Solutions

8/14/2009

Message from the Editor:

The one constant in the Department of Chemistry and Biochemistry is change. Some changes are due to the new people in the department who have added their ideas and energy to different projects. Other changes are due to the larger global community and the economic challenges that have been presented to all of us. Change is always about looking forward to new possibilities, but sometimes it also means looking back and recovering the best concepts from the past. The only thing that doesn't change for this department is the dedication to McMurry's students and the quality of instruction they receive. This newsletter incorporates all the above aspects of change and how they affected the department over the past year. If you have any suggestions that would improve the content or format of this newsletter, please contact me at the address on the last page or via email.

Sincerely,
Dr. Edward Donnay
donnay.edward@mcm.edu

Alumni News:

Steven Sample ('66), who was on the "bad address" list, surprised Dr. Veltkamp by introducing himself at a church function. Later he visited the department to reminisce about his experiences.

We received short emails from Curtis Hudman ('68) and Bob Swindle ('69) during the past year.

Dr. Ralph Turner ('74) has been very active as a member of the board of trustees and has stopped by and spoken with members of the department on many occasions. He is a strong supporter of the department's goal of becoming re-certified by the American Chemical Society.

David Randell ('80) has been an Osteopathic Family Physician in Abilene since 1991 after completing medical school in Fort Worth and a Family Practice Residency at John Peter Smith Hospital. He is the team physician for Wylie HS and donates time on the medical mission van for Love and Care Ministries about every 6 weeks for the last 4-5 years. David and his wife Rosemary (Pair) Randell, a 1982 McMurry graduate, have four children and one grandchild. David was a member of Kiva Men's Club and the first president of Tri-Beta Biological Honor Society while at McMurry.

Sara (Rixon) Dodd ('01) let us know that she worked at Alcon Labs for four years after graduating from McMurry and is now a stay at home mom. She is expecting her second child this July.

Addie Walkup ('02) is getting married in July after which she plans to move to Boise and begin a Physician's Assistant program at Idaho State. She is currently living in Salt Lake City, UT.

Sara (Bullock) Hovel ('03) wrote to say that she has recently married and has received her Master's degree in Tumor Biology from the Mayo Graduate School and is now working at the Mayo Clinic in Rochester, MN.

Catrina Reed (’07) has successfully completed her first year in the graduate program in biochemistry at Texas A&M working in the group of Dr. Ry Young.

The following chemistry alumni were at homecoming and spoke with Dr. Veltkamp at an APO reunion event: Donald Cook (’59), Greg Warden (’96), Dr. Kay Younggren (’02), Jennifer Trudeau (’04), and Tim Fliegel (’08).

New Faces:

The department welcomed two new members during the past year, Mr. Steven Davis (Lab Manager for Chemistry and Biology) and Dr. Hyunshun Shin (Assistant Professor of Organic Chemistry). Both agreed to write a short message introducing themselves and their impressions of McMurry after one year.

Mr. Steve Davis:

Filling the role of Science Lab Manager within the Chemistry and Biology Departments at McMurry University during the past year has been both a rewarding experience and a personal challenge. The reward comes from knowing that I have assumed many tasks that previously had been time-consuming projects for the faculty members. One could say I never lack for something to do. My duties have included ordering supplies, negotiating quotes on major purchases, prepping and maintaining General, Nursing and Organic labs, organizing the stockroom, repairing equipment, supervising TA’s, managing work orders and their completion, helping with research projects, maintaining a chemical inventory, and taking care of chemical storage and the disposal of chemical waste. And that’s just chemistry!

Biology is a whole different world. Along with similar duties as in chemistry, it is the repair and conservation of the greenhouse for the biology department that brings me some personal pride. The recovery of the greenhouse went from a near uninhabitable plant environment, to one in which the plants are thriving and doing well. Several species which have never bloomed here in the past have since put on a display of flowers that would make even the hardiest of botanists happy.

I came to McMurry after working mainly in the health care field. As well as McMurry’s first Biochemistry graduate (’98), I am also a graduate of the Hendrick School of Radiography and am currently registered with The American Registry of Radiologic Technologists in Radiography, Computed Tomography and Magnetic Resonance. I am currently serving and have served for 10 years as the president of the Big Country Medical Imaging Society, a group dedicated to the continuing education for over 125 local and area technologists. I have two daughters, Alesia, 21, currently in the Army and stationed at Ft. Knox, Kentucky, finishing her clinicals in pursuit of a Nuclear Medicine degree, and Macee, 9, who will be going into the 4th grade this fall. Above all else, these young ladies are my greatest source of pride.

Dr. Hyunshun Shin:

Let me talk a little about how I ended up with my current research project at McMurry. During my PhD program at Drexel University, Mary Gail, wife of my advisor Dr. Robert Hutchins, was diagnosed with cancer. Dr. Hutchins asked me to search for information about the chemotherapeutic agents whenever Mary went through therapy; at that time she was treated by combination therapy using a platinum compound. Whenever I searched for those compounds, I developed more curiosity about the application of organic compounds to treat cancer.

