# ACS DIVISION OF GEOCHEMISTRY

## SPRING 2004 NEWSLETTER

## 225th NATIONAL ACS MEETING
## March 28th - April 1st
## Anaheim, California

## In This Issue

# Message from the Chair

Anaheim 2004
American Chemical Society Meetings
Susan Carroll, Division Chair

I'd like to take this opportunity to thank all symposia organizers and presenters from the New York Meeting last fall and the upcoming Anaheim Meeting this spring. The excellent programming of the Geochemistry Division tends to build on itself year after year, and is a reflection of quality contributions made by the geochemical community. The program (see below) for the Anaheim American Chemical Society meeting from March 28 – April 1, 2004 continues this positive trend, with symposia on metals geochemistry, tracer geochemistry, colloid geochemistry, mineral surface chemistry, Fe and Mn biogeochemistry, vibrational spectroscopy and a large poster session/social. The poster session consists of over 40 presentations with contributions from most of our symposia. The Geochemistry Division technical program and abstracts are now posted on our web page (http://membership.acs.org/g/geoc/). Additionally, there are several symposia in the Nuclear Chemistry Division (Actinide Interactions with Environmentally-related Matrices), the Fuel Chemistry Division (Carbon Dioxide Capture and Sequestration, Utilization of Green House Gasses, Mercury Measurement, Transformations, Control, and Related Issues in Power Systems), the Colloid and Surface Chemistry Division (Vibrational Analyses of Dry and Wet Surfaces, Nanoscience and Nanotechnology, Fundamental Research in Surface and Colloid Chemistry, Environmental Colloids), the Chemical Education Division (Nanoscience and Education) and the Industrial and Engineering Chemistry Division (Nanotechnology and the Environment) that are of interest to many of our members.


## TECHNICAL PROGRAM — DIVISION OF GEOCHEMISTRY

*S. A. Carroll, Program Chair*

| **Marriott** | **S** | **M** | **Tu** | **W** | **Th** |
|---|---|---|---|---|---|
| Chemistry of Metals in Terrestrial and Aquatic Systems** (CHED, COLL, ENVR) | D | D | A | | |
| Multi-Tracer Studies in Geochemistry: When the Sum is Greater Than the Parts** (ENVR) | | A | | | |
| Colloid-Facilitated Transport of Contaminants in the Subsurface: The Life and Death of a Colloid** (COLL, ENVR) | | P | | | |
| Interfacial Phenomena: Linking Atomistic and Macroscopic Properties** (COLL, ENVR, IEC) | | | D | D | |
| Microbially Mediated Manganese and Iron Oxidation in the Biosphere** (COLL, ENVR) | | | P | D | |
| Poster Session | | | E | | |
| Vibrational Spectroscopy in the Earth and Environmental Sciences** (CHED, COLL, ENVR) | | | | | D |
| **Co-sponsored Symposia:** Selecting a co-sponsored symposia will take you outside of the current Committee, Secretariat or Division | | | | | |
| Actinide Interactions with Environmentally-Related Matrices* (NUCL) | D | D | A | | |
| Nanotechnology and the Environment* (IEC) | D | D | D | D | D |
| Vibrational Analyses of Dry and Wet Surfaces* (COLL) | D | DE | D | D | A |
| Utilization of Greenhouse Gases* (FUEL) | D E | D | | | |
| Nanoscience and Nanotechnology* (COLL) | P | DE | A | D | D |
| Nanotechnology and Education: A State of the Art Symposium* (CHED) | | D | A | | |
| Mercury Measurement, Transformations, Control, and Related Issues in Power Systems* (FUEL) | | P | | A | |
| Posters: Fundamental Research in Surface and Colloid Chemistry* (COLL) | | E | | | |
| Carbon Dioxide Capture and Sequestration* (FUEL) | | | | DE | D |
| Environmental Colloids* (COLL) | | | | | P |

**A** = AM; **P** = PM; **D** = AM/PM; **E** = EVE; **DE** = AM/PM/EVE; **PE** = PM/EVE; * Cosponsored symposium, primary organizer(s) shown in parentheses. ** Primary organizer, cosponsoring organizer(s) shown in parentheses.

