

AIChE



THE CATALYST

PITTSBURGH CHAPTER
AMERICAN INSTITUTE OF CHEMICAL ENGINEERS



Volume 17 Issue 8



May 2003

WWW.AICHEPGH.ORG

MAY MEETING NOTICE

Topic: AIChE 2003 McAfee Award Dinner

Where: Fox Chapel Golf Club
Pittsburgh, PA

When: Tuesday, May 20, 2003

Time: **6:00 PM** Registration and Social with
hors d'oeuvres and cash bar
7:00 PM Welcome and Dinner
8:15 PM AIChE Overview by
Ms. Dianne Dorland, 2003 AIChE President
8:30 PM Award Presentation

Menu: *Hors d'oeuvres:*
Artichoke and parmesan canapés, bacon-
wrapped scallops, grilled filet of beef croustade,
vegetarian California rolls

Main Course:
Please choose between Grilled Filet of Beef or
Baked Salmon Filet stuffed with Crab Au Gratin
(Vegetarian option available upon request)

Both entrees served with Vichyssoise Soup;
Mixed Greens with Basil Vinaigrette; Grilled
Zucchini, Tomato, and Basil Roulade; Saffron
Risotto with Sweet Peas; and Summer Berry
Bombe Dessert.

Cost: \$55.00 Members
\$45.00 Students / Unemployed Members
\$65.00 Non-members

You must RSVP by May 12, 2003

~ About The McAfee Award ~

Every two years, the Pittsburgh Section presents the McAfee Award to an outstanding chemical engineer. The awardee is a distinguished Pittsburgh chemical engineer who is widely recognized for contributing to the profession, has community appreciation where she or he lives and works, and has participated in and contributed to the AIChE and the Pittsburgh Section.

~ About the Awardee ~

Thomas F. Barnhart graduated from Carnegie Tech in 1946 with a degree in Chemical Engineering. His first job was with the Pennsylvania Department of Health in their new stream pollution program. Pennsylvania was the first state to have a comprehensive pollution program, and Tom was one of the first engineers to be hired into the program. He helped to develop new standards for industrial waste treatment of steel mill waste pickle liquor, oil well gathering stations, and phenol wastes.

Tom left the Department of Health to pursue a Masters degree in Chemical Engineering from Carnegie Tech. After receiving his Masters degree in 1952, Tom accepted a position with the Blaw Knox Company, where he designed waste treatment systems and specialized in extractive metallurgy. While there, he helped develop a pure nickel manufacturing process for INCO and helped design the first plant to produce ammonium nitrate from coke oven gas at U.S. Steel's Geneva (Utah) Works.

In 1964, Tom joined U.S. Steel in their Process Analysis Division. Throughout his career with U.S. Steel, he served as the Director of Facility Planning, Chief Engineer of Product Development, and Director of Engineering for USS Chemicals (later Aristech Chemical Corporation), a position he held until retirement in 1988. He managed the construction of 2-ethyl hexanol and phthalic anhydride plants (a \$200 million project) in Pasadena, Texas, and a polypropylene plant in Neal, West Virginia.

Tom holds several patents for his chemical engineering work. In the 1960's, he received a patent for a system to convert blast furnace slag into oil well propanant. A few years later, he received two patents for technologies to apply nuclear energy to steel making.

Tom has been a member of AIChE for 53 years.

**FOR DIRECTIONS AND RSVP INFORMATION,
PLEASE SEE PAGE 2**



LETTER FROM THE CHAIR

Hello everyone!

It is with a tinge of melancholy, and a lot of relief that I write my final "Letter from the Chair". It has been a wonderful year, and a great experience working with everyone. But before I turn everything over to the very capable hands of Mr. Nathan Peters, I still have a few short announcements.

First, a special thanks goes out to Mr. Otto Gaus of LaRoche Industries, for his presentation at last month's meeting.

And finally, special congratulations go out to Mr. Thomas Barnhart, our 2003 McAfee Award winner! The banquet will be on May 20. We have the honor of also having AIChE President Dianne Dorland join us to celebrate Tom's achievement. Please join us for this wonderful event.

I hope everyone has enjoyed the past year as much as I have, and I hope next year will be even better. I look forward to seeing everyone on the 20th.

JoAnn Truchan

AIChE Pittsburgh Section- Chair

MAY MEETING – CONT.

**FOR THE MAY MEETING,
RSVP NO LATER THAN
MONDAY MAY 12TH, 2003**

To: Mr. Nathan Peters, Vice-Chair
412-889-7833
npeters@larocheind.com

PLEASE PAY AT DOOR

Your RSVP should include your **Name, Menu Selection, Email, and Phone Number.**

CANCELLATIONS: If you must cancel your meeting reservation, please do so no later than 48 hours prior to the meeting. If you do not provide a cancellation notice, you will be invoiced for the cost of your meal.