Cancer is the second leading cause of death in the United States. My specific research target is to reduce tumor or cancer cell proliferation by investigating ariginine biosynthesis. In one pathway of ariginine biosynthesis, Ornithine decarboxylase activity has been found to be increased in various tumors, making this enzyme an attractive target for anti-proliferative (anticancer) drugs. We plan to design and synthesize small molecules as inhibitors and investigate their ability to reduce proliferation of cancer cells in vitro.

Fortunately after my PhD program, I had a great opportunity to prepare for this project by doing structure based drug discovery under Dr. David Christianson at the University of Pennsylvania. After that training as a medicinal chemist, I moved west and served as an assistant professor at the University of San Francisco. I have now been living in Abilene for almost a year. The people seem very friendly and warm to each other, like the weather of Abilene. Last year I taught Organic Chemistry and Fundamental Chemistry Laboratory. I have been very fortunate to have students who have a strong motivation to pursue their goals at McMurry. I can see a great vision of my students through McMurry's education. I've been very grateful to serve in the friendly environments of the Abilene and McMurry communities.

Departmental News:

The department is happy to introduce two new graduates, Derek B. David (B.S. in Biochemistry) and Matt Durham (B.S. in Biochemistry). Derek was accepted to the School of Pharmacy at Texas Southern University and Matt is seeking employment and later plans to attend graduate school. We are pleased to report that Matt won the annual McMurry poster competition this spring. The poster, entitled "Design and Construction of a Plasmid Vector for Encoding Green Fluorescent Protein That is Compatible with *Bacillus thuringiensis*", presented research he conducted with Dr. Pyenta in the summer and fall of 2008.

The department was fortunate enough to have two distinguished outside speakers during the past academic year. On October 9th, Dr. Bob Kane, Associate Professor of Chemistry, Director of the Center for Drug Design, and Director of the Institute for Biomedical Studies at Baylor University, gave a seminar entitled "The Organic Chemistry of Fresh Flesh." Dr. Kane also had lunch with students interested in graduate work at Baylor. In November, Amie (Potter) Miller, who received a BS in Natural Science from McMurry in 2006, gave a presentation sponsored by the ACS Student Affiliate chapter. Her talk described her work with statistical forensics for the Abilene Crime Lab. Steve Davis ('98) also gave a presentation to the ACS Student Affiliate chapter in the spring titled *Radiographic Contrast Media*, highlighting both iodinated and gadolinium-based IV contrast.

Dr. Pam Veltkamp and Dr. Hyunshun Shin attended a workshop on Process Oriented Guided Inquiry Learning (POGIL, www.pogil.org) in February at Northwestern State University in Natchitoches, LA. Pam intends to teach a section of General Chemistry this fall using this method. Dr. Veltkamp also attended the Biennial Conference on Chemical Education last summer at Indiana University in Bloomington, IN. She attended a workshop on POGIL there also, as well as symposia on chemistry building designs, and ACS approval of chemistry programs.

A big change in the department curriculum is the reappearance of a Bachelor of Arts degree. The degree requires fewer upper level courses in chemistry, but unlike the current Bachelor of Science degree, it requires a minor. The new BA degree is designed to train chemistry teachers who take a minor in education; however, students may want to obtain the degree with other minors such as business or criminology. We are hoping that the new degree will attract students who want to

work in interdisciplinary fields that require a sound knowledge of chemistry. (If you know any individuals who might be interested in any of our programs, be sure to put them in contact with us!)

Departmental Research:

This summer the department will have three undergraduate students conducting research on the Welch Foundation Departmental Grant. Dr. Paul Pyenta will be advising Brad Henry, who will be continuing work on the construction of a green fluorescent protein (GFP) producing strain of *Bacillus thuringiensis* (Bt) to be used to track the life cycle of Bt in the gut of certain insects. Dr. Hyunshun Shin will have two students working with her as she begins her research. Heather Whitehead and Erica Rawls will design and synthesize amino acid-based small molecules as anti-cancer agents targeting ariginine biosynthesis. Heather will synthesize a 2-amino-5-(hydroxyimino)pentanoic acid (AHPA) inhibitor, and Erica will synthesize a 2-amino-6-(hydroxyimino)hexanoic acid (AHHA) inhibitor based on the modified substrate of ornithine decarboxlase and arginase with oxime functionality. A preliminary study has shown the growth of MCF-7 cells in the presence of the compound AHPA has been reduced. Dr. Edward Donnay will be continuing his work developing a series of transition metal complexes and making Self-Assembled Monolayers (SAM's) this summer while also preparing to teach physical chemistry in the fall.

