

"Every government interference in the economy consists of giving an unearned benefit, extorted by force, to some men at the expense of others."

— Ayn Rand
(1905 - 1982)

Phactum

The Newsletter and Propaganda Organ of the
Philadelphia Association for Critical Thinking
May/June 2010

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

**5:00 PM on Saturday, May 15, 2010 at The Sorella Rose
1800 Bethlehem Pike Flourtown, PA19031 (215) 233-0616**

Come to PhACT's annual dinner/fundraiser at The Sorella Rose in Flourtown, a gourmet restaurant at a suburban location just outside Northwest Philadelphia. Our guest speaker at this occasion will be **Joe Nickell**, a popular writer and investigator at Skeptical Inquirer. Joe is a man of many interests and wide fascinating experience. He will be talking about his investigations into various paranormal phenomenon, crypto zoology, UFO's, vampires, and anything else that might be on his mind. See Joe's website at: <http://www.joenickell.com/>

This event is open to all who may wish to attend. The cost is \$35 per person and an RSVP is a must.

To make a reservation please send a check payable to
PhACT for \$35.00 per adult to:
Bob Glickman
653 Garden Road Glenside, PA 19038
215-665-2089



Joe as a Fire Eater

And Don't forget that on Sunday, May 16 Joe and many PhACT members and non-members will embark on a one day Jersey Devil Expedition in the New Jersey Pine Barrens. This event is free and all are invited. See page 2 for more details.

People unfit for freedom - who cannot do much with it - are hungry for power. The desire for freedom is an attribute of a "have" type of self. It says: leave me alone and I shall grow, learn, and realize my capacities. The desire for power is basically an attribute of a "have not" type of self.

Eric Hoffer (1902 - 1983)

Jersey Devil Expedition

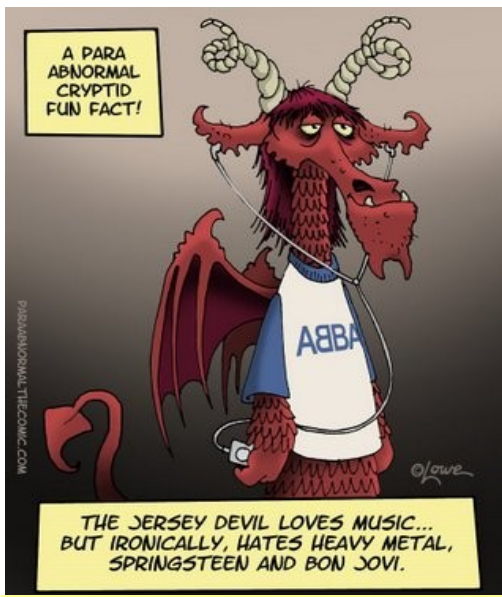


On Sunday, May 16, 2010, you are invited to join PhACT for an expedition deep into the South Jersey Pine Barrens where we'll walk through 18th and 19th century ghost towns while searching for the infamous yet elusive Jersey Devil. Our banquet speaker, Joe Nickell, will be on hand for this most scientific of adventures. Our guide will be Don Nigrone who has explored much of the Pine Barrens area known as the Wharton Tract. Don is an avid bird watcher, local historian and

folklorist. We will meet at the Visitor Center in Historic Batsto Village, located in Wharton State Forest, at 10:00 am and will be driving along mainly sandy roads which are accessible by 2-wheel drive vehicles. Even in the off chance that we don't spot the devil, we will no doubt have a good time and learn a bit of history about the area. Be sure to bring insect repellent, sturdy shoes, lunch and a camera. This event is free - let us know if you would like to join us.

We will meet at the

Visitor Center in Historic Batsto Village at 10:00 am
on Sunday, May 16, 2010 for the Jersey Devil Expedition



Cartoon by Dave Lowe <http://www.paraabnormalthecomix.com/>
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Directions: **Historic Batsto Village** is located on Route 542 in the Wharton State Forest, Washington Township, Burlington County, New Jersey. It is about 45 miles Southeast of

Philadelphia and approximately 25 miles in a Westerly direction from Atlantic City. The nearest significant town is Hammonton, NJ 08037 which is about 8 miles to the West.

More detailed driving directions can be found at the Batsto Village website:

<http://www.batstovillage.org>

We and will be driving along mainly sand roads through boggy terrain. Be sure to bring insect repellent. Jersey Mosquitoes are less elusive than Jersey Devils.



See Don Nigrone's article "Shakespeare and the Jersey Devil" on page 7.

Letters to the Editor



The Editor felt very lonely this month. There were no Letters to the Editor, not even denunciations or letters of complaint. We would like to think that Phactum is a Perfect Publication, but as a matter of fact we are a bit skeptical of such a claim.

Your ideas and opinions are very important to us. We have few ground rules other than to use civil language and to shy away from gratuitous broad brush religion bashing and fiercely partisan politics. Letters and articles that stick to specific issues are very welcome, even if the Editor has an opposing view, which he probably does.

Original poetry is very welcome and please Send more Clerihews!!

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Various Ruminations

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

British chiropractors drop libel suit.

Dr. Stephen Barrett reports in Consumer Health Digest of April 15, 2010 that:

The British Chiropractic Association has dropped its abusive libel suit against science writer Simon Singh. The case arose after Singh wrote:

"The British Chiropractic Association claims that their members can help treat children with colic, sleeping and feeding problems, frequent ear infections, asthma and prolonged crying, even though there is not a jot of evidence. This organization is the respectable face of the chiropractic profession and yet it happily promotes bogus treatments."

A lower court judge ruled that the word "bogus" must be interpreted as "deliberately dishonest," which would mean that instead of examining the truth or falsity of the claims, the trial would focus on whether or not the BCA believed them. Two weeks ago, however, the Court of Appeal concluded that the passage reflected Singh's opinion and could be defended as such. Singh is now entitled to recover most of the £200,000 he spent on legal fees. Had the case continued, the BCA would have found itself in an awkward position, because the claims Singh criticized would have been subjected to court scrutiny.

Meanwhile, a campaign to modify the UK's Draconian libel laws has gained the support of all three major par-

Help!!!!

The PhACT council would like to apply for 501c3 (formal nonprofit status) to help us attract a funding base, to allow deduction of contributions, and continue to host excellent speakers and programs. Our members represent a diverse array of talents and abilities. We would appreciate hearing from any member who could assist us in applying for 501c3 status. If you can lend a hand with this please contact our president, Eric Krieg, at EricKrieg@verizon.net



We can also use your help in other ways such as being an event organizer to help present programming and other tasks that arise for small organizations. As always we are eager to get your input in letters and articles for Phactum. Please, take time to write and send letters and articles to Ray Haupt at phactpublicity@aol.com

ties and is moving forward. More than 50,000 people worldwide have signed the petition supporting reform. Regardless of where you live, please sign the petition at <http://www.libelreform.org/sign>, even if you signed a similar one last year.

This court decision is certainly good news but does have some dissatisfying elements. It is excellent that Simon Singh is off the hook of legal technicalities, but left unresolved is a legal interpretation concerning the meat of Singh's opinions about the chiropractic remedies in question. Singh calls those remedies bogus as they most surely are, yet for his efforts he has been hauled into court and forced to spend a considerable fortune to defend himself.

The other good news in this case is that the three major British political parties have taken notice and appear to be sympathetic with Singh. It would be nice if the parties in the US would do likewise. It would be especially nice if Senator Harkins (D) of Iowa were to repent and recant his involvement in setting up the bogus NCCAM (National Center for Complimentary and Alternative Medicine), and to exert his energy to defund that organization. Harkins was not alone in this boondoggle, but he was the ringleader.

Interestingly, the Palmer Center for Chiropractic Research received an NIH Award to establish a Center for Clinical and Translational Science in Chiropractic. The award was in 2008 to the tune of \$2.6 million. The Palmer College of Chiropractic just happens to have a campus in Davenport, Iowa.

NCCAM was formerly known as OAM (Office of Alternative Medicine) of which Paul Berg, a Nobel laureate in chemistry, wrote to the Senate that *"Quackery will always prey on the gullible and uninformed, but we should not provide it with cover from the N.I.H."*

Dr. Barrie Casseleth, who was PhACT's speaker for the February 2009 meeting, publicly criticized the office, saying: *"The degree to which nonsense has trickled down to every aspect of this office is astonishing... It's the only place where opinions are counted as equal to data."*

Still another critic of OAM, in the 1990's, was Allen Bromley, then president of the American Physical Society, who wrote to Congress that the OAM had *"emerged as an indiscriminate advocate of unconventional medicine. It has bestowed the considerable prestige of the NIH on a variety of highly dubious practices, some of which clearly violate basic laws of physics and more clearly resemble witchcraft."*

Student Science Fairs

PhACT's participation in the Bucks County High School Science Fair was certainly a good thing and the event stands in stark contrast the preceding story. The young exhibitors at the Science Fair seemed to have a more realistic and mature approach to science than do the founders and organizers of the NCCAM.

PhACT is now faced with a minor, but delicious dilemma. Our goal for 2010 was to raise \$300 to be used for three \$100 student prizes. In fact we raised \$403 thus starting out for 2011 in a good position of having \$103 to disburse on prizes. To make the situation even more delicious we have received a generous donation of \$100, bringing the total on hand to \$203. Now, the question is: how much should we raise and how should we make the awards?

Our donor suggested a goal of \$500. I think that is doable and appropriate. In 2009 PhACT awarded one \$100 prize at the Bucks County Science Fair. In 2010 it was three \$100 prizes. I suggest that rather than give more awards at the Bucks County Science Fair that we also award prizes at the George Washington Carver Science Fair in Philadelphia County.

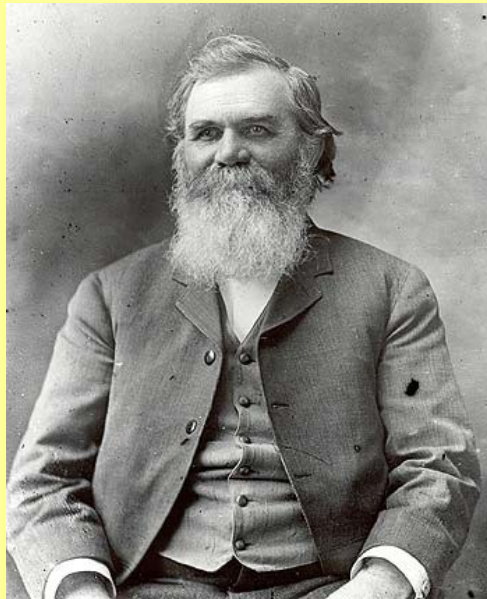
We are soliciting opinions on this matter, active participation of PhACT members to be judges, and of course donations to the prize pool.

We will report on this matter in future editions of Phactum. Hopefully there will be some letter writers.

More information about Science fairs can be found at:

<http://www.drexel.edu/dvsf> which is the website for Delaware Valley Science Fairs.

Please help out. In the words of Lorenzo de' Medici, **"Be magnificent"**.



Daniel David Palmer (1845-1913) was the founder of chiropractic.

In 1895 Palmer performed his first chiropractic adjustment. Palmer held various jobs as a beekeeper, school teacher, and grocery store owner, and had an interest in the various health philosophies of his day, such as magnetic healing, and Spiritualism. Palmer practiced magnetic healing beginning in the mid-1880s in Burlington and Davenport, Iowa. In 1913 Palmer died of Typhoid.

Brain Science, God Science: Why Religion Endures

The Skeptical Inquirer, May/June 2010 has an excellent article entitled **Brain Science, God Science: Why Religion Endures** co-authored by Professors Lionel Tiger and Michael McGuire. They discuss religion as an evolved mechanism for humans to cope with uncertainty and stress. Humans, they assert, organized themselves to

allow their own imaginations to come forth to give comfort and certainty in a volatile environment. They speculate on how humans would react if it were scientifically proven that God was non-existent. They conclude that religion would likely endure because of human needs for some certainty in matters of the afterlife and needs of socialization and ritual in this life.

According to the article, archeological evidence indicates that religion of one form or another has existed for at least 70,000 years and likely for at least double that. During those thousands of years men were dispersing out of Africa to inhabit every corner of the globe, eventually to the New World, and religions of thousands of varieties proliferated.

Professor Tiger was PhACT's speaker at the March 2010 meeting. He stated that he personally holds to no religious faith as is likely true for a high percentage of Phactum readers, but he is highly tolerant of religion, recognizing it to be a natural part of our evolution, both culturally and chemically.

I find I rather like Professor Tiger's approach to accommodation with religion and his recognition that religion is in some fashion hard-wired into our being.

Professors Tiger and McGuire co-authored the book *God's Brain* which explains their thoughts in great detail. See page 6.

God and the Dinosaurs

I had the good fortune to attend a lecture sponsored by the Metanexus Institute at the Bryn Mawr Presbyterian Church. The topic of discussion at this event was **God and the Dinosaurs**, the speaker Dr. Peter Dodson, a very distinguished paleontologist at the University of Pennsylvania School of Veterinary Medicine. Dr. Dodson has published many papers and written and collaborated on books about dinosaurs. He has led bone digging expeditions in China, India, Egypt, Argentina, and Montana and has discovered several species of dinosaur.

Dr. Dodson is a practicing Roman Catholic and has no trouble reconciling religion and science. He holds to scriptural teaching but is not a Creationist. Perhaps I have been softened up a bit by earlier exposure to Professor Tiger, but I find I like Dr. Dodson's harmonious approach to life and science. There is no need for bitter and condescending arrogance in the scientific community.

Dr. Dodson is not alone as an accomplished scientist who also maintains an active religious life.

- ♣ Sir John Polkinghorne of Cambridge University, a physicist who played a part in the discovery of the quark, is also an Anglican Priest.
- ♣ Sir Arthur Peacocke was an Cambridge University biochemist who is also was an ordained Anglican priest.
- ♣ Dr Kenneth Miller, a professor of biology at Brown University, testified on behalf of the plaintiffs at the Dover

Intelligent Design Trial in Dover, Pennsylvania in 2005. Dr. Miller is well respected scientist and does hold to Christian spiritual beliefs.

- ♣ Francis Collins is the Director of the National Institute for Health and achieved scientific fame for his work in disease genes and leadership in the Human Genome Project. Crick is a practicing Christian.

My point here is not to devise a catalogue of religious scientists, but to point out that religion need not be a barrier to good science and in particular need not be antagonistic to Evolution. Professor Tiger noted that 90% of humanity

holds to some religious values and most are not dysfunctional.

See page 6 for a brief review of Dr. Dodson's book, *The Horned Dinosaurs*.

April 2010 PhACT Meeting Report

On March 20, 2010 long-time PhACT council member Dr. David Cragin talked about Risk Management, focusing on why so many of us make poor risk management decisions. He pointed out risk assessment is not necessarily intuitive, then gave several examples in which the most intuitive, 'safer' choice was actually not the best decision. Risk aversion and overreliance on technology sometimes increase risk: air-

bags in front seats of cars have killed children, 'safe floors' in high buildings may encourage people to stay when they should leave the building.

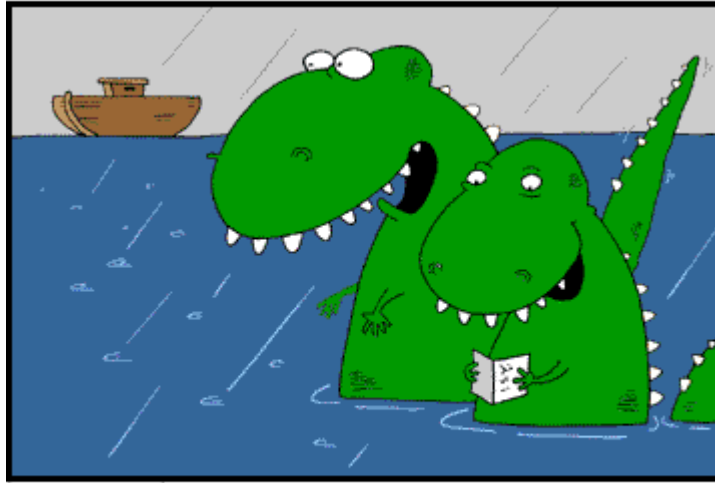
For more on risk, see *Against the Gods* by Peter Bernstein, *The Black Swan* and *Foiled by Randomness* by Nassim Taleb. For a brief description of how checklists are used by some venture capitalists to manage risk in their portfolios see the middle of chapter 8 in *The Checklist Manifesto* by Atul Gawande.

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PhACT Council Elections

At the September 2010 meeting, on Saturday, September 18, 2010 PhACT will have elections for PhACT Council. Only dues paying members may vote in this proceeding, which will be short and to the point. Only nominations, and voting. No speeches. And the band will not play Hail to the Chief.

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(See Genesis 6-8)

06-25-1999

OH, LOOKIT THAT ... NOAH'S INVITE HAS AN RSVP

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God's Brain

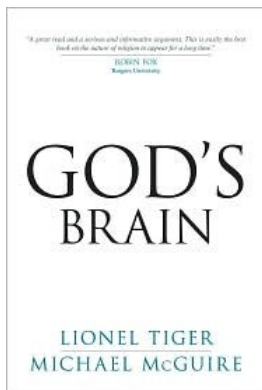
By Lionel Tiger and Michael McGuire

Prometheus Books March 2010

Hardcover, 265pp \$25.00

ISBN-13: 9781616141646 ISBN: 1616141646

In the fractious debate on the existence of God and the nature of religion, two distinguished authors radically alter the debate. Taking a perspective rooted in evolutionary biology with a focus on brain science, renowned anthropologist Lionel Tiger and pioneering neuroscientist Michael McGuire elucidate the perennial questions about religion: What is its purpose? How did it arise? What is its source? Why does every known culture have some form of it?



Their answer is deceptively simple, yet at the same time highly complex: The brain creates religion and its varied concepts of God, and then in turn feeds on its creation to satisfy innate neurological and associated social needs.

Brain science reveals that other primates and humans alike are afflicted by unavoidable sources of stress that the authors describe as "brainpain." To cope with this affliction people seek to "brainsoothe." We humans use religion and its social structures to induce brainsoothing as a relief for innate anxiety. How we do this is the subject of this groundbreaking book.

In a concise, lively, accessible, and witty style, the authors combine zoom-lens vignettes of religious practices with discussions of the latest research on religion's neurological effects on the brain. Among other topics, they consider religion's role in providing positive socialization, its seeming obsession with regulating sex, creating an afterlife, how religion's rules of behavior influence the law, the common biological scaffolding between nonhuman primates and humans and how this affects religion, a detailed look at brain chemistry and how it changes as a result of stress, and evidence that the palliative effects of religion on brain chemistry is not matched by nonreligious remedies.

Concluding with a checklist offering readers a means to compute their own "brainsoothe score," this fascinating book provides key insights into the complexities of our brain and the role of religion, perhaps its most remarkable creation.

The Horned Dinosaurs: A Natural History

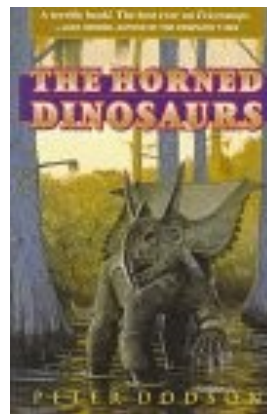
by Peter Dodson

Princeton Univ. Press March 1998

Paperback 346 pages \$29.95

ISBN-10: 0691059004 ISBN-13: 9780691059006

The horned dinosaurs, a group of rhinoceros-like creatures that lived 100 to 65 million years ago, included one of the greatest and most popular dinosaurs studied today: Triceratops. Noted for his flamboyant appearance--marked by a striking array of horns over the nose and eyes, a long bony frill at the back of the head, and an assortment of lumps and bumps for attracting females--this herbivore displayed remarkable strength in its ability to fight off Tyrannosaurus rex. It was also among the last dinosaurs to walk the earth. In



telling us about Triceratops and its relatives, the Ceratopsia, Peter Dodson here re-creates the sense of adventure enjoyed by so many scientists who have studied them since their discovery in the mid-nineteenth century. From the badlands of the Red Deer River in Alberta to the Gobi Desert, Dodson pieces together fossil evidence to describe the ceratopsians themselves--their anatomy, biology, and geography--and he evokes the human dimension of their discovery and interpretation. An authoritative survey filled with many original illustrations, this book is the first comprehensive presentation of horned dinosaurs for the general reader. Dodson explains first the fascinating ways in which the ceratopsians dealt with their dangerous environment. There follows a lesson on ceratopsian bone structure, which enables the reader quickly to grasp the questions that still puzzle scientists, concerning features such as posture, gait, footprints, and diet. Dodson evenhandedly discusses controversies that continue, for example, over sexual dimorphism and the causes of the dinosaurs' disappearance. Throughout his narrative, we are reminded that dinosaur study is a human enterprise. We meet the scientists who charmed New York high society into financing expeditions to Mongolia, home of Triceratops' predecessors, as well as those who used their poker winnings to sustain paleontology expeditions. Rich in fossil lore and in tales of adventure, the world of the Ceratopsia is presented here for specialists and general readers alike.



Shakespeare and the Jersey Devil

By Don Nigroni

The earliest known published account of the Jersey Devil, then called the Leeds's devil, appeared in a May 1859 *Atlantic Monthly* magazine article by W. F. Mayer entitled *In the Pines*. In that article Mayer wrote about his trip from New York City, where he lived, to visit a friend, Mr. B., at the Big House in Hanover Furnace, which is a little bit north of Whitesbog in the South Jersey Pine Barrens. Mayer asked Mr. B. about the Leeds's devil and Mr. B. replied:

"I will answer, -- I will tell you," replies Mr. B. "There lived, in the year 1735, in the township of Burlington, a woman. Her name was Leeds, and she was shrewdly suspected of a little amateur witchcraft. Be that as it may, it is well established, that, one stormy, gusty night, when the wind was howling in turret and tree, Mother Leeds gave birth to a son, whose father could have been no other than the Prince of Darkness. No sooner did he see the light than he assumed the form of a fiend, with a horse's head, wings of bat, and a serpent's tail. The first thought of the newborn Caliban was to fall foul of his mother, whom he scratched and bepommelled soundly, and then flew through the window out into the village, where he played the mischief generally. Little children he devoured, maidens he abused, young men he mauled and battered; and it was many days before a holy man succeeded in repeating the enchantment of Prospero. At length, however, Leeds's devil was laid, -- but only for one hundred years.

"During an entire century, the memory of that awful monster was preserved, and, as 1835 drew nigh, the denizens of Burlington and the Pines looked tremblingly for his rising. Strange to say, however, no one but Hannah Butler has had a personal interview with the fiend; though, since 1835, he has frequently been heard howling and screaming in the forest at

night, to the terror of the Rats in their lonely encampments. Hannah Butler saw the devil, one stormy night, long ago; though some skeptical individuals affirm, that very possibly she may have been led, under the influence of liquid Jersey lightning, to invest a pine-stump, or, possibly, a belated bear, with diabolical attributes and a Satanic voice. However that may be, you cannot induce a Rat to leave his hut after dark, -

- nor, indeed, will you find many Jersey men, though of a higher order of intelligence, who will brave the supernatural terrors of the gloomy forest at night, unless secure in the strength of numbers."



Detail of Caliban from William Hogarth's scene from *The Tempest* (ca. 1736). According to Shakespeare's Caliban, this is the first known illustration of Caliban.

The references to Caliban and Prospero are, of course, to characters in the late Shakespearean play *The Tempest*. Caliban's mother was a witch, Sycorax, as was that of the Leeds's devil, Mother Leeds, and both were considered to be the spawn of the Devil. In Act I, Scene II, Prospero, calling for Caliban, says "Thou poisonous slave, got by the devil himself Upon thy wicked dam, come forth!" And both Caliban and the Leeds's devil were seen as malevolent creatures that attacked people. The Leeds's devil assaulted men, women and children and Caliban tried to rape Prospero's daughter, Miranda. In Act I, Scene II, Caliban boldly tells Prospero that had he not stopped him, "I had peopled else This isle with Calibans."

In addition, both were thought to be composite beings. Although not explicitly stated in Mr. B.'s description of the Leeds's devil, his trunk and limbs were presumably human whereas his head, wings and tail were like those of various animals, hence, he was part human and part animal. The relevant passage in Shakespeare's play in relation to Mr. B.'s description is in Act II, Scene II when Trinculo sees Caliban lying on the ground and says:

"What have we here? A man or a fish? Dead or alive? A fish! He smells like a fish; a very ancient and fishlike smell;

a kind of not of the newest Poor John. A strange fish! Were I in England now, as once I was, and had but this fish painted, not a holiday fool there but would give a piece of silver. There would this monster make a man; any strange beast there makes a man. When they will not give a doit to relieve a lame beggar, they will lay out ten to see a dead Indian. Legged like a man! And his fins like arms! Warm, o' my troth! I do now let loose my opinion, hold it no longer. This is no fish, but an islander, that hath lately suffered by a thunderbolt."

In Shakespeare's *Caliban: A Cultural History* (1991), Alden T. Vaughan and Virginia Mason Vaughan noted that:
"Trinculo initially calls Caliban a "fish," based on his smell: "What have we here - a man or a fish? ... he smells like a fish; a very ancient and fish-like smell" (II.ii.24-26). Trinculo then sees that the creature is "Legged like a man, and his fins like arms!" (II.ii.32-33). (Trinculo's description of Caliban's upper limbs as "fins like arms" indicates that the presumed [by smell] fish has, in fact, arms, yet Caliban is often portrayed on stage and in illustrations with arms made to look like fins, thus reversing the import of Trinculo's observation.)"

The phrase "fins like arms" has been misinterpreted to mean that Caliban had upper limbs like the fins of a fish and was thus part man and part fish. The correct reading is that his upper limbs were not like the fins of a fish but were really like the arms of a man. Nonetheless, Mr. B. may have misread *The Tempest* and thought Caliban was a composite creature, perhaps part human and part fish, or maybe he saw a stage play or a picture where Caliban was depicted as such.

In conclusion, Mr. B. compared the Leeds's devil of the Pine Barrens to Shakespeare's Caliban because both were thought to be: a.) the offspring of a witch and the Devil, b.) malevolent creatures that attacked people and c.) part human and part animal.

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

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**Caliban.—As I told thee before, I am subject to a tyrant, a sorcerer.
THE TEMPEST Act 3. Scene II.**

**From: ILLUSTRATIONS TO SHAKESPEARE'S TEMPEST
By Walter Crane**

**Ⓞ, it is excellent to have a giant's strength,
but it is tyrannous to use it like a giant.**

**William Shakespeare,
Measure for Measure, Act 2 scene 2**



Windmills:

Really Cool Energy or Just Hot Air

By David L. Leiter, P.E.

Oh joy, Oh happiness! Phactum's Editor has invited me to write this piece about windmills, and has therefore given me a unique opportunity to show that I can actually write about something other than SSE/JSE. Further, it will show that I can be skeptical about things besides skeptics' organizations and skeptics themselves, such as my many friends in PhACT. Among those friends are Eric Krieg and Tom Napier. To them I would say that this is an op/ed piece, not a research article, so I ask Eric, Tom, and other PhACT techies to remember that clarification in their anticipated critiques.



A Darrieus vertical axis wind generator. Also known as an "eggbeater".

Like a lot of kids, I was born with an engineer's heart, and became fascinated early on with windmills, along with all sorts of other really neat -- sorry -- "awesome" gadgets. I built my first windmill, a typical, axial-flow-turbine (AFT) or "pin-wheel" type, when I was about 18, mounted it to the back of the family's garage roof, and actually lit a 6V flashlight bulb with it in brisk-winds. It had a four-bladed, all-aluminum rotor about 4 feet in diameter. Sadly, it threw a blade (which I never found) in a windstorm and I stopped paying attention to it. After a few years of my inattention, it gradually "disappeared". I always suspected that my father just wanted his ordinary garage back again.

I had intended to provide an old B/W photo of my technical masterpiece, but I have to find it first. Details of its overall shape, innards, and sophisticated weather-proofing are available, but only verbally, face-to-face, and for a small fee.

During college, I began conceptualizing and building small, operating prototypes of vertical-shaft (VS) windmills. These have the obvious advantages of not caring which way the wind is blowing, not requiring slip-rings to get electrical

power to the ground, nor complicated mechanical drives to instead deliver shaft-power to the ground, and finally, they offer the prospect of simple, ground-level, weather-protection and maintenance of the more delicate internal goodies, which would otherwise be at the relatively-remote top of a dangerously tall mast, where the strongest winds are. And since wind-power varies as the cube of velocity, that's the place to be.

In mid-career, I finally had enough "discretionary money" to pay for a patent search on my then-best vertical-shaft concept, only to find that "I had reinvented the wheel". This was somewhat of a shock since I had never seen any examples of real-world windmills based (even remotely) on my concept, although a couple of other, dissimilar VS types had actually turned up on the scene in the meantime, specifically the Darrieus and Savonius rotors, and believe me, I had been paying attention! Anyway, I got my \$300-worth, back when it was equivalent to about \$2000 today. I never really stopped thinking about VS windmills, and when I semi-retired, I took a part-time job with a friend I grew up with. He had blossomed into a gutsy, successful, entrepreneur involved in specific air-handling systems, and he was also experimenting with smallish, conventional AFT's (say up to maybe 15-foot rotor diameters), but with a unique, patented, blade-airfoil (BTW, he's still at it, but with "conditions")!



A Savonius vertical axis wind generator. Also known as an "s rotor".

At that stage of my life, with more discretionary time since I had been in grade-school, I built a small (4-foot rotor diameter), prototype VS mill, based on my most advanced, new concept. Then, equipped with its promising performance, and years of detailed patent-notebook entries on the concept's development, I found a top

-notch local patent attorney, and funded a new patent search. That's where the \$2000 figure above came from.

Unfortunately, it was "de javu all over again", but this time I had reinvented the horse-drawn-buggy wheel! In other words, the "prior art" uncovered in the search was voluminous, but it was apparently more "vanity (feel-good) patenting" than sensible patenting that was protecting really useful prior art. That opinion was due to the fact that I had never seen a single, real-world example of any of the patented inventions cited against my new concept (once again!). That's a really good, practical indicator that they were all commercial failures.

It seems that, regardless of their inherent benefits, as opposed to AFTs, a VS machine's vanes (or whatever) only produce power for a part of a revolution, and then parasitic drag (although cleverly reduced in most designs, including mine) for the rest of the revolution. By comparison, the blades of AFTs produce power ALL of the time! And since VS-vanes or AFT-blades represent high capital-cost on functional mills of any type, AFTs dominate! As always, FOLLOW THE MONEY! Incidentally, although I have seen photos and videos of actual, operating Darrieus and Savonius rotors now and then, they are few and far between (small wonder!), and both have other unique problems besides power-output vs. capital-cost.



A 4 blade AFT
(Axial Flow Turbine)

For those who remain fascinated by "free" wind-power, here are some extensive critical comments; "greenies" (Gs) and "warm-mongers" (WMs) especially, take note! Free wind-power is just like a "free" puppy, a costly, troublesome illusion! Wind-power only makes sense when you have no other viable, economical options. However (and for example), the inhabited world would be very, very different today except for wind-power. Wind has reliably propelled sailing ships and boats for many thousands of years, and those ships and their occupants were a major factor in mankind's dominance of today's world. Then there are the famous Dutch (and other countries') windmills, which made flour and pumped water, and perhaps still do so commercially somewhere! BTW, the flour-mills might have been a lot simpler if they had been VS windmills instead!

Are you considering a "residential" windmill to make "free" electricity for yourself? If you're smart, and not just trying to save the planet from CO2 (Gasp! Choke! "I'm melting, I'm melting!"), then you'd better research things like the capital-cost vs. payback for the ENTIRE system, local wind patterns, equipment reliability, maintenance costs,

and local zoning/structural regulations first; and never believe a salesman, especially a greenie-hunting windmill salesman.

If you live where the power-lines don't reach, well then, Yeah, maybe! For myself, I think I'd look first at a small diesel generator, or a modern, slick, SILENT, Stirling-engine generator (for RVs especially), that can provide heat and hot water as well (especially if it were backed up by a "battery-room", battery-charging controls, and DC-to-AC switch-gear, which a windmill, or solar-power system needs as well, for supplying continuous, on-demand power); plus a little Honda gasoline-powered generator for emergencies. Run the numbers and risk/reward aspects, and forget "greenie emotion". Remember, CO2 is absolutely essential plant food, i.e. not-enough-CO2 equals not-enough-food for humans and animals! Also, diesel fuel burns much cleaner as a continuous-burning heating fuel (e.g. for a Stirling engine) than in a diesel engine. No, Eric and Tom, I didn't research that, it's just an old engineer's educated guess!

Are you hot to tie your planned, residential, wind-power system into the local power-grid and thus forget about the battery-room? Expensive electrical switch-gear is still required, and I'm pretty sure power companies will pay you a lot less for your amateur's excess KW-hours than what it charges you for theirs. But, if you're a rich eccentric and don't screw up my own residential power supply, or build your system nearby (NIMBY = "Not in my back yard!"), go for it! Also, never, never, bolt a windmill or its mast to your residence! In the high winds you really want, you won't be able to sleep, unless you really like "getting a buzz". Our down-spouts and patio-roof already do that for us!

Big (commercial) windmills and wind-farms are hardly an economical or eye-appealing panacea either, despite what the Gs and WMs would have you believe. Without government subsidies and grants (that we all very reluctantly pay for) they would likely not exist, i.e. they're essentially unprofitable for power companies without government support (and G.E. Corp., a major windmill manufacturer, doesn't want to hear that!). And remember Teddy Kennedy's effective political blocking of a proposed ocean wind-farm TWENTY MILES off-shore, near the Kennedy compound in MA? "NIMBY you won't! It'll spoil the ocean view!" What's wrong with commercial wind-power? "Let me count the ways."

♠ It's undependable, thus requiring expensive back-up power-stations constantly on standby, or do you prefer brown-outs on calm days?

- ♣ The strong winds blow where the population isn't. And electrical-power doesn't "ship" well, at least on the existing power-grid.
- ♣ The sea coasts typically have strong winds because the oceans are essentially flat. That's great for sailing ships, but not for view-spoiling windmills in seashore resort areas (even though the modern ones are purposely aesthetically appealing, at least to this engineer, despite what Kennedy thought).
- ♣ They're reportedly quite noisy, although I've never been close enough to a big one in operation to comment with authority. However, with a tip-speed of about 200 feet-per-second and three Doppler pulses per revolution at 15-20 RPM (based personal observation), that's a high-frequency (assumed) noise-pulse every second. Fixed-frequency strobe lights can definitely cause epileptic episodes in humans. That's a well-known fact in high-speed machinery operation. If there's an audio-analog to that visual problem, who knows? Comments anyone?
- ♣ Just like aircraft wings, windmill blades can ice-up in suitably bad weather and then sling lethal chunks of ice at high speed, sort of a man-made, super-sized hail-storm. PhACT member, Dr. Joel Kauffman, told me about warning signs he saw while motor-touring in Canada. And windmills disintegrate sometimes, i.e. throw blades like mine did or really blow-up (no pun intended) like one in Europe that I saw on TV.
- ♣ In the colder latitudes, some of the strongest, densest, winds blow, far away from population density, i.e. great for windmill-output, but not for power transmission. And there's another technical problem as well. Current, large windmills use an oil-lubricated, step-up gearbox between the rotor and the generator in the mast-head. Almost everyone who has had the experience of trying to start a reluctant, cold auto engine in winter knows the problem. Cold oil is viscous and fights movement! Yeah, electrical gearbox-heating is a fix, but that means increased cost and complexity, and there goes some of the windmill's power output. However, that's a great "drive-design" problem for a mechanical engineer (cold-tolerant timing-belts perhaps?), or for an electrical engineer (low-speed generators, ala hydro-electric types?).
- ♣ They are threats to aviation (especially general aviation and helicopters). The small 5-mill wind-farm in Atlantic City has blinking, red, warning lights on



The Atlantic City wind farm. Five AFT rated at 1.5 megawatts each. The height with a blade in vertical position is 380 feet.

the mast heads, but not on the hundred-foot-long blade-tips (it's probably a cost-issue). Those pilots already have enough problems clearing other things that stick up in the air, like communication-towers, big cranes, sky-scrappers, and mountains. Additionally, I have no data on whether or not windmills really are bird-Cuisinarts!

- ♣ Perhaps most disturbing is, if U.S. windmill installation goes ahead rapidly, as the Gs, WMs, and our current, fearless, Federal leadership insists, then just as soon as there's a mast and windmill on every corner, cold-fusion will go commercial.

Spain appears to be the poster child for disastrous, uninformed commitment to a national wind-power program.

In the op/ed section of *Investor's Business Daily's* (IBD's) March 15, 2010, issue was a lengthy report entitled, "The Big Wind-Power Cover-Up". The sub-title said, "Scandal: Spain exposed the boondoggle of wind power in 2009, discrediting an idea touted by the Obama administration. In response, U.S. officials banded with trade lobbyists to hide the facts

The beginning of the article goes on to say: "It was a cold day at the (U.S.) Energy Department when researchers at King Juan Carlos University in Spain released a study showing that every "green job" created by the

wind industry killed off 4.27 other jobs elsewhere in the Spanish economy". Then later: "Every green job costs \$800,000 to create and 90% of them are temporary..."

...A few months later, Danish researchers at the Center for Politiske Studier came to the same conclusion about subsidized wind power from their own country's experience. "It is fair to assess that no wind energy to speak of would exist if it had to compete on market terms," their report said."

Anybody want to buy a big, barely used windmill? Shipping and installation are not included.

Dave Leiter is a long time associate of PhACT and describes himself as a "skeptic of skeptics". He has been involved with the Society for Scientific Exploration (SSE) for many years and holds the position of Associate Members' Representative for that organization. Dave is a retired mechanical engineer, is an inventor, and holds 20 patents.

"Movies Get Space Flight Wrong"

by Paul Schlueter III



Almost

from their independent beginnings, moving pictures and powered flight have been bosom buddies. What can be more fantastic to the human imagination than the dream of eons, to be able to fly in the skies like a bird? Howard Hughes filmed one of the first flying movies, "Hell's Angels," an epic that ran years over its deadline and far overran its budget. Yet, he created a genre in which flyers actually filmed other flyers twisting and turning in mock dogfights in mid-air. When you actually film the flight



FROM a flying platform, it's reasonably certain that you'll manage to represent the features of powered machine flight fairly accurately. Come forward in time to CGI (computer generated image) graphics, and flight in cinema gets freed from the shackles of physical laws, but also loses its tie to reality itself. A movie plane (or helicopter) can now easily perform maneuvers that are otherwise physically impossible, as well as interacting in other ways with the film characters (I recall a cheesy sci-fi flick in which a monster shark lunges clear of the water to snatch a flying 747 jetliner out of the air as if it were a medium-sized flying fish).

Sci-Fi is admittedly fiction, but sometimes it just bugs me to see how poorly film-makers portray space flight. The Star Wars movies are a good example; though the globular "Death Stars" actually make sense in some ways, the enormous battle cruisers (aircraft carriers on steroids) seem ridiculously unmanageable, and the fighter craft fly around with wings, banking left and right like atmospheric planes (of course, they WORK in atmospheric situations, too). In deep space, where there is neither atmosphere or planetary gravity field, a whole different set of flight laws apply. In fact, we can look at flight as having three basic modes; atmospheric, orbital, and free space. Each has an unique set of rules that are worth looking at. Though I don't know enough to offer the deepest technical explanations, formulas, etc., here's a rundown of some of the fundamentals.

ATMOSPHERIC - Atmospheric flight can be broken down into sub-groups like powered or unpowered ballistics (think model rockets and yard-darts, resp.); powered and

unpowered fixed-wing (planes and gliders); lighter-than-air (blimps and balloons); tethered kites; and rotary-winged (helicopters, hovercraft, etc.). Each has a set of rules that engineers have developed to enable human control over the flight, either on-board or under remote operation. By far the most common mode is fixed-wing powered flight, that used by the typical airplane (propeller or jet doesn't matter much). The wing, slicing through the air around and above us, uses its special shape to create a relatively low pressure zone over the wing, so that normal pressure beneath the wing causes it to rise; this is called "lift." To create lift, the wing must be moved through the air; the force that achieves this must constantly oppose the resistance of the air, called "drag." Directional control and stability is accomplished by various sorts of fins (technically, "planes"), which uses the passing air's pressure to force the mass of the vehicle around in different directions. Everything about atmospheric flight is affected by the atmosphere. Without air, a winged vehicle (fixed OR rotary) cannot take flight at all. Though a rocket could move in an airless void, neither a propellor or a jet can create force without the air itself.

Right from the beginning, human engineers recognized that atmospheric flight almost always requires "banking" to change direction. Essentially, the same interaction between wing and air that creates lift can "lift" the vehicle sideways, if you tilt the craft over somewhat. As Wilbur and Orville Wright discovered, you also need to altar the craft's "yaw" (its motion in a horizontal plane, around a vertical axis, toward left or right) when banking into a turn, or you spin out of control and crash. The bank angle is a controlled form of "roll" (motion in a horizontal plane, about the front/rear horizontal axis), and the third dimension of flight movement is "pitch", movement around the left/right horizontal axis that raises or lowers the nose. A combination of gravity's pull, the lift of wing surfaces (relative to speed through the air), and the pressure of passing wind on planar control surfaces give an aircraft control and directional stability, if it is properly designed.

ORBITAL - Once an object is propelled at sufficiently high velocity, it can actually escape the atmosphere. Once there, "drag" is no longer a part of the picture, and propulsive force need no longer be applied. Beyond the drag of atmosphere, Newton's law of inertia carries a mass in its current direction



Flash Gordon's Spaceship

and speed indefinitely, until it is acted upon by some other force. The same law still applies in the atmosphere (and, in fact, even within the far-denser oceans), but drag itself is a force that opposes motion, so motion tends to decrease and be converted to heat energy through friction. Beyond the atmosphere, drag friction gradually diminishes until it becomes inconsequential to flight. This is why satellites can orbit for extended periods of time on very little fuel; other than the occasional rocket spurt to correct for very minor changes in speed or direction brought about by the influence of scattered molecules of space dust and debris, an object in orbit will remain in orbit all by itself. Importantly, it will remain in the SAME orbit, all by itself.

Changing directions from an orbital position is a very different matter than atmospheric flight. Having no air to create lift, or to allow planar surfaces to change the flight attitudes, control of direction relies entirely on the law of action/reaction. Essentially, this says that every force has a reaction in the opposite direction that equals the force itself. So in orbit, you still have things like pitch, roll, and yaw, as well as forward momentum, but these tend to become two characteristics: direction, and spin. If you apply force through the center of mass (radially), you change direction and/or speed. If you apply force perpendicular to a radius, but some distance from the center of mass, you cause the mass to spin. You reduce spin by applying spin force in the opposite direction as the spin. Spin can occur in an infinite variety of axes, but any axis of spin can be mathematically expressed as a "vector" of spin around the three classic axes, pitch, roll, and yaw, which can be arbitrarily assigned.

Practically, the rocket that applies force through the center of mass has to be "aimable" if you want any control over direction or speed. For technical purposes, then, it is most practical to assign the axis of roll to the centerline of the propulsive force. This leaves pitch and yaw control to arbitrary definitions, though they must be effectively perpendicular to one another and to the roll axis. By carefully using aimable rockets mounted at some radial distance from the center of mass, an orbiting object can be spun, or rotated, in any and all directions until its orientation to the direction of travel is set as desired. Then, the propulsive force can be applied to change speed and/or direction. This is why the Death Star, a globular object, "works" as a space vehicle; it has no front or rear, no top or bottom, no left or right, only "down" (the direction toward its center of mass) and up, and whichever direction the propulsive unit happens to be

pointed. Everything else is just spin control.

One of the most counter-intuitive aspects of orbital flight is altitude control (distance above the Earth, essentially). Altitude is achieved by accelerating to a specific speed, and for every speed (up to "escape velocity") there is an altitude that perfectly balances velocity with gravity. Velocity tries to pull the object away ("centrifugal force"), while gravity tries to pull the object toward the Earth ("centripetal force"). You're familiar with the ball-on-a-string concept; swing the ball in a circle, and it pulls outward on the string (according to velocity), while the string holds it back (gravity, in this analogy). To achieve a higher orbit, just apply more force in the direction of current travel, so you accelerate. When you rise to the desired altitude, turn off the propulsive force, and inertia takes over and holds you in that new orbit until you make another change.

Here's the trick, though. Say you want to catch a satellite already in a specific orbit, like the space shuttle going out to fix the Hubble telescope. You're exactly a kilometer behind Hubble, moving at the same altitude and direction. You can't just fire the big rockets and catch up, because if you increase your orbital speed, you increase your altitude, and go up ABOVE the telescope! Now, having to travel a greater circumference of distance to complete exactly one orbit, you're moving ahead (speaking in orbital angle) more slowly than Hubble (which, on a shorter radius, has a smaller orbital circumference). Bottom line, the faster you go, the further away from Hubble you would get!

If you start out in front, and try to slow down so Hubble catches you, the opposite happens; you lose altitude, go to a greater angular speed or orbit, and still don't dock up with Hubble!

The trick, it turns out, is to orbit somewhere close to your target, and just wait there until each of you come to the right RELATIVE position, based on your different orbital angular rates. Then at precisely the perfect instant in time, you make the speed adjustment that brings you to the target by rising/sinking towards it. VERY high-tech stuff, with tons of math and a crucial need for tracking relative positions. Actually, it's pretty amazing that NASA ever managed to dock two orbiting vehicles at all, let alone to manage moon shots and build a space station!

Now, what if you want to turn left or right? Actually, you

"There are so many benefits to be derived from space exploration and exploitation; why not take what seems to me the only chance of escaping what is otherwise the sure destruction of all that humanity has struggled to achieve for 50,000 years?"

Isaac Asimov, speech at Rutgers University

can't, at least not in the way you're thinking. All you can do is shift the entire orbital path in either direction by "X" degrees. Here's the process: Fire the nose rocket leftward to yaw right (or vice versa) slowly. Fire the opposite nose rocket to exactly counteract that yaw again, preferably when you've yawed 90° (for maximum effectiveness of the next step). Now, fire the big tail rocket; you won't actually go "sideways", but you'll gradually shift the angle of your direction of travel, the longer you burn the rocket. It's a thing called "vectoring", where your final direction of travel is the mathematical equation factoring your initial direction/speed with the angle/force applied during your new burn. Let's keep it simple; you can correct for minor misalignment of your orbital path, but anything more than a few degrees will be prohibited by the fuel required. Slalom's are out of the picture!

To keep weight to a minimum, orbital vehicles don't have multiple propulsion engines; there's just the big one at the tail. To slow down (and eventually return to Earth), you have to fire the attitude jets until you're flying "tail first", and fire the big rocket in the same direction as you're traveling. The longer you do so, the lower your altitude will get, until you begin to graze the atmosphere. At that point, you rotate until your best heat shields face the direction of travel, and let drag friction slow you down until you're down to some aerodynamic speed, and deep enough in the atmosphere to use your control surfaces and fly "normally" (all this assumes you have a winged craft - the earliest space capsules had no wings, and just dropped like hot rocks until they could deploy parachutes!) If you used up too much fuel modifying your orbit, and don't have enough left to burn off enough orbital velocity to dip back into the atmosphere, you'll just be stuck in the lowest orbit you can achieve, where you'll exhaust your breathable air supply, or your water, or your food... in orbit, there are no "coaster brakes" to slow you down.

DEEP SPACE - I mentioned "escape velocity" earlier; that's

"As soon as somebody demonstrates the art of flying, settlers from our species of man will not be lacking [on the moon and Jupiter]... Given ships or sails adapted to the breezes of heaven, there will be those who will not shrink from even that vast expanse."

Johannes Kepler, letter to Galileo, 1610

the speed at which your vehicle is able to escape from Earth's gravity, in an outward spiral. No, you don't fly straight outward into space, because the fuel requirement to reach

"straight up escape velocity" is too prohibitive. Did you ever see the maps of the trips to the moon and back, where the craft was shown to spiral away from Earth, until it began to spiral in toward the moon? That's literally how it's done, to get there using minimal resources (you have to balance fuel usage against supplies of air, food, and water for the round trip... again, it's complex!), and yet still have enough reserves for the return trip. Within the solar system, you'll just time your launch for the best possible moment, spiral out into free space (burning no fuel after your initial launch, but coasting along on inertia), make occasional minor attitude adjustments with short bursts, and wait until you catch the gravity well of your target planet (or moon).

