

Chesapeake Chemist

*Maryland Section
American Chemical
Society*



**Dr. Michael C. Cann
Chemistry Department
University of Scranton**

Green Chemistry: Chemistry for the Long Haul

Wednesday, November 15, 2006 – Anne Arundel Community College

November 2006

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Message from the Chair

By: Sandra K. Young

I've been thinking a lot lately about my road to becoming a chemist, probably because of National Chemistry Week (NCW). My mother is an analytical chemist and I remember, starting at a very young age - maybe age 5 or 6, listening to her talk about her job working for a pharmaceutical and then later personal care products company. I've also had some interesting science teachers and fondly remember doing things in grammar school like dissecting worms, clams, and frogs (or at least remember the pungent smell of formaldehyde), doing chemistry experiments with dry ice and mixing liquids for color changing effects, and joking with other kids that their epidermis was showing (most of them didn't have a scientist for a parent so they didn't know what that was), having a high school chemistry teacher who dressed up as a witch at Halloween and did some cool chemistry demos with us and as a treat us getting to make dry ice ice cream, and having an organic chemistry professor in college at DePaul University (in Chicago) who would come out to lunch with us for stuffed pizza and then quiz us on the organic reactions in our food (made for some interesting lunches).

But not everyone has a parent who is a scientist or has wacky science/chemistry teachers/professors so how do they get inspired about science? Well, the answer is varied but can be things like TV shows like Bill Nye the Science Guy or CSI, the cartoon page on the weekend which has a science question & answer block, or having scientists visit their schools for National Chemistry Week or other events.

When we start our outreach programs with young students we always start with the same 3 questions and students always have interesting answers: **(1)** "What does a chemist do that impacts your life?" Getting young students to realize that chemistry and science affects all aspects of everyday life is a good way to start out a session and the teachers especially like it when we emphasize how this is why they should pay particular attention in science class. From the clothing we wear and brushing our teeth to the food we eat (and how it's preserved), the varied formats we use to listen to things in the morning (radio, iPod, computers, TV), and how we get to school/work - science has really changed the way that people live over the last 100 years. The next question is **(2)** "Are chemicals good or bad?" This is usually one that they figure out pretty quick because a student on one side of the room can give an example of a good chemical and a student on the other side of the room can think of a bad chemical. And finally we ask **(3)** "What is not made out of chemicals?" I think this one is my favorite because it really shows how little students understand what chemicals are when they answer: water, paper, hair, our bodies...

Visiting and working with young students is always an adventure. When we arrived at Moravia Park Elementary in Baltimore City this year we waited outside for a while to try to catch up with the Morgan State Students before the event started and heard things like: "Awesome the scientists are here!" and "Are we going to make rubber balls again this year?" (NCW was the Joy of Toys last year and we made superballs - glad that they remembered!) Wherever we went students were excited and craving hands-on science stimulation. We've read for a while now about schools cutting back on 'other' coursework so that they can have more time working on English and Math, assuming that students will then learn more and be able to pass their mandated testing. Well, that other coursework that is being cut is turning out to be science, social studies, and other class work that used to be considered staples of a good education. One of the teachers at Colgate Elementary apologized for the kids' excitement because they only have 1/2 semester of science per year right now and it is next semester. - 1/2 semester of science per year - I really dwelled on that thought for quite a while. Is a full year of science crammed into 1/2 a semester? Do the students get any hands on science during that 1/2 semester? I'm still thinking of it now as I also remember students from various schools asking, "Will you come back again next year?" and "Can you come back next week?"

We frequently get requests from schools not only for hands on activities but also for high school career days and science fairs. We usually ask people on the executive board if they can go and often have to turn schools down. If you think you might be interesting in volunteering for events like this, please let me know (chemists4fun@yahoo.com).