Last summer, Dr. Pam Veltkamp, Dr. Wayne Keith (Physics), and Dr. Cynthia Martin (Math) were awarded the first McMurry University Research Initiative (MURI) grant. Their proposal was to form a center which would promote interdisciplinary math and science research (carried out by students and faculty) in solving problems identified by a developing community. The name of the new center is the McMurry Center for Mission Outreach with Science and Technology (MCMOST). The result of last summer's work was the development of a new course which fills McMurry's General Education requirement in Leadership, Excellence and Virtue. The new course is entitled "Leadership in Science and Mathematics" and was offered for the first time this past spring. In keeping with the purpose of MCMOST, the students in the course worked with the science teachers at Clyde High School to find a way to help a number of students there to pass the 11^{th}-grade TAKS science test. The McMurry students developed, and then implemented, an 8-day project in which the students at Clyde HS learned various physics concepts by building and launching small rockets. The project climaxed with a field trip for the Clyde students to McMurry's campus for a morning of science activities, campus tours, and a Jeopardy-style game involving TAKS-style science questions, followed by pizza and door prizes. This summer, the faculty involved in MCMOST will continue developing the center and will also look for a new research project for the course next spring. If any newsletter readers have an interest in MCMOST, or would like to make comments or suggestions, you are welcome to contact Pam at veltkamp@mcm.edu.

In the past year the department purchased new electro-analytical equipment from BioAnalytical Systems, Inc. which included a hanging mercury drop electrode. The new instrument will allow us to conduct a wide variety of constant potential and constant current techniques for teaching and research. The goal is to incorporate the use of this instrument in a general chemistry experiment next spring.

School and Miscellaneous News:

It was not unexpected that the current economic difficulties affected McMurry's capital campaign and the new science facilities, which were the centerpiece of the campaign. However, it was still disappointing when the new science building was put on indefinite hold in March and the focus of the capital campaign shifted to other priorities. The new plan is to renovate a part of the existing science building, although the specifics have not been determined. There is not enough in the budget for the extensive remodeling that would be necessary to meet all of the current OSHA regulations. Therefore there is a limit to the changes that can be made. Discussion is ongoing about how to leverage the money available to best help our students and programs.

McMurry's Science/Math Advisory Board (SMAB) will be holding its next meeting in the fall. This board is a group of science, math, and computer science alumni who voluntarily assist the science and math departments at McMurry with a variety of support. They are currently accepting nominations for the "Wall of Honor". If you would like to know more about SMAB, you can visit their website at www.mcmurrysmab.org or contact the current chairman, Dr. Max Wynn ('80, Chemistry and Biology) at 760 Treadwell, Hurst, TX 76053.

We are sad to report the passing of Rachel Sonntag, wife of Dr. Roy Sonntag, on May 2, 2009. Our thoughts and prayers are with Roy and his family.

40 Years Ago in the Department

(Below are news items and excerpts from the department newsletter from May 1969. The entire newsletter can be seen on our website, www.mcm.edu/newsite/web/academics/ncs/chemistry/news)

"The staff has remained constant and has consisted of Drs. Norton Jones, Lyndol Harris, W. L. Magnuson, and Roy Sonntag." Student award winners were: freshman-Larry Scott, sophomore-Joe Hudman, junior-Ricky Quy, senior-Carolyn McCoy. Bob Cole received a special award for being president of ACS Student Affiliate chapter and Gamma Sigma Epsilon.

"During the year Dr. Sonntag has done quite a bit of what has turned out to be successful experimentation with the use of cassette tape recorders to give students in the general organic course supplementary instruction in selected aspects of the work." Dr. Jones had his new Textbook of General Chemistry published.

"For the first time in many years the department will not offer Chemical Calculations. Freshman preparation in mathematics is now much better than it used to be so that many freshmen begin their calculus during their first semester." (*Interestingly, the department is currently looking at changing the requirements for general chemistry because the freshmen are not entering as prepared as they used to be. Perhaps we need to bring back this course!*)

"Dr. David Klassen of the University of North Carolina gave us an interesting seminar on some of the luminescent complexes of Ru(II)." That fall Dr. Klassen replaced Dr. W. L. Magnuson who left to become Chemistry Department chair at Kentucky Wesleyan College.

Alumni Search:

The following table contains the names of alumni for whom we have incomplete, incorrect, or no address. If you know the contact information for any of these alums, we welcome your sharing that information with us, or you might contact that person and ask him/her to contact us.

Greg Mamikunian ‘56
David Neel ‘58
James Tingle ‘59
Jack Shultze ‘62
Mohammad Dareshori ‘63
Gail (Hart) Long ‘64
J. Dwayne Bennett ‘65
Sharon DuBoise ‘69
Dr. Carolyn Nell (McCoy) Cutaia ‘69
Dr. H. Thomas Spillman ‘71
Dr. Carl Wayne Hudson ‘72
George E. Bernard ‘73
David R. Carver ‘74
C. Randall Cotney ‘74
Dennis J. Smiley ‘74
Susan Arth ‘75
Richmond Cullins ‘75
Robert C. Loyd ‘75
Peter Morford ‘75
Mary (Shooter) Real ‘75
Tommy C. Taylor ‘75
Conley Goines ‘76
Gregory Guy Alexander ‘79
Mark B. McClure ‘80
Laurel Van Winkel ‘81
Kirk Arthur Brooks ‘82
Mansel Harris ‘82
Rosalind Rankin ‘83
Dr. Mary Linda Sellers-Hann ‘83
Gregory Aguilar ‘85
Johnny Duane Rowland ‘85
Kerry Kyle Clark ‘86
Marcus Von Babb ‘94
Mirela Zimic ‘97
Benjamin Theodore Doolan ‘01

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