Attitudinal control is tricky.

Every object in free space has some sort of spin, however slow it may be. Like in orbit, spin can be controlled by short bursts that shift its direction and speed. Most speculation involves using spin to create an artificial gravity during the flight; using two modules on a tether, a relatively large centrifugal force can be generated in each module, making "outward" (relative to the direction of spin) feel like "downward". Like a thrown football or a rifled bullet, this spin also generates a gyroscopic force that helps to hold the orientation of the craft stable (in relation to the direction of travel). To create/increase spin, fuel must be expended. To decrease/stop spin, fuel must also be expended. This means that you pick your attitude as efficiently as possible, and then live with it as long as possible; no fiddling with things just for a change of scenery!

There IS a way to "turn" in free space, if your aim is good enough. Each celestial body has its own gravity, determined by its mass and its distance from you. Within the solar system, you'll have to factor in the influence of the sun's gravitation on all your motions, because you will always be at some orbital speed in relationship to the sun (luckily, this was primarily imparted on your craft by the Earth's inherent velocity, even before you launched). However, if you pass closely enough to other celestial objects, your craft will also be drawn in an arc around their gravity, as well. When you

MCHUMOR.com by T. McCracken



"We've got to move closer to work. These 200 light year commutes are killing me."

Cartoon by T. McCracken
<http://www.mchumor.com/>
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pass far enough away, and/or fast enough, the change in direction this imparts on you will be minimal. If you aim closer in to such a body, you can actually use it to sling you around and send you off in another direction entirely! Get TOO close, and that object's gravity will capture you into an orbit, or possibly even into a spiraling impact. Aim dead for it, and its gravity will force your craft to accelerate until you hit (curiously, YOU won't actually feel any of this - the action of external gravitational forces will be identical to you and your craft, so you'll actually feel like you're in a constant state of motion the whole time, until you hit). I say "aim", but most of the aiming is a factor of your original launch direction and final velocity; once committed to a specific course, there's very little course correction available to you, again due to the need to keep fuel weight to a minimum (every 1/4 pound of fuel you carry is one less hamburger you'll have to eat on the trip).



Startrek's
USS Enterprise

When you reach your destination planet, you'll most likely graze into the atmosphere to scrub off some speed through drag friction; inertia will carry you out past the atmosphere again, but this time in an oval orbit, which will dip in for more drag friction twice with each orbit, until you're entirely within the

atmosphere, braking for final entry and landing. In an airless situation, you'll have to point your tail burner forward, and fire the rocket for braking effect.

Now in Hollywood, nobody has to go through these great looping spirals to get from place to place. In a CGI universe, you launch more or less toward your target, burn fuel until you got there, turn left, right, up, or down to get to interesting sidetrip destinations, fight off space pirates in atmospheric-style twisting and turning "dogfights", and then come in for a swooping heroic landing at your end destination. In fact, almost all of Hollywood's spaceflight is based on the same sort of maneuvering, and constant-thrust propulsion systems, as atmospheric flight!

Look at Star Trek: they engage their warp engines, and those babies run until they get where they're going, when they simply turn off the warp engines and "enter a standard orbit." In actual free space, constant thrust (if you could carry the fuel for it) would constantly accelerate your craft to higher and higher speeds, until the halfway point of your trip,

when you'd have to spin about 1800, and fire your thrusters constantly AGAINST your momentum as a braking force. Believe me, the "full gas or full brake" philosophy makes for a very exciting motorcycle ride here on planet Green(ish), but over the sort of distances you'd find in space, you'd need the energy resources of a supernatural deity itself to accomplish anything even remotely similar.

As for fighting with other vessels, real space would be a remarkably non-heroic environment for battle. Again considering the need for efficiency first and foremost, your deadliest weapon isn't a ray gun, but a chunk of something solid and heavy. The main tactic would simply be to fire your projectile into the opponent's vessel, where it might cause damage, AND where its impact would hopefully force him off course enough that he 'd expend his fuel reserves trying to get back on course. The hard part is that your own vessel is going to be deflected off course as well, due to that pesky action/reaction principle. In fact, the most efficient way to defeat a space opponent is probably just to do the Kamikaze thing, sacrificing your own craft to take his out. If you're suitably clever, you can eject from your craft, and drift toward some rendezvous with a friend before your suit air runs out.

Science fiction writers have some pretty dopey ways of turning the boring old WWI and WWII dog fighting stories into a next generation tale of space flight. Still, some authors have tried to write physically plausible stories around the realities of the laws of physics, and in the books, the authors can take the necessary time to describe the complexities of what real space flight might entail. Of course, even now much of it remains speculation and conjecture. I've recently been reading several articles that report that round-trip interplanetary travel is likely to prove impractical for humanity, and interstellar trips (even one-way, multi-generational ones) are pretty much out of the question. But hey, if you can suspend disbelief for a couple of hours of entertainment, more power to you, and enjoy the flick! I often do so myself.

In the end, just remember... movies get space flight wrong.

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

"In spite of the opinions of certain narrow-minded people, who would shut up the human race upon this globe, as within some magic circle which it must never outstep, we shall one day travel to the moon, the planets, and the stars, with the same facility, rapidity, and certainty as we now make the voyage from Liverpool to New York."

Jules Verne, From the Earth to the Moon, 1865

PHACT CALENDAR

PhACT Events

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



Saturday, May 15, 2010 - Join us for a dinner where **Joe Nickell**, a popular writer and investigator at *Skeptical Inquirer*, will be our guest speaker. Details on Page 1.

Sunday, May 16, 2010 - For the more adventurous **Joe Nickell** and other PhACT folks will embark on an expedition to find the Jersey Devil in the New Jersey Pine Barrens. PhACT member **Don Nigroni** will be our guide on this adventure. All are welcome to participate. This event is free. See Page 2 for details.

Saturday, June 19, 2010 - Join us for a special meeting, **exact time and meeting location to be announced by email and on the PhACT website.** **Jim Lippard** is a leading skeptic/activist/writer from Arizona who will be in our city on business the week before June 19th. He will discuss "**Colliding with Creationists and Cult members on the Internet**". Jim Lippard was one of the very first skeptics to start staking out a presence for the skeptical voice on the internet in the early 1990's. He has had lawsuit threats as a result of his "free speech" on controversial topics. Lippard has written dozens of articles on various skeptical publications for decades. Topics he has written on include prophecies that miss, Noah's Ark hoaxes, creationists, hypnosis, Scientology, Jean Dixon, the shroud, UFOs, etc. You can read some of his articles at:
<http://www.discord.org/~lippard/publications.html>

Saturday, May 1, 2010 Public Paranormal Investigation of Eastern State Penitentiary Cost : \$100 per person for 9 hours at the prison!! from 5pm - 2am. There will be a brief guided tour along with the history of the prison, then we will break off into groups and start investigating. you will be grouped with experienced investigators and learn how to perform a true paranormal investigation in one of the most active locations in our area. The best part is, all Proceeds are going directly to the Hospital Restoration Project at Eastern State! let's help preserve this piece of history! Details to follow. See the PIRA website:
<http://home.comcast.net/~parainvestigator/Index/Main.html>

Saturday, May 1st, 2010, 10:00 -11:30 AM at the Henry George School of Social Science , 413 South 10th Street, Philadelphia 19147, 215-686-5322 **THE FISH BELONG TO THE PEOPLE!**

Fish in U.S ocean waters belong to all of us equally and are part of the ocean commons; a living public trust asset passed from one generation to the next. Increasing demand for seafood necessitates new ways to conserve and share the fish that we have. Unfortunately, the latest proposed way to 'share the fish' is to implement an outdated privatization approach akin to the giveaway of land. An earth-sharing alternative offers public control of our fish stocks and collects rent for the public to reinvest in fishery man-

agement.

Ben Bowman, Policy Analyst, Food & Water Watch; Former Principal Strategic Analyst, Dept. of Primary Industries, Victoria, Australia
<http://www.henrygeorgeschoolphila.org>

Wednesday, May 05, 2010 at 06:00 PM - 08:00PM at University of Pennsylvania Museum of Archeology and Anthropology. **Great Archaeological Discoveries: The Easter Island Statue Project.** A lecture by Dr. Jo Ann vanTilburg.

Statues with human heads-on-torsos carved from hardened volcanic ash cover the coast. The islanders call them "moai," and they have puzzled people for years. \$5.00 Advance General Admission. \$10 at the door. FREE for Museum Members.

Friday, May 14th, 2010 at 8:00 PM : Delaware Valley Mensa General Membership Meeting - Invisible Ink Spycraft of the American Revolution

John A. Nagy is a Scholar in Residence at Saint Francis University, Loretto, Pennsylvania, a consultant for the William L. Clements Library of the University of Michigan on espionage, and an expert in antique documents. He is a founder and current President of the American Revolution

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

Round Table of Philadelphia. He graduated from Saint Francis University, Loretto, Pennsylvania (BA) in 1968 and Stevens Institute of Technology, Hoboken, New Jersey (MMS) in 1979.

Mr. Nagy has appeared on radio and television such as the History Channel, C-Span, and local educational TV. He was the subject of an one hour interview on the Pennsylvania Cable Network. He was also an extra in the 1976 John Huston film *Independence* (un-credited).

His first 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 based on his second book released in December 2009 *Invisible Ink Spycraft of the American Revolution*. The book is based on almost two decades of primary research. It discusses spy technology such as codes, ciphers, invisible writing, and hidden compartments during the American Revolution.

Prior to the meeting, those who can, are invited to attend the pre-General Membership Meeting Dinner at a secret location someplace in the heart of "the City with a Million Eat'ries" 's very own Chinatown or Ol'City. This is an excellent opportunity to have a good meal and get to speak with the evening's guest, one on one.

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. The dinner is at 6:00 and the meeting will begin promptly at 8:00.

Contact Pete Stevens at pete.stevens@phila.gov for more information or the Mensa calendar at: <http://dvm.us.mensa.org>

Saturday, May 22,, 2010 at 6:30 PM - Regol Concerts, Inc. will proudly present the **Elysian Camerata**. The performance will take place at Grace Presbyterian Church, 444 Old York Road, Jenkintown, PA 19046, on the corner of Old York and Vista Rds. across from the IHOP. Reservations and pre-paid tickets are a must. Ticket prices are \$18 for general admission (over 12 and under 65), \$12 for seniors/students (with proper ID), and \$5 for children under 12 years of age. There will be a limited number of tickets sold at the door for three dollars more per ticket. The ticket price includes a full length classical chamber music concert followed by a delicious dessert reception. The program: Clarke's Dumka for Violin, Viola, and Piano; Mozart's String Quintet in C Minor, K. 406; and Dvorák's



The Elysian Camerata
Barbara Jaffe and Jean Louise Shook -
violins
Beth Dzell and Louise Jaffe - violas
Talia Schiff - cello

SOCRATES CAFE is moderated by: Lewis Mifsud, Ph.D., P.E., a member of PhACT and of The American Academy of Forensic Sciences, at the Springfield Township Public Library (215-836-5300) at 1600 Papermill Mill Road, Wyndmoor, PA. 19038. This philosophical discussions group is free and open to the public. Join us and share your critical thinking, questions and opinions.



Piano Quintet in A Major, Op.81.

Wednesday, May 26, 2010 at 7:30 p.m. Pulitzer Prize winning author Edwin G. Burrows on his new book "*Forgotten Patriots: The Untold Story of American Prisoners During the American Revolution*" The American Revolution Round Table of Philadelphia at Broad Axe Tavern, 901 West Butler Pike, Ambler, PA 19002 Telephone: (215) 643-6300. www.arrtop.com

Wednesday, Jun 02, 2010 06:00 - 08:00 PM at University of Pennsylvania Museum of Archeology and Anthropology. **Great Archaeological Discoveries: The Sutton Hoo Ship Burial and the Origins of the English Speaking Peoples.** A lecture by Dr. Richard Hodges.

Dr. Hodges will examine the extraordinary objects found in these excavations which reveal a story of how the English peoples began to have a new identity as well as new ambitions. \$5.00 Advance General Admission. \$10 at the door. FREE for Museum Members.