MAY MEETING DIRECTIONS

DIRECTIONS TO THE FOX CHAPEL GOLF CLUB:

From Downtown Pittsburgh

Take Liberty Avenue to the Greyhound Bus Station and Penn Central Station to the 16th Street Bridge. Turn left onto 16th Street Bridge. Cross bridge and proceed straight through traffic light. Turn right at yield sign onto Route 28 North. Travel Route 28N approximately 8 miles to Exit 8 (Fox Chapel Road/Waterworks/Freeport Road). Turn onto exit and bear left on the ramp. At traffic light turn left onto Fox Chapel Road and continue on Fox Chapel Road 2 miles, proceeding straight through traffic light at the Fox Chapel Borough Building. FCGC is located ¼ mile on the right.

From PA Turnpike

Exit at Allegheny Valley Interchange (No. 5) and take ramp on right marked "Pittsburgh" onto Freeport Road. Continue on Freeport Road to 3rd traffic light and turn right toward Route 28 (shopping plaza with "Giant Eagle" store is on the right). Turn right at ramp marked "Pittsburgh" onto Route 28 South (Allegheny Valley Expressway). Continue on Route 28S approximately 5 miles to Exit No. 8 (Fox Chapel). At traffic light turn left onto Fox Chapel Road and continue on Fox Chapel Road 2 miles, proceeding straight through traffic light at the Fox Chapel Borough Building. FCGC is located ¼ mile on the right.

From Pittsburgh International Airport

From Airport Exit take PA 60 South towards Pittsburgh. PA 60S becomes Parkway West (I279 North). Travel on 279N approximately 15 miles through the Fort Pitt Tunnels. Continue on 279N to Route 28N (Exit 13). Travel Route 28N approximately 8 miles to Exit 8 (Fox Chapel Road/Waterworks/Freeport Road). Turn onto exit and bear left on the ramp. At traffic light turn left onto Fox Chapel Road and continue on Fox Chapel Road 2 miles, proceeding straight through traffic light at the Fox Chapel Borough Building. FCGC is located ¼ mile on the right.

THE GOLF CLUB IS LOCATED AT

**426 FOX CHAPEL ROAD
PITTSBURGH, PA 15238**

(412) 967-9081.



MEMBERSHIP CORNER

Dear Members,

We are constantly updating our local membership database. Please send all change of address notifications to our Membership Chair:

Holly Gray
Michael Baker Jr., Inc.
Airside Business Park
100 Airside Drive
Moon Township, PA 15108

hgray@mbakercorp.com

If you have not already done so, please verify your updated e-mail address with us so that you will continue to receive monthly newsletters!

Thank you!

Please sign me up for the local Pittsburgh Section of AIChE		
Name _____		
Company _____		
Address _____		
City _____	State _____	Zip _____
Business Phone _____		
Residence Phone _____		
Email _____		

Annual Dues are \$16.00. Make check payable to "AIChE Pittsburgh Section" and send to our Treasurer:

Leigh Anne M. Wacker,
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Omega Corporate Center
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Pittsburgh, Pennsylvania 15205

AIChE OFFICER ELECTIONS

Are you interested in becoming more actively involved with the Pittsburgh Chapter of AIChE? One of the many ways you can contribute to the growth and development of the Local Chapter is to become an officer.

The Local Chapter will be holding its annual election for the following positions:

- Vice-Chair
- Treasurer
- Secretary
- Counselor

The Vice Chair will automatically elevate to the position of Chair in the 2004-2005 program year. The Treasurer, Secretary, and Counselor each serve a two-year term that will end in May 2005.

If you would like to learn more about these positions or would like to place your name on the ballot, please contact me by **May 15th, 2003** at (724) 274-3371 or mflaherty@ppg.com.

Best regards,

Michael Flaherty
 AIChE Pittsburgh Section - Past Chair

SPONSORSHIPS

Interested in placing your company's information in future AIChE Newsletters?

Full Page	\$300
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Please contact Mariangela Peters at mariangelapeters@stargate.net or 724-554-7172 for more information.



A LETTER FROM OUR AIChE NATIONAL CHAPTER PRESIDENT

Dear AIChE Member:

You may have recently heard about the erosion of AIChE's financial health; in fact, the possibility of insolvency within a year. I, as well as the Board of Directors, am committed to the vitality of the Institute and we have been taking cost-cutting and revenue-generating measures in the interest of the Institute's well-being. Despite these efforts, recent economic factors and other events outside our control demand swift action beyond the measures already implemented.

During our just completed 2003 Spring National Meeting in New Orleans, the Board took immediate steps to ensure the future of AIChE. We recognize that major restructuring of our organization and programs is imperative for financial stability. With this improved stability, we will be positioned for greater vitality and growth in our Institute. In fact, this growth may come through strategic alliances with other scientific or professional societies.

