovascular Risk Factors (NCT00010751)*
- *The Efficacy of Reiki in the Treatment of Fibromyalgia (NCT00051428)*

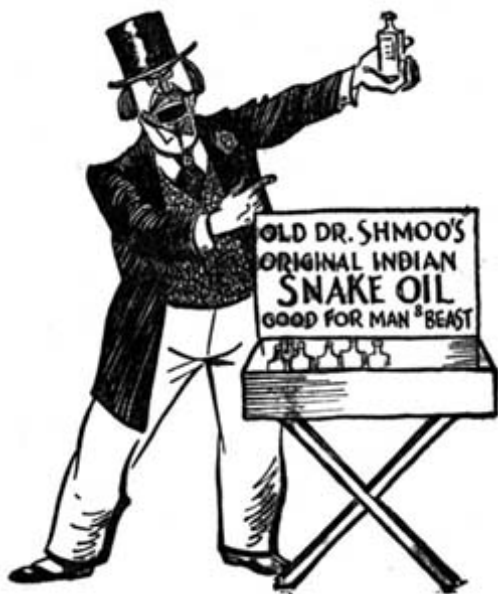
The first two studies listed above are currently recruiting

participants, the last three are completed. Print space in Phactum does not allow any detailed description of the objectives of these studies, but we do have ample room to fully expound upon the reports and conclusions of the three completed clinical trials:

There are no reports. There are no conclusions.

And rest assured that the financial cost of this research is not revealed.

A Google scan of the internet using the clinical trial identifier as the keyword will yield results for all of the Reiki related NCCAM but no report of the outcome of the studies is available. Not a word is uttered about the efficacy of this treatment, not in the NCCAM website and not in other websites. Outrageous, and in my mind, criminal.



Reiki and Youtube

Are you familiar with the youtube.com website? Much of Youtube is comprised of short and trashy amateur video productions but there are videos of interesting and worthwhile subject matter, and there are some which may be revealing and embarrassing.

If you were to access the Youtube.com website you could do a search on "Laurel and Hardy". If you did you might come across this silly and harmless video clip:

<http://www.youtube.com/watch?v=nhIXgVq2MTM>.

You could also scan "Reiki attunement". You might even come upon this particular video which no less silly than the Laurel and Hardy video clip, but unfortunately it is not meant as comedy: http://www.youtube.com/watch?v=_vmxNQ7ox2E

How can NCCAM administrators be other than embarrassed to have copiously funded preposterous clinical studies doomed from the start to yield no valid scientific result outside the boundaries of placebo effects? Apparently they are not embarrassed since the scam rolls on and on. Meanwhile, there are battalions of legitimate researchers with compelling science based ideas seeking funding to study problems, find answers, and save lives.

NCCAM studies such as the Reiki ones are not harmless. If funding had not been allocated to these studies or to some other wildly comic and improbable propositions, tax dollars might remain in the pockets of the citizens, the national debt would be a little less, and no loss of scientific knowledge suffered. If the money had been responsibly employed to fund meritorious scholarship in some area of science the dividends could be staggeringly grand. As things now stand money has been squandered, tax payers are poorer, scientists are no closer to solutions to problems, and there is little doubt that FY2009 will repeat the process.

More infections from raw milk reported.

This item was in Dr. Barrett's Consumer Health Digest of August 26, 2008. If you do not subscribe to this free newsletter you should. Go to <http://www.quackwatch.org>. Donations are appreciated.

"The Alexandre Family EcoDairy Farms has ended its raw milk program because several consumers became ill, including one woman who remains in intensive care and is partially paralyzed. Del Norte County health officials have documented three cases of Campylobacter infections since late June, and 12 others are awaiting confirmation. The company had a cow-share program in which people who bought stock in an Alexandre cow were able to purchase its unpasteurized milk. About 115 people were signed up, but the number of consumers was probably between 300 and 500. [Grube N. Illness halts raw milk program. The Daily Triplicate, Aug 16, 2008] http://www.triplicate.com/news/story.cfm?story_no=9851

Interpreting Evidence in Witchcraft Trials

By Don Nigroni

For centuries, witchcraft hysteria griped Europe, especially Scotland and Germany, and claimed the lives of many, many thousands of innocent victims, mainly women. Witch-hunts also happened in the American colonies, generally during the second half of the seventeenth century and mainly in Massachusetts. Many innocent people were imprisoned there, many were tried and convicted and, in 1692, nineteen of them were hung. Inane interpretations of evidence were used at witchcraft trials concerning the significance of confessions under torture, trials by water, spectral evidence, the touch test, etc.

