

The

MOLECULAR SIEVE

An annual newsletter for alumni and friends of the Andrews University Department of Chemistry & Biochemistry

Fall 2009

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Faculty:

- David Alonso, PhD
Ryan Hayes, PhD
Getahun Merga, PhD
Desmond Murray, PhD
David Nowack, PhD
David Randall, PhD

Celebrating Mutch and Wong's Contributions to Chemistry at Andrews

The Department of Chemistry & Biochemistry was pleased to celebrate this year's Alumni Homecoming with the well-deserved retirement of two of our faculty members, Bill Mutch and Peter Wong, who together gave Andrews University three-quarters of a century of service.

The most rewarding thing that stands out in Dr. Mutch's mind is the life-long friendships developed with students over the decades. Some of his fondest memories involve student interactions outside of class: weekend river canoe trips and Lake Chapin canoe battles between students, himself and Bob Wilkins. One of Dr. Wong's fondest memories was that, "One year I had 99 students in my Introductory Chemistry class. By the end of the quarter I was able to call everyone by his/her first name."

The celebration began with the Chemistry Symposium featuring scientific presentations from six department graduates for whom Mutch and Wong were particularly influential. The wide range of influence was demonstrated by presentation topics from international medical policy, business challenges in chemistry, food-contaminant analysis in government labs, and polymer statistical mechanics in the plastics industry. (The abstracts for the symposium are included in this mailing.) For each alumni that made a presentation, though, there are dozens more who work in other areas of chemistry. Over 200 current Andrews students, scientific colleagues from the St. Joseph Valley region, and dozens of Andrews alumni joined these exemplary Adventist scholars in attending the symposium in honor of Mutch and Wong.

Following the symposium, the University community joined together for a luncheon honoring Mutch and Wong in the Pioneer Memorial Commons. President Andreasen and College of Arts & Sciences Dean Keith Mattingly, gave tribute to their lifelong service. Later that evening, Mutch

and Wong were honored in the Alumni Parade by riding in a convertible Corvette—which was surprisingly returned to the owner (pictures are on page 7)!

Drs. Mutch and Wong's influence on Adventist higher chemical education is a lasting legacy since there are many individuals teaching in Adventist colleges and universities around the nation who have been mentored by them at Andrews. Of course, many other departmental alumni serve as scientists, doctors, dentists and teachers within and outside Seventh-day Adventist institutions. However, the contribution to Adventist



Symposium Speakers with Mutch and Wong L-R: Jaelene Mannerfeldt, Philip Kijak, Robert Johnston, Peter Wong, Bill Mutch, David Moll, David Randall and Ryan Hayes.

higher education by these gentlemen is not only intellectual, but financial, too. They have both helped to establish merit-based scholarships that enable promising biochemistry and chemistry majors to pursue their education here at Andrews. We are extremely thankful to those individuals who added funds in honor of Drs. Mutch and Wong to the following named scholarships: Mutch-Scorpio-Wilkins, Lois R. Mutch (Bill's mother) and Chai Hee Wong (Peter's father).

While the retirement of Bill Mutch and Peter Wong represents the end of an era in some ways, the future of the department continues to be bright with the offering of ACS-accredited programs in chemistry and biochemistry at Andrews University. We look forward to building on the strong foundation established by Bill Mutch and Peter Wong and past teachers like Drs. Halenz, Ford, Wilkins and Scorpio.

~ David Randall

 Department of Chemistry
& Biochemistry
Andrews University

Getting a Bang Out of ChemSem

~ Desmond Murray

How important can a one-credit class really be? Can it be one of the most memorable experiences in college?



David Alonso (L) and Desmond Murray (R) with Professor Hisashi Yamamoto following his presentation on "Acid Catalysts for Polyketide Cascade Synthesis."

For every chemistry and biochemistry student who graduates from Andrews, Seminar in Chemistry ("ChemSem"), is a required one-stop shop of educational bargains.

Students acquire marketable skills in:

- (1) Resumé writing
- (2) Public speaking
- (3) A variety of popular science writing styles and formats
- (4) Preparing and delivering professional scientific oral presentations
- (5) Critical evaluation of presentations
- (6) Chemical information retrieval

ChemSem is also a great venue for both students and department faculty to network with other professionals, form research collaborations, secure summer research internships, find graduate school opportunities and, of course, listening to a variety of interesting and relevant topics. All of this from a one credit course!

To illustrate, during fall 2009 semester, ChemSem had ten invited guest speakers on a range of subjects that supplements student knowledge beyond required major courses. This semester's topics covered: fragrance chemistry, synthetic methodology, total synthesis, drug development, science writing, geochemistry, materials science, energy and environmental science, analytical chemistry and imaging. Some specific titles were: "Breathing New Life into Old Proteins"; "Microscopy and Geochemistry of Natural Waters"; "Storing Hydrogen and Capturing Carbon Dioxide"; "Synthesis of a Non-Peptide Neurotrophin"; and "Lanthanide-Based MRI Contrast Agents."

A key element in selection of speakers is diversity: academia and industry, graduate students, assistant to full professors, male and female, basic and applied science, and from traditional to emerging fields. Fall 2009 semester was no exception with presentations given by Sean Reed, a graduate stu-

dent from the University of Illinois, Urbana-Champaign who spoke about "Recent Advances in Allylic Amination," to the world famous, highly honored Professor Hisashi Yamamoto from the University of Chicago who presented on "Acid Catalysts for Polyketide Cascade Synthesis." In addition to speakers from major research universities throughout the Midwest, we had two speakers from small undergraduate institutions: Carolyn Anderson from Calvin College presented "Synthesis of a Natural Product Motif" and Jeffrey Turk from Alma College presented, "Sandalwood: More Than Just a Pleasant Smell."

One of our most fascinating presentations was by Jyllian N. Kemsley, associate editor of *Chemical and Engineering News*, on "Career Opportunities in Science Writing." Not only was the subject material different from a 'typical' chemistry seminar but for the very first time in the department we had ChemSem *via* live video link. Kemsley spoke to us from her home office in San Francisco, Calif. Our students loved it! Thanks to Professors Randall and Nowack, and Andrews Telecommunications personnel, Dan Hamstra and Don Cole, this experiment was very successful. This event sets the stage for future ChemSem *via* video conferencing technology and expands the geographic range for invited speakers. We'd love to give YOU—our alumni—the chance to interact with students this way!

Another recent innovation successfully introduced this semester into ChemSem is blogging. After each guest speaker's presentation, students are required to post blogs about it at ChemSemBlog (<http://bestearly.com/chemsemlblog>), a unique



Student audience at the live video seminar by Jyllian Kemsley, associate editor of *Chemical and Engineering News*.

site developed by the course instructor, Professor Murray. For a complete description of the blog site, visit <http://bestearly.com/chemsemlblog/2009/08/19/why-chemsemlblog>. Feel free to visit the site to read student reflections on each seminar and you can also leave your own comments.

Blogging opens up to our students another cutting edge area in the communication of science. Blogging in science is growing rapidly and is serving important functions beyond simple social networking. Several major science journals now have blog sites and there are many sites run by individual scientists including graduate students. As far as we know, ChemSemBlog is unique for being based on undergraduate reflections on seminar presentations. ChemSemBlog, one more reason why ...

ChemSem Rocks!!!

Publications:

DAVID ALONSO submitted two articles for publication to the *Journal of Chemical Education* and *The Chemical Educator*: "Isomerization of Methone—A Neat ^{13}C NMR Investigation" and "A New Look at an Old Reaction: Bromination of *trans*-Cinnamic Acid," respectively.

GETAHUN MERGA is preparing an article for publication based on the collaborative work that Andrews has with Professor Dan Meisel at the Radiation Lab of the University of Notre Dame.

Presentations:

DAVID ALONSO presented a poster at the 38th Great Lakes Regional Meeting of the American Chemical Society on May 13-16, 2009.

Workshops:

DAVID ALONSO attended the CWCS NMR Workshop at the University of Georgia, Complex Carbohydrate Research Center on May 17-22, 2009.

Ongoing Research:

DAVID ALONSO—Current research projects in the Alonso lab include NMR studies of enzyme catalyzed isomerization reactions of sugars.

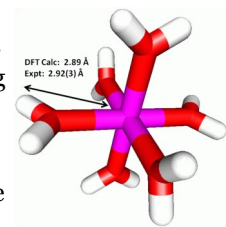
RYAN HAYES—Hayes is researching signal amplification and compositional analysis of nanotechnology materials based on dendrimers. Dendrimers are unique nano-sized polymer materials that provide high concentration of functional groups localized on the surface of these macromolecules. The orientation and presentation of functional groups leads to new properties but also increase the difficulty of analysis using standard techniques. Hayes is developing new methods of analysis to improve and speed the characterization of dendrimers. In addition, he is looking into new uses of dendrimers for enhancing optical signals for the detection of various disease states. Hayes spent nearly a decade working in industry and is assisting in leveraging the commercialization opportunities presented to Andrews University. His experience includes business development, patent portfolio management, and scale-up of chemical-based technologies within the life science reagent, personal care, agricultural, coatings and polymer additive industries.

GETAHUN MERGA—We have ongoing research work with senior students on the synthesis of silver nanoparticles using noble metal oxides.

DAVID NOWACK—The productive collaboration with Brian Haab of the Van Andel Institute in Grand Rapids,

Mich., continues. Following the publication of the first article from their work together, the focus of his research has shifted to examine the sialic acid changes that occur on glycoproteins in the development shift from epithelial cells to mesenchymal cells. This development shift mimics the behavior of metastatic cancer cells. Determining the nature of the sialic acid modifications during the controlled development shift may lead to a deeper understanding of the metabolic changes that occur during metastatic transformations.

DAVID RANDALL—Randall will be pursuing data-anchored quantum chemical calculations on biologically interesting molecules and metal centers. Work will utilize personal computers and the computational chemistry cluster in the department. At right is $[\text{Mn}(\text{H}_2\text{O})_6]^{2+}$ whose geometry was optimized at the B3LYP level of density functional theory. The theoretically predicted geometry agrees to within experimental error with values obtained previously by Randall.



Mimicking Nature's Dense Molecular Functionality

An important theme in Desmond Murray's synthetic organic research with undergraduate students is inspired by the dense molecular functionality found in many important classes of natural small biomolecules, such as carbohydrates, amino acids and nucleic acids. Current examples of student projects involving synthesis of novel functionally dense small molecules includes:

(a) Synthesis of uniquely substituted α -amino phosphonates *via* multicomponent reactions of aldehydes, amines and dialkyl phosphites. Interest in these phosphorus analogues of α -amino acids stems from their wide-ranging biological activities, including antitumor, antihypertensive and antibacterial. Hyejin Jeon, a pre-dent biology senior, is doing this work.

(b) Synthesis of nalidixic acid stilbenes *via* a stilbene forming reaction developed by chemistry senior Ken Fletcher when he was an incoming freshman. Application of the methodology to make previously unknown nalidixic acid stilbenes is being done by pre-med biology senior Carolyn Alexander. Our interest in this work derives from the independent biological activities of stilbenes and nalidixic acid and has the potential to develop new hybrid antibacterials.

(c) Synthesis of cyclopropane isothiocyanate acylals based on electrophilic carbonyl addition chemistry developed from previous undergraduate research projects. Our interest is the development of hybrid pesticides that are both environmentally friendly yet have enhanced potency against commer-

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Ryan Hayes ('94) Joins Faculty

Ryan Hayes, an alum of Andrews and a native of Michigan, is returning to academia after spending nearly seven years in the business sector. He worked on commercializing new chemical technologies with small busi-

nesses located in Michigan and Texas.

Hayes' experience includes business development, patent portfolio management and scale-up of chemical-based technologies. Hayes was director of business development for 4.5 years with Dendritic Nanotechnologies (DNT) located in Mt. Pleasant, Mich., before coming to Andrews University. While at DNT, he helped to commercialize a polymer technology called dendrimers. These products are improving the properties of personal care products, inkjet inks, water treatment chemicals, coating additives and agricultural protection products. He has published articles in the area of photoinduced electron transfer involving novel donor-acceptor systems within macromolecular and nucleic acid structures.