Serving the geochemical community as a symposium organizer or as a Geochemistry Division Officer has been made easier by the American Chemical Society and its web-based organizational tools, which include the online abstract submittal process that you are familiar. Upcoming officer positions include program chair elect, secretary, treasurer and membership chair. If you are interested in running for one of these positions please contact me (carroll6@llnl.gov). If you are interested in organizing a future symposium, contact Jim Kubicki (kubicki@geosc.psu.edu).

As your new Division Chair, I hope that our successful programming will be mirrored in our scientific journal, *Geochemical Transactions*. Our electronic journal has many advantages over the traditional paper versions, which are highlighted below. However, the journal strength and its long-term contribution to the geochemical community ultimately depend on the scientific contributions that you make. I encourage all of you to consider *Geochemical Transactions* for publication.

It is my pleasure to acknowldedge the divison's best student paper for the New York Meeting, September 7 – 11, 2003

Elizabeth Haack, School of Geography and Geology, McMaster University

> "EXAFS investigation of Ni Sorption to Hydrologically Conditioned Amorphous Mn-Oxhydroxides."

## Geochemical Transactions

As you are all aware, a couple of years ago the Division of Geochemistry in conjunction wit the Royal Society of Chemistry, launched a new electronic journal, Geochemical Transactions. Last year in the fallout from the collapse of a subscription agency, the RSC decided to reduce the number of electronic journals it publishes. The Division entered into discussions with several other publishers about moving GT to a new "home" while retaining its mission and identity. Although GT is still in its infancy in some ways, several publishers recognized the potential of the journal and expressed interest in taking over the publication. A lot of work was done behind the scenes and we are very happy to announce that as of March 15th, GT has moved to AIP.

The new web address is:
GT.aip.org

The move to AIP has several major advantages. First and foremost it allows us to continue to publish GT in conjunction with a major not for profit scientific publisher. This will help us to keep subscription costs down to a minimum. It also allows us to continue the original vision of GT, which was to establish a journal in our discipline designed from the outset to be an electronic journal, to maximize the advantages that publication in electronic media can offer, including rapid publication and use of full color and multimedia. It also brings the management of the journal closer to "home territory" for the Division.

The division remains committed to GT. At the editorial level we are taking steps to attract new papers and to facilitate publication of papers presented at Division symposia as special collections in GT. We are also committed to making sure that Division members have access to GT at the prices that can be achieved by publishing in electronic form with a not-for-profit publisher. With your help, by subscribing and submitting papers, we are looking forward to building GT into a leading journal in the Chemical Earth Sciences.

# Secretary's Report

John C. Schaumloffel

Greetings to all of our members. 2003 was a busy year for the Division, and with an exciting program upcoming in Anaheim as well as a new publisher for Geochemical Transactions, 2004 promises to be also.

In our general election, Yoko Furukawa was elected Program Chair-Elect, and George Luther III was elected alternate councilor. Yoko was previously the Membership Chairperson, and is continuing to assist us in that role. The vendor we used for the ballots has also acknowledged their mistake in not including return envelopes and has ensured us it will not happen again.

Taking on a role as a Division Officer is not that much work, and it gives you an opportunity to guide the Division and its efforts to serve the membership. The Program Chair-Elect spends a year in that position and then progresses to Program Chair, Division Chair and Past Chair (Awards Chair). The learning curve is made easier by the fact that ACS offers training for all Division officers, and they have an excellent staff who help. So, please consider getting involved and help guide your Division through the upcoming years!

Also in 2004, we have a new face on the Divisoin website (membership.acs.org/g/geoc), and several new features. We are linking directly to the ACS Personal Scheduler for the current meeting, will have an updated link directly to the new Geochemical Transactions homepage, and will offer members the opportunity to post job openings at no cost. To post openings, please email them directly to me at schaumjc@oneonta.edu. We will be accepting nominations for the 2005 Geochemistry Medal, to honor an outstanding scientist in the field. Please visit the website to view the criteria and nomination details.