*I invite you to actively engage in a process of communication and feedback within AIChE that we will be implementing over the next few weeks. The Board is working this issue very actively, with weekly internal communications and a decision on a path forward to be made at our June Board meeting. We are eager to have your input and support as we work together through this challenging period in the life of the Institute. In turn, we commit to frequent communications and will be posting updates—including financial information—on our Web site at www.aiche.org/changes. In order to access the financial information, please use the case sensitive password: *financial*. We are also very interested to hear your comments, receive your questions, and benefit from your suggestions. You may write to us at changes@aiche.org.*

For almost 100 years, AIChE has served the needs of chemical engineers and the profession. We are confident that with your support we will emerge as an ever-stronger home for all chemical engineers.

Regards,

Dianne Dorland
2003 AIChE President



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E-Mail: jmerrill@air-comp.com
Website: air-comp.com

CONGRATULATIONS...

Congratulations to AIChE Pittsburgh Section's Student Scholarship winners for the 2003-2004 academic school year are:

Daisy Digmanese,
Carnegie Mellon University

Donna Haworth,
Youngstown State University

We are proud to honor their achievements!

AND BEST WISHES!

Congratulations to AIChE Pittsburgh's Past Chair Michael Flaherty and former Newsletter Editor Peggy Panagopoulos on their May 2003 wedding.

The couple met at a Pittsburgh AIChE meeting!

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LOCAL NEWS

NEW BUSINESS

Congratulations to our current Scholarship & Awards Chair and former Pittsburgh Section Chair Edward C. Moretti on his new business. Ed has launched Moretti Consulting Group LLC, providing environmental, public policy, and business consulting services.

Moretti has technical and public policy degrees from the University of Pittsburgh and Carnegie Mellon University and is also active on several Boards of Directors including the Air and Waste Management Association Allegheny Mountain Section.

Good luck, Ed!

AICHE NATIONAL CONFERENCE

PREPARE TO BE ENLIGHTENED...

AICHE is holding its first [Process Development Symposium: Accelerating Process Development for Growth](#) to bring the process development community together from industry (such as food, pharmaceuticals, chemicals, and fine chemicals industries), academic institutions, government labs, and equipment suppliers.

Organized by the Process Development Division of AIChE, the Symposium will be held June 22-25, 2003, at the [Split Rock Resort](#) in the Pocono Mountains of Lake Harmony, Pennsylvania.

More information is available at <http://www.aiche.org/conferences/processdev/>

NEWSLETTER DEADLINE

**THE DEADLINE FOR THE SEPTEMBER NEWSLETTER IS
AUGUST 16, 2003.**

Please submit information to:

Mariangela Peters
at
mariangelapeters@stargate.net
724-554-7172

ENGINEERING IN THE NEWS

Drug Delivery Advancements

Sometimes we forget that many chemical engineers work in an exciting field known as biotechnology.

Currently, several research groups are concentrating on finding new methods of delivering drugs to the body. The motivation for such research includes the following:

- 1) Syringes can only be used once and then are destroyed
- 2) Prevention of accidental needle sticks by health care workers
- 3) Increased precision in drug administration
- 4) Needles hurt! (especially for children)

Glaxo Wellcome is developing a method of vaccine delivery where the vaccine is attached to tiny gold particles. The vaccine is delivered by a needle-free injector developed by Powderject. The new injector uses a concentrated, painless jet of helium to deliver the vaccine to the bloodstream. Once inside the body, the vaccine separates from the gold particles and becomes "active".

Researchers at Massachusetts Institute of Technology (MIT) have developed a silicon wafer implant that may be used for long-term drug administration in the future.

The dime-sized wafers contain 34 reservoirs for storing medication. Each reservoir is covered with 0.3 mm membrane of gold or other conducting material. When one volt of electricity is applied to the cover, it will dissolve via an electrochemical reaction and release the medication. The chip will be fitted with a battery and a timer or biosensor to help release the medication at a specified time interval or according to vital signs.

Source: <http://www.cheresources.com>



CHEMISTRY OF PHOTOGRAPHY

A Brief History of Black & White Silver Halide Photography

Perhaps the earliest reference to the concept of silver-based black and white photography is that of J. H. Schulze who observed in 1727 that a mixture of silver nitrate and chalk darkened on exposure to light.

The first semi-permanent images were obtained in 1824 by Nicéphore Niepce, a French physicist, using glass plates coated with a dispersion of silver salts in bitumen (a coal derivative). In the early 1830's, Niepce's partner, Louis Daguerre, discovered by accident that mercury vapor was capable of developing an image on a silver-plated copper sheet that had been previously sensitized by iodine vapor. The image, which was called a daguerreotype, could be made permanent by washing the plate with hot concentrated salt solution. In 1889 Daguerre demonstrated his photographic process to the Academy of Sciences in Paris. The process was later improved by using sodium thiosulfate to wash off the unexposed silver salts.