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November Dinner Meeting

Wednesday, November 15, 2006, Anne Arundel Community College
Center for Applied Learning & Technology (CALT) building - Conference Center

- | | |
|--------------|--|
| 6:00-6:45 pm | Social/Appetizers & Beverages - CALT – lobby
outside room 100 |
| 7:00-8:00 pm | Dinner – CALT – room 100 |
| 8:00-8:50 pm | Presentation: CALT – room 107
Dr. Michael C. Cann,
Chemistry Department, University of Scranton
<i>“Green Chemistry: Chemistry for the Long Haul”</i>
Question and Answer (10 minutes) |

Cost for the dinner is \$25.00 for members; \$20.00 for spouses, retired chemists and guests, and \$10.00 for students. For reservations please contact Shirish Shah at 410-323-0803 (H) or by email at dr.shah@juno.com.

Directions to Anne Arundel Community College: The college is 5 miles north of Annapolis and is easily accessible from the Baltimore-Washington-Annapolis triangle.

- **From Washington or Annapolis:** Take Route 50 east to exit 27, Route 2 north (Governor Ritchie Highway) toward Baltimore. Stay on Route 2 for about three miles. Turn right on West Campus Drive (directly before Big Vanilla). Proceed straight and park in lots G or H. The Conference Center is on the first floor of the Center for Applied Learning and Technology building in rooms 100 and 107.
- **From Baltimore:** From Interstate 695 take exit 2, Route 10 toward Severna Park. Stay on Route 10 by moving right toward Severna Park when it joins Route 100 until it ends at Route 2 (Governor Ritchie Highway). Turn left on Route 2 south and follow Route 2 about 5 miles. Stay straight through the traffic light at College Parkway and turn left at the next traffic light onto West Campus Drive. Proceed straight and park in lots G or H. The Conference Center is on the first floor of the Center for Applied Learning and Technology building in rooms 100 and 107.

Green Chemistry: Chemistry for the Long Haul

“The Chemistry Enterprise in 2015” is a report published in 2005 by the ACS which discusses how chemistry will change over the next ten years. This report concludes that “the long-term health of the chemistry enterprise requires that it operate in a manner that is sustainable”¹. Green Chemistry (environmentally benign chemistry or sustainable chemistry) is the paradigm that will aid in the development of this sustainability. Green chemistry not only focuses on pollution prevention, but also the efficient use of resources, use of renewable resources, and energy conservation. This presentation will highlight the ethos of green chemistry, the twelve principles of green chemistry, and specific examples of green chemistry from the winners of the Presidential Green Chemistry Challenge Awards.

About the speaker... Michael Cann is originally from the Saratoga region of upstate NY (USA) and attended Marist College where he earned his BA in chemistry in 1969. Mike received his MA and PhD in organic chemistry from Stony Brook University in 1972 and 1973. He was a post-doctoral

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fellow at the University of Utah (1973-74), and a lecturer at the University of Colorado-Denver (1974-75). Since 1975 he has been a [faculty member at the University of Scranton](#). He is also the co-director of the environmental science program. His areas of interest encompass microwave assisted reactions, byproducts from biodiesel production, and green chemistry education.

In area of [green chemistry education](#), Mike has developed supplemental teaching materials, including web-based teaching modules and he has co-authored a book, Real-World Cases in Green Chemistry. He is the co-author of a textbook on environmental chemistry in which he infused green chemistry, and he is involved in the infusion of green chemistry into additional textbooks.

He has taught a number of courses including general chemistry, organic chemistry, environmental chemistry, topics in environmental science, internship in environmental science and graduate courses in mechanistic and structural organic chemistry.



America Recycles Day



[America Recycles Day](#) is a nationwide effort to encourage Americans to recycle and to buy recycled products and is celebrated every year on November 15th. In honor of America Recycles Day, we will be raffling off some recycling products at the November 15th dinner meeting.

Receiving the Chesapeake Chemist

If you did not receive a Chesapeake Chemist last month, it is because we did an e-mail only version of it for October due to our editor's illness (you can find the October Chesapeake Chemist on the Maryland ACS website at: <http://mdchem.org>).