Thursday, June 3, 2010 at 7:30PM Central Library, 1901 Vine Street. Born in Somalia and raised Muslim, **Ayaan Hirsi Ali** fled to Holland—where she eventually became a member of the Dutch parliament—to avoid a forced marriage. An outspoken advocate for women's rights and a staunch critic of Islamic extremism, Ali made a documentary about domestic abuse among Muslim women with director Theo van Gogh, who was subsequently killed by an Islamic extremist. Continuing death threats have forced her into hiding. Her first book, *The Caged Virgin*, was a collection of essays concerning the oppression of Muslim women. In *Nomad*—the follow up to her no. 1 bestselling memoir *Infidel* - Ali tells the story of her search for a new life in the United States. 215-686-5322
 Cost: \$14 General Admission, \$7 Students

Friday, June 11, 2010 at 8:00 PM : Delaware Valley Mensa General Membership Meeting - Program to be announced. Contact Pete Stevens at pete.stevens@phila.gov for more information or the Mensa calendar at: <http://dvm.us.mensa.org>

Tuesday, June 15, 2010 at 7:30PM Central Library, 1901 Vine Street. Called "America's foremost literary pugilist" by a reviewer for *The Village Voice*, **Christopher Hitchens** is a prolific and controversial writer, as well as a popular radio and TV commentator. A self-styled "radicalist," Hitchens is notorious for his strong opinions and conflicting views—he was against the Vietnam War and for the Iraq invasion. He has written books excoriating Mother Teresa, Bill and Hillary Clinton, and Henry Kissinger, as well as biographies elevating Thomas Jefferson, Thomas Paine, and George Orwell. His polemic against organized religion, *God Is Not Great*, was a no. 1 New York Times bestseller and a finalist for the National Book Award. Providing new insight into his life and beliefs, *Hitch-22* sheds light on the formative experiences and personal relationships with famous writers and political figures that helped make him the intellectual he is today.

Mr. Hitchens will be interviewed by Marty Moss-Coane, host of WHYY's *Radio Times with Marty Moss-Coane*.
 Cost: \$14 General Admission, \$7 Students

Saturday, June 26, 2010 at 7:00 PM - A Revolutionary War Era Panel Discussion at Valley Forge National Park Theater between Dean Malissa as General George Washington, Steven Edenbo as Thomas Jefferson, and Bill Ochester as Benjamin Franklin. The Moderator will be John A. Nagy, author and President of the American Revolutionary War Round Table of Philadelphia. Free. www.arrtop.com

Wednesday, May 12, 2010 to Friday, May 14, 2010

A Metanexus forum on Science and Religion

See the Metanexus website at: <http://www.metanexus.net/>

2009 - 2010 Senior Fellow Series: Philip Clayton,
With Science Beyond Science: The Human Quest for Meaning and Transcendence

Description

Religious believers are often seen as negating science and its results in order to make room for God. This lecture series has the opposite goal: to find openings in and through the study of science for religious and spiritual interpretations of human existence. When one begins "from below" in this manner, one may not quite attain to orthodoxy. After all, the results of the inquiry remain open-ended and contingent; doubt and uncertainty never completely disappear. Yet how can one avoid this sort of inquiry into the meaning of human existence? Scientific results cry out for a kind of personal and philosophical reflection that is not limited to the methods and constraints of the natural sciences. Inevitably we find ourselves asking: is our behavior biologically determined? Are we free? Do the arts reveal any truths about humanity that the sciences cannot express? Are we "at home in the universe" in a way that makes human existence meaningful? This year's Metanexus Senior Fellow lectures will explore these questions and canvas some of the possible answers.

Wednesday, May 12, 2010 at 7:30 PM - "Starting with the Big Picture: The Evolutionary Emergence of Body, Mind and Spirituality", Bryn Mawr Presbyterian Church, 625 Montgomery Ave., Bryn Mawr, PA; (610) 525-2821

Thursday, May 13, 2010 at 7:00 PM - "Apes with Big Brains: Anthropology and the Biological Sciences", St. Thomas Church Whitemarsh, 600 Bethlehem Pike, Flourtown, PA; (215) 233-3970. The connection between humans and the other great apes has never been closer than now. A host of new scientific results describe our myriad ties to our closest animal cousins. Yet, even as our species' biological heritage and development becomes visible, the mystery of our difference more

strongly demands our attention.

Friday, May 14, 2010 at 8:30 AM - "What's a Nice Hominid Like You Doing in a Place Like This? Ethical Dilemmas Our Biology Never Prepared Us For", Reconstructionist Rabbinical College, 1299 Church Road, Wyncote, PA; 215-576-0800.

Friday, May 14, 2010 at 1:30 PM - "Transcendence and Self-Transcending: Anthropology, Cosmology, and Religion", Academy of Lifelong Learning, University of Delaware Wilmington, Arshat Hall, 2800 Pennsylvania Ave., Wilmington, DE; (302) 521-9909 Self-transcendence is a defining feature of human being-in-the-world. But what, if anything, are we transcending ourselves toward? Against the backdrop of cosmology's story of the birth and death of the universe, we examine the proposals of the religious traditions about the goals and purposes of human existence.

About Philip Clayton

Philip Clayton is a philosopher and theologian specializing in the entire range of issues that arise at the intersection between science and religion. Clayton received the PhD jointly from the Philosophy and Religious Studies departments at Yale University and is currently Professor of Religion and Philosophy at Claremont Graduate University and Ingraham Professor at Claremont School of Theology. In addition to a variety of named lectureships, he has held visiting professorships at the University of Cambridge, the University of Munich, and Harvard University. Clayton's books and articles address the cultural battle currently raging between science and religion. Rejecting the scientism of Dawkins and friends, he argues, does not open the door to fundamentalism. Instead, a variety of complex and interesting positions are being obscured by the warring factions whose fight to the death is attracting such intense attention today. Clayton has drawn on the resources of the sciences, philosophy, theology, and comparative religious thought to develop constructive partnerships between these two great cultural powers.

Contact Metanexus Events Coordinator Kathy Siciliano (siciliano@metanexus.net) for more information about this series.

The Delaware Valley Amateur Astronomers

The Delaware Valley Amateur Astronomers is a group of enthusiastic hobbyists who live in and around Philadelphia, Pennsylvania, USA. We love to share our knowledge and enjoyment of astronomy with other amateur astronomers and with the general public.

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

The club holds free public star parties every four weeks from April through November at Valley Forge National Historical Park near Philadelphia. The club also runs classes and clinics that provide an opportunity for one-on-one interaction between new and experienced hobbyists.

See website: <http://dvaa.org>

**Calling All Astronomers!
 Rittenhouse Astronomical Society**

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

www.rittenhouseastronomicalsociety.org/



Science on Tap, A Science Café

Science on Tap is a monthly gathering in Philadelphia for anyone who is

interested in getting together with other people to discuss a range of engaging science topics.

Held at National Mechanics, a relaxed, convivial bar in Old City, *Science on Tap* features a brief, informal presentation by a scientist or other expert followed by lively conversation. The goal is to promote enthusiasm for science in a fun, spirited, and accessible way, while also meeting new people. Please come join the conversation! On the **second Monday of each month at 6:00 PM.**

What's On Tap

Monday, May 10, 2010 at 6:00 p.m.

“The Search for the Other Earth” Derrick Pitts, Chief Astronomer, Franklin Institute

With 300 billion stars in our galaxy alone to survey, astronomers are discovering 3 new exo-planets a month, but the real goal is to find another “Earth.” Will we find other humans too? The race is on!

Derrick Pitts has been associated with the Franklin Institute Science Museum since 1978, designing and presenting many of the museum’s public programs and exhibits. He has been Chief Astronomer and Director of the Fels Planetarium since 1990. As planetarium director, Pitts has written and produced more than two-dozen planetarium programs. In his presentations he puts his emphasis on making sure that everyone can come to appreciate the universe as he sees it — not a watered down sketch of the universe, but a rich, deep, complex version with human connections that everyone can understand at some level. For nearly two decades Pitts has hosted award-winning astronomy radio programs on Philadelphia’s WHYY 91 FM and on WXPB’s Kids’ Corner radio program.

Presented by the Wagner Free Institute of Science.

National Mechanics 22 South Third St. Philadelphia PA 19106
215-701-4883

Free and Open to the public (age 21+) or minors accompanied by a chaperone 25+. Want to join the Science on Tap mailing list? Contact us at scienceontapphilly@gmail.com and include "subscribe to mailing list" as the subject line

Science for what ails you

The science café movement began in Leeds, England in 1998 when a local pub decided to foment a new kind of barroom brawl—a scientific debate. The idea took off as a unique way to advance public understanding of science. Now, there are locations from Maine to California where, for the price of a beer or a glass of wine or a cup of coffee, anyone can discuss scientific ideas with leading experts in their fields and learn about developments that are changing our lives.



The Colonisation of Space



2009-10 Penn Science Café Schedule

The Penn Science Café, the lecture series that hauls science out of the lab and treats it to a night on the town. Free and open to the public, it's an opportunity to pitch questions to leading scientific experts.

6 P.M. @ the MarBar, 40th and Walnut street location, 2nd floor of the Marathon Grill, menu items available for purchase
RSVP to Jordan Reese, jreese@upenn.edu or 215-573-6604.
RSVP's are encouraged, but we aren't sticklers.

- **April 14,** Josh Plotkin, Department of Biology
: A Viral Evolution
- **May 12,** Robert Kurzban, Department of Psychology:
The Cognitive Process Behind Hypocrisy

THE WAGNER FREE
INSTITUTE OF SCIENCE
OF
PHILADELPHIA.

1700 West Montgomery Avenue
 , Philadelphia, PA 19121
 ph 215-763-6529 www.wagnerfreeinstitute.org

The Wagner Free Institute of Science announces its free science courses for Winter/Spring 2010. The courses run from five to ten weeks. Lectures are held in the evening and last approximately one and a half hours. The courses are taught on an introductory college level and are appropriate for adults wishing to enrich their knowledge of the sciences, as well as for motivated junior and senior high school students.

Thursday, May 20, 2010 4:00 to 7:30 PM, lecture at 5:30 PM
Weeknights at the Wagner - Silent, Weird, Beautiful: Philadelphia's City Hall and Its Architect

An illustrated presentation by Dr. Michael J. Lewis, Williams College Historic American Building Survey, South and west elevations of City Hall under construction, 1881.

It is difficult to believe that two of Philadelphia's most beloved buildings, City Hall and the Wagner Free Institute of Science, are the work of the same architect. One is a swaggering Baroque essay in civic pride, while the other is a subdued and stately temple of science. Together they suggest the enormous range of John McArthur, Jr., one of Philadelphia's most influential and yet least known architects.



**City Hall, Philadelphia, PA.
 Southeast Pavillion Under
 Construction, 1881.
 Historic American Buildings
 Survey.**

stay open late (4-7 PM) for this event.

Come early to explore the Wagner Institute's National Historic Landmark building!

Michael J. Lewis is the Faison-Pierson-Stoddard Professor of Art at Williams College. The recent recipient of a Guggenheim Fellowship, he is the author of numerous scholarly articles and books, including *Frank Furness: Architecture and the Violent Mind* and *The Gothic Revival*. He writes widely on art and culture, and his essays have appeared in the *New York Times*, the *Wall Street Journal*, and the *Atlantic Monthly*.

Dr. Michael J. Lewis will speak in the Wagner Institute's historic lecture hall at 5:30 PM on May 20th. The museum will

In the Wagner Collection

One of the most striking objects in the Wagner Institute's historic collection is the English Draft Horse skeleton. This specimen occupies a central location on the museum floor and is one of the few specimens not protected within a glass case. For this reason, throughout its 119 years of display, it has suffered damage caused by age and exposure. In summer 2009, the skeleton underwent conservation, which included the repair of existing structural damage and enhanced the structural integrity of the mount. The restoration of this specimen ensures that its original educational purpose as an instructional tool and its role within the museum will be preserved for current and future generations of visitors. Come and see for yourself how fabulous this skeleton looks!



"Conservator Charlie Bessant of Bessant Studio, cleans the base of the horse skeleton display."