Before working at DNT, Hayes worked for Lynntech (College Station, Texas) as research scientist in which he helped secure SBIR grant funding, develop prototypes and commercialize advanced sensor systems for medical and industrial applications. Hayes' graduate work was in chemistry at Northwestern University (Evanston, Ill., 1997-2002) where he synthesized novel molecular electronic donor-acceptor systems and studied their properties using ultrafast time resolved absorption spectroscopy. The three years before entering graduate school were spent working as an analytical chemist/microbiologist for Great Lakes Scientific (Stevensville, Mich.) and a year as a high school teacher (Greater Lansing Adventist School, Mich.) after receiving his BS in Chemistry from Andrews University in 1994.

Ryan is married to Suzi and they are the very proud parents of Carter Elijah. A second child is set to arrive in April 2010. Ryan and Suzi enjoy spending time with family, friends, exercising, sports and Bible study. They both re-committed their lives to Jesus in 2006 through baptism on the day before their marriage. Until their move to Andrews, both were very active in the Ithaca Adventist Church by leading out in youth programs and worship service, while supporting the local church and church school through many volunteer positions. They are excited to take this next step to follow God's calling.

Ryan joins David Randall (who was highlighted in the last issue *The Molecular Sieve*) and is associate professor of chemistry. They both replace Mutch and Wong who retired after 75 years of combined teaching in the Department of Chemistry & Biochemistry.

ChemClub Activities

~ Clarissa Lewis, President

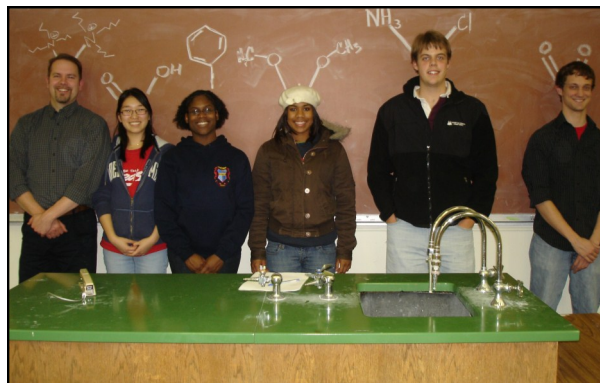
Friday, October 23. Time: 6:01 p.m. Place: the Chemistry Reading Room. Abuzz with anticipation for the next moment, the crowd counted the last seconds to the next minute. Emeritus Professor of Chemistry, Peter Wong, led out in the annual countdown. The precise atomic clock read 6:02! A cheer went up! Hip Hip Hooray!!

Anyone who has taken a chemistry class (or even any science class) must have run into the awe-inspiring digits of Avogadro's constant: $6.0221417930 \times 10^{23} \text{ mol}^{-1}$. In honor of this much-used number, many chemists around the world celebrate on October 23 (10/23), usually with a bounty of food, the chemists' good friend. At this event, hosted by the ChemClub, the menu featured haystacks with authentic homemade guaca**MOLE**, le**MOLE**ade, and **MOLE**asses cookies.

Avogadro's Mole Day concluded an exciting Chemistry Week. Aside from a bake sale in the Department of Chemistry & Biochemistry, there was also a week-long chemistry trivia featuring questions fashioned by the professors for their students. The most eye-catching of these questions was "How many Jelly Bellies are in the three Erlenmeyer Flasks?" where students submitted their best calculations (or guesses!) into a drawing held at the end of the week. The winner, Kimberly Gardner, received the chemistry basket filled with Piroulines, Welch's sparkling grape juice, Jelly Bellies in (unused) Erlenmeyer flasks and retired ChemClub T-shirts.

After the activities in the reading room simmered down, the party moved downstairs for a short vespers. Ryan Hayes, one of the new chemistry professors, led out in an insightful vespers delving into the *constancy* of God.

Another ChemClub event, the Bonfire & Hayride, took place on Sunday, November 15. Students, friends and faculty gathered around a blazing bonfire on a cool fall evening to relax from the hectic semester. Veggie-hot dogs were roasted over open flames along with the ever-popular S'mores. The evening concluded with a hayride across Andrews University campus, which included a stop at the Andrews Dairy to see the newborn calves. Both young and old enjoyed the event marked by warmth and fellowship. It shows promise to continue for many years to come!