We are currently working on getting a new editor spun up for the print edition so I am not sure how this will end up looking printed out, assuming the printer can format this version appropriately. However, I received a LOT of positive response from the e-mail only folks that from now on, we plan on doing e-mail versions to those of you whose e-mails we have. This will make the Chesapeake Chemist one less piece of paper mail for you to recycle! I am glad that you received the Chesapeake Chemist in advance of the meeting and liked the new format. I too don't have time to read my mail at home and often end up recycling all that I know isn't something that I absolutely need. It's also nice that the e-mail version is 'click-able' so you can be taken directly to whatever websites are listed or start an e-mail to someone listed in the newsletter.

You are welcome to give your e-mail or, also importantly, correct your e-mail address with the National ACS (and they will update the Maryland ACS roster and you too will be included on the e-mail distribution of the Chesapeake Chemist) by contacting the National ACS membership division: 800-333-9511 (US only) or service@acs.org.

Notes from the October Dinner Meeting

By: Sandra K. Young

In case you missed it, our October Dinner meeting was held on Wednesday, October 25th, 2006 at Villa Julie College. This was the middle of National Chemistry Week and we had copies of the National ACS newsletter 'Celebrating Chemistry' available, along with National Chemistry Week magnets. We also had a raffle for 3 National Chemistry Week t-shirts for dinner meeting guests, which 3 students attending the meeting won. Our October Dinner meeting celebrated Braude Award winner Dr. Catherine Fenseleau and her fascinating career working in Mass Spectrometry and teaching and training students and colleagues on Mass Spectrometry and other subjects.



Dr. Fenselau is shown (from right to left) accepting the Braude award with Dr. Madeline Braude (whose husband the award is named), Dr. Charles Rowell (MD ACS Counselor), and Dr. Sandra Young (MD ACS Chair 2006).



Fall 2006 - Important Dates



Wednesday, November 15 - November Dinner Meeting – Presentation: Green Chemistry
([Anne Arundel Community College, Arnold, MD](#))

Wednesday, December 13 - December Dinner Meeting (Maryland Chemist of the Year)
([Burkshire Hotel, Towson, MD](#))



Spring 2007 - Important Dates



February 2007 (Date to be determined) February Dinner Meeting

March 25-29, 2007 Spring 2007 ACS National Meeting & Exposition, Chicago, IL
(<http://chemistry.org/meetings>)

May 16-18, 2007 Mid-Atlantic Regional Meeting (MARM), Ursinus College, Collegeville, PA
(<http://www.marm2006.org/>) – Theme: Forging New Connections in Chemistry