"To the citizens of Philadelphia let them open their stores of wealth, for no other way can money be better bestowed, than in the promotion of education." – William Wagner (1796–1885), philanthropist and founder of the Wagner Free Institute of Science



The College of Physicians of Philadelphia

BIRTHPLACE OF AMERICAN MEDICINESM

The College of Physicians of Philadelphia
19 South Twenty-Second Street
Philadelphia, PA 19103
(215) 563-3737 x304

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

College of Physician lectures and programs are free. There may be a fee at some receptions.

Friday, May 7, 2010 4 - 5PM

Grand opening of the New Garden Tour, Benjamin Rush Medicinal Plant Center

When the College was founded in 1787, Dr. Benjamin Rush suggested that the College create "a garden of simples [herbs] to physic the citizens of Philadelphia." In 1937, the Philadelphia Section of the American Herb Society designed and planted the garden that, with a few improvements, appears today. Long an oasis in the middle of the city, the garden has been open for years and maintained by the Women's Committee of the College. With a generous grant from the Groff Family Memorial Trust, the College has revamped the presentation of the garden's history and the importance of medicinal herbs. During spring, 2010, the College debuts new signage, a new brochure on the garden, and an audio tour to enhance the experience of visitors who visit the Mütter Museum.

Sponsored by the F.C. Wood Institute for the History of Medicine.

Monday, May 10, 2010 5:30 - 7:30PM

Public Health and Preventive Medicine Section Poster Session

Regional public health activities and research will be showcased using posters by professionals and students from public health and related disciplines. The Section will also recognize specific individuals and organizations for their distinguished leadership in the field of Public Health. This event serves to increase the awareness of the public health work in the Philadelphia region. Open to the public, interested individuals will have an opportunity to meet and discuss important public health issues with public health and medical professionals, community organizations, faculty and students.

Sponsored by the College's Section of Public Health and Preventive Medicine.

Register for this event: <http://www.eventbrite.com/event/512581144>

Wednesday, May 19, 2010 6:30PM

What Mark Twain Might Tell Us (And Ask Us) If He Could Join Us Tonight

Mark Twain, one of America's premier spokesmen, had a lot to say about the medical profession. Twain's works are rich in medical imagery and medical themes. He experimented with many of the alternative care systems available in his day— partly because of his frustration with traditional medicine and partly because he hoped to find the "perfect" system that would bring health to his family. Twain's medical commentary provides a unique perspective on American medicine, as fresh and relevant today as it was over a century ago.

K. Patrick Ober, MD, Professor of Internal Medicine and Associate Dean for Education at Wake Forest University School of Medicine, Winston-Salem, NC and author of Mark Twain and

Medicine: Any Mummy Will Cure will explore Twain's personal perspectives on the complex interactions between doctors, patients, and medicine, with an emphasis on the humanistic viewpoint.

Sponsored by the Wood Institute for the History of Medicine and the Sections on Medicine and the Arts and Medical History.

Register for this event: <http://www.eventbrite.com/event/512562087>

Wednesday, May 19, 2010

Pennsylvania Medical Humanities Symposium: Through the Lens of Time: Perspectives on Medicine and Health Care May 19 (Evening) and May 20 (8AM - 5PM)

The Eighth Annual Pennsylvania Medical Humanities Consortium meeting will be held at The College of Physicians of Philadelphia on Wednesday evening, May 19 through Thursday afternoon, May 20, 2010. This year's theme, Through the Lens of Time: Perspectives on Medicine and Health Care, will present papers, panels, workshops, readings or performances that examine a topic relevant to medicine and health care from a historical perspective. All presentations will represent the orientation of at least one of the medical humanities, including history, literature and the arts, bioethics, philosophy, religious studies, and social sciences.

For further information contact Rhonda L. Soricelli, MD, Chair, Planning Committee, at RLSoricelli@comcast.net.

Thursday, June 3, 2010 at 6:30 PM

What's Eating You? People and Parasites

Eugene H. Kaplan is the Donald E. Axinn Endowed Distinguished Professor of Ecology and Conservation (emeritus) at Hofstra University. His many books include Sensuous Seas: Tales of a Marine Biologist (Princeton) and A Field Guide to Southeastern and Caribbean Seashores (Peterson Field Guides). His latest book, What's Eating You? will be published by Princeton University Press in May 2010. In What's Eating You?, Dr. Kaplan recounts the true and harrowing tales of his adventures with parasites, and in the process introduces readers to the intimately interwoven lives of host and parasite.

A book signing will follow the talk.

Sponsored by the Mütter Museum of The College of Physicians of Philadelphia.

Register for this event:

<http://www.eventbrite.com/event/523466703>

The Mutter Museum
19 South 22nd Street
Philadelphia, PA, 19103

Hours of operation: Monday-Friday, 10am-5pm

Saturday & Sunday, 10am-5pm

Closed on Thanksgiving Day, December 25th, and January 1st.

General Admission (Ages 18-64): \$14

Children (Ages 6-17): \$10

Senior Citizens (Age 65+): \$10

Students with valid ID: \$10

Military with valid ID: \$10

Fellows of the College: FREE

Children under 6: FREE

APS Museum Calendar:

Second Sundays at the APS Museum 1-4pm

APS Museum, Philosophical Hall, 104 S. 5th St.

Family-friendly afternoons (ages 5+) at the APS Museum, featuring activities and/or demonstrations inspired by the Dialogues with Darwin exhibition.

Sunday, May 9, 2010: Make your own magic lantern

Sunday, May 09, 2010

Second Sundays: The Magical Magic Lantern

Before the invention of movie and slide projectors, audiences were delighted by the magic lantern. On May 9, make your own magic lantern with artist Shelley Hedlund of MYX: Multicultural Youth eXchange. And don't forget to check out the Dialogues with Darwin exhibition, which features modern interpretations of magic lanterns created by artist Eve Andrée Laramée.

This Second Sunday is a collaboration between the APS Museum and MYX: Multicultural Youth eXchange. Second Sundays are family-friendly afternoons (for ages 5+) at the APS Museum, featuring activities and/or demonstrations inspired by the Dialogues with Darwin exhibition.

Museum Exhibition
April 17, 2009 - October 17, 2010
Philosophical Hall
104 South Fifth Street

Philadelphia, PA 19106 Donation Requested: \$1

Dialogues with Darwin, an exhibition drawn from the American Philosophical Society's own Darwin collection—the largest outside of Cambridge, England—celebrates the Darwin's 200th birthday and the sesquicentennial of the publication of his book *On the Origin of Species*.

On view are original letters written by Darwin, manuscripts such as his handwritten title page for *On the Origin of Species*, rare first editions of his work (in many languages), and sumptuously illustrated books by other scientists. The exhibition traces the history of his theory of evolution through natural selection for more than a century, beginning prior to the 1830s, before Darwin jotted down his first thoughts about evolution, and continuing into the 1940s, when his theory was accepted as the basis for all life sciences.

The notion of "dialogue" lies behind all aspects of the exhibition and associated programs. The historical materials explore Darwin's work in relation to other scientists and thinkers: the predecessors, contemporaries, and successors who were in dialogue with his ideas up through the mid-20th century. Contemporary artworks by Eve Andrée Laramée extend the dialogue into the present. Laramée's steampunk aesthetic merges the visual and scientific worlds of Darwin's Victorian era with 21st-century video technology.

You can visit the exhibition in the APS Museum's gallery space in Philadelphia. There you will be invited to use Post-It® Notes to add your comments to the Darwin dialogue. Or view it right on this website and go to Diablogs to follow lively online discussion and add your own thoughts.



Library Hall from 5th Street

The American Philosophical Society Library is a major national center for research in the history of the sciences, medicine, and technology. With its roots extending back to the founding of the Society in 1743, it houses over 350,000 volumes and bound periodicals, eleven million manuscripts, 250,000 images, and thousands of hours of audio tape.

The Library is comprised of four departments: Printed Materials (housing books, periodicals, broadsides, and other printed works), Manuscripts (housing manuscript materials, photographs, and many works of art on paper), Conservation (responsible for the physical preservation and conservation of all library materials), and Technology (managing electronic access to collections, cyber-infrastructure, and digital preservation). Each of the departments contributes to putting up a regular rotation of exhibits based on the Library collection.

Mounted in the entrance hall to the Library, exhibits are open to the public free of charge during regular operating hours.



Connecting people to nature since 1812.

The Academy of Natural Sciences Center for Environmental Policy "Philadelphia's Window on the Environment"

Center for Environmental Policy
The Academy of Natural Sciences
1900 Benjamin Franklin Parkway, Philadelphia, PA 19103
www.ansp.org/environmental/ | 215-299-1108 | cep@ansp.org

Upcoming Public Events

Saturday, May 8, 10 am – 4 pm

Insect Field Study

Join the Academy's Greg Cowper and Karen Verderame for a field study at the Franklin Parker Preserve in the New Jersey Pine Barrens.

You will participate in an on going Academy survey of insects in this region. You can help with the set-up of sampling traps and other methods of collection for identification. In the process, you will become familiar with common Pine Barrens insects, basic insect collecting techniques, and the role insects play in the ecology of this unique ecosystem.

Greg Cowper, a Curatorial Assistant in the Entomology Department, has completed field work in New Zealand, Africa, the Caribbean, and the eastern and southwestern United States. His research interests are in the systematics, evolution, and biogeography of Heteroptera (true bugs). Karen Verderame, the Academy's Live Invertebrate Specialist, has studied and worked with live insects and other invertebrates for 21 years.

\$35/members; \$40/non-members

Space is limited to 25 participants. Call 215-299-1060 to register.

Monday, May 10, 2010: 6:30 pm: reception with light refreshments 7:00pm:program Annual Cheryl Beth Silverman Memorial Lecture, featuring Dr. Sylvia Earle, Oceanographer.

Dr. Sylvia Earle Oceanographer, marine conservationist and author of *The World is Blue: How Our Fate and The Oceans Are One*. Dr. Earle was the 2004 recipient of the Academy's Richard Hopper Day Medal. She will discuss her latest book, highlight recent research, and show a short film.

Dr. Earle, an Explorer-in-Residence at National Geographic since 1998, has pioneered technologies—ranging from adopting SCUBA equipment in the 1950s to developing deep-sea submersibles in the 1980s—that have greatly advanced the scientific study of marine ecosystems. She's led scores of scientific expeditions, served on the President's Advisory Committee on Oceans and Atmosphere, became the first female chief scientist of the U.S. National Oceanic and Atmospheric Administration (NOAA), and founded Deep Ocean Exploration and Research, a marine engineering consulting firm. She also holds several diving records and has logged more 6,000 hours underwater.

Dr. Earle has authored more than 175 publications and has won numerous national and international awards and honors, including the prestigious TED Prize. She's played a key role in establishing protected marine reserves. As Explorer-in-Residence at National Geographic, she created the Sustainable Seas Expedition, an initiative to explore and research 12 National Marine Sanctuaries. She is the face behind Oceans in Google Earth and is a

longstanding advocate for the sustainable use and conservation of the oceans.

Dr. Earle was a recipient of the Academy's Richard Hopper Day Medal in 2004.

RSVP: <http://annualsilvermanlecture.eventbrite.com/>

Monday, May 17, 2010, 6:30 pm to 8:30 pm

This Old Toxic Condo

Many buildings that we live and work in were built before we were fully aware of the impacts that some construction materials have on human and environmental health. This program, co-sponsored by the Green Co-op/Condo Initiative, features knowledgeable professionals who will discuss practical resources available to help us as we transform 'that old toxic condo,' home or office in to a healthier, more environmentally friendly space.

Panelists:

Jim Quigley, MS, BBEC, a co-owner of Healthy Spaces, will discuss identifying toxic materials in your condo.

Angelo Anastasio of Greenable will discuss where to purchase home-healthy interior products. See more about Greenable on the Green Philly blog.

Jonathan Wybar of Revolution Recovery will discuss where to recycle renovation materials. See page 37 of Grid Magazine and NBC Philadelphia for more information on Revolution Recovery.

6-6:30 pm: Reception 6:30-8 pm: Program

Register: greenyouoldtoxiccondo.eventbrite.com/

Saturday, June 26, 9:30 am – 1:30 pm

Electrofishing Field Study

Join Academy fisheries scientists on an electrofishing study in a local stream. If you're fishing with rod and reel, you'd probably be lucky to catch five fish in an hour. On this trip we could observe and identify several hundred!