If you have any concerns about the Division, want to offer suggestions for programming, run for office, etc. please contact any of the officers directly. We are here to serve you!

Best wishes in 2004. See you in Anaheim!

John Schaumloffel

*The ACS Student Affiliates attended the Fall 2003 National American Chemical Society Meeting in New York City.*
*(L to R) Ralph Narain, John Schaumloffel, Jen Fusco, Beth Sutton, James Wells and Theresa Smigelski presented the results of their research.*

# Geochemistry Division Medal

## 2005 ACS Geochemistry Division Medal, Call for Nominations

To be awarded for outstanding contributions in any area of the field of Geochemistry. The Division of Geochemistry of the American Chemical Society is currently soliciting nominations for the third awarding of the Geochemistry Division Medal. The GEOC medal is awarded biennially to an individual for outstanding accomplishment in any area of Geochemistry.

Previous GEOC medal winners include: Frank J. Millero (2001) and John M. Hayes (2003)

The award consists of a bronze medallion plus $2000. The awardee will receive an allowance for travel to the award ceremony, as well as registration costs for the ACS meeting at which the award will be conferred. The third Geochemistry Division Medal will be presented at the 229th ACS National meeting to be held in San Diego, CA March 13-17, 2005.

Letters of Nomination and supporting materials should be sent to the Chair of the GEOC Medal Committee, Dr George W. Luther, at the address given below, by June 1, 2004.

Nominations should include a detailed description of the nominee's outstanding accomplishments, relevant citations and, at the discretion of the nominator, any other supporting information. Two letters from individuals other than the primary nominator are requested, but not required, by the committee. Nominators should confirm, prior to submission of the nomination, that the nominee is willing to be considered for the award. Nominees will be considered for two years.

Additional details of the award can be found at the Divisional web site at: http://membership.acs.org/g/geoc/

# SPRING 2003 ACS MEETING NEW ORLEANS

*Figure Captions*

*Left: Immediate Past-Chair of GEOC, Bill Landing, sitting in on tenor sax with the jazz combo at the 2003 Geochemistry Division Medal Reception and Dinner.*

*Center: 2003 Geochemistry Division Medal winner John Hayes with George Helz at the reception.*

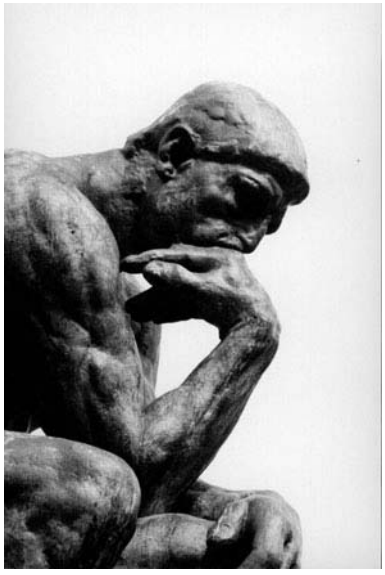
*Right: John Hayes receiving the 2003 Geochemistry Division Medal from ACS Past President Dr. Edel Wasserman*

# CALL-FOR-PAPERS

*Goldschmidt 2005*
*Moscow, Idaho*

Proposals for symposia/special sessions for the 2005 Goldschmidt Meeting in Moscow, Idaho, U.S.A. are now being soliciting. A number of broad themes for the meeting has been identified and an International Program Committee (IPC) has been appointed (see the website http://www.uidaho.edu/gold2005 for details). The IPC consists of a chairperson (Peter Larson; plarson@wsu.edu) and at least two international representatives for each theme. The IPC will evaluate each proposed symposium to minimize overlap and insure broad coverage of the themes. To propose a symposium, please contact either the IPC Chair or one of the appropriate thematic representatives (again, see the conference website for contact information). The proposal can be as simple as an e-mail giving the title of the proposed symposium, a brief statement of the relevance and expected interest level, and the names of potential organizers/session chairs of the symposium (who will solicit papers from appropriate contributors). We will entertain proposals even if they do not appear to fit under any of the highlighted themes. Proposals for symposia/special sessions will be accepted for consideration up until September 1, 2004. However, submission of proposals as soon as possible is advised.