According to Cotton Mather in *The Wonders of the Invisible World* (1693), during the trial of Bridget Bishop, who was the first to be tried and which occurred at Salem, Massachusetts on June 2, 1692, the afflicted said “the Shape of the Prisoner did oftentimes very grievously pinch them, choak them, Bite them, and Afflict them; urging them to write their Names in a Book, which the said Spectre called, Ours.” Bridget Bishop, who kept a tavern in Salem Village, was hung on June 10, 1692.

Once spectral evidence is interpreted as being a real apparition of someone then airtight alibis are no longer much good. Even if someone had ten thousand reliable eyewitnesses and audio and video evidence and fingerprints indicating that he really was in New York City when a crime was committed in Los Angeles, alas, that wouldn't prove his innocence. Sure, his corporeal body really was in Gotham, nonetheless, eyewitnesses saw his phantom double commit the crime in the City of Angels with their spectral eyes!

As for the touch test, the accused were blindfolded and made to touch the afflicted who would then usually come out of their fits. According to a letter by Thomas Brattle dated October 8, 1692, some of the justices at Salem, Massachusetts based their reasoning on Cartesian philosophy such “that by this touch, the venomous and malignant particles, that were ejected from the eye, do, by this means, return to the body whence they came, and so leave the afflicted per-

sons pure and whole.” He goes on to say of Cartesian philosophy, “but yet I have not so learned it” and neither did I.

Brattle was clearly skeptical and wrote, “I suppose his Honour never made the experiment, whether there was not as much virtue in his own hand, as there was in Mr. Alden's, to cure by a touch.” Some prominent people who were accused by the afflicted were left alone, some were never imprisoned

and permitted to quietly slip away while others, like Captain John Alden whose father arrived on the Mayflower, were allowed to escape from prison and go elsewhere, e.g., to New York.

In *The Aim and Structure of Physical Theory* (1906), Pierre Duhem noted that there always are an infinite number of theories that can explain any data. At the time, judges and juries were interpreting the strange behavior of the afflicted to mean that the accused were witches while Thomas Brattle thought it indicated that the afflicted were possessed by the Devil who was trying to trick them into thinking the accused were really witches. Today, we might interpret the same evidence to mean the afflicted were mentally ill or fakers.

There is a stark contrast between what happened in Massachusetts and what happened here concerning the prosecution of alleged witches. There apparently was only ever one witchcraft trial in Pennsylvania and no one was ever executed for being a witch. In general, while Massachusetts was griped by mass hysteria, stupidity and vindictiveness, Pennsylvania addressed the issue with rea-

son, common sense and decency.

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.



Judge Samuel Sewall (1652 - 1730), whose rulings sent many innocent women to their death, only after being hounded and tortured and nearly drowned in the search for evil that didn't exist. Sewall would later be overcome with remorse, and publicly apologize for his role in the Witch Trials.



Radiation: Myths and Misunderstandings

By Tom Napier



Part III: Radiation everywhere

A common method of generating high-energy neutrons uses cold fusion, the reaction that Pons and Fleischmann failed to achieve. (They were lucky, neutrons are nasty things to have around.) If you push the nuclei of the deuterium and tritium isotopes of hydrogen close enough together they may fuse and emit an alpha particle and a fast neutron. The standard equipment uses a high voltage to accelerate deuterium ions into a target containing tritium. (The August 1971 edition of the Scientific American gave build-it-at-home details of this apparatus.)

The deuterium-tritium reaction is the easiest fusion process to get going. In "hot" fusion experiments it is initiated by heating a mixture of the gases to 70 million degrees. Accelerator-induced cold fusion is a convenient source of fast neutrons but has a low energy yield. Most ions fail to react so powering the accelerator takes much more energy than is supplied by fusion.

Radiation effects

A common human reaction to a potential hazard is to call for its total elimination regardless of the benefit or practicality of doing so. If the hazard is an inevitable part of our natural environment, mounting a campaign to eradicate it is largely a waste of resources.

As shown by the recent revelation of the drug content of city water, modern instruments can detect minute quantities of some substances. Determining whether these have any effect on humans would take massive, long-term, epidemiological studies. It's hardly surprising that the public wants to skip the studies and proceed directly to remedial action, preferably at someone else's expense. The same urge applies to radiation.

I worked for seven years at CERN, the European particle accelerator laboratory, where I developed instruments to detect ra-

diation in the environment. The aim was to determine if the laboratory was safe to work at (it was) or was adding to the natural background radiation level (it wasn't). Designing equipment stable enough to detect small changes in the natural background is not easy. My instruments replaced an earlier system that had proved to be better at measuring the outside temperature than the radiation level.