Participate in this method of catch and release used by our scientists to study wild fish populations. You may take part in the water with waders or on the bank by netting, caring for captured fish or recording data. Leave with an understanding of local stream ecology, and gain experience in identifying game and non-game fish as well as other aquatic animals. Leave with an understanding of local stream ecology, and gain experience in identifying game and non-game fish as well as other aquatic animals.

The field leader, Paul Overbeck, is a Fisheries Staff Scientist in the Academy's Patrick Center for Environmental Research. He has over 25 years experience in field collection, identification, and analyses of freshwater and marine specimens from throughout the United States.

\$25/members; \$30/non-members

Space is limited to 20 participants. Call 215-299-1060 to register.

Tuesday, August 3, 6–9 pm

The Bugs Behind Bug Fest: Exploring the Diversity of Insects

Want to get more out of Bug Fest? Want to learn more about the incredible variety of insects? This class will explore the diversity of insects and related arthropods and examine some of the features that make insects one of the most successful group of animals on earth. You will learn about the major groups of insects to aid recognition in nature with emphasis on local species. Class will be enhanced by the use of many of the 3.5 million specimens housed in the Academy's entomology collection.

Dr. Jon Gelhaus, the Academy's Curator of Entomology, will lead this class. He is an expert on the systematics, biogeography, and ecology of crane flies (Tipuloidea).

\$25/members; \$30/non-members

Space is limited to 20 participants. Call 215-299-1060 to register.

Laurel Hill Cemetery

3822 Ridge Avenue - Philadelphia, PA 19132.

215-228-8200 <http://www.thelaurehillcemetery.org>



Hours of Operation:

Monday-Friday 8:00am-4:30pm

Saturday-Sunday 9:30am-4:30pm

Closed Major Holidays

Admission to Laurel Hill Cemetery is always free

Saturday, May 1, 2010 at 10 A.M. NATURE IN THE NECROPOLIS: BIRDS AND BLOOMS

Laurel Hill is our nation's first garden cemetery, and we will walk through this beautiful park-like landscape overlooking the Schuylkill River, while we learn about its history, and try to identify as many birds as possible of those that we see or hear. Near the end of migration season, we may still find some temporary visitors, as well as permanent residents and those who reside here for the whole summer. Share your knowledge or just enjoy nature all around you in the midst of the city. Bring binoculars. Bird book, notepad and pen are optional. Torrential rain cancels the program; drizzle does not.

The program cost is \$20 per person with discounts for members, seniors, and students. Children under 12 are free. For reservations: 215.228.8200 or tours@thelaurehillcemetery.org.

Sunday, May 30, 2010 at 12 P.M. LAUREL HILL'S BRAVEST SOULS: Memorial Day Parade, Service & Reception



General
George Meade
(1815 - 1872)

Every year, the traditional Decoration Day service of the Grand Army Meade Post #1 is recreated at historic Laurel Hill Cemetery, the site of the first Memorial Day Observance in Philadelphia in 1868. Special bronze markers are dedicated at the graves of veterans. Afterwards, the entourage gathers at the resting place of General Meade, hero of the Battle of Gettysburg, to perform the traditional service honoring all veterans who fell defending the nation. A wreath-laying, speeches and honor guards always enhance the ceremony, and a reception in the gatehouse follows.

Laurel Hill Cemetery's Memorial Day Observance will take place on Sunday, May 30th, beginning at 12:00pm. The General Meade Society of Philadelphia sponsors this annual event.

Friday, June 11, 2010 at 6:00 PM DIG IN: A CULINARY TOUR & CLASS TO DIE FOR

Throughout the histories of most world cultures, the preparation of funeral foodstuffs has not only symbolically provided the deceased with nourishment on his or her journey, but has also served to sustain the mourners. The culinary rite of sharing a post-funeral meal (sometimes comprised of specific recipes passed down through the ages) is an essential and life-affirming act that is often accompanied by healthy appetite and a clear defiance of Death. Ask anyone who caters funerals and weddings: people are more apt to consume greater quantities of food at the funerals.

Laurel Hill Cemetery, long a site at which the living have been invited to picnic with their dead, has a heaping serving of its own culinary connections, from famed historic individuals who were instrumental in compiling some of our Nation's first cookbooks to a diverse array of people who were connected to food in life: families of bakers and merchants of flour, proprietors of 1700s coffee houses, brewers of beer, caterers, and innovators of the soda fountain.

Join us on Friday, June 11th at 6 PM for a brief sampling of these notable gravesites, followed by a cooking class and subsequent feast with Chef Chris Koch at the Marketplace at East Falls, located directly across the street from the cemetery. Chef Chris will demonstrate recipes relevant to the different eras represented in Laurel Hill and its cookbook connections. As a history buff, the Chef will regale you with further trivia while presenting you with food good enough to die for. Why wait until you're in the ground to have a taste of Heaven?

Tickets are \$30 and as space is limited, please call 215.228.8200 to register for the event.

Saturday, July 24, 2010 at 7 PM THE GHOSTS AMONG OUR GRAVES: A Paranormal Investigation of Laurel Hill

Join us for this unique event, as Free Spirit Paranormal Investigators (F.S.P.I.) reveals its findings and sheds light on the history, techniques and equipment of ghost hunting. After hands-on demonstrations, test your own psychic abilities while exploring Laurel Hill Cemetery's 'other side' by the light of the summer moon and raise your 'spirits' with wine and other treats in the Gatehouse.

Advance registration is required. Tickets (\$30/person) can be purchased through the cemetery office (215-228-8200) or on the evening of the event.



**Events and exhibits at
Chemical Heritage Foundation
315 Chestnut Street
Philadelphia, PA 19106**

Tel: 215-925-2222 • Fax: 215-925-1954

<http://www.chemheritage.org>

Events are free and open to the public unless otherwise noted.

Tuesday, May 4, 2010 - 12:00 p.m. to 1:00 p.m.

Regina Lee Blaszczyk, "Plexiglas: From the Eyes of Aviation to McDonald's Golden Arches"

This talk focuses on the history of innovation at the Rohm and Haas Company (now part of Dow Chemical) during its first hundred years, with reference to one of its most important products: Plexiglas acrylic plastic. Developed in Germany during the 1920s, Plexiglas helped transform aviation during World War II and revolutionized the look of roadside advertising in postwar America. Suburbanization went hand in hand with new forms of roadside architecture and drive-by advertisements made from Plexiglas. This talk shows how the Rohm and Haas tradition of collaboration with the customer helped grow the Plexiglas market from the 1930s through the 1960s.

Regina Lee Blaszczyk is an award-winning historian of corporate innovation and consumer society. She is the author or editor of six books, most recently *American Consumer Society, 1865–2005: From Hearth to HDTV* (2009) and *Rohm and Haas: A Century of Innovation* (2009), which was written for the company's one-hundredth anniversary.

Tuesday, May 11, 2010 12:00 p.m. to 1:00 p.m.

Nicholas Best, "Themes in Pre-Lavoisierian Chemistry at the Académie Royale des Sciences of Paris"

Free and open to the public.

Nicholas Best is Spring 2010 Chemical Heritage Foundation Fellow. His research project is entitled "Lavoisier as Historian of Chemistry and Philosopher of Science."

Thursday, May 13, 2010 10:00 a.m. to 2:00 p.m.

Joseph Priestley Society Symposium and Meeting: Battery Innovations as the Driving Force Creating Major Markets
Open to the public. Free for Robert Boyle Society members (please register by phone).

To conclude our 2009-2010 program year the Joseph Priestley Society is pleased to present a symposium on the subject of

"Battery Innovations as the Driving Force Creating Major Markets." The role that battery technology plays in modern economic activity is significant and has come a long way from Gaston Planté's 150-year-old invention, the lead-acid battery.

On 13 May 2010 we welcome a distinguished panel of experts on battery technology as guests. These panel members are Brijesh Vyas, distinguished member of the technical staff, LGS Innovations; and Robert Flicker, executive vice president and COO, East Penn Manufacturing. The panel will be moderated by Albert Koenig, vice president, American Refining and Biochemical, Inc., who will also participate as a panelist.

Patrick T. Moseley, president, Advanced Lead-Acid Battery Consortium, and manager, Electrochemistry, International Zinc Research Organization, Inc., will deliver a keynote address entitled

"Lead-Acid Battery—150 Years On."

10:00 a.m. Symposium

11:30 a.m. Networking reception

12:15 p.m. Lunch, \$25 fee (Free for Robert Boyle Society Members)

1:00 p.m. Program

2:00 p.m. Meeting adjourns

Tuesday, May 18, 2010—noon to 1:00 PM
Brown Bag Lecture: Charlotte Bigg, "Instrument Makers as Mediators between Science and Industry: The Case of Spectroscopy in the Early Twentieth Century"

Bigg's talk will show how instrument makers, notably the British firm Adam Hilger, Ltd., played an essential role in the transformation of astrophysical spectroscopic and interferometric instruments and methods for chemical and industrial uses in the early twentieth century.

Charlotte Bigg is a historian of science at the French Centre National de la Recherche Scientifique, Centre Alexandre Koyré, in Paris. She is currently a CHF fellow (May–August 2010). After obtaining a Ph.D. in the history of science from the University of Cambridge, she worked for several years at the Max Planck Institute for the History of Science in Berlin and at the Eidgenössische Technische Hochschule Zürich. Charlotte works on the circulation of instruments, images, and people between disciplines (chemistry, physics, astrophysics), between science and industry, and between scientific and popular settings.

Ongoing exhibitions

Gallery hours are 10:00 a.m. to 4:00 p.m.,
Monday-Friday.

(Free and open to the public)

Transmutations: Alchemy in Art (exhibit) :
Monday-Friday, 10:00 a.m. to 4:00 p.m., by

appointment only

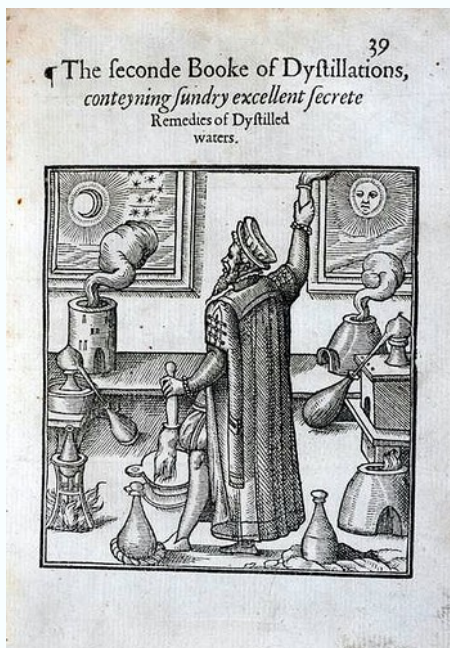
Call 215-925-2222 to make an appointment.

The Whole of Nature and the Mirror of Art: Images of Alchemy (exhibit)

Du Pont Gallery

Marvels and Ciphers: A Look Inside The Flask

1 March - 10 December 2010



Konrad Gesner, 1516-1565
Thesaurus Euonymi Philatri. English

The newe iewell of health: wherein is contayned the most excellent secretes of phisicke and philosophie, deuided into fower bookes, in the which are the best approued remedies for the diseases as well inwarde as outwarde, of all the partes of mans bodie: treating very amplye of all dystillations of waters, of oyles, balmes, quintessences, with the extraction of artificiall saltes, the vse and preparation of antimonie, and potable gold / gathered out of the best and most approved authors, by that excellent Doctor Gesnerus; also the pictures, and maner to make the vessels, furnaces, and other instrumentes there unto belonging; faithfully corrected and published in Englishse, by George Baker Printed at London: by Henrie Denham, 1576.

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

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

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

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

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

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

PhACT's High School Science Fair Student Prize Funds

Total contributed for 2010 prizes	= \$318.00
2010 Goal	= \$300.00
Excess funds applied to 2011 prizes	= \$103.00
1 contribution in April	= \$100.00
Total 2011 Prize Fund collected	= \$203.00
2011 Goal	= ????

Please donate. Small contributions are preferred and donations in excess of the 2011 goal will be applied to the 2012 Prize Fund or some other youth science education project not yet determined.

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

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Contact the editor, Ray Haupt: phactpublicity@aol.com

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