

Wright State University Department of Chemistry Newsletter February 2009

www.chm.wright.edu

Chair's Chat

Happy 2009 from all of us in the Chemistry Department!

As I write from the perspective of late January 2009 I can look back on 2008 as another successful year for the department, with new faces, special lectures, equipment updates and award recognition for our alumni and students. The year was not without its challenges, however, uppermost among which was the continued renovation saga. Unlike for Brehm (wherein lie our new teaching laboratories), the budget for Oelman was not sufficient to allow a philosophy of 'out with the old and in with the new'. Accordingly, a back and forth struggle ensued, which culminated in a plan that reuses much of the old bench work from the first, second and fourth floors but, *inter alia*, provides 37 new 6' hoods, new countertops and 140 square foot faculty offices. We are now in the construction phase, which consists of two stages, coupling the 4th floor with the basement, then the 1st floor with the 2nd floor. The upshot was that, in the summer, working on a tight



timeline, swing space had to be cleared on the 1st and 2nd floors to accommodate the displaced denizens of the 4th floor and, concurrently, all of the labs., offices and storage spaces on the 4th floor were completely cleared in preparation for demolition. This painful task would not have been possible without the Herculean efforts of our M.C. (move coordinator) Hammer, Marty Tucker, who wheedled, cajoled and, yes, threatened recalcitrant faculty members who came to fear the sight of her purple clipboard! She spent innumerable hours filling up huge, rolling dumpsters and sending to ESPM (Excess Surplus Property Management) the detritus of 40 years of accumulation. With another round of moves anticipated in April 2009, small wonder, then, that she opted for retirement at the end of 2008! At present, as a result, we are getting to know one another quite well since much of the department is compressed onto the 2nd floor. We have revamped the old P-Chem lab. (202 Oelman) as a TA bullpen, with temporary offices for our two new faculty members in what

were the ancillary computer labs., Vlado Katovic is utilizing the former organic lab. support room (246 Oelman) as an overflow research lab., Dan Ketcha's research space is in the old environmental chemistry lab. (232 Oelman), Suzanne Lunsford's lab. is the room sharing the X-Ray instrument (125 Oelman) and Eric Fossum's large research group is occupying the old quantitative and instrumental labs. on the 1st floor of Oelman. Those of you who remember the latter can probably envisage the 'horrors' that awaited us during the clean-up process. While we have had a few months breathing room, as I alluded to above, the process begins again in earnest at the end of March when the vast majority of department members move to the 4th floor. While, for many, this will be the final move, for those returning to the 2nd floor, *viz.* Steve Higgins, Audrey McGowin and Paul Seybold, this will represent a 6-month swing period during which the renovation of the 2nd floor spaces will occur. In addition, David Grossie, the department office personnel and I will occupy temporary space in Allyn Hall until our triumphant return to Oelman (will anyone remember who we are?). While this multi-year project has presented real challenges, light can be seen at the end of the tunnel and we are hopeful that the overall process will result in much improved spaces. Certainly, after just over one year in Brehm, we are enjoying the enhanced safety, centralization and generally improved teaching environment offered by that remodel.

The word came from on high that we would not be able to search for an external Chair in 2008, however, we did conduct two successful searches and we were delighted to welcome two new faculty members, Rachel Aga and Ioana Pavel, to the department in Fall 2008. Rachel, whose expertise is in computational chemistry (especially hydrogen storage on carbon nanostructures and adsorption on surfaces) joined us from a post-doctoral position at Oak Ridge National Lab. Ioana came from a teaching position at Marist College and brings research expertise in the area of surface-enhanced Raman Spectroscopy. Already, both have attracted graduate students to their respective programs and have made valuable connections with other departments. While we were happy to welcome new faces to the Department, we were sorry to lose an old face (figuratively speaking, I hasten to add!). Alas, Marty Tucker made good on her 'threat' to retire (as of December 31, 2008) and, in anticipation of that likelihood, we had a special Marty-Gras celebration / wake in November. Marty has been a font of wisdom, knowledge and 'sassy' humor for many years and she'll be much missed. She tells us that her current, daily agenda is: "let dog in; let dog out." We wish her well with the challenges this presents.