November Historical Events In Chemistry

by Leopold May
Catholic University

- November 10, 1764 Andrés M. Del Rio discovered vanadium in 1801, which he called erthronium. He was born on this date. In 1830, Nils G. Sefstrom isolated this element and is often given credit for the discovery.
- November 14, 1807 Auguste Laurent, who was born on this date, discovered anthracene in 1832. Four years later, he obtained phthalic acid from naphthalene and in 1841 showed that carbolic acid is phenol. He and Charles F. Gerhardt evolved the nucleus theory of organic radicals.
- November 26, 1837 John A. R. Newlands did research in the periodic laws of element and devised the Law of Octaves. He was born on this date.
- November 7, 1851 Siegmund Gabriel, who was born on this date, discovered the method of preparing amino acids from amines (Gabriel Synthesis).
- November 16, 1881 One hundred and seventy-five years ago on this date, Joel H. Hildebrand was born. He was a researcher in solubility, introduced helium into deep-sea diving, and lived to 101.
- November 20, 1886 Karl von Frisch, who discovered how bees orient and communicate, was born on this date. In 1973, he shared the Nobel Prize in Medicine with Konrad Lorenz and Nikolaas Tinbergen for their discoveries concerning organization and elicitation of individual and social behaviour patterns.
- November 23, 1887 Henry G. J. Moseley, who discovered that x-ray frequency is related to atomic number of elements in 1913, was born on this date. He was killed in World War I.
- November 5, 1891 Neil K. Adam, a researcher on unimolecular surface films, was born on this date. He discovered the existence of a two-dimensional state of matter at water-air boundary.
- November 4, 1896 Cornerstone of the chemical laboratory building named after Frederick Havemeyer at Columbia University, NY, NY, was laid on this date.
- November 29, 1896 Kaj Ulrik Linderstrom-Lang, who studied dynamics of proteins, structure of enzymes and proteins, was born on this date.
- November 18, 1906 One hundred years ago, George Wald was born on this date, and he did research in the field of chemistry of vision. In 1967, he shared the Nobel Prize in Medicine with Ragner Granit and Haldan Keffer for their discoveries concerning the primary physiological and chemical visual
- November 1, 1909 Hooker Electro-Chemical Company founded on this day.
- November 8, 1919 Herbert S. Gutowsky did research in chemical shifts, spin-spin coupling, and chemical exchange in NMR (Nuclear Magnetic Resonance). This led to chemical structure determinations using NMR. He was born on this date.
- November 30, 1920 Bruno H. Zinn, who did research in DNA properties and provided the groundwork for genomics, was born on this date.

More Historical Events may be found at Dr. May's website: <http://faculty.cua.edu/may/may.htm>.

An informal association, Society for the Propagation of the Music of the Chemist-Composers, has been formed to publicize the music of chemist-composers. For information, see <http://faculty.cua.edu/may/SPMCC.htm>

Student Affiliate News

By: Susan Mercer

The MD-ACS is actively encouraging students and student affiliate groups to have better linkages to the Maryland ACS. At the beginning of October, packets were sent to the local SA-ACS advisors informing them of upcoming activities, awards, and dinners sponsored by the MD-ACS to encourage student participation. We are pleased to announce that student participation has increased at Chemistry-in-the-Library events and we have also reached out to additional students by hosting a table at the 9th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences at UMBC on October 14th. We will be announcing the Green Chemistry Initiative, a new program this year for student affiliates, at the November monthly meeting. See below for a summary of what local SA-ACS/Chemistry Clubs have been doing this semester:

JOHNS HOPKINS UNIVERSITY – by: Dr. J.D. Tovar

Emma Morrison, a junior Chemistry major, and Dr. Tovar attended the Chemistry-in-the-Library event at the Glenwood Library in Howard County a few weeks ago. The SA-ACS group also helped out at the Colgate elementary school event, where Dr. Tovar and David Rawits, a freshman Earth and Planetary Sciences major, participated.

LOYOLA COLLEGE of MARYLAND – by: Dr. Elizabeth Dahl

Mike Campbell, a junior majoring in Chemistry at Loyola College, won 1st place at the poster session at the 9th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, UMBC a few weeks ago:

“Progress Towards the Synthesis of Ezoaminouroic Acid.” Campbell, M. G.; More, J. D. 9th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, University of Maryland Baltimore County, Baltimore, MD, October 2006. (First prize in the “Chemical Sciences A” division)

During National Chemistry Week, the Chemistry Club at Loyola College sponsored several lunch time activities such as the Periodic Table of Cupcakes (name the element from the symbol and get the cupcake for that element) and slime making; in addition to passing out chemistry materials such as chemistry week stickers and wallet periodic tables. The week was concluded with a casual meet and greet between the Chemistry Faculty and students enrolled in chemistry classes.

MORGAN STATE UNIVERSITY – by: Dr. Louise Hellwig

The Student Affiliates (Chemistry Club) at Morgan State University have had two field trips this semester, one to UMBC to learn about the chemistry graduate program and one to the new Maryland State Forensics Lab in Pikesville. An informative line-up of speakers at club meetings includes Arlene Jackson from National Institute on Aging; Nakita Cropper, a Morgan alum who is now a pharmacist at Walmart, Dean Leo Rouse from Howard University School of Dentistry, and Dr. Jill Morgan of University of Maryland Pharmacy School.