There is a difference of many orders of magnitude between the tiny radiation doses instruments can measure and the ones that produce a detectable effect on living beings. Our department tested that too. One of my colleagues tested the effects of different types of radiation by irradiating mice then slicing up and examining their testicles. No doubt her work was valuable but the insouciance with which she went about this task did not endear her to the men in our group. We felt for the mice.

The natural background

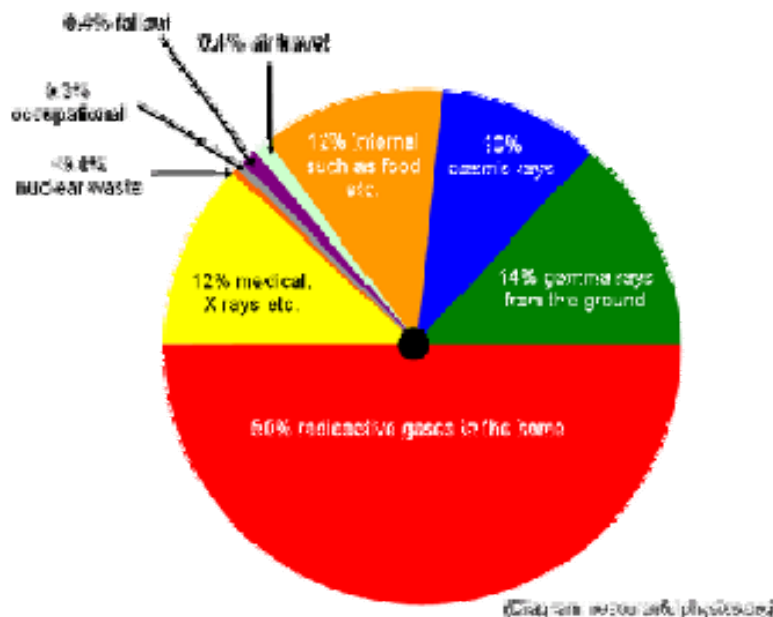
We all receive radiation from the ground we stand on, the food we eat and the cosmic rays which bombard the atmosphere. You can avoid some of this by moving to a lower altitude or away from areas that have particularly radioactive soil. It helps to minimize your air-travel and to avoid visiting Guarapari, a Brazilian tourist resort whose black sands will expose you to ten times the normal background.

A typical person adds about half as much again to the natural background radiation by getting medical X-rays or radiation treatment. Nuclear power generation adds about 0.25% to the natural background; moving to Denver doubles it.

The trouble with determining the effect of radiation on humans is that it takes a huge dose to have any obvious effect. Small doses cause genetic damage but this takes generations to show itself. Radiation also causes cancer but is far from the only cause of cancer. It becomes impossible to pin down the culprit without massive, long-term studies.

We can't ethically subject people to different radiation doses to see what happens so much of

Sources of background radiation



our knowledge of radiation effects is derived from studies of Japanese atom-bomb survivors. One can plot the incidence of cancer against the supposed dose received and get a line showing the probability of cancer induction associated with a given dose. Where things get murky is when this line is extrapolated to the much lower doses that people are normally subjected to. Measurement becomes impossible since we cannot determine what actually caused a particular cancer. There is a minimum probability of getting cancer that has nothing to do with radiation and a minimum radiation level

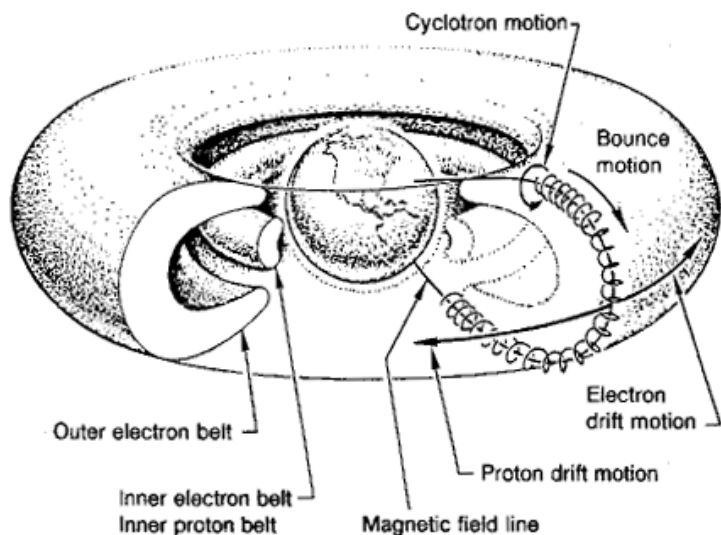


Figure 13

Van Allen Radiation Belt

Named for its discoverer, James A. Van Allen, the Van Allen belt is a zone of high-intensity particulate radiation surrounding the Earth beginning at altitudes of approximately 1000 km. The radiation of the Van Allen belt is composed of protons and electrons temporarily trapped in the Earth's magnetic field. The intensity of radiation varies with the distance from the Earth. Spacecraft and their occupants orbiting within this belt or passing through it must be protected against this radiation.

that everyone is exposed to. For example, potassium, an essential part of your body's chemistry, is slightly radioactive.