As I mentioned in last year's newsletter, the CoSM Outstanding Alumni Award winner, Jeanne McHale, Washington State University, was to receive her award in February 2008. However, due to atrocious weather in Washington State (for once, not in Ohio!) she was unable to do so in person. It worked out well, though, since, willingly, she made a special trip to Dayton in the Fall (with her husband, Fritz Knorr, also a Wright State Chemistry graduate) and presented a delightful, special seminar entitled "Solar Energy Conversion: Challenges and Opportunities in Materials Science." A few 'oldsters' were in attendance and it was fun listening in on the reminiscences regarding the early days of the Department; apparently Paul Seybold never had hair! For the 2010 CoSM Outstanding Alumni Award, we would be grateful for your nominations and/or suggestions, so please drop us an e-mail at chemistry@wright.edu.

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Earlier in the year, we were delighted to welcome home two, more recent graduates (Sharlene "Hopkins" Williams and Larry "Doug" Williams) as speakers in our Friday seminar series. Both are doctoral candidates at Virginia Tech. and both gave excellent presentations on quite different topics ('Taking Advantage of Intermolecular Interactions' and 'Selective Inhibition of Anopheles Gambiae Acetylcholinesterase', respectively). In addition, Sharlene, apparently a glutton for punishment, gave a well-received presentation at the Dayton ACS High School Awards' Meeting on the topic of "Finding the Right Chemistry for Discovery." In mid-October, the fourth iteration of our signature Procter and Gamble Lecture brought to the Department a world leader in bioorganic chemistry, *viz.* Professor Jacqueline Barton from the California Institute of Technology. Professor Barton presented an exciting talk entitled "DNA-mediated Signaling", which attracted an audience from across the CoSM disciplines as well as the Provost (a chemist), the Vice-President for Research (a biologist) and the CoSM Dean (a biologist). Planning for the 5th P&G Lecture is underway.

On the instrumentation front, we were able to maintain our momentum, bringing in a small group of new instruments (see below). In addition, in October, the Dean partially reassigned two long-time Brehm Environmental Laboratory specialists (Joseph Solch and Garrett VanNess) to help with instrument maintenance and training in the Department. This should not only provide a much-improved educational experience for our students but, also, free up valuable faculty time for bowling practice, such that we can hold our heads up high at the next ChemClub 'Night at the Lanes'!

Once again, our students amassed an impressive collection of awards during the year. While these are listed on our web-site, I will pick out some highlights. Thus, at the annual Dayton Section of the ACS / SAS research poster competition, students from our department gathered 4 of the 6 awards, an impressive tally! Lynette Prophyl (a graduate research student with Bill Feld) was recognized as our Outstanding Graduate student and received a prestigious WSU Presidential Commendation for Excellence in Co-Curricular Activities. In addition, Tricia Meyer (an undergraduate research student with Eric Fossum) was awarded one of the latter WSU Presidential Awards and a third place undergraduate research poster award from the Division of Polymer Science at the New Orleans ACS meeting. Charles Dutton (a graduate research student with Vlado Katovic) was recognized with one of only two College of Science and Mathematics' Teaching Awards, continuing a long tradition of success in that arena. Congratulations to these students (and those not mentioned here) and to their faculty advisors.

We appreciate also the e-mail updates that we have received (often in response to last year's newsletter) from many of you. The information that you have approved is available on our website at <http://www.chm.wright.edu/alumni.html> and we have been endeavoring to use this as an informational 'clearing house' for both ourselves and all of our alumni. To provide updates, professional and personal, please log onto our website, www.chm.wright.edu and click on the Alumni link, followed by the Alumni Update Request Form link. Alternatively, you may e-mail us at chemistry@wright.edu (or regular mail to: Chemistry Department, Wright State University, Dayton, Ohio 45435; phone (937)775-2855). We very much enjoy hearing from you. Also on our website, you can view the latest department goings-on, including our annual department picture, class offerings, recent M.S. theses, seminar schedule and pictures from the Procter and Gamble Lecture. We are very grateful to all of you who have been so generous in providing funds for scholarships and other Department initiatives. In this latter regard, in part thanks to your donations, we have been able to purchase a TGA (thermogravimetric analyzer) to support the reestablished Physical Polymer Chemistry course and laboratory, a 1.25 meter monochromator for the Physical Chemistry laboratories and a new Rigaku MiniFlex II powder X-ray diffractometer for use in the General and Physical Chemistry laboratories. Coupled with our recent purchases of new DSC, ICP, HPLC and AA instruments, we are excited about the prospects for a more timely educational experience for our students, especially in the instrument-intensive courses and research endeavors. Thank you again for your help.