2009-2010 ChemClub Officers L-R: Ryan Hayes, sponsor; Sharon Jang, vice-president; Clarissa Lewis, president; Brittany Foster, secretary-treasurer; Adam Shull, public relations and Stephen Gardner, pastor.

News from Alumni

Erika Tanner ('08)

The boys are doing very nicely, school has been going very well for them. What an enormous transition all at once for all of us but we are nothing if not resilient. :-) I want to thank you for presenting complex material in an understandable and memorable way. I have found myself grateful beyond words for my background from Andrews more than once, the solid base I left with has made life so much easier than it could be. I went to the hospital today and I think my brain is finally starting to believe and accept that I am here and one day I will be a physician. Amazing! [*Erika is currently attending the West Virginia School of Medicine.*]

Wayne Friestad ('72)

I received my BA in Chemistry from Andrews in 1972 and graduated from Loma Linda University School of Medicine in 1975. After completing a residency in Family Practice at Hinsdale Hospital (1979) I remained at Hinsdale initially working in the Emergency Department and later teaching in the residency. Through some unexpected twists and turns of life I ended back again in emergency medicine working for 11 years in the D.C. suburbs and now for the last 14 years at Florida Hospital in Orlando. Over those 25 years I have served as ED medical director of four different hospitals and chaired the Florida Hospital ED for five years. I have many fond memories of my time at Andrews and the Department of Chemistry & Biochemistry. I worked there for three years setting up labs and grading tests. I recall initially having some difficulty with General Chemistry (Ivan Holmes, 1968) and going to some extra help sessions (it worked as I got an A for the quarter). I also recall taking organic chemistry (Dwain Ford, 1969) and on one test solved the problem using phosphene only to be marked off (I still think it was correct but obviously not a safe way for a chemical process). Thanks for starting *The Molecular Sieve*. It's great keeping up on the news from both Andrews and the Department of Chemistry & Biochemistry. I am married to Dawna (Zimmerman) Friestad ('75, nursing). We will celebrate our 30th wedding anniversary this year. We have four children and one grandchild.

Joe Mucha, III ('98)

MS Mechanical Engineering, University of Illinois at Urbana Champaign, January 2001; Live in Dearborn Heights, Mich.; Currently work as a noise, vibration and harshness engineer in Product Development at Ford Motor Company. Most of my memories Andrews are centered on doing Organic Chemistry research for Alonso on the synthesis of various indigo compounds. I married Nilza Trizon of Hermosillo, Mexico in July 2007.

David Son ('89)

I have very fond memories of the department and Professors Mutch and Wong. I still remember their enthusiasm for teaching and the obvious ways they cared for us. I remember taking quantum mechanics from Mutch. I have to admit I couldn't stand the course but that was because of the material, not because of the instructor! For some reason, the one thing that stands out from all the things I learned from Wong was his description of a new system of measuring body tem-

perature, which was essentially urinating onto some type of sensory strip. He may not remember that tidbit, but it has stuck with me over the years. It would have been great to attend the symposium/luncheon and share a bit of what I've been doing over the years. I wish the best for both Mutch and Wong. I hope they will have a fulfilling retirement. Please convey my best wishes to both of them and send my warmest regards to Professors Wilkins and Ford.

Max T. Taylor, MD, FACS, FCCP ('50)

Loma Linda University, School of Medicine, MD, 1955; Marion County General Hospital, Indianapolis, Surgery 1955-1960; Martin Army Hospital, Fort Benning, Ga., chief of thoracic surgery, 1960-1962; NASA, Project Mercury, 1960-1962, formulated medical program for recovery of original seven astronauts; Founder and president of Surgical Clinics of Arizona, Phoenix 1968-2003; Practiced general, thoracic and cardiovascular surgery, 1962-2003, Phoenix, Ariz.; Retired from medical practice, 2003; CEO Max Taylor & Company, which I founded in 1968. It is a multi-faceted company dealing in real estate, shopping centers, farming and the hospital-ity industry with offices in Phoenix, Boston, Chicago and California; Commercial pilot with Ratings: SEL, MEL, INST, CFI, CFII and over 3,000 hours of flight. Married to Linda; children are Denise (attorney), Larisa (educator), Maxwell (attorney, VP Max Taylor & Co.) and Todd (President KSM Staffing). We have eight grandchildren.