The Chemistry Club also runs the Morgan Undergraduate Chemistry Help (MUCH) program in which teams of Morgan students visit a local elementary school once a week for about an hour for five-six weeks, leading a class of students in such experiments as making slime, ice cream in a baggie, testing acids and bases, and investigating density. This semester we are visiting five different schools weekly. Two of our students also volunteered with Sandy Young at Moravia Park E.S. during National Chemistry Week.

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On our own campus for NCW Chemistry Club members made ice cream using liquid nitrogen in the lobby of the science complex and gave out samples to the students who gathered.

TOWSON UNIVERSITY, BALTIMORE COUNTY – by: Dr. Shirish Shah

Liina Ladon, Cindy Zeller and Shirish Shah, as well as from SAACS three students, participated in NCW events at Lutherville Lab Elementary School. In a period of 3 days, almost every student in the school, 400+ students, did NCW experiments.

On October 25th, 2006, Dr. Ryan Casey from Towson U. gave a presentation, "Environmental Issues along with Trace Analysis" at Villa Julie College. This was followed by a "General Chemistry Panel Discussion". Dr. Alvin Kennedy (Morgan State), Dr. Alan Pribula (Towson Univ), Professor Liina Ladon (Towson Univ) and Professor Diane Payne (Villa Julie College) were the panelists and Shirsh Shah (Towson Univ) was the moderator.

To discuss the difficulties undergraduate students are running into with chemistry/math in the basic chemistry classes and how each school is working to overcome these difficulties.

UNIVERSITY OF MARYLAND, BALTIMORE COUNTY – by: Ms. Susan Mercer

Students participated at the 9th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, University of Maryland Baltimore County on October 14th. Chemistry Club members helped at the MD-ACS table by informing other students about becoming an ACS Student Affiliate, while also handing out ACS pens and raffling off travel mugs.

WASHINGTON COLLEGE – by: Dr. Anne Marteel-Parrish

The Washington College SA-ACS chapter received a "Commendable" award for their activities performed during the 2005-2006 academic year. This is the second year in a row receiving an award from the ACS. An "Honorable" award was received for the 2004-2005 academic year activities. The SA-ACS chapter will be holding a toiletry drive this semester and also plan to bake a periodic table for fundraising.

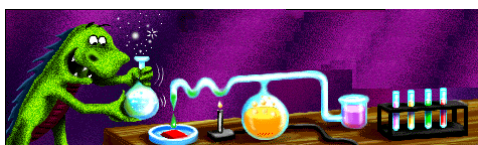
Applications Are Being Accepted for Undergraduate Student Travel Awards

Students can apply to receive up to \$500 for travel and expenses to attend a National ACS Meeting or up to \$300 to attend a Regional ACS Meeting. Open to undergraduate student affiliates of the ACS who are enrolled full time in a college or university in the Maryland Section.

The application should include:

- The meeting you plan to attend along with location, dates
- An estimated budget (cost for travel, registration, lodging, and meals)
- A 250 word essay describing your motivation for attending the meeting (if you plan to present, include a brief description of the work to be presented)
- A letter of support from a faculty member in your department

Review of applications will begin January 15th. Applications should be mailed to: Dr. Paul Smith, UMBC, Department of Chemistry and Biochemistry, 1000 Hilltop Circle, Baltimore, MD, 21250.



National Chemistry Week

National Chemistry Week was celebrated around the country on October 22-28, 2006. NCW is a community-based program sponsored by the ACS. The goal of the program is to reach out to the public, especially elementary and middle school aged children, with a positive message about chemistry/science.

The Maryland ACS has groups of individuals from various organizations go out every year and help different schools and libraries celebrate National Chemistry Week.