Dose effects

Another factor in dispute is the effect of dose rate. Has an exposure to a low dose rate over a long period of time the same effect as the instant flash of radiation an atom-bomb survivor received? One can only claim that the two are equivalent if we assume that the body has no ability to recover from low levels of damage. Some claim that we evolved to handle the natural background and therefore need some radiation to keep our defenses working. There's also a theory that evolution is driven by peaks in the background radiation level.

Some people take the opposite position, that very low dose rates are somehow more dangerous than higher dose rates. Since whatever line we draw through the high dose-rate points must pass through the zero-dose/zero-damage point this position is difficult to justify. The nuclear industry cautiously takes the linear position, that damage is proportional to the total dose.

The real Moon landing hoax

An extreme example of misunderstood radiation effects cropped up in the rantings of the Moon landing hoax advo-

cates. They showed photographs of severely burnt Hiroshima survivors and alleged that NASA astronauts couldn't have passed through the van Allen radiation belts that ring the Earth without suffering similar injuries. Ergo, NASA lied. There are two problems with this scenario. The first is that the injuries shown were not a nuclear radiation effect, they were burns caused by the flash of heat from the explosion. A bomb's heat and shock wave are far more damaging than its radiation flash which is attenuated by the air. If you are close enough to a nuclear explosion to be killed by its prompt radiation the heat and blast will get you first. A clue to the truth is that people wearing patterned clothing often showed burns only under the dark part of the pattern. White cloth reflected the heat flash but wouldn't stop nuclear radiation.

The other problem is that acquiring a damaging dose requires both a high radiation level and a long exposure time. Were you to orbit for a week in the middle of either van Allen belt you would die; even unmanned satellites don't venture there. However, shooting rapidly

through the edge of the belts, as one does on the way to the Moon, limits both the dose rate and the exposure time. The total dose received by the Apollo astronauts was significant but within industrial safety standards for a lifetime dose. Three astronauts even took the trip twice.

The real radiation risk to manned space-flight comes from solar flares. These are somewhat unpredictable but, contrary to myth, none occurred during any of the Apollo missions. A Mars-bound spacecraft would need to have a shielded room that the astronauts could retreat to during a flare.

One final myth

Despite the example of our present Commander in Chief, among others, there is no such word as "nook-you-lar." The correct pronunciation is "new-clear."

There are undoubtedly many more misunderstandings about nuclear radiation than I've mentioned here. I hope that after reading this series you are in a better position to dispute them if not necessarily to refute them.

Tom Napier is a member of PhACT's Council, is a physicist, an ardent skeptic, a poet, and author of ingenious Clerihews.

PhACT's Policy on Religion — an Appeal

By Don Baldino

I was dismayed to read "PhACT's Policy on Religion" in the June/August [PhACTum](#).

The Catholic Church has an awfully big dog in the fight to prove God's existence. Yet it pays me, an adjunct professor of philosophy, to criticize the arguments for the existence of God. Isn't it ironic that PhACT, a secular organization, shrinks from examining the same arguments? Why doesn't PhACT have the courage of the Church's convictions?

Contrary to PhACT's published policy, PhACT has never restricted its investigations to testing empirical claims. It has also, from time to time, employed *logic*.

Of the commonly advanced arguments for the existence of God, only one, Anselm's ontological argument, is deductive. The remaining arguments are inductive, including Paley's argument from design, on which creationism relies. There are standard refutations of all of the arguments for God. Why won't PhACT review them?

Why should religious claims be exempt from critical examination? What justifies PhACT's "crooked line in the sand," restricting the reach of critical inquiry? By what signs may I recognize the point at which I'm supposed to shut down my critical faculties?

PhACT opposes the teaching of creationism in science classrooms. What principle permits this exception to PhACT's stated neutrality? Are PhACT members rebels who make forays into enemy territory at night, then retreat behind political borders by day?

When I teach critical thinking, I frequently use religious examples of logical fallacies. Elijah Muhammad wrote that an evil black scientist invented white people. This is the argument from ignorance; it can never be disproven, because no one can prove a negative.

