



# Mudd In Your Eