

Fanaticism consists of re-doubling your efforts when you have forgotten your aim. -

Samuel Johnson
(1709 - 1784)

Phactum

The Newsletter of the
Philadelphia Association for Critical Thinking
February 2009

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Integrative Oncology: Complementary Therapies and Botanicals in Cancer Care

will be the topic of the PhACT meeting on February 21, 2009 at 2:00 PM at Community College of Philadelphia, 17th and Spring Garden Streets, in room S2-03 of the Winnet Student Life Building, the round building on 17th Street south of Spring Garden. Open to the general public. Admission and parking are FREE.

Our speaker, **Barrie R. Cassileth, MS, PhD**, is Chief, Integrative Medicine Service Memorial Sloan-Kettering Cancer Center, New York

The challenge of today's cancer care is the mandate to address the span of patient needs that stem from successful cancer treatments. These needs include the short- and long-term effects of the very treatments that enable survival. Several disciplines now offer approaches to physical and emotional symptom control, including the fields of Supportive Care, Rehabilitation, Palliative Care, Psycho-Oncology, Pain Management, Survivorship and Integrative Oncology. While some of these disciplines are more narrowly focused than others, all are concerned with symptoms, not with treatment of the cancer itself. Integrative Oncology adds non-pharmacologic symptom control to basic cancer care. It is the synthesis of mainstream cancer treatment and complementary therapies, the latter dealing with physical as well as emotional symptoms. By blending treatment of the tumor and care for the rest of the patient as well, it offers the all-encompassing approach that today's patients require. The complementary therapies used by Integrative Oncology are evidence-based, non-invasive and absent side effects. They include mind-body therapies such as meditation, self-hypnosis and other relaxation techniques; massage and other gentle touch therapies; acupuncture for relief of pain and many other symptoms; exercise regimens based on clinical status; music and art therapies; yoga, tai chi and related approaches; nutritional, vitamin and other dietary supplement guidance; and high-quality investigation of the anti-tumor promise of herbs and other botanicals.

See page 4 for biography and book information.

The uncontested absurdities of today are the accepted slogans of tomorrow. They come to be accepted by degrees, by precedent, by implication, by erosion, by default, by dint of constant pressure on one side and constant retreat on the other - until the day when they are suddenly declared to be the country's official ideology. - Ayn Rand (1905—1982)

PHACT CALENDAR

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



Saturday, February 21, 2009 - Dr. Barrie R. Cassileth will discuss **Integrative Oncology: Complementary Therapies and Botanicals in Cancer Care.** **Dr. Cassileth** is Chief, Integrative Medicine Service at Memorial Sloan-Kettering Cancer Center, New York. She actively works with the FDA and other federal agencies in the nearly impossible task of controlling quackery in cancer treatment.

Saturday, March 21, 2009 - The Dover Evolution/Intelligent Design Trial. We will have journalist **Lauri Lebo**, who wrote the book, *The Devil in Dover*, about the Dover evolution trial. She has some amazing stories on the Dover school district legal debacle and their attempt to undermine the teaching of evolution. This is a good look at one more legal victory for science. For more information, visit her web site at <http://laurilebo.com/dp>.

Saturday, April 18, 2009 - Teaching critical thinking. Speakers **Sharon Schwarze** and **Harvey Lape** of Cabrini college.

Friday, February 13, 2009 at 8 PM. Delaware Valley Mensa General Membership Meeting. Program TBA. 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. Free. <http://dvm.us.mensa.org/>

Friday, February 13, 2009 at 7 PM. Delaware Valley Amateur Astronomers monthly meeting in Plymouth Meeting, PA. **Searching for the Nearest Young Stars**, Dr. Eric Jensen, Associate Professor of Astronomy at Swarthmore College, PA. This meeting is free and open to the public. <http://dvaa.org>

Thursday, February 26, 2009 - Program from 4-7 PM, Lecture at 5:30. Weeknights at the Wagner. At the **Wagner Free Institute of Science**, 1700 West Montgomery Avenue, Philadelphia, PA 19121 Guest Speaker, Dr. Alan Mann, Princeton University. **"The Origin of Humanness"**. Anthropologist Dr. Alan Mann will join us as part of the Year of Evolution. He will speak about the beginnings of uniquely human behaviors in our evolutionary ancestors by examining prehistoric art, ornamentation, and other evidence. Free. ph 215-763-6529 www.wagnerfreeinstitute.org

Friday, February 27, 2009 - Asperger's Disorder & Autism. The New England Educational Institute will present a one day seminar for educators, psychologists, social workers, counselors, physicians, children's services providers, and family members who work with individuals with Autism Spectrum Disorders. The presenter is Dr. Celine Saulnier, the Training Director for the Yale Autism Program at the Yale Child Study Center. Dr. Saulnier super-

vises and conducts diagnostic evaluations for both the Infant and Toddler Clinic and the School-aged Developmental Disabilities Clinic. At the Ramada Philadelphia Airport in Essington, PA. Seminar tuition is \$149. For more information see www.neei.org on the internet or call 413-499-1489 x 1.

Now through April 19, 2009 open daily at The Academy of Natural Sciences. 19th Street and the Benjamin Franklin Parkway in Philadelphia. *"Hadrosaurus fouldii: The Dinosaur That Changed the World"*.

This year marks the 150th anniversary of the scientific description of *Hadrosaurus fouldii*. This dinosaur occupies a singular place in the history of paleontology. At the time of its description by Joseph Leidy in 1858, *Hadrosaurus* was the world's most completely known dinosaur. When the skeletal mount, a collaboration of Leidy with British sculptor Benjamin Waterhouse Hawkins, was put on display at the Academy in 1868, it was the first dinosaur skeleton ever mounted and would serve as a model for future dinosaur mounts in museums everywhere.

www.ansp.org (215) 299-1000

Every Monday, except holidays, at 7:00 PM. **Socrates Cafe** is moderated by PhACT member Sam Frederick at the Springfield Township Library at 1600 Paper Mill Road, Wyndmoor, PA 19038. This discussion group is free and open to the public. Bring an open mind and positive attitude.



PHACT CALENDAR

Saturday, March 28, 2009 at 1:00 PM, Westbrook Lecture 2009, at the **Wagner Free Institute of Science**, 1700 West Montgomery Avenue, Philadelphia, PA 19121

Dr. May R. Berenbaum will discuss "**BSI**" -- **The Case of the Disappearing Bees.**

The "pollinator crisis" -- the widespread decline in the viability of animals that transport pollen and allow most of the planet's flowering plants to reproduce -- may lack marquee appeal as a form of global change, but it has real potential for profoundly altering the terrestrial world. In the U.S. nearly 100 plants rely on a single pollinator, the honey bee, to survive and reproduce.



Over the past year, the mysterious disappearance of one-third of America's honey bees, due to what has become known as colony collapse disorder, has focused attention on how little is known about U.S. pollinators and how dependent we are upon them. On March 28th, Dr. May Berenbaum, Professor and Head of the Department of Entomology at the University of Illinois at Urbana-Champaign will discuss the pollinator crisis, the plight of the honey bees, and advances in entomology that provide hope for the future of America's bees.

Dr. May Berenbaum has served as the head of the Department of Entomology at the University of Illinois at Urbana-Champaign since 1992. Her research interests are in the area of insect ecology and for over three decades she has studied the ways in which both naturally occurring and synthetic chemicals affect the distribution and abundance of plant-feeding insects. She is also devoted to fostering scientific literacy and has authored numerous magazine articles, as well as four books about insects for the general public. In recognition of her work, she has been elected to the National Academy of Sciences and the American Philosophical Society.

The Museum will be open from 12:00 - 4:00 PM. Talk begins at 1:00 PM

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. The society offers all persons an opportunity to participate in the activities of an astronomical group at the laymen's level. They aim to spread knowledge, awareness and enjoyment of astronomy and astronomical issues. It is a popular science club that keeps its members up-to-date on the latest developments. No experience is necessary to attend the FREE meetings. Come with your astronomy questions!

www.rittenhouseastronomicalsociety.org/

The **PhACT Calendar** is open to members and non-members who wish to announce meetings and events of other groups of which they are interested or affiliated. These events should be of some general interest to the Skeptical or Scientific community and should be within a reasonable radius of Philadelphia. Send submissions to the editor at phactpublicity@aol.com. Keep the announcements brief. Space is limited and insertions will be made on a first come-first served basis after the needs of PhACT are accomplished.

Wagner Free Institute of Science

1700 West Montgomery Avenue

Philadelphia, PA 19121

ph 215-763-6529 www.wagnerfreeinstitute.org

Spring 2009 Courses

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

Grasses, Rushes, and Sedges, Professor Karen Snetselaar. Monday, January 12, 2009, beginning at 6:30 PM. 6 Mondays (No class Monday, January 19, 2009). Pennsylvania Horticultural Society, 100 N. 20th Street. This course will provide a general overview of grasses and some of their relatives. ***This course requires preregistration. To preregister, call 215-763-6529, ext. 23, beginning Monday, November 17, 2008.***

Genetics in the Wild: Wildlife Conservation and Genetics, Professor Mary Beth Davis. Wednesday, January 14, 2009, beginning at 6:30 PM. 7 Wednesdays. Independence Branch of the Free Library, 18 S. 7th Street. This course will explore how genetics can be used to aid conservation efforts and will examine studies of endangered animal species and "recovered species." ***No preregistration required.***

Field Paleontology, Professor William B. Gallagher. Saturday, January 31, 2009, beginning at 10:15 AM. 6 Saturdays. University of Pennsylvania Museum of Archaeology and Anthropology, 33rd and Spruce Streets. This course will discuss the methods of modern paleontological excavation techniques and demonstrated by a series of case studies of fossil excavations. ***No preregistration required.***

Park, Cemetery, and Garden: The Landscapes of Philadelphia, Professor Michael J. Lewis. Monday, March 23, 2009, beginning at 6:30 PM. 6 Mondays. Pennsylvania Horticultural Society, 100 N. 20th Street. This course will examine the landscape tradition in Philadelphia, covering such topics as Quaker attitudes toward the useful and practical arts, the role of parks in promoting public health and safe drinking water, and the development of the modern public cemetery. ***This course requires preregistration. To preregister, call 215-763-6529, ext. 23, beginning Monday, November 17, 2008.***

Spring Flora of Fairmount Park, Professor Alfred E. Schuyler. 4 Saturdays, April 18 to May 9, 2009, from 10:00 AM to 1:00 PM. This is a field class. We will visit four sites in different areas of the city, all part of Fairmount Park, and identify the plants we encounter. ***This course requires preregistration and is limited to 25 students. To preregister, call 215-763-6529, ext. 23, beginning Monday, November 17, 2008.***

To order a copy of the catalog and a full description of courses, please email info@wagnerfreeinstitute.org or call 215-763-6529, ext. 21.

Barrie R. Cassileth, MS, PhD

**Laurance S. Rockefeller Chair in Integrative Medicine
Chief, Integrative Medicine Service
Memorial Sloan-Kettering Cancer Center**

As a researcher, educator and planner, Dr. Cassileth has worked in alternative and complementary (integrative) medicine and psychosocial aspects of cancer care for close to 30 years. She has published extensively on these issues, and has been invited to lecture on these topics throughout North and South America, Eastern and Western Europe, Asia and Australia.

Dr. Cassileth developed prototypic programs in patient and family support, medical education, homecare and hospice, and research in integrative medicine while a faculty member in Medicine and Associate Director of the Comprehensive Cancer Center at the University of Pennsylvania in Philadelphia. In 1999 she was recruited to Memorial Sloan-Kettering to create an integrative medicine department, which has now become an international prototype.

She is founding president of the international Society for Integrative Oncology and Founding Editor-in-Chief of its Journal; associate editor or advisory board member of eleven medical journals internationally and serves as reviewer for most major medical journals and grant reviewer for government agencies in the U.S. and other countries. She was a founding member of the Advisory Council to the National Institutes of Health Office of Alternative Medicine, now the Center for Complementary and Alternative Medicine. She was on the national Board of Directors of the American Cancer Society and is now on the ACS Eastern Board, and serves on ACS and ASCO Committees. She served on many NIH and other federal and national panels and committees.

Her publications include 150 publications in the medical literature and 58 books and chapters for physicians, patients and families. She received her PhD in medical sociology from the University of Pennsylvania and had completed all but dissertation toward a PhD in psychology at Albert Einstein University in New York. She is Principal Investigator of several NIH research protocols and also heads one of six NIH-supported "Botanical Research Centers;" her Center at MSKCC addresses the study of Immuno-modulators. She is also director of the first National Cancer Institute training program in Integrative Oncology for physicians. She is a sought-after lecturer and has given numerous radio, television and print media interviews internationally.

Dr. Cassileth works with the FTC and other federal agencies to try and control quackery in cancer (a close to impossible effort).

Primary books: *"The Alternative Medicine Handbook: The Complete Guide to Alternative and Complementary Therapies,"* was published by WW Norton in 1998. She is an editor of the American Cancer Society 2003 publication, *"Eating Well, Staying Well During and After Cancer."* Cassileth and Lucarelli, *"Herb-Drug Interactions in Oncology,"* was published by BC Decker in 2003. Cassileth et al. *"Integrative Oncology: Complementary therapies in cancer care"* was published by BC Decker in 2005.



PDQ Integrative Oncology: Complementary Therapies in Cancer Care Barrie R. Cassileth (Editor)

Publisher: BC Decker Published: September 2005
ISBN-10: 1550092804 ISBN-13: 978-1550092806
Paperback: 187 pages \$29.95

Integrative Oncology is the synthesis of mainstream cancer treatment and effective complementary therapies. PDQ Integrative Oncology: Complementary Therapies in Cancer Care provides oncology professionals with need-to-know information about the data-based utility of complementary therapies. It thoroughly discusses useful non-invasive adjunctive therapies that effectively and safely relieve symptoms associated with cancer and cancer treatments. Following discussions of the source and practice of complementary therapies, this manual summarizes therapies by major cancer diagnoses and concludes with a section on the management of major symptoms. A final chapter reviews currently popular but questionable alternative therapies. The text examines botanical research, herb-drug interactions in oncology, and the potential and the concerns about dietary supplements. This work will help oncology professionals understand and guide patients use of appropriate complementary therapies and avoid bogus alternatives. The overall aim of PDQ Integrative Oncology is to facilitate dialogue with patients and help broaden the approach to cancer treatment that integrative oncology can engender.

Letters

Phactum readers are encouraged to write letters to the editor. Don't be shy. Make your views known.

Editor: What a newsletter! Really, this is a work of art, as well as informative, deeply educational AND entertaining. Also with the added benefit of lots of humor. I hope you enjoy producing these as much as people enjoy reading them.

Jim Bergin and Judy Garvey
Blue Hill, Maine

Editor: Time Distortion

At the 17 Jan 09 PhACT meeting Eric Krieg posed a question on time distortion at relativistic speeds which received three different answers. Our speaker, Dan Falk, spent half his time on time distortion. Both knew that time distortion for objects moving at nearly the speed of light was a tenet of Einstein's theory of relativity, which was based on the constancy of the speed of light in a vacuum, not clearly stated by Falk. The key measurement of that speed in different directions was the Michelson-Morley experiment of 1887, in which the actual finding was a difference of 20 km/sec; but being good scientists, M-M noted that this difference was about the size of their estimated error.

By 1925 Michelson and Gale found a difference of 20 km/sec; M. Sagnac did in 1913; Dayton C. Miller, Case Institute, Cleveland, OH, made measurements from 1906-1926 with a more advanced apparatus. Unlike the measurements of M-M of several hours duration, Miller measured at intervals for an entire year to find variations of at least 20 km/sec; a result of 200,000 data points. His last papers were in *Modern Physics*, 1933, and in *Nature*, 1934. Criticisms of Miller's work by Shankland have themselves not held up. Ernest W. Silvertooth found a variation in light velocity in 1987. Maurice Allais terms the neglect of Miller's work as a classical example of a cover up of an unwelcome newer result that affected a paradigm. "My opinion about Miller's experiments is the following. ... Should the positive result be confirmed, then the special theory of relativity and with it the general theory of relativity, in its current form, would be invalid. Experimentum summus iudex. Only the equivalence of inertia and

Albert Abraham Michelson



A. A. Michelson, (December 19, 1852 - May 9, 1931), was a Prussian-born American physicist known for his work on the measurement of the speed of light, and especially for the Michelson-Morley experiment. In 1907 he received a Nobel prize for physics.

gravitation would remain, however, they would have to lead to a significantly different theory."— Albert Einstein, in a letter to Edwin E. Slosson, July 1925.

Prof. H. Dingle, Professor of Physics at the Imperial College of Science & Technology, London, in a paper in *Nature*, 1973, noted that in hypothetical traveling clocks, A & B, the principles of relativity say that either clock can be considered moving with respect to the other. If clock B is the one which is moved relative to clock A on the Earth, one can also think of clock B as stationary and clock A as the moving one. Then each clock would be slower compared with the other one, which is absurd. Physics Professor H. Zeiman, Oxford University, agreed that Dingle's observation was reasonable in a 1976 book.

Four cesium beam atomic clocks were flown around the Earth by jet aircraft, presumably at equal airspeeds, in two directions. Compared with "stationary" ones at the U. S. Naval Observatory, the clocks lost 59 ± 10 nsec during the eastward trip, and gained 272 ± 7 nsec during the westward trip, an obscure result obtained after various corrections for the effect of gravity on light as reported in *Science*, 1972. Why were the time losses different? Prof. H. Dingle concluded that no time dilatation was actually found (book, *Science at the Crossroads*, 1972).

See: John O'Malley Bockris, Distinguished Professor of Chemistry, Texas A & M, *The New Paradigm: A Confrontation Between Physics and The Paranormal Phenomena*, 2005. Contains citations to all original work.

Joel M. Kauffman, PhD
Berwyn, PA

This space contained a letter about Stephen Barrett, M.D., the retired psychiatrist who operates [quackwatch.org](http://www.quackwatch.org) and other consumer protection Web sites. After it was published, Dr. Barrett notified us that the letter contains false, misleading, and defamatory statements that are part of a libel campaign he has described at :

<http://www.quackwatch.org/11Ind/bolen.html>

We have removed the letter and regret having published it.

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Editor: A colleague sent this along:

<http://herebedragonsmovie.com/>

My reactions:

The video loads when you open the url; and it is not bad.

When watching it, it got me to thinking about the medicinal claims. Part of the problem, I think, is that people really do not have a good grasp of the fact that putting medicines into the body is meant to generate some sort of change in chemical conditions. For many, taking a pill is just like magic. That is why the "toxin-absorbing" foot pads are so popular; and it is one of the myths we bust every semester in class when we show that the skin is simply impermeable WRT to these toxins (and that all those expensive products people put on their hair are worthless, since the living part of the hair that CAN change is located deep in the scalp).

When I started doing public outreach with the Mass Medical Society in the 80s, I worked hard to get them to take "miracle" talk out of their materials. We do not want people equating scientific discoveries and medical research with "miracles". I must write 50 times a semester to students to tell them that *birth* is mind-bogglingly awesome, but just NOT a miracle in any sense of the word.

But, it seems to people that a lot of what happens in science --- particularly in medicine --- is at least mysterious, if not miraculous; and we need to get past that.

Unfortunately, I doubt that most chem courses are going to help with this.

Andrew Petto, PhD

Lecturer in Physiology & Anatomy
University of Wisconsin
Madison, Wisconsin

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Various Ruminations

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

My Wife, R.I.P.

I am sad to report that my sweetheart, Andrea, died on Friday, January 2, 2009 at about 3:45 PM.

Andrea was diagnosed with acute myeloid leukemia (AML) in July of 2007 and quickly entered the Hospital of the University of Pennsylvania for chemotherapy. It was a brutal course of treatment but she recovered quite well and a few months later returned to the hospital for what is known as "consolidation" therapy, a course of chemotherapy designed to eliminate the few remaining leukemia cells remaining in her body. She recovered from this and from December to May of 2008 had a relatively decent lifestyle.

In May however tests showed that leukemia had returned and from that point her health spiraled downhill and subsequent chemotherapy was ineffective to cause remission. The cancer was too overwhelming despite the best efforts of oncologist Dr. Edward Stadtmauer and a vast team of medical specialists, nurses, and technicians.

In mid December, after a long hospitalization, Andrea came home for Hospice and eventually had to be transferred to in-patient hospice at Keystone House, a very kind and caring hospice facility not far from home.

On January 2, 2009 Andrea died peacefully after that long and dreadful illness.

I had requested that well meaning friends not send flowers to her funeral. Instead a much finer tribute to Andrea's memory would be to send gift donations to the Abramson Cancer Center, which is a part of the University of Pennsylvania Hospital. These donations will directly support stem cell research and the betterment of life for people with blood cancers.

The **'Bone Marrow Transplant Research Fund'**

or the **'Blood Cancer Patient Comfort Fund'**

c/o Elda Ford, RN MS

Administrator, Bone Marrow Transplant Program

Abramson Cancer Center

Perelman Center for Advanced Medicine

2 West Pavilion

3400 Civic Center Blvd

Philadelphia, 19104

What is Acute myeloid leukemia?

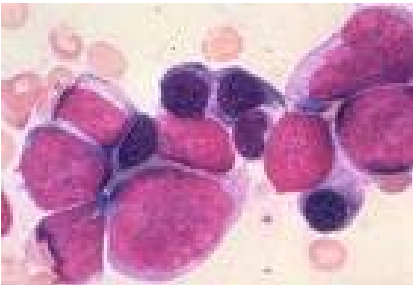
I found the following on the Wikipedia website.

Acute myeloid leukemia (AML) also known as acute myelogenous leukemia, is a cancer of the myeloid line of white blood cells, characterized by the rapid proliferation of abnormal cells which accumulate in the bone marrow and interfere with the production of normal blood cells. AML is the most common acute leukemia affecting adults, and its incidence in-

creases with age. Although AML is a relatively rare disease, accounting for approximately 1.2% of cancer deaths in the United States, its incidence is expected to increase as the population ages.

The symptoms of AML are caused by replacement of normal bone marrow with leukemic cells, resulting in a drop in red blood cells, platelets, and normal white blood cells. These symptoms include fatigue, shortness of breath, easy bruising and bleeding, and increased risk of infection. Although several risk factors for AML have been identified, the specific cause of AML remains unclear. As an acute leukemia, AML progresses rapidly and is typically fatal within weeks or months if left untreated.

Acute myeloid leukemia is a potentially curable disease; but only a minority of patients are cured with current therapy. AML is treated initially with chemotherapy aimed at inducing a remission; some patients may go on to receive a hematopoietic stem cell transplant.



Acute Myeloid Leukemia

Areas of active research in acute myeloid leukemia

include further elucidation of the cause of AML, identification of better prognostic indicators, development of new methods of detecting residual disease after treatment, and the development of new drugs and targeted therapies.

Leukemia Quackery

Cancer quackery is an especially malevolent form of “alternative medicine” that relies on a combination of ignorance, superstition, vicious or delusional practitioners, and vulnerable desperate sufferers and their families. It did not take long to find an internet website selling a so-called “e-book” entitled *11 Natural Therapies To Conquer Cancer*. The book specializes in “all natural” cancer cures for all manner of cancers. I, for obvious reasons, have zoomed in on leukemia, but the same nonsense applies to all cancers. Check out the home page of this website:

<http://www.cancer-fighting-strategies.com/>

On the home page the author announces that he has no medical training but has been studying cancer for seven years. He then goes on to plug his book and present many testimonials as to the efficacy of his methods of cancer treatment for many cancers.

The web page for leukemia treatment is the following:

<http://www.cancerfightingstrategies.com/leukemia.html?gclid=CP7VrumBt5gCFRLoxgodThkWag>

The website claims various all-natural products fight leukemia. Here is a partial list of products, many of which are homeopathic.

Agaricus Enhanced - a highly potent Agaricus Blazei hybrid mushroom, and Sasa Bamboo leaf extract that is the most potent immune system supplement we have ever found.

Seasonal Rescue - supports and enhances the ability of the liver, kidneys and lymph system to detoxify. More importantly, at the same time it boosts the immune system to fight infections, and any other situation where the immune system needs to kick in.

YewImmune5 - YewImmune5 is another strong immune system supporting cancer fighter well worth taking. The Yew Tree extracts have a long history of success with cancer.

Get Healthy Again Aloe 3X - the Aloe 3X and the aloe MPS are the very best aloe vera powders with many immune boosting and cancer killing abilities.

PlanktonPlex - a synergistic blend of FIVE renowned sea and seed superfood complexes that specifically nutritionally support optimal cellular function.

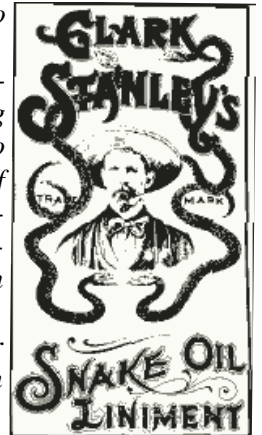
UltraCeps - a blend of two types of cordyceps mushrooms and other cofactors that have been processed in a proprietary manner to dramatically increase their effectiveness compared to other cordyceps mushroom extracts. Take to increase oxygenation and boost Natural Killer Cell activity.