# THOUGHTS TO PONDER….



The best way to have a good idea is to have a lot of ideas.
--Linus Pauling

…being a leader means playing off people's strengths instead of reprimanding them about their weaknesses.
--Gerald Chamales

Courage is a special kind of knowledge: the knowledge of how to fear what ought to be feared and how not to fear what ought not to be feared.
--David Ben-Gurion, former Prime Minister of Israel

…clear out that which is clogging up you life in order to create the space for the better stuff to show up.
--Keith Rosen

If we had no winter, the spring would not be so pleasant….
--Charlotte Bronte

Let me win. But if I cannot win, let me be brave in the attempt.
--Special Olympics Oath

As my grandfather used to say, "You can't catch one hog if you're chasing two."
--Robert Crittendon

# Call-for-Papers
# 226th ACS Meeting
# Philadelphia, Pa


**Astrobiology/Origin of Life**

Astrobiology attempts to understand the origin, evolution, and future of life on Earth and search for life in the universe - questions that are of fundamental interest to mankind. To answer such broad and complex questions requires the collaboration of geology, chemistry, biology, ecology, space science and astrophysics. The aim of this symposium is to provide a forum for this diverse community to share new and unique advances in this area and promote future interdisciplinary collaborations. Several broad themes fall under the astrobiology area, but for this symposium we solicit presentations dealing with the origin and evolution of life on Earth. Topics may include, but are not limited to:

- Possible mechanisms for prebiotic and abiotic organic synthesis.
- Studies of potential novel sources of organic molecules on early Earth.
- Prebiotic evolution of metabolic pathways.
- Processes that allow for organization of complex structures, such as membranes or DNA, that is critical to life.
- Abiotic mechanisms for the origins of biological homochirality. This includes the preferential selection of amino acids, sugars, and other biomolecules along with processes that allow for their organization and condensation into polypeptides.
- Novel methods to study the chemical evolution of the Earth's surface and atmosphere.
- Analysis of extraterrestrial samples for potential sources of life in space or on Earth.
- Analysis of terrestrial samples for clues on the origin and evolution of life on Earth.

For more information or to make suggestions/comments please contact the organizers.

Dr. Henry Teng
Assistant Professor
Dept. of Earth & Environmental Science
The George Washington University
2029 G Street, NW
Washington, DC 20052
Phone: (202)-994-0112
Email: hteng@gmu.edu

Dr. Aravind Asthagiri
Postdoctoral Fellow
Geophysical Laboratory
Carnegie Institution of Washington
5251 Broad Branch Rd. NW
Washington, DC 20015
Phone: (202)-478-8944
Email: a.asthagiri@gl.ciw.edu


**Spectroscopy of Mineral Surfaces**

The geochemistry community has made large strides towards understanding both the reactivity and catalytic properties of minerals. These advances are directly due to the application of techniques sensitive to the structure and reactivity of mineral surfaces, and interfacial environments, as well as evolving methods for the high resolution determination of a-periodic and defect structures in the bulk phase. Prominent techniques have included X-ray absorption spectroscopy, photoelectron spectroscopy (using both in-house and synchrotron sources), scanning probe microscopy, non-linear vibrational spectroscopy, and electron microscopy. We are calling for papers that highlight the application and development of spectroscopic and microscopic methods to the study of the surface and near-surface of minerals. We also encourage papers that apply *ab initio* theory and modeling to advance image and data interpretation.

For more information or to make suggestions/comments please contact the organizers.

Dr. Eugene S. Ilton
Pacific Northwest National Laboratory
Chemical Science Division
MSIN: K8-96
902 Battelle Boulevard
P.O. Box 999
Richland, WA 99352

Tel: (509) 376-5022
Fax:(509) 376-3650
Eugene.Ilton@pnl.gov

Professor Daniel Strongin
Department of Chemistry
1901 N. 13th St.
Temple University
Philadelphia, PA 19122
P.O. Box 999

Tel: (215)204-7119
Fax: (215)204-1532
dstrongi@temple.edu


**Mass-independent fractionation of oxygen and sulfur isotopes:**
**Observation, theory, and experiment**

Mass-independent fractionation (MIF) refers to the production of anomalous chemical isotope effects outside the range expected from relative isotopic mass differences. The first documentation of potential MIF in nature came from oxygen isotopic measurements of primitive meteorites, and MIF was first experimentally produced during the formation of ozone from molecular oxygen. Subsequently, MIF has been observed in oxygen and sulfur isotopes in many geologic and atmospheric environments, and in a variety of laboratory experiments. MIF has proven to be of great utility as a tracer of chemical and radiative processes in modern and ancient Earth environments, and as a sensitive probe of anomalous (non-RRKM) intramolecular chemistry in the gas phase. The aims of this symposium are to bring recent work on MIF in geochemical settings to the attention of the broader chemistry community, and to bring together researchers working on understanding the fundamental chemical mechanism(s) of MIF with researchers working on the geochemical observation and interpretation of MIF. Topics for the symposium may include but are not limited to:

- Observation and interpretation of MIF of oxygen and sulfur isotopes in modern and ancient geochemical settings
- Photochemical modeling of oxygen and sulfur MIF in modern and ancient atmospheric environments
- Quantum mechanical modeling of anomalous fractionation in ozone formation and other reactions
- Laboratory experiments on anomalous oxygen and sulfur isotope effects Processes

For more information or to make suggestions/comments please contact the organizers.

James Lyons
IGPP Center for Astrobiology
University of California, Los Angeles
Los Angeles CA 90095
phone: (310) 794-5047
email: jrl@ess.ucla.edu

Boswell Wing
Earth System Science Interdisciplinary
Center and Department of Geology
University of Maryland
College Park MD 20742
phone: (301) 405 2149
email: wing@essic.umd.edu


## Environmental Education

Rapid increases in technological sophistication have led to startling innovations in our everyday lives almost unthinkable a century ago. However, at the same time, advances in science and engineering have complicated how we live and react to the new technologies and, at times, force consideration of complex issues before our need for reflection. Often, technological capabilities themselves become moral imperatives that define our most basic values. Many of these advances raise environmental issues that are often complex with conflicting concerns for maintaining pristine or clean environments versus the push for economic development and prosperity, which facilitates an "us versus them" mentality with little hope for real progress or education. Without a firm educated basis of knowledge and understanding, progress on environmental issues seems unlikely.

The scientists of tomorrow need a well-balanced multidisciplinary approach to science education today. Whilst there is an inherent sanctity to pure scientific research, there is a necessity for the practical translation of its importance in our daily activities and of its relevance to our livelihoods. A balanced discussion of the hard science and social sciences aspects of environmental issues is required. As such, approaching problems from different directions and perspectives is fundamental to our understanding of Earth processes. New and continued emphasis in global warming, loss of biodiversity, ozone layer depletion, acid mine drainage, sustainable development and energy use are only a few of the major environmental threats which require an intelligent and informed response.

We are soliciting contributions of educational opportunities that promote the interdisciplinary exchange of ideas and knowledge among the areas of chemistry, geochemistry, hydrology, meteorology, biology, agronomy, environmental engineering, geology, toxicology, and the social sciences:

- Novel approaches to enhancing the structure and content of lecture-based graduate- and undergraduate-level environmental courses
- Laboratory exercises that foster understanding of specific environmental processes or that employ multidisciplinary experimental techniques to study environmental problems
- Active-learning, inquiry-based learning strategies in lecture and laboratory-based courses
- Innovative environmental education materials
- Environmental outreach programs

For more information or to make suggestions/comments please contact the organizers.

Dr. Dan Sykes
Department of Chemistry
152 Davey Lab
The Pennsylvania State University
University Park, PA 16802
Phone: (814) 863-0796
Email: dgs12@psu.edu

Dr. Jackie Bortiatynski
Department of Chemistry
152 Davey Lab
The Pennsylvania State University
University Park, PA 16802
Phone: (814) 865-2772
Email: jackie@chem.psu.edu


**Molecular Modeling in**
**Environmental Chemistry**

Molecular-level knowledge of pollutant chemistry is necessary because speciation can affect bioavailability, fate, and transport of contaminants. These three factors influence the assessment of environmental risk at a given level of contamination. Molecular modeling is growing as a method that can provide predictions and explanations of the behavior of environmental contaminants, especially in collaboration with field and experimental studies. This symposium seeks to bring together a broad array of researchers who are developing and applying methods of computational chemistry and molecular modeling in environmentally related areas such as computational toxicology, geochemical modeling, and Green Chemistry. Techniques used for one application are generally useful for other types of studies; hence, it is the goal of these sessions to share techniques and problems between scientists in this relatively new sub-discipline. Topics of interest include but are not limited to

- QSARs for predicting toxicity and environmental chemistry
- Modeling of aqueous and surface species
- Linkage between spectroscopic and modeling studies
- Web-based databases for environmental chemistry
- Modeling biochemistry of toxic effects
- Modeling and simulation to elucidate structure-function relationships in toxicology and environmental chemistry
- Reactive transport modeling of contaminants
- Biodegradation pathway simulations

This symposium will be preceded by a Petroleum Research Fund summer school on Molecular Modeling in Environmental Geochemistry at PSU, which will attract an audience of students who are interested in moving into this field.

For more information or to make suggestions/comments please contact the organizers.

Rebecca Perlow
Dept. of Biology
NYU
100 Washington Sq. East
NY, NY 10003
(212)998-8228
rp284@SCIRES.ACF.nyu.edu

Brian Teppen
Dept. of Crop & Soil Sci.
Michigan State University
Plant & Soil Sci Bldg Rm 538
East Lansing, MI 48824-1325
517-353-5215
teppen@msu.edu

Steven Cabaniss
Dept. of Chemistry
U of New Mexico
Albuquerque, NM 87131
(505) 277-4445
cabaniss@unm.edu

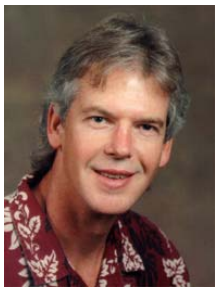
# Geochemistry Division Officers

**CHAIRPERSON**
**Dr. Susan Carroll**

Lawrence Livermore
National Laboratory
L-204
Livermore, CA 94602
(925) 423-5694
FAX: (925) 423-1997
*carroll6@llnl.gov*

**TREASURER**
**Jay Brandes**

University of Texas at Austin
Marine Science Institute
750 Channel View Drive
Port Aransas, TX 78373
(361) 749-6756
FAX:(361) 749-6777
*brandes@utmsi.utexas.edu*



**PAST CHAIR/**
**AWARDS CHAIR**
**William M. Landing**

Florida State University
Department of Oceanography
325 Oceanography-Statistics
Tallahassee, Florida
32306-4320 USA
(850) 644-6037
FAX: (850) 644-2581
*wlanding@mailer.fsu.edu*

**CHAIR ELECT/**
**PROGRAM CHAIR**
**Jim Kubicki**

Penn State University
Department of Geosciences
308 Deike Building
University Park, PA 16801
(814) 865-3951
FAX: (814) 863-8724
*kubicki@geosc.psu.edu*

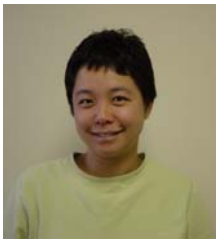
**SECRETARY/WEB EDITOR**
**John C. Schaumloffel**