Kimberly Robinson ('07)

By God's grace I have finished two years of medical school and the infamous step 1 exam. I started my last rotation in the laboratory of Gilbert Di Paolo, and as of mid-August, I have made this my thesis lab. My project involves investigating the role of phospholipase D1 in cell trafficking of Alzheimer's precursor protein. We have yearly meetings with the three administrators of the MD/PhD program, and after asking if I was happy in my lab and if I had any issues to discuss, one of them says, "Kim, you came from a school we had never heard of. Who can we talk to about getting more students from your school." I tried to graciously accept the compliment, and I told them I would pass along their request for more students. I got a message from Dr. Mutch on Facebook ... I knew he was hip, but not that hip ... lol!

Lance Hodges ('57)

University of Waterloo, Physics, 1962. Retired in Walla Walla, Wash.; Married, no children.

Evaldo DeArmas ('84)

I graduated in 1984 with a BS in Chemistry. Following graduation I got a job at LECO in St. Joseph as a technician in their Tech Center. Two years after I went to Michigan State University to get an advanced degree which I finished in '91. My doctoral thesis was in the area of conducting organic polymer materials. I then got a job as an analytical chemist at Union Carbide Corporation in their Technical Center in Charleston, W. Va., where we lived for six years. I then went back to work for LECO Corporation in St. Joseph, Mich., as a demo chem-

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ist in the Separations Products and Mass Spectrometry. In 2002 I moved to West Palm Beach, Fla. to work as a technical instructor and demo chemist for what is currently Thermo Fisher Scientific in the area of Gas Chromatography-Mass Spectrometry and Liquid Chromatography-Mass Spectrometry. I have three children. The oldest, Evaldo Jr., is an aviation instructor at Andrews University. The younger ones are Elijah David and Rosalynn Elizabeth. I just had my 25th wedding anniversary to Raquel P. DeArmas.

Larry Milne ('77)

I have very pleasant memories of the Andrews Department of Chemistry & Biochemistry. Peter Wong's enthusiasm in analytical chemistry was instrumental in my decision to pursue an advanced degree in analytical chemistry. Mutch and Wilkins made me try harder and I thank them for pushing me to achieve to the best of my ability, but my favorite teacher was Dwain Ford. He not only imparted his knowledge of organic chemistry, but at the same time showed what a true Christian is like, not only in words but in deeds. I thank the Lord for giving me the opportunity to have attended Andrews University. I went on to Loma Linda for my MD. I currently reside in Redding, Calif., and practice general surgery. I married a fellow alumna, Debra Kruger, in 1978. She graduated with her Masters in Music that year. We have four children: two girls and two boys. Our eldest daughter has provided us with our first grandchild and we are the quintessential doting grandparents! Memories: General Chemistry '73-74 was the last year we had to use a slide ruler on exams, although they could be used for homework. Wilkins frequently had trouble following the sequence as I showed my work in long-hand. He would write little notes as he tried to follow along. David Moll had an HP-45 and Dan Laszlo had an HP-35. I remember Mutch interrupted class to say, "Welcome back, Larry," when I opened my eyes after a brief respite during an early morning General Chemistry lecture. He also unfairly weighed the national ACS portion of Quant's grade!

James (Jim) McFarland ('64)

I graduated from Andrews in May 1964. I moved to Pasadena, Calif., and studied clinical laboratory science at Huntington Memorial Hospital. I am currently the chemistry supervisor at Verdugo Hills Hospital in Glendale, Calif. I am married to Karen Knapp ('63), also a clinical lab scientist. We have two sons, Brett and Heidi; grandkids Emma, Charles, Todd and Jan; and grandkids Aidan and Kathryn. Memories of Andrews are, of course, the old chemistry building and all the time spent in the laboratory. Ford was a special professor I will never forget. In my last year Bob Wilkins returned to teach and several of us needed our last year of German and also physical chemistry. Both were scheduled for 8 a.m. The special thing about Adventist education is that Bob volunteered for first semester to teach physical chemistry at 7 a.m.!