Best wishes to you all for a happy 2009 - Ken Turnbull

Faculty Frolics

Rachel Aga is one of the two new faculty members in the department. She obtained her PhD from the University of Kansas in Lawrence and came to Wright State after a postdoctoral position at Oak Ridge National Laboratory. Her family, with husband Roberto and sons Rob, Ethan and Gabe, lives in Beavercreek. Her three boys are looking forward to a lot of snow that they were deprived of back in Oak Ridge [Editor's note: by now they may be regretting that anticipation]! Gearing up for research is currently underway. Three dual-quad workstations were recently acquired for the computational research work that Rachel will be doing with the help of two MS students, Edur Boyini Palli and Jared Duncan, who will be working on simulations of hydrogen adsorption in carbon nanostructures and biomembrane simulations. The adjustment to life at WSU is moving along just fine.

Daniel Bombick continued his efforts in making the department's new instrument center a "student-friendly" environment. He enjoyed not having to run around to different locations when teaching the Instrumental Analysis laboratory. Dan taught a new course this past summer for teachers wanting to be certified to teach high school chemistry. He found it very rewarding and almost all of his students passed the PRAXIS II exam for certification. At home he continues to pursue a number of arts and crafts with jewelry making being his favorite.

David Dolson was pleased to visit with UC Berkeley's Prof. Stephen Leone (David's postdoc advisor, '81-'83, JILA), who was an invited plenary speaker at the Ohio Section of the American Physical Society (OSAPS) meeting here in October. At the OSAPS meeting, David Postell, Chemistry MS alumnus and PhD student at Emory U, presented a poster on the topic of near infrared fluorescence spectroscopy of Br₂, co-authored by David and by Dr. Glen Perram at AFIT. David is pleased to be scheduling Brian Munson's MS defense later in the

Faculty Frolics Continued

winter '09 term. While stationed at WPAFB, Brian worked on an energy transfer kinetic study from spin-orbit excited Cl* to methane and methane-*d*₄. He has written his thesis while employed with Baker Hughes, Inc. in Houston, TX (oilfield equipment, services and more). David is cautiously optimistic about the impending laboratory move to a renovated 4th floor in March '09 and happy to note that the p-chem lab has received a new 1.25 meter monochromator for spectroscopic experiments. David and Bonnie, apprentice grandparents, are enjoying opportunities to sit with granddaughter, Olivia, now 17 months.

Bill Feld continued to have an active group in Organic and Polymer synthesis with PRF and Air Force funding. Lynette Prophyl graduated with an MS in Chemistry in June and is in the Ph.D. program at Indiana University. She brought a lot of life and vigor to the group and will be missed. John Kelley graduated with an MS in Chemistry in August and is in the Materials Science Ph.D. program at the University of Dayton. John turned out to be an excellent writer - that made the thesis process a breeze. Devin Anderson graduated with a BS in Chemistry and works in Dayton. The current group consists of MS students Morgan Hart, Nora Hunter and Sarah Bragg and undergraduates Rachel Sayers, Jeff Fogle and Chris Huelsman. The group is anticipating the move to renovated labs on the fourth floor of Oelman. Bill and Nancy spent three weeks in Europe in July sightseeing and visiting friends and relatives (3000 miles, 1 euro = \$1.60, diesel @ \$8/gal).

Eric Fossum's group survived the arrival of the Fossum twins, Elliott and Reid, in February 2008. There were numerous health related problems in the first few months, most of which required extensive hospitalizations. Needless to say, it was a very trying time for the Fossum family, however, with the support of the department, friends and family, things worked out fine. Everyone is hoping for a less stressful 2009. The group soldiered on whether or not the boss was around. Tiffany Hall, Alex Dolgov, and Mohamed Abdellatif finished their M.S. degrees in July, August, and September, respectively. Tiffany is currently working at Ashland in Columbus, Alex will be starting Dental School at Ohio State, and Mohamed is working at WelResearch. The group published papers in *Polymer*, *Synthetic Communications* and *Acta Crystallographica Section E, Structure Reports Online* (the latter with Dr. Gossie), presented their work at the Spring ACS Meeting in New Orleans where Tricia Meyer (now at The Ohio State University) was awarded third place at the Undergraduate Polymer Research Symposium. In March we welcomed Daan van Beek, a visiting student from the Netherlands, to the lab. and it has been quite a treat to have him around this past year.