SUNY College at Oneonta
Department of Chemistry &
Biochemistry
Oneonta, NY 13820
(607) 436-3432
FAX: (607) 436-2654
*schaumjc@oneonta.edu*

**No**
**Photograph**
**Available**

**COUNCILOR**
**Ken B. Anderson**

Southern Illinois University
Geology-SIUC
Mailcode: 4324
Carbondale, IL 62901
(618) 453-3351
*kanderson@geo.siu.edu*



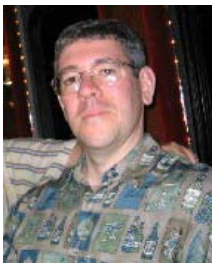
**PROGRAM CHAIR ELECT**
**Yoko Furukawa**

Naval Research Laboratory
Seafloor Sciences Branch
Stennis Space Center, MS 39529
(228) 688-5474
FAX: (228) 688-5752
*yoko.furukawa@nrlssc.navy.mil*

**ALTERNATE COUNCILOR**
**George W. Luther III**

College of Marine Studies
University of Delaware
Lewes, DE 19958-1298
(302) 645-4208
(302) 645-4007
*luther@udel.edu*

MEMBERSHIP CHAIR
**Position Available**



**NEWSLETTER EDITOR**
**David J. Clifford**

Penn State University
C211 Coal Utilization Laboratory
University Park, PA 16802
(814) 865-3523
*djc175@psu.edu*

# THIS MONTH IN CHEMICAL HISTORY

Harold Goldwhite, California State University, Los Angeles
hgoldwh@calstatela.edu

Prepared for SCALACS, the Journal of the Southern California, Orange County, and San Gorgonio Sections of the American Chemical Society

April is the cruelest month- for April Fool's Day pranks. And since I'm preparing this article for an April issue of SCALACS (even though it may appear later in other venues) I've decided to discuss some hoaxes in chemistry and chemistry's predecessor, alchemy. Although most alchemists seem to have been sincere adepts in the pursuit of truth, and their numbers include such scientific greats as Robert Boyle and Isaac Newton, there is no doubt that one of the premises of alchemy, namely the claim to transmute base metals like lead into gold, attracted a goodly share of charlatans and frauds to the subject. There are two famous and vivid portraits of alchemists in English literature, and both of them portray alchemical swindlers.

The earlier of these portraits is found in Chaucer's Canterbury Tales, written around 1390. Incidentally the most famous Chaucer manuscript, the Ellesmere Chaucer, is on display in the Huntington Library in San Marino, within our Southern California Section. The Canon's Yeoman's Tale is one of pseudo-alchemical deceit. In the opening the Yeoman speaks of his master, the Canon:

"If you try science you'll be brought to book.
My eyes are bleared with work on preparations,
That's all the good you get from transmutations."

(All quotations are from Nevill Coghill's admirable translation into modern rhyming English, first published in Penguin Classics in 1952.)

Part I of the tale discusses in chemical detail the fruitless efforts of the Canon, in which most of the drudge work was done by his Yeoman, to carry out the fabled preparation of the Philosopher's Stone, that elixir which, when projected upon a baser metal, will transmute it into gold,

Part II describes a second Canon who is known to the Yeoman to be a crook. This Canon, a true con-man, borrows a substantial sum from a priest and repays it promptly. He then promises to perform a miracle for the priest;

"Sir, he addressed the priest, send out your man
For quicksilver, as quickly as you can;
Let him bring back several ounces two or three,
And when he's back I promise you shall see
A miracle you never saw before."

The Canon now performs a transmutation of an ounce of the newly purchased mercury by the aid of "…a powder here that cost the earth" into genuine silver. The method is simplicity itself; in the crucible where the transmutation occurs the Canon places:

"…. A bit of beechwood, charred to coal
In which there had been subtly bored a hole
That held an ounce of silver filings, stopped
With wax securely, lest a filing dropped."