Louis Farrakhan cited Jimmy Carter as an authority for Farrakhan's claim that a gigantic spaceship orbits the earth. This is the argument from inappropriate authority. No wonder Aquinas called the argument from authority the weakest of all arguments.

The south seas cargo cults, imitating British and American sailors, built runways with landing lights, then waited for cargo planes to deliver food and medicine and radios. And they waited. And they waited. They didn't realize that runways and landing lights were insufficient to lure planes from the ether. What was also needed was someone to send the planes. This is an example of the *post hoc* fallacy.

Pascal taught that disbelief in the true God would lead to

eternal torment. This is the argument from force. Pascal calculated the probability of God's existence at fifty-fifty. I refer my students to Godchecker.com, which lists 2,850 deities, many of them as jealous as Yahweh. The odds of worshipping the wrong god, and thereby incurring the wrath of the true god, are far worse than Pascal supposed.

When I puncture my students' cherished religious balloons, they sometimes chafe. Too bad. It's called education.

I am not asking PhACT to support atheism. I do not teach atheism, nor do I in any other way undermine the Catholic mission of my colleges. I only analyze the strengths and weaknesses of arguments. Can't PhACT do the same?

We live in a dangerous world. Millions of Islamic fundamentalists believe that they can ensure their places in paradise by blowing themselves up, taking with them to the grave as many infidels

as possible. In the U.S. government, some Christian fundamentalists fervently believe that apocalyptic disasters will portend Jesus' glorious return in their lifetimes. If a massive earthquake were to leave California at the bottom of the sea tomorrow, they would be at best ambivalent. How many of these people are in positions to influence our nation's nuclear policy?

Nothing could delight either group of zealots more than PhACT's insistence that their fundamental religious beliefs are beyond rational inquiry and criticism. This is the challenge of our lifetime. PhACT can help meet this challenge, or it can investigate more crystals and pyramids and tin foil hats.

Don has been a member of PhACT almost from its inception. He is employed as an art librarian at Temple University, where he is working on his PhD in Philosophy. He has been an adjunct professor of Philosophy at Holy Family University, LaSalle University, and Neumann College.

Anselm of Canterbury (1033-1109)



Anselm's ontological argument purports to be an *a priori* proof of God's existence. Anselm starts with premises that do not depend on experience for their justification and then proceeds by purely logical means to the conclusion that God exists. His aim is to refute the fool who says in his heart that there is no God (Psalms 14:1). This fool has two important features.

- He understands the claim that God exists.
- He does not believe that God exists.

Anselm's goal is to show that this combination is unstable. Anyone who understands what it means to say that God exists can be led to see that God does exist. On this view, the atheist is not just mistaken: his position is internally inconsistent.

PHACT

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Admiral **Hyman G. Rickover**, United States Navy, (1900 – 1986) was known as the "Father of the Nuclear Navy".

USS Philadelphia (SSN 690)



USS Philadelphia (SSN 690)

The sixth and last ship in the United States Navy named for Philadelphia, Pennsylvania is a Los Angeles Class attack submarine that is still on active duty. *Philadelphia's* keel was laid August 1972, she was launched October 1974, and was commissioned June 1977. Philadelphia has been deployed for many missions including operations in the Mediterranean during Operation Desert Storm. Philadelphia was the first nuclear submarine to be armed with Tomahawk cruise missiles which are designed for subsonic low altitude long distance targeting. The missiles are launched horizontally from the torpedo tubes of the submerged vessel. The warhead can be a 1,000 pound conventional weapon or a 200 kiloton nuclear device.

Philadelphia is powered by two turbines fueled by a nuclear reactor. The total power generated is 35,000 horsepower or about 26 megawatts. She can dive to a depth of about 950 feet and cruises at 15 knots surfaced, 32 knots submerged.

On September 5, 2005 at approximately 2:00 AM while conducting surfaced operations in the Persian Gulf, Philadelphia was struck by the Turkish merchant vessel *M/V Yaso Aysen*. No sailors on either vessel were injured but one wonders how such an event could occur. Perhaps no one was in the crow's nest at the time. There was some hull damage but the propulsion system was unaffected.

Philadelphia is scheduled to be de-commissioned at Bellingham, Washington in 2010.

In fiction *Philadelphia* appears in the Tom Clancy novel *Red Storm Rising*, launching cruise missiles against military airfields inside the Soviet Union. It is sunk by torpedoes fired from a Soviet very deep diving Alfa class nuclear powered submarine.

USS Philadelphia (SSN-690) is not really the last ship to be named for Philadelphia, Pennsylvania. An ardent Star Trek fan might know that the *USS Philadelphia (NCC-79223)* was a *Sovereign* class vessel commissioned in 2375.