David Gossie continued as Assistant Chair this year, carrying on the scheduling, certification, and inventory duties in the department. In addition, David served to oversee the start of phase 1 of the Oelman Hall renovation and the moving of the research labs into temporary space. Research continues with virtual trips to Youngstown to collect diffraction data. 2008 brought about the purchase of a new Rigaku MiniFlex II powder X-ray diffractometer, to be used in the General and Physical Chemistry laboratories, as well as for research.

Steve Higgins' graduate student, Sweta Bose, received her PhD in Environmental Science in March, marking the first graduate of the PhD program. Steve has also had the pleasure of working with a Dutch intern, Dennis Lennaerts, from Utrecht College for the last year. Both Dennis and Brittany Campbell, another undergraduate in Steve's lab, presented their work at the national meeting of the American Geophysical Union in December. Steve continues to work on his Department of Energy funded research projects but has taken on a new, perhaps more thorny, challenge recently - teaching his oldest son how to drive.

Vladimir Katovic had a very active and large research group last year; at one point a total of 7 graduate students. Some of them have graduated so, presently, the group consists of 5 graduates and several undergraduates. Vlado continued to collaborate with Electrochemical Systems and with the Faraday company.

Suzanne Lunsford continued her work with educational chemistry. The Duke Field Trip served 24 teachers this summer while "Exploring Science" and "Take Your Son and Daughter to Work Day" served over 400 middle and high school students. She is continuing her efforts with the STEM initiatives through the REEL Project (Research Experiences to Enhance Learning for undergraduate students), part of an NSF funded grant with Ohio State. She just submitted a grant in November to OBR for continuation of professional development experiences for teachers at the Duke Marine Lab for Summer 2009. Also, she has three graduate students in her research group, Nicole Speelman, Rachel Kingdom, and Amber Yeary. Nicole Speelman should be completed with her thesis by March 2009.

Audrey McGowin's M.S. student, Madhavi (Challapalli) Mantha, graduated in June and is now working at the EPA in Cincinnati.

Ioana Pavel recently joined the Chemistry Department as an assistant professor. She was blessed with two very dedicated graduate students, Jennifer Monahan (pursuing a M.S. in Chemistry) and Marjorie Markopoulos (pursuing a Ph.D. in the BMS program), and two eager to learn undergraduate students, Kent Weaver (Engineering Physics) and Aaron Shank (Biomedical Engineering). The group is currently setting up the research labs and working on research projects in the bio-nanotechnology and nanotoxicology areas. Ioana was extremely pleased to accept the role of faculty advisor for the newly formed WSU Women in Pursuit of Science organization and to help as a friend and mentor. In her spare time, she continues to nurture her love for medical research and our community as a volunteer at the Dayton Children's Medical Center.

Paul Seybold continues his research activities in the areas of applied quantum chemistry and agent-based models of complex systems. Paul spent the month of January escaping the Ohio winter and pursuing research with colleagues at the University of California, San Diego.

Adjunct Antics, Emeritus Escapades and Staff Sprees

We are very grateful to the following adjunct professors, who continued to render great service to the Department: **Lawrence Cerny** (CHM 102, Spring '08), **Chad Hollingsworth** (CHM 121, Winter '08) and **John Kuo** (Isotec, CHM 752, Spring '08 and CHM 102, Summer '08). **Jon Grieb**, our Organic Chemistry Lab. Coordinator, taught several sections of the Organic Chemistry Laboratories, CHM 215, 216 and 217, on top of his other duties and continued to teach CHM 102 on an adjunct basis. **Andrea Burns** also was immensely helpful, teaching 3 sections of CHM 246 and 1 of SM 144 during the year.