MD ACS events that took place before/during/after National Chemistry Week):

- Libraries: Bel Air Branch Library (Harford County), Edgewood Branch Library (Harford County), Elkridge Branch Library (Howard County), Glenwood Branch Library (Howard County), Port Deposit Branch Library (Cecil County), Savage Branch Library (Howard County)
- Schools: Bayview Elementary (North East, MD - Cecil County), Churchville Elementary (Churchville, MD - Harford County), Colgate Elementary (Baltimore County), Edgewood Elementary (Edgewood, MD – Harford County), George D Lisby Elementary School (Aberdeen, MD – Harford County), Halls Cross Roads Elementary (Aberdeen, MD - Harford County), Lutherville Lab (Lutherville, MD – Baltimore County), Moravia Park Elementary (Baltimore City), Northeast Elementary (North East, MD - Cecil County), Roye Williams Elementary School (Havre de Grace, MD – Harford County),

In all, Maryland ACS volunteers have worked with over 2,500 students during the National Chemistry Week season (September-November)!



Students from Roye Williams Elementary learn about heat transfer by placing an ice cube on aluminum versus foam.



Former chair, Alan Samuels, works with students on the strength of spaghetti experiment at the Bel Air Library.

Let us know how YOUR National Chemistry Week event went.

Remaining open-to-the-public NCW Chemistry-in-the-Library events that might be going on near you:

Sat., November 4th from 2-3pm – Walkersville Library (Frederick County)

Mon., November 20th (time to be decided) – Waverly Library (Baltimore City)

Wed., November 22nd (time to be decided) – Waverly Library (Baltimore City)

Stop in and join us if you have time!! If you have any questions or want to assist with an event, please feel free to contact us at chemists4fun@yahoo.com.

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The strength of spaghetti experiment and other odds 'n' ends can be found in the 2006 edition of 'Celebrating Chemistry'. You can download 'Celebrating Chemistry' at (<http://chemistry.org/ncw>).

Volunteer Here!

After our National Chemistry Week announcement went out last month, I had various individuals e-mail me and generously offer their time to help work with students. Special thanks to Bonnie Fox for generously donating her time to join us at various schools in addition to several students & faculty.

In response to these e-mails, I'd like to put together an e-mail list of people who are interested in volunteering at events. The Maryland ACS would send out an announcement of an event and you'd have an opportunity to join us if you have time. We often announce these things through the Chesapeake Chemist but with the volunteer e-mail you'd be given more notice than a week or so.

Like working with students? Have a talent for encouraging students in science? Have ideas for outreach events? Sign up for our volunteer news. Contact Sandy Young at chemists4fun@yahoo.com.

2007 MD ACS Ballot

Last chance to respond to the 2007 MD ACS Ballot. Below is the ballot for the 2007 Maryland Section Executive Committee.

Please mark the ballot and then place it in an envelope, with your name written on the outside of the envelope. Mail your sealed ballot to Dr. Shirish Shah, c/o Chemistry Department - Smith Hall, Towson University, 8000 York Road, Towson, MD, 21252. The ballots will be counted by the secretary of the Maryland Section for the official count. (Electronic balloting is not yet allowed.)

Chair-Elect: Walter Roy _____

Secretary: Sara Narayan _____

Treasurer: Angela Sherman _____

No Councilors/Alternate Councilors need to be elected this cycle as their terms are continuing.

Members at Large:

Karen Hatwell _____

Maurice Iwunze _____

Liina Ladon _____

Angela Winsteadt _____

Takashi Tsukamoto _____

If you want to get involved with the Maryland Section Executive Committee and/or with section activities, we want to hear from YOU! Please feel free to contact the chair, vice-chair, or chair-elect via e-mail to get more information on various areas/activities that we would like to start or expand in the future. The amount of time to commit would be up to you but might be around 2-4 hours per month, depending on the activity. We are always looking for individuals with budget/financial, editing, and planning skills.



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