In 1841, an Englishman, William Henry Fox Talbot introduced a new system, the calotype process. The Talbot process involved a paper than had been sensitized to light by a coating of silver iodide. A negative image was produced on the exposed light-sensitive paper by bathing it in a solution of gallic acid in a development process essentially the same as that used today. If the paper base employed was semitransparent, the original negative image could be laid over another piece of sensitized paper which, when exposed and developed, yielded a "positive," or direct copy of the original. The process would be equivalent to what is termed "contact printing" today. Although the calotype process required less time than that of Daguerre, the Talbot images were not particularly sharp because of the fluidity of the medium employed to suspend the silver iodide crystals.

Originally, the silver salts were held on glass using egg white as a binder. This provided relatively sharp images although they were easily damaged. By 1871, the problem had been solved by Dr. R. L. Maddox, an amateur photographer and physician, who discovered a way to prepare gelatin dispersions of silver salts on glass plates. In 1887 George Eastman introduced the Kodak system in which a silver halide-in-gelatin dispersion was coated on a cellulose nitrate base and loaded into a camera. The camera could take 100 pictures and when all were exposed, camera and film were returned to Rochester, New York, for processing. With those innovations, the age of modern photography had arrived.

Source: <http://www.cheresources.com>

THE ENGINEERING OF CRUISE CONTROL

Successful engineers think in images. Their minds occupy a nonverbal world, not easily reducible to words. It is this kind of thinking that Ralph Teetor, the inventor of cruise control, had in spades. What makes his story remarkable is that he was blind.

After losing his sight at age five, he developed an exceptional ability to visualize objects and distances. For example, Ralph had helped build and install the basketball hoops at his high school and this was enough for him to be able to amaze his friends by sinking basket after basket. And at his father's shop, Teetor learned to create things perfectly out of wood or metal. So remarkable was his prowess with tools that by age ten his father built him a workshop, outfitted with grinders, lathes, and drills. After high school, Teetor decided to become an engineer. But because 1906 was not as enlightened as today, many colleges refused to even consider his application. Teetor had a cousin attending the University of Pennsylvania. So, Ralph visited the school and persuaded the Dean of Engineering to admit him. Teetor excelled in the mechanical engineering program and on graduation became an inventor.

1921, he invented the automatic transmission, although he was too far ahead of his time; it only appeared years later when his patent had expired. Teetor invented a new fishing rod and reel because his wrist grew tired from fly-fishing; he also designed and patented new locks. All, of course, without a drawing of any sort - just images in his mind. The one invention that he timed perfectly was cruise control. During World War Two, the government set a speed limit of 35 miles per hour to conserve gas and rubber tires. Most motorists found it difficult and boring to travel long distances at such a slow speed. He claimed, though, that he'd never have worked on it except for his patent attorney. The attorney's jerky driving made Teetor carsick.

The first cruise controls were elaborate mechanical devices that required every bit of Ralph's ability to visual objects and distances. By 1960 every major auto manufacturer had added this feature to their cars, and with the Energy Crisis of the early 1970s, cruise control became a permanent fixture.

What was the secret to Teetor's success? One of the engineers who worked with him on the first cruise control device asked "With all that you have been able to accomplish, what more do you think you would have done if you had been able to see?" Ralph replied, with a smile, "I probably couldn't have done as much, because I can concentrate, and you can't."

Source: <http://www.engineerguy.com>



AICHE PITTSBURGH SECTION 2002-2003 OFFICERS

Executive Committee

Chair

JoAnn Truchan (jtruchan@achd.net)
Allegheny County Health Dept.
412-578-7981

Vice-Chair & Program

Nathan Peters (npeters@larocheind.com)
LaRoche Industries, Inc.
412-889-7833

Secretary

Justin P. Filey (jfiley@ppg.com)
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724-274-3529

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Leigh Anne M. Wacker (leigh.wacker@cfx.aeat.com)
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(412) 351-2044 x230

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Committee Chairs

Safety & Environmental: Shiaw Tseng
PE Review: Carl Schwartz

Web Master

Richard Dupree (rrd@telerama.com)
Eaton Cutler-Hammer
724-775-5122

ELECTIONS!! ELECTIONS!!!

It is time to elect our 2003-2004 Pittsburgh Chapter Officers.
An electronic ballot will be distributed via email.

Please contact Michael Flaherty at mflaherty@ppg.com or 724-274-3371
if you are not currently on the email list.

Keep an eye out for this year's ballot!

Mark your calendars!

For the Following Dates:

May 20, 2003

Banquet / Monthly Meeting

2003 McAfee Award Banquet

Have a great Summer!! We look forward to seeing you in September!



The Catalyst

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