For **Kirby Underwood**, our Freshman Lab. manager, 2008 was another great year, both personally and professionally. He and his wife welcomed the birth of their first child, Madelynn Justine, in August. At 9 lbs. 3 oz., she was an incredibly healthy baby and they couldn't be happier. Here at work, in addition to his usual duties, Kirby taught both CHM 101 and 105 for us and took over as adviser for a newly energetic and enthusiastic chemistry club. Most recently, the club organized a department bowling night in Beaver Creek and is hard at work fundraising by selling WSU Chemistry T-shirts, which are now available for \$12 (see: <http://www.chm.wright.edu/ChemClub.html>). Please contact Kirby if you are interested!

Rubin Battino, continued to do the chemistry demonstration shows with **John Fortman**.

In the past year he published a number of chemistry papers and contributed an invited paper for a Festschrift issue of the Journal of Chemical and Engineering Data honoring Prof. R.H. Stokes. In December, Rubin was on the faculty of an international hypnosis conference in Phoenix and was involved in four presentations. In January he undertook an all-day workshop in London (UK) based on his latest book on psychotherapy, "Expectations". The latter deals with how Rubin does very brief therapy. His new knee has worked out well, and he has been actively hiking again.

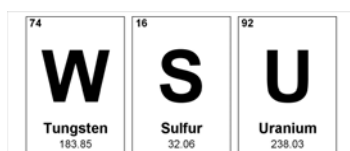
Sue Cummings, faculty emerita and past chair of the department (1988-1993), is earning a new reputation as a "quilt detective." During 2008 she saw her book, *Album Quilts of Ohio's Miami Valley* (Ohio University Press), released in September. In the book she reports on a treasure hunt of thirty-five years, in which she discovered and tracked down the stories behind more than two dozen unique presentation quilts made by Miami Valley farm women during the 1890s-1920s. These quilts are known for their distinctive designs such as a large spread eagle block, which Sue calls the "Miami Valley Eagle." She also was a featured presenter at the American Quilt Study Group (AQSG) meeting in Columbus in October. Her original paper, published in *Uncoverings*, which is the annual publication of AQSG, is entitled "Irene Post - Quilt Artist and Neighbor of Bertha Stenge." In the paper, Sue outlines the path she followed to uncover the life and quilts made by this previously unknown mid-twentieth century quilt maker, who was born in Arcanum in Darke County Ohio. Sue says she has been busy with book signings and presentations all fall and has events booked up through next May. Her album quilt book has been nominated for an Ohioana award, given to honor authors whose books contribute new knowledge about Ohio history.

John Fortman (and Margie) enjoyed their January cruise of Italy, Greece, Turkey, and Egypt so much that they booked a trans-Atlantic cruise to Portugal and Spain for last April. This May/June they'll be on a cruise around the British Isles. Along with his world travels, John and Margie continued to traverse North America with a trip to the Canadian Rockies in August and ACS speaking tours in the Deep South and Texas in the Fall. They met WSU alumni, Jeff and Kathy Schreier in Alabama and Darrin Bellert at Baylor. It's always great to see Wright State graduates on the road. In 2009, John will be off on ACS tours of Michigan in February, Virginia in March, and New York/New England in September. John also performed featured demonstrations at TechFest in Dayton, the NorthEast Regional ACS Meeting in Vermont, the National ACS Meeting in Philadelphia, and the New Jersey Science Teachers Convention. A set of seven DVD's of the ten hours of studio demos that he and **Rubin Battino** produced, along with a live December 2004 show and blooper outtakes, is now available for \$85. However, for any WSU graduates who e-mail him they can be purchased for only \$40.

Retired professor and former department chair, **George Hess**, received a 50-Year member of ACS award presented by the Dayton ACS at its Professional Practices Meeting in November 2008.

Marty Tucker's computer countdown to retirement finally reached blast-off. We held a Marty-Gras celebration in late November and Marty said a fond farewell to the department and university in December. Even with our begging her to stay, she is off to pursue her enjoyment of Master Gardening. She is sorely missed and irreplaceable and we wish her well.

Mary Sparks, our Administrative Support Coordinator, continues to support the department. She must go it alone since Marty's retirement, but is trudging through. Mary continues to assist students and faculty by serving on various committees and always looks forward to hearing from alumni. So keep her informed by emailing and filling out our alumni update form on the website. Mary and the student workers, Alisha and Ashley are also diligently working to facilitate a smooth Chemistry Office move in March 2009 to the temporary housing in Allyn Hall. She is still pursuing her MBA and is hoping to graduate in June of 2010. Mary's husband and family are all looking forward to a busy 2009.



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