You can probably predict the rest of this educational Tale. Having carried out not one but two successful transmutations of mercury into silver and one of copper into silver he offers to sell the powerful powder to the priest for a mere forty pounds in gold. The poor dupe obliges, the Canon leaves town rapidly, and the powder left with the priest inevitably turns out to be worthless. Caveat emptor.

The same Latin tag might also apply to Sir Epicure Mammon, the victim of the alchemist Subtle in Ben Jonson's Jacobean comedy "The Alchemist", written in 1610. The plot is similar to Chaucer's. Sir Epicure, a rich man lured by Subtle's promises of even greater wealth gained through alchemy, is conned into supporting Subtle's household and experimental expenses, but gets nothing but bills and frustrations. Typical of Jonson's plays, and those of his contemporaries, is the use of names that describe the characters including Abel Drugger, a would-be pharmacist, Dol Common, Subtle's female sidekick, and Tribulation Wholesome, a pastor.

Perhaps the best known purely chemical hoax is the letter written by Woehler to Liebig in 1840 as a private joke. But Liebig published it in his journal Annalen under the by-line S.C.H.Windler. In this letter Woehler carries the newly observed phenomena of substitution of chlorine for hydrogen in organic compounds to an absurd height. This was a controversial topic at the time because supporters of Berzelius' dualism could not accept that the replacement of electropositive hydrogen by electronegative chlorine could lead to a compound of not greatly altered properties. Windler offers a scenario in which every atom in manganous acetate is replaced by chlorine leading to a completely chlorinated material with the properties of manganous acetate. Liebig added the footnote: "I have just learned that in the shops of London there are already fabrics of spun chlorine, very much in demand in the hospitals and preferred over all others for night caps, drawers etc."

Clean Energy Expo

BRYCE JORDAN CENTER

April 2-3, 2004

Joel Morrison
The Pennsylvania State University
Expo Chair
C-211 CUL
University Park, PA 16802-2323
email: wppsef@ems.psu.edu
www.wppsef.org/cee

**Friday, April 2 – 9am to 7pm**
**Saturday, April 3 – 9am to 5pm**
**Free Admission!**

***Expo promises something for everyone – we all use energy!***

***University Park, Pennsylvania:*** The need for clean, reliable energy is at the heart of our daily lives and our nation's economy. On Friday and Saturday, April 2 & 3, 2004, a Clean Energy Expo will take place at Penn State's Bryce Jordan Center to showcase many exciting cutting edge energy technologies of today and tomorrow. Admission and parking are free! The Expo is an event that will include interactive exhibits, workshops and special events. Homeowners and businesses can learn how to reduce their energy bills.

Attendees will have several major attractions and events:

***Smart Auto Show:*** The Expo will showcase a Smart Auto Show, featuring transportation technologies of the future. General Motors will exhibit their futuristic fuel cell concept Hy-Wire car, Mazda will showcase their RX-8 fuel cell car, Honda and Toyota will be providing gas-electric hybrid cars, and the show will be a certified event in a nationwide National Alternative Fuel Odyssey Day designed to promote clean transportation on Friday, April 2.

***Clean Power:*** GE Wind Energy's traveling wind blade will be a keystone exhibit at the Expo. The 120-foot display will showcase how clean electricity can be produced from a natural resource such as wind. Wind power is a growing way by which the nation is harnessing its local resources to meet its energy needs. Wind, solar, stationary fuels cells and advanced technologies that utilize fossil fuels cleanly will be showcased.

***High Performance Buildings:*** A series of exhibits and workshops have been organized to showcase building technologies that businesses and homeowners can use to build energy efficient, healthy homes and businesses. The U.S. Department of Energy's EnergyStar and Rebuild America programs will be showcased.

Mark your calendar for Friday and Saturday, April 2 & 3, 2004 to attend the Clean Energy Expo, a unique energy event taking place at Penn State's Bryce Jordan Center. This is an event you won't want to miss! Free Admission! Free Parking!

***Energize your Future!***