Beth Cady Burghardt ('83)

Beth Cady Burghardt, MD, (BS with Honors in Chemistry 1983), lives in LaFayette, New York, with her husband Frederick Burghardt (BS Biology, '82) and their three daughters, Katharina (13), Annelise (11) and Alaina (8). She is in solo practice as an otolaryngologist in Syracuse, New York. Fred is a stay-at-home father. Both are active in the local church as well as in the New York Conference, where Beth is on the Executive Committee, and Fred is on the K-12 Education Board. In August of 2008 they moved into a home they designed and built on 22 acres of land next to Beth's parents,

Duane and Joyce Cady. Returning to Homecoming Weekend in 2007 and 2008 brought back many wonderful memories as they showed their daughters the 'old stomping grounds' of the Science Complex, cafeteria, dorms and PMC. Highlights included visits with Bill Mutch, Bob Wilkins and Dwain Ford; Stout's symposium in '07; spending a warm Sabbath afternoon on the beach at Warren Dunes; and walking the pier in St. Joseph. Beth and Fred celebrated their 26th wedding anniversary on August 28, 2009.

Norman Fujimoto ('74)

Here is a little information from an old graduate that can't believe it's been over 35 years since I've been at Andrews! I graduated with a MAT in 1974; Home is Fullerton, Calif.; Work at Santa Ana College (Community College) as vice president of Academic Affairs; I'm married with two grown sons who are pharmacists. Memories include canoeing down the river every weekend; hours spent in the chem labs; living in Michigan was so much different than living in California. Best of luck to Department of Chemistry & Biochemistry!

Ursula Whiting ('47)

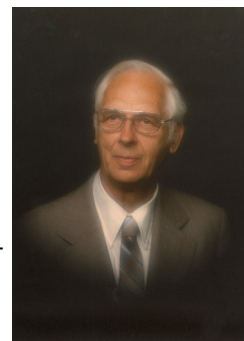
I graduated from Lena High School in 1941 as salutatorian. I worked as a clerk in a store and a nanny for a couple of families but I couldn't see doing that for the rest of my life. When my uncle, Arthur Ziesmer, said he would pick up my school tab if I wanted to go to EMC, I jumped at the opportunity and graduated in 1947 with a major in chemistry and a minor in biology. I worked in the lab with Dwaine Ford for three years. Halenz was my advisor. I still enjoy visiting with Duane. I worked half of my way in the chem lab and college store at \$.35 an hour. I loved EMC and returned there for my 50th and 60th reunion. Everything has changed a lot—more individualistic. We were a family when I attended from '43-47. There were about 500 students my freshman year and only 100 fellows because they were exempt from service. I have a wonderful family: five children, eight grandchildren and two great-grandchildren. God has truly blessed me.

Andrew Chung ('91)

I received my MD from the University of Michigan in 1995. Now working in Manassas, Va., at Prince William Hospital as a urologic surgeon—incoming chairman of surgery at PWH. Married with two young boys, ages 6 and 4. I was a classmate with David Randall.

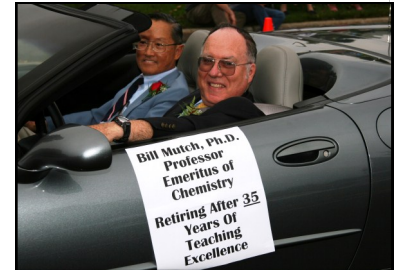
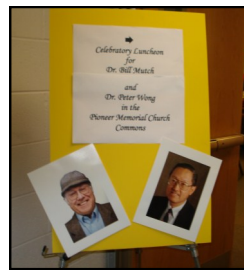
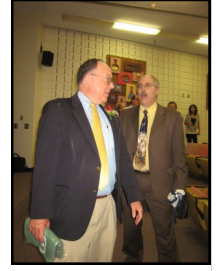
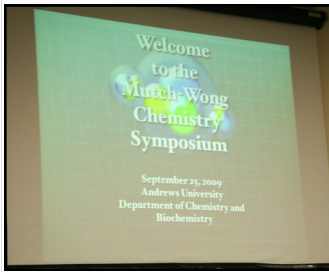
Harold W. Moll ('37)

The Department of Chemistry & Biochemistry lost a long-time friend when Harold W. Moll died on September 7, 2009 at age 95. Harold graduated with a BS from EMC in 1937, the University's *first* chemistry major. He was hired by the Dow Chemical Company as a research chemist and served in that capacity for 43 years before his retirement. His sons, Norman and David, followed in his footsteps, both by earning degrees in chemistry and also worked as researchers for Dow. After his retirement, Harold enjoyed the time he spent teaching in the Andrews University Department of Chemistry & Biochemistry. He also was granted an honorary doctorate from the University. Over the years, he was generous and thoughtful to our department. [Eric Moll is currently in *Intro to Chem*, the third generation of Molls to come through the Department of Chemistry & Biochemistry.]



MUTCH and WONG

Symposium, Honor Luncheon and Homecoming Parade





D. David Nowack, Ph.D.

Message from the Chair -

All of us from the Department of Chemistry & Biochemistry extend to you our warmest greetings. As you can read in this newsletter, this year has been a busy and momentous year.

Two of our beloved faculty, Mutch and Wong, have retired to enjoy a different set of challenges of their own choosing. The formal recognition of their dedicated service, during Alumni Weekend, will be the highlight of the year in the department. The celebratory seminar presentations and luncheon highlighted the impact that these Godly men of science have had on the professional and personal lives of so many.

In response to much prayer, God impressed two outstanding young alumni and their families to answer the call to step into the breach left by Mutch's and Wong's retirements. David Randall and Ryan Hayes have joined our faculty team. Each one is having an immediate, positive impact as they strive to build on the solid chemistry and spiritual foundation left by their predecessors.

The other major event in the department was a "peer-audit" of our hazardous waste management policies, processes and chemical inventory. We spent over a year preparing for this opportunity for accountability. With the support of the College of Arts & Sciences, we purchased a state-of-art chemical inventory management system and hired two students, Nuvia Saucedo and Stephen Gardner, to inventory and label every identifiable bottle of chemical in the department. Three months and over 7,000 bottles later, the inventory is now complete. The peer-auditors, during their early December visit, were very pleased with the outcomes of our efforts. A final report from the auditors will point out some areas that we missed or are weak in and will allow us to correct those areas. Overall, the audit was a very positive point of accountability.

The next major push in our department will be to seek external funding for important instrument acquisitions. The purchase of a LC/MS for research and education is our priority. Other instruments on our priority list include a research-level ion chromatograph and two education-level FTIRs for the sophomore organic labs. We have made a positive move towards "greener" experiments in the organic chemistry lab as well as adopting microscale experimentation.

Warmest regards to all our alumni and friends. Thank you so much for your support and prayers.

David Nowack
Chair

Chem Alumni CONTACT

Please update information about yourself. We look forward to hearing from you.

Name _____

Address _____

City _____

State _____

Zip Code _____

Telephone _____

E-Mail Address _____

Occupation _____

Employer/Firm _____

City _____

State _____

Zip Code _____

Degrees Received:

At Andrews _____

Degree _____

Year _____

Other: _____

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cially important pests. It is well known that some naturally occurring cyclopropanes (pyrethrins from the genus *Chrysanthemum*) and isothiocyanates from cruciferous vegetables have high pesticidal activities. Pre-dent biology major Gaetan Tchamba is conducting this work.

(d) Synthesis and chemistry of α -amino acylals conducted by Honor's biology senior Gretchen Bell. This is a basic, open-ended, research investigation into the chemistry of this unknown bifunctional class of compounds. It is specifically designed to determine the reactivity of α -amino acylals with a variety of phosphine reagents. We anticipate that this research may lead to further demonstration of the usefulness of electrophilic carbonyl additions and development of new synthetic methodology for making functionalized imines.

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Symposium Speakers with Mutch and Wong L-R: Jaelene Mannerfeldt, Philip Kijak, Robert Johnston, Peter Wong, Bill Mutch, David Moll, David Randall and Ryan Hayes.