Zormus - a homeopathic beryllium formulation designed to reduce pain, inflammation, fatigue, and is stated in homeopathic literature to be used to reduce cancer tumor size.

PapayaPro - engages seven power-packed fruit complexes including mature green papaya powder to support extraordinary levels of whole body cleansing with advanced nutritional support for digesting cancer cells and the fibrin surrounding tumors.

Zeo3 - a combination of a special water loaded with oxygen and hydrogen ions.

Reishi Complex - Reishi mushroom is known as a world class liver detoxifier and immune system booster. In addition it improves circulation, memory, concentration, clarity, and helps to relieve stress.



My favorite of the above remedies is the **Zeo3** - a special water with Hydrogen and Oxygen. Who would ever have guessed that?

Then comes the disclaimer which clearly states that the products listed are not intended to cure cancer. So what are they supposed to do? What is the purpose in buying the stuff?

Disclaimer: *These statements have not been evaluated by the Food and Drug Administration. The products and information contained herein are not intended to diagnose, treat, cure, or prevent any diseases or, medical problems. It is not intended to replace your doctor's recommendations. The information is provided for educational purposes only. Nutritional benefits may vary from one person to another.*

Why are people like this in business and not in jail?

Feds attack bogus cancer cures

Dr. Stephen Barrett reports in Consumer Health Digest, January 15, 2009

The Federal Trade Commission has taken action against eleven marketers of bogus cancer cures. [FTC sweep stops peddlers of cancer cures. FTC news release,, Sept 15, 2008] <http://www.casewatch.org/ftc/news/2008/cancer.shtml> cases resolved by settlements:

**Nu-Gen Nutrition, Inc., marketed cantron, an electrolyte liquid, and apricot seeds containing laetrile as treatments and cures for various types of cancer.

**Westberry Enterprises, Inc., marketed an herbal tea containing burdock root, sheep sorrel, slippery elm bark, and Turkish rhubarb root; melatonin; cat's claw; saltwater blue-green algae; and a mixture of roots, leaves, and barks from various plants.

**Jim Clark's All Natural Cancer Therapy marketed laetrile, apricot seeds, digestive enzymes, okra-pepsin-E3, and coral calcium.

**Bioque Technologies, Inc., marketed Serum GV, an extract from the soursop or guanabana tropical fruit tree with claims that it could prevent and treat melanoma.

**Holly A. Bacon d/b/a Cleansing Time Pro, claimed that its corrosive black salve was effective against HIV, SARS, and Avian Flu as well as melanoma.

**Premium-essiac-tea-4less claimed that its essiac tea was effective against cancer, AIDS, ulcers, hepatitis C; and many other diseases.

The FTC filed suit against five cases:

**Alexander Heckman d/b/a Omega Supply marketed laetrile, hydrazine sulphate, and cloracesium, which contains cesium chloride.

**Native Essence Herb Company marketed essiac tea, chaparral, and maitake mushrooms extracts with claims of effectiveness against cancers.

**Daniel Chapter One markets several herbal formulations as well as shark cartilage.

**Gemtronics, Inc. markets "RAAX11," which is made of chrysobalanus icaco, a derivative from a tropical bush, and agaricus, a medicinal mushroom.

**Mary T. Spohn d/b/a Herbs for Cancer sold Chinese herbal teas claimed to fight 16 different cancers plus another tea for "cancers not on our list."

Action in the above cases began through an Internet surf conducted in June 2007 by the FTC, the U.S. Food and Drug Administration, and Competition Bureau Canada. Following the surf, the FTC sent warning letters via e-mail to 112 Web sites between August 2007 and January 2008. Of these, nearly 30%

either closed their sites or removed the problematic cancer treatment claims. The remainder were reviewed to determine whether a law enforcement action was warranted or whether they should be referred to the FDA or the Competition Bureau. The FDA sent warning letters to 23 U.S. companies and two foreign individuals. The Competition Bureau sent warning letters to nearly 100 Canadian companies, almost all of which have adequately corrected their marketing materials.

<http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/02755.html>

Black Death kills al-Qaeda operatives in Algeria

The Telegraph, a UK newspaper, reported a story first broken by The Sun on January 19, 2009 that Bubonic Plague has reportedly killed at least 40 al-Qaeda terrorists in North Africa. This story has rather oddly not been widely reported in the major news outlets. It has been reported in Times of India, Washington Times, and a lot of internet blogs. One wonders if the story is true or not.

"The disease, which struck Europe in the Middle Ages killing more than 25 million people, has swept through a training camp for insurgents in Algeria. The arrival of the plague was discovered when security forces found the body of a dead terrorist by a roadside, the Sun reports.

The victim belonged to the large al-Qaeda network AQLIM (al-Qaeda in the Land of the Islamic Maghreb).

Black Death comes in various forms and was one of the deadliest pandemics in human history when it struck in the 1340s killing 75 million people across North Africa, Asia and Europe.

Bubonic Plague is spread by bites from infected rat fleas. Symptoms include painful boils in the groin, neck and armpits. In Pneumonic Plague, airborne bacteria spread like flu. Without medication it can be deadly.

The new epidemic began in the cave hideouts of AQLIM in Tizi Ouzou province, 150km east of the capital Algiers.

The group, led by wanted terror figure Abdelmalek Droudkal, was forced to turn its shelters in the Yakouren forest into mass graves and flee.

The group now fears the highly-infectious disease could have spread to other al-Qaeda training camps or Taliban fighters in Afghanistan, the paper said.

A source said: "The emirs (leaders) fear surviving terrorists will surrender to escape a horrible death."

AQLIM bombed the UN headquarters in Algiers in 2007, killing 41."

Other news reports, mostly internet blogs, suggest that al-Qaeda was experimenting with biological warfare and the experiment backfired.

Perhaps the United Nations could send in **Homeopaths Without Borders** to help control the problem. Recommended



Homeopaths Without Borders

homeopathic remedies for this pestilence are: *Lachesis*, *Crotalus horridus*, *Naja*, *Arsenicum*, *Pyrogen*, *Baptisia*, *Tarentula cubensis*, *Carbo vegetabilis*, *Elaps*, *cenchrus contortrix*. Powerful high attenuations would surely be best for plague control in this particular case. Try 50C at first and if symptoms worsen attenuate even more.

Young Earth Creationist Attack on the New Texas Earth and Space Science Course



Get a load of this.

It seems that Texas Creationists are upset about the content of a high school science class dealing with Earth and Space Science. So, they protest. The article is interesting enough, but rest assured the YEC's are dispensing the usual SOS (Same Old ... Stuff). <http://www.texscience.org/reports/ess-response-yec-2009jan15.htm>

Autism scaremongers blasted.

Dr. Stephen Barrett reports in *Consumer Health Digest*, January 15, 2009.

*Alison Singer, senior vice president of communications and strategy of Autism Speaks, has resigned because of the group's position that vaccination could be a cause of autism. Singer belongs to the Interagency Autism Coordinating Committee (IACC), the U.S. government agency for formulating strategy for tackling autism. Earlier this month, the IACC voted against committing money for two more autism/vaccine studies. By voting against the majority, Singer clashed with Autism Speaks' policy and decided to resign. In a recent interview, she noted that many scientific studies have disproved the link first suggested in 1998 and that Autism Speaks should let go of that idea. She also criticized actress Jenny McCarthy, who claims that her six-year-old son has "recovered" from autism that she attributes to vaccination. "We need to listen to experts and not to actresses," Singer said. "There's too much attention paid to people like Jenny McCarthy, who is not a doctor. When you listen to her, she doesn't speak in facts." [Luscombe R. Charity chief quits over autism row. *British Guardian*, Jan 25, 2009] <http://www.guardian.co.uk/lifeandstyle/2009/jan/25/autism-mmr-vaccine#>*

Founded in 2005, Autism Speaks is the world's largest charitable organization that targets autism. Its reported gross income for 2007 was \$44 million.

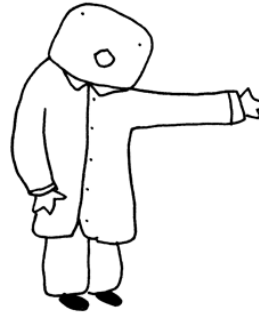
Quackwatch and Dr. Barrett need your help. If you haven't already done so, please read: <http://www.ncahf.org/digest07/07-48.html> and send a contribution to support their valuable work.

Fuel Efficiency Devices - of the Bogus Variety

This juicy little item was reported February 2, 2009.

"FTC Sues Promoters of Bogus Fuel Efficiency Device Ads

MAIL-ORDER ALTERNATIVE MEDICINE



Skip the herbs...
skip the needles...
simply write us a
check and pretend
it worked!

Cartoon by TFD. <http://toothpastefordinner.com>
Used by permission.

Appeared in Major Magazines Promising to Turn Any Car Into a Hybrid At the request of the Federal Trade Commission, a federal court has temporarily halted the deceptive advertising campaign and frozen the assets of an operation claiming its device can boost automobile gas mileage by at least 50 percent and "turn any vehicle into a hybrid." The Commission is seeking a permanent ban on the ads and a further order providing reimbursement to customers who purchased the device.

The FTC filed a complaint against the promoters of the Hydro-Assist Fuel Cell (HAFC), which placed advertisements in Newsweek, Popular Science and Smithsonian magazines. The ads made phony claims that the device, priced at over \$1,000, uses "longstanding, proven technologies" to drastically improve fuel efficiency, the complaint alleges.

*The FTC's complaint was filed in U.S. District Court for the District of New Jersey against Dutchman Enterprises, LLC and United Community Services of America Inc. (UCSA). It also names as a defendant **Dennis Lee**, chief operating officer of Dutchman Enterprises and president of UCSA. Lee is a convicted felon who has been prosecuted in at least eight states in the past for violating consumer protection laws.*

In papers filed with the court, the FTC states that since at least February 2008, Dutchman and UCSA have used magazine and Internet advertisements to mislead potential customers into buying an HAFC kit, based on the false claim that it would increase auto fuel efficiency by 50 percent or more, and has been scientifically proven to do so.

According to the FTC, the advertising campaign has claimed that the HAFC kit offers "Incredible Savings," fostering "Less Dependence on Foreign Oil." One magazine advertisement claimed that the HAFC kit increased a 2007 Honda Civic's gas mileage from 35 miles per gallon to 85 miles per gallon, and had increased mileage from 33 mpg to 121 mpg on a

2006 Mazda. Another ad claimed that the device would "double mileage, even with SUVs." On a Web site registered to the HAFC promoters, they claimed to have "scientific data on over two hundred vehicles right now that have gotten over 50% increase in fuel economy and there are a dozen of the smaller four cylinder cars that have gotten over 100 miles per gallon."

Lee made similar claims in video infomercials posted on the Internet, according to the FTC. The companies also promote the device through representatives, whom they referred to as "dealers."

The FTC asserts the defendants' advertising campaign has used pseudo-scientific explanations to describe how their device purportedly works. For example, according to the papers the FTC filed, the promoters of the HAFC have claimed that the device uses electricity to turn plain water into "water gas" that has five times the potential energy of gasoline, and that it uses powerful magnets to ionize gasoline so that it burns more completely.

However, in papers filed with the court, the FTC states that these and other claims defy well-established physical principles and contain "gross errors and misrepresentations of fact." According to an expert hired by the FTC, the device does not even meet the scientific definition of a "fuel cell," and several of the processes touted by the companies either are impossible or would lead to a net loss of energy. The promoters "are marketing a product that cannot exist and function as claimed," the FTC stated in the court papers. The Commission vote authorizing the staff to file the complaint was 4-0. "

For picture of Dennis Lee breathing exhaust fumes see Page 16.

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Youth is easily deceived because it is quick to hope.
Aristotle (384 BC - 322 BC)

Soundbites

Compiled by Becky Strickland

► "The battle of science to free itself from religious control has been almost completely won." Martin Gardner, in an optimistic mood. *Fads & Fallacies in the Name of Science*, 1957.

► "...if immunization rates drop, we're going to see horrible diseases afflicting our children again. What I trust is hard scientific evidence, and that's the way I decide what's safe for my daughter" Amanda Peet, actress, on the controversy over childhood vaccines. *People Magazine*, January 6, 2009.

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Some thoughts on MORALITY

By Alfred Erpel

The word "morality" was invented by humans to address issues of what is right and wrong as concerns humanity. Accordingly, my point of view is humanity-centric. I dismiss points of view as ludicrous and indefensible that posit that other things may be more important than humanity. There is nothing more important than people. So:

--- **Those actions which are most moral, are those that have the outcome of the most good for the most people.** ---

Notice that this definition does not preclude murder or going



Contemplation, Perseverance, Imagination, and Free Will. From the morality play *Hickscorner*. Reproduced in H.W. Mabie, *William Shakespeare* (1900).

to war. Under this definition there are times when it is moral to kill or steal or lie if doing so would cause the most good for the most people. It is immoral to knowingly and with in-action allow yourself, your wards, or others, to be endangered or die unless it is in the greater interest of the greater amount of people.

Any other definition, is less moral than other definitions, since things are either the most good for the most people or they are not, and people are what matter more than anything else. Those who think that plants or animals or environment are more important than people are morally confused. Plants or animals or environment are ONLY important insofar as their well-being affects the welfare of people and therefore can be VERY important.

If you could see into the future and know with certainty the outcome of decisions, then morality would be black and white; all actions would be clearly moral or immoral. But since we can't with certainty see the results of some decisions and only for that reason, what is moral can at times arguably be a scale of gray from black to white.

Alfred Erpel is a skeptic and long time member of PhACT. He is the proprietor of a precision metal work fabricating company outside of Philadelphia.

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MILLER DEBUNKS THE DISCOVERY INSTITUTE ... AGAIN



The
fol-

*"All those perfectly adequate brain-donors out there,
and Igor has to go and pick me a tele-evangelist..!"*

Cartoon by Nick D. Kim, nearingzero.net. Used by permission.

lowing has been shamelessly pinched from Glenn Branch's weekly **Evolution Education Update** newsletter of January 16, 2009. This particular item should be of interest to many PhACT members and Phactum readers as it involves the saga of the Dover Evolution/Creation Trial which was a relatively local event. Furthermore, journalist Lauri Lebo who wrote *The Devil in Dover* will be PhACT's speaker on March 21, 2009. Thanks, Glenn, and all the other scientists at NCSE.

In a three-part guest essay posted at Carl Zimmer's blog The Loom, Kenneth R. Miller responded to a recent attack by the Discovery Institute on his testimony in the Kitzmiller v. Dover case. At issue in the first part is the claim, found in both *Of Pandas and People* and Michael Behe's *Darwin's Black Box*, that the blood clotting system in vertebrates is irreducibly complex and therefore unevolvable. After rebutting the claim that he misrepresented Behe's claims in his testimony, Miller proceeds to explain the latest scientific research that undermines Behe's claims: "The lamprey, as luck would have it, has a perfectly functional clotting system, and it lacks not only the three factors missing in jawed fish, but also Factors IX and V."

Miller turns his attention in the second part of his essay to the Discovery Institute's attempt to rehabilitate the concept of irreducible complexity. Explaining Behe's argument, he comments, "That would be a powerful argument against evolution -- if it were true. Unfortunately, it's not, and the Dover trial demonstrated that for at least three of ID's favorite systems, blood-clotting, the bacterial flagellum, and the immune system." The Discovery Institute's attack fails, he contends, even to represent Behe's argument correctly, and "once you've demonstrated that the parts of the system do indeed work just fine in other contexts, you're answered the ID challenge fully and completely. Case closed. Three years ago, in fact. Case closed, and ID lost."

In the third part of his essay, Miller wonders why the Discovery Institute is bothering to assail the Kitzmiller decision three years after the fact. "The only conclusion I can draw," he writes, "is that they must be maneuvering for the next round of state board hearings or legislative sessions -- and I'm concerned. These folks are a whole lot better at politics and public relations than they are at science, and that means that everyone who cares about science education should be on guard." Miller was prescient: the first two anti-evolution bills of the 2009 legislative session -- Oklahoma's Senate Bill 320 and Mississippi's House Bill 25 -- have already appeared.

In politics, absurdity is not a handicap.
Napoleon Bonaparte (1769 - 1821)

Over at the Panda's Thumb blog, Nick Matzke adds a host of details to Miller's rebuttal, noting that Behe in fact wrote the portion of *Of Pandas and People* that discusses the blood clotting system. Further, in Kitzmiller he testified that the treatment of blood clotting in Darwin's Black Box is "essentially the same," vitiating the Discovery Institute's attempt to insulate Behe from the failures of Of Pandas and People's treatment. In fact, the treatments differ somewhat, which, as Matzke notes, was a problem for Behe on cross-examination: "Behe could have just said 'I was wrong in Pandas, my newer definition is right.' But of course, the whole point of Behe being there was to defend the ID book on trial, which was Pandas, so he couldn't do that."

Miller is Professor of Biology and Royce Family Professor for Teaching Excellence at Brown University and the author of *Only a Theory: Evolution and the Battle for America's Soul* (Viking, 2008); he was the lead expert witness for the plaintiffs in Kitzmiller v. Dover. A supporter of NCSE, he received its Friend of Darwin award in 2003. Matzke, who is now a graduate student in the Department of Integrative Biology at the University of California, Berkeley, worked for NCSE from 2004 to 2007. He was the lead NCSE staffer working on the Kitzmiller v. Dover case, providing a wealth of scientific expertise and practical advice to the legal team representing the ultimately victorious plaintiffs.

For the three parts of Miller's essay, visit:

<http://blogs.discovermagazine.com/loom/2009/01/02/smoke-and-mirrors-whales-and-lampreys-a-guest-post-by-ken-miller/>

<http://blogs.discovermagazine.com/loom/2009/01/03/ken-millers-guest-post-part-two/>

<http://blogs.discovermagazine.com/loom/2009/01/04/ken-millers-final-guest-post-looking-forward/>

For information about Of Pandas and People, visit:

<http://ncseweb.org/creationism/analysis/critique-pandas-people>

For Miller's review of Darwin's Black Box, visit:

<http://ncseweb.org/cej/16/review-michael-behes-darwins-black-box>

For Nick Matzke's blog post on The Panda's Thumb, visit:

<http://pandasthumb.org/archives/2009/01/god-of-the-gapsin-your-own-knowledge-luskin-behe-blood-clotting.html>

For a transcript of Behe's cross-examination about blood clotting in the Kitzmiller case, visit:

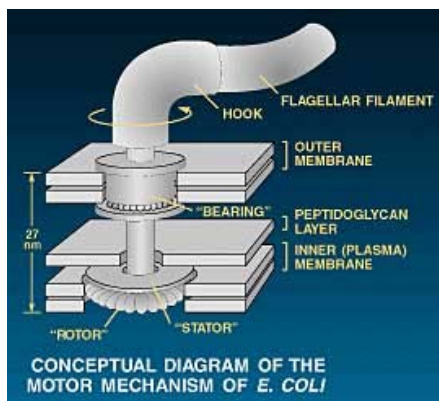
<http://talkorigins.org/faqs/dover/day12am2.html#day12am1087>

And for NCSE's collection of information about the Kitzmiller case, visit:

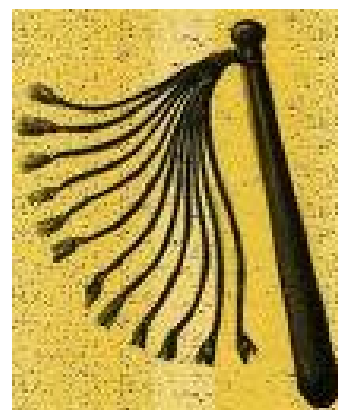
<http://ncseweb.org/creationism/legal/intelligent-design-trial-kitzmiller-v-dover>

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Flagellum



Discovery Institute style



Roman style

A Response to Responses about the Statement of PhACT's Policy on Religion - Phactum July/August 2008

By Dr. Andrew Petto

It has been interesting reading the exchanges on the PhACT Policy on Religion. Since I am not a member, I have sat out while members responded. However, I wanted to jump in to clarify a couple of issues that probably were not awfully clear at the outset and now are a bit murkier after the exchange of comments.

The most important is this: opposition to creationism in the science classroom is based NOT on the fact that it is a religious idea, BUT on the fact that it is a religious idea *pretending* to be science. I have opposed creationism (including “intelligent design” creationism most recently) for almost 4 decades in the same way that I have opposed cryptozoology, pyramid power, ancient astronauts, and numerous mystical ideas in the science classroom — because they simply are not based on the practice of science. The idea does not have to be primarily religious to make it unscientific, but our opposition is based on the lack of scientific bona fides.

Now, that is a more difficult battle to fight than the religious one, because there is a Constitutional prohibition against establishing religion in the curriculum, but there is no Constitutional protection against lousy science. Therefore, in cases of creationism of all stripes, the low-hanging fruit has been a law suit on First Amendment (Establishment) grounds, even though the nature or logic of those religious beliefs is not really the issue. Indeed, a thought experiment in which we conceived of a religious belief system that was entirely consistent with modern scientific practice would cause us to reject the incursion of that system into the science classroom on the same basis that its principles are not derived from scientific practice — regardless of how consistent they were with modern science.

The second issue has to do with the challenge that Don Balduino faces every day — critical analysis of arguments, logic, starting premises, and so on. In my conversations with Bob Glickman on the draft of PhACT's policy, it seems to me that the sort of critique that Don practices daily is absolutely the core of a critical thinking approach. However, to say that logical failures of philosophers and theologians in their arguments for the existence of God prove that all religion is false

and should be opposed is also a logical leap of faith. Are there no logical inconsistencies in the works of other philosophers — maybe even atheistic ones? The real problem, as the insert on Page 12 of the Sept 2008 *Phactum* demonstrates is that most of these philosophers began with the conclusion that God existed. Is it more defensible to begin with the *a priori* assertion that no God(s) existed — and then to conclude that there was no God?

These are important issues for philosophers and theologians, and I am neither. However, the policy, as I understood from my conversations with Bob, was about choosing which fights to pick. The idea that Bob conveyed to me was that PhACT was opposed to attempts to hijack public policy, education, the law, and so on by substituting sectarian religious doctrines, behaviors, values, or positions for the proper conventions of relevant fields of practice (science, education, law, behavioral sciences, public policy planning, and so on). However, he was concerned (as I would be with a small organization) that attempting to oppose all religion, simply because it was religion, would be neither effective nor in the best interests of this group — especially considering (as other letters have pointed out) that there are several organizations in the area and nationally that are specifically engaged in this mission.

Instead, Bob was searching for the unique niche that PhACT has to fill in this environment. And that niche, as Don Balduino so eloquently articulated, is to be a watchdog over the underlying logic and the argumentation of people who want to develop policies based solely on sectarian religious principles, ignoring empirical facts, real-world outcomes, and the effects on our cherished institutions. So, this policy is by no means giving creationism a pass because it is a religious idea; quite the opposite. It is — or ought to be — saying that creationism should be excluded from the science classroom because it just doesn't measure up to the standards of science. It is not expelled from school; it just flunked out!

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“It is always more difficult to fight against faith than against knowledge.” - Adolf Hitler (1889—1945)

The Will-o'-the-Wisp, Theory-Laden Facts and Inconvenient Facts

By Don Nigrone

Mysterious lights known as will-o'-the-wisps have reportedly been seen for centuries floating above bogs, marshes and swamps. These lights have traditionally been described as having certain distinctive characteristics, such as:

- 1.) looking like the flame of a candle or torch,
- 2.) variously colored,
- 3.) floating around and about,
- 4.) appearing just feet above the surface,
- 5.) having a cold flame such that they don't inflame flammable material upon contact,
- 6.) being seen only at night, and
- 7.) receding when approached thereby leading travelers astray into bogs, marshes or swamps.

When seen in days gone by, people would tend to embed an explanation into their report of what they had actually observed, even though what they really saw were just peculiar lights. For example, people might report having seen:

- 1.) Will-o'-the Wisp and thereby explain that the light was due to a sprite named Will who was carrying a wisp or straw torch,
- 2.) Jack-o'-Lantern and thus indicate that the light was caused by a sprite named Jack who was holding a lantern,
- 3.) fairy lights and in that way might purport that the lights were being carried by the little people,
- 4.) ghost lights and may thus apparently mean that the lights were due to the souls of the departed, such as enflamed souls that had escaped from Purgatory or the souls of unbaptized infants.

More recently scientists have tried to explain these mysterious lights in a more prosaic manner by what's typically referred to as marsh or swamp gas, which is chiefly composed of lighter-than-air methane gas that's produced by anaerobic bacteria decaying organic matter commonly found in bogs, marshes and swamps. Nonetheless, methane gas won't spontaneously combust and, if ignited, would produce a hot flame that should also be visible during daylight. Al-

though another gas found in marshy places, phosphoretted hydrogen, will spontaneously combust and could ignite the methane gas, the result would be a hot flame that could be visible during daytime. Some scientists think what's involved is a chemiluminescent reaction involving a phosphorous vapor occurring in marsh or swamp gas which would generate a cold light that would glow in the dark. However, the will-o'-the-wisp is not an amorphous, glowing vapor but a candle-like flame that behaves in a very specific way as noted above.

While I have often seen methane gas bubbles rise from the muddy bottom of bogs and marshes in southeastern Pennsylvania and from marshes and swamps in southern New Jersey due to the rotting organic material there, the bubbles always burst at the surface and never rise into the air, even when prodded by my walking stick. Alas, I have never seen a will-o'-the-wisp even though I've been on many guided night hikes in several diverse habitats, namely, Tyler Arboretum on the Piedmont Plateau and Tinicum National Wildlife Refuge on the inner Atlantic Coastal Plain in Pennsylvania and Wharton State Forest in the Pine Barrens and on the southern tip of the Cape May peninsula in New Jersey where there are bogs, marshes or swamps.

In conclusion, in the distant past, folklore explained the will-o'-the-wisp by using theory-laden facts and more recently science has accounted for the phenomena by ignoring inconvenient facts, nonetheless, these strange lights remain an unsolved mystery.

Don Nigrone 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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One cannot fix one's eyes on the commonest natural production without finding food for a rambling fancy. — Jane Austen (1775 - 1817), *Mansfield Park*

Sense about Science

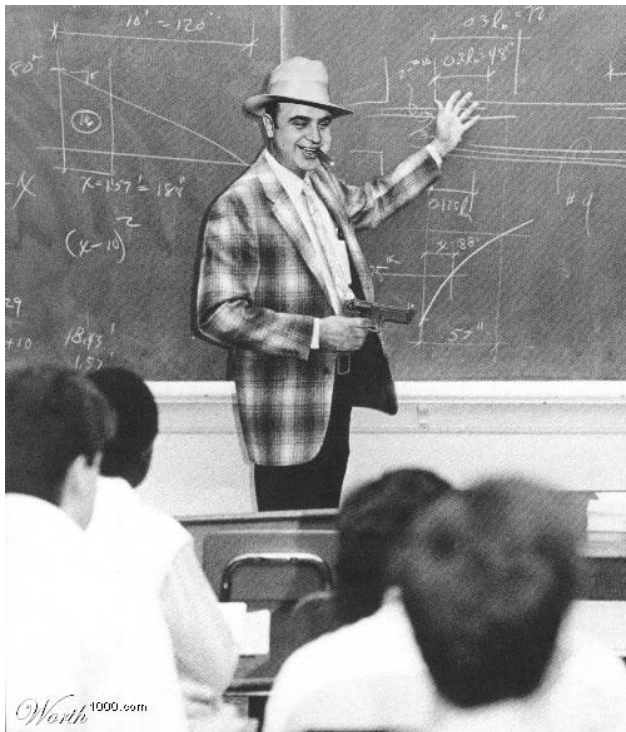
This very classy little UK charity has recently released two new projects that should be of interest to Scientists, Skeptics, and anyone else who fancies himself rational to some degree.

Celebrities & Science 2008

People in the public eye are often drawn to promoting theories, therapies and campaigns that make no scientific sense. For the third year, we reviewed progress to see if celebrities are checking their science 'facts' before speaking out. We were pleased to see that UK celebrities seem to have improved and are taking more care when discussing science and medicine. However, their international counterparts didn't do so well.

It is not often that the *Financial Times* and *NME* (the music magazine) run the same story and even stranger when it is about science, but *Celebrities and Science* managed to do that when they covered how Mariah Carey misinterpreted the meaning of Einstein's formula. After coverage in *The Times*, *FT* and *The Independent* the discussion moved to the internet. There was a lot of disbelief about Demi Moore using leeches to 'detox' herself and many people discussed Obama's comment on MMR and autism and commented that with specialised advisors he should know better.

It's also been reported around the world and back, having appeared in Irish, US, Italian, Spanish, Brazilian, Mexican, Ar-



Al Capone - Science Teacher, Chicago style

gentinian, Australian, New Zealand and Indian press or radio. Have you seen us mentioned in the media of any other country? Why not send us the cutting or the link for our records?

The file is open for next year's review and already filling up, so please send me (dr. Leonor Sierra) your examples of pseudoscientific claims made by celebrities in 2009.

You may download the PDF at:

www.senseaboutscience.org.uk/index.php/site/about/279 It would be rather cool if Phactum readers would participate in this project. There are plenty of lunatic celebrities and politicians making preposterous claims.

The Detox Dossier

Building on previous work debunking pseudoscientific product claims, members of the Voice of Young Science (VoYS) network have spent the last six months hunting down the evidence behind claims made by 'detox' products. At the start of the year they released the *Detox Dossier* with their findings:

- 'Detox' is being used by companies and individuals to promote everything from foot patches to hair straighteners.
- These companies are unable to provide reliable evidence for their claims or consistent explanations of the 'detox' process.
- The claims are misleading about how your body works.

Download this PDF at:

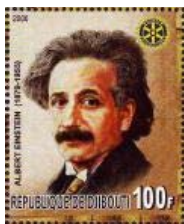
<http://www.senseaboutscience.org.uk/index.php/site/project/14/>

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Ω Ω Ω



Force, work and dimensions

by Tom Napier



Crackpot inventors treat every mysterious natural force as a potential source of endless energy. Gravity and magnetism, in particular, are frequently enlisted to confound the scientifically unsophisticated. Some 700 years of experience with failed over-balanced wheels should have convinced people that gravity cannot supply energy yet such wheels are still being built. A few years ago a TV producer flew PhACT's President, Eric Krieg, to France to examine one 60 feet in diameter. It didn't work but, assuredly, the next one would.

Magnetic power

"Free energy" promoter, Dennis Lee, would have his audiences believe that, since refrigerator magnets don't fall off, they must be constantly emitting energy. Not so. Magnetic forces behave like springs. It takes an input of energy to pull a magnet off a refrigerator. The system, magnet and refrigerator, now contains potential energy just as if you had lifted a weight. You can recover that energy as the magnet pulls back again but you never come out ahead.

I recently read an on-line discussion that was revealing of the way the untutored mind works. A magnet enthusiast suggested placing a steel plate above a tethered magnet so that the magnet would remain suspended just below the plate. Surely the magnet needs to do work to hold itself up against gravity? Luckily, someone pointed out that work is force times distance moved. As long as the magnet is stationary, neither it nor the Earth's gravitational pull do any work. How hard is it to fathom this simple point?

Lee points to the millions of electric motors around the world as proof that magnetic fields provide mechanical energy. This energy really comes from the input of electric current. This produces a magnetic field that is switched on and off. It's not hard to show that a motor's output of mechanical energy is, at most, equal to the input of electrical energy.

The carbon dioxide car

One of Lee's mind-bending demonstrations was to connect a car engine to a tank of liquid carbon dioxide. The engine was held stationary by a Sears torque wrench and gas pressure was applied to one cylinder. At room temperature, liquid carbon dioxide is under 73 atmospheres pressure. This was quite enough to bend the wrench, proving, Lee said, that the engine generated far more torque than the manufacturer's rating. (Buy your dealership before the rush.)

Lee didn't mention that engine power is the product of pi times the torque times the rotation speed. A stationary engine supplies no power, no matter how many wrenches you bend. Even if the engine could run continuously from pressurized gas, it would have stopped when the tank ran out. Liquifying and pressurizing another tank of carbon dioxide would inevitably take more energy than the engine supplied.

Check the dimensions

Lee's demonstration made two huge errors. One was hiding the ultimate energy source. The other was getting the dimensions wrong. Dimensional analysis is an essential scientific tool. In any valid equation the units on both sides must balance. If they don't then, no matter how clever your equation, it is wrong, wrong, wrong.

Many years ago I received a letter from a self-described psychic. She had calculated the speed of light in miles per second from the value of pi and some pseudo-religious fudge-factors and asked me if I thought this was important. Her first mistake was thinking that pi equals 22/7. Her second was supposing that any calculation starting from a pure number could produce a velocity. I wrote to explain that the number that represents the speed of light is not absolute, it depends on the units used. In miles per second it's 186,282. This changes to 299,793 when you switch to kilometers per second. It's almost exactly 0.002 AU per second,



Dennis Lee breathing engine exhaust from one of his machines running on gas, water, Coke, Pepsi, ketchup, after-shave, and waste oil.

Production of useful work is limited by the laws of thermodynamics, but the production of useless work seems to be unlimited. — Donald Simanek, PhD

and so on.

The speed of light is a velocity. Whatever units you use, they must represent a distance divided by a time. If a theory that predicts the speed of light doesn't yield the dimensions of length over time it must be wrong. It's like saying that I'm six inches old or three weeks high.

The fundamental dimensions from which almost all others are derived are force, length and time. Work (mechanical energy) equals a force times the distance moved. That is, the dimensions of energy are force times length. There's a complication here. We normally think of force and weight as being the same but, actually, something's weight is the force exerted on it by the earth's gravity. Not only does this vary from place to place on the earth's surface (and disappear altogether in free-fall) it doesn't have the same dimensions. You convert mass to weight by multiplying by g , the local value of the earth's pull. This has the dimensions of acceleration, Length/Time.² Now for a practical demonstration:

Energy = Force.Length

Force = Mass.Length/Time.²

Thus we can deduce:

Energy = Mass.Length.Length/Time.²

Since length divided by time is a velocity this tells us that the dimensions of energy are mass times the square of velocity. The dimensions in Einstein's famous equation $E = mc^2$ balance so it could well be (and is) valid.

Newton's equation that relates force, mass and acceleration is $F = ma$. Acceleration has the dimensions Length/Time.² so mass times acceleration has the dimensions Mass.Length/Time.². These are the dimensions of force so Newton got it right.

From Force to Energy

If a piston moves a distance of one meter against a load of one newton it has supplied an energy of one newton.meter. (The newton is the international unit of force. As a weight it's roughly 3.6 oz.) A steam engine supplies energy because we can turn off the pressure by venting the steam to the air or a condenser. This lets a flywheel return the piston to its starting position without using more than a fraction of the energy the power stroke gave out. Now we


can supply more steam and get a second output of power. This process continues as long as we pump water into the boiler and burn fuel to heat it.

Each stroke of this rather wimpy steam engine supplies one joule (newton.meter) of energy. If it makes one output stroke per second it has a continuous power output of one joule/second, that is, one watt or 0.00134 HP. Watts, or their more practical big brothers, kilowatts, are a rate of supplying energy. The electric company bills you for kilowatt.hours, that is for power times time. Multiplying power by time gets you back to energy.


Oddly enough, torque has the dimensions of length times force, the same as energy. So was Lee's stationary engine really putting out energy? Remember, you have to multiply torque by pi times the number of revolutions per second. Revolutions per second have the dimensions of 1/Time. When we multiply we get Force.Length/Time which has the dimensions of power. When you check the dimensions, all is well.

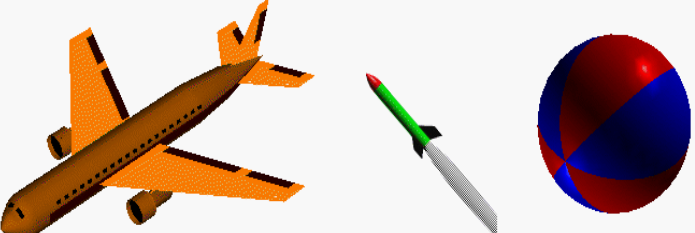
Tom Napier has been a stalwart skeptic and member of PhACT for many years and delights in exposing the outlandish claims of pseudo-scientists and charlatans. Tom makes his living as a physicist, writer, and scientific consultant.

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The Weight Equation





In general: $F = G \frac{m_1 m_2}{d^2}$

Force equals a gravitational constant times the product of the masses divided by the square of the distance between the masses.

On Earth: $g_e = G \frac{m_{\text{earth}}}{d_{\text{earth}}^2} = 9.8 \frac{\text{meter}}{\text{sec}^2} = 32.2 \frac{\text{feet}}{\text{sec}^2}$

$W_e = m g_e$

Weight equals mass times gravitational acceleration.

well, son, i think you've finally old enough to see my perpetual motion machine



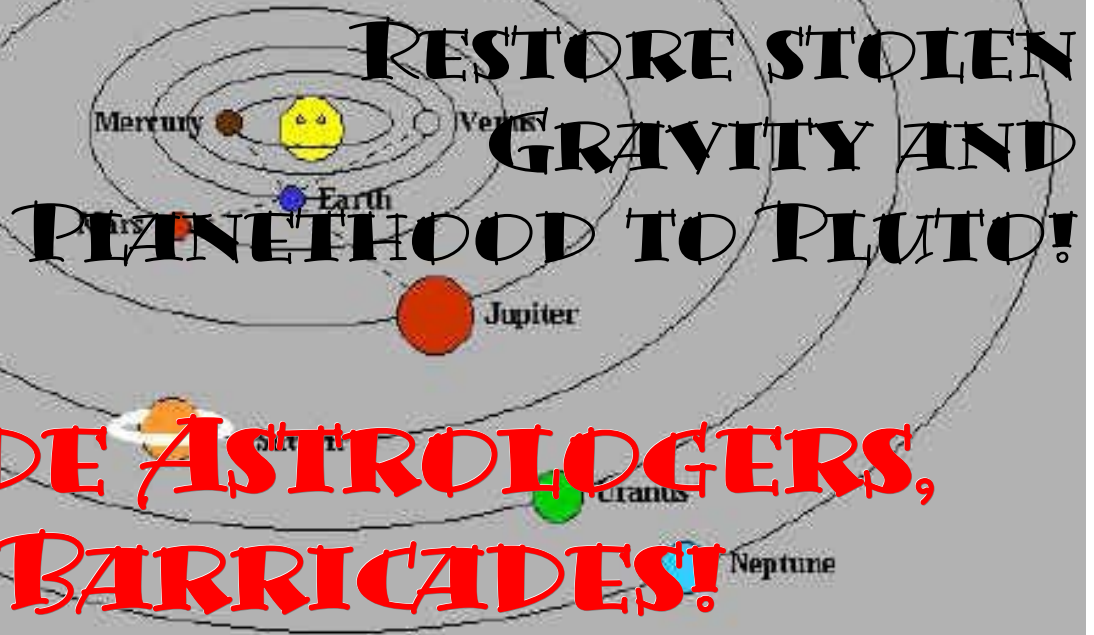
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GRAVITY FOR PLUTO!

REVERSE THE COSMIC PLOTS OF OIL COMPANIES AND FASCIST ASTRONOMERS!

RESTORE STOLEN GRAVITY AND PLANETHOOD TO PLUTO!

Return Pluto to the horoscope where it belongs!



COMRADE ASTROLOGERS, TO THE BARRICADES!



If you are a less excitable skeptic you might wish to coolly consider classes and lectures to learn more about Pluto at the Rittenhouse Astronomical Society which meets each month at the Franklin Institute: www.rittenhouseastronomicalsociety.org

Or at the Delaware Valley Amateur Astronomers who meet monthly in Plymouth Meeting, PA: www.dvaa.org

And you might also consider coming to monthly meetings of **PhACT** for (usually) down to Earth discussions of considerable Gravity and Gravitass. www.phact.org

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Phactum is going to expand. "Special Editions" of Phactum will begin to appear in the next month or two on an occasional basis with no date constraints or calendar insertions. Special Editions will be distributed by **e-mail only** and will be focused on a single topic. Articles should be much longer than can be accommodated in our normal Phactum publication.

PhACT Members and readers of Phactum are invited to submit long articles, or a collection of related articles, that might be of interest to skeptics and science minded people. Subject matter can vary widely but as in our regular publication we wish to avoid partisan politics and religion bashing. There is no need to be in philosophical or political agreement with the ill-tempered editor of this publication. Material must be written at a level comprehensible to bright laymen. Highly technical writing is not suitable.

This could be platform for a fun project for high school science teachers and others who might wish to publish student papers in a larger forum. College students are encouraged to submit papers.

If you wish to participate please contact the Phactum editor, Ray Haupt, at phactpublicity@aol.com to discuss your idea.

PhACT

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Ayn Rand (1905—1982)

USS Pennsylvania

Four ships in the U.S. Navy have borne the name *USS Pennsylvania*.

The first *USS Pennsylvania*, a 3241-ton (burden) 120-gun ship of the line, was built at the Philadelphia Navy Yard. This largest of the U.S. Navy's sailing warships was authorized in 1816, laid down some six years later and spent a decade and a half on the shipways. *Pennsylvania* was finally commissioned during the final months of 1837 and, at year's end, undertook her only sea voyage, a trip from Delaware Bay to Chesapeake Bay. Decommissioned after arrival at the Gosport Navy Yard, across the Elizabeth River from Norfolk, Virginia, the big ship was laid up there until 1842, when she began a long career as a receiving ship. On 20 April 1861, as Confederate forces threatened the Norfolk Navy Yard, *USS Pennsylvania* was burned to the waterline to prevent capture. Her wreck was later salvaged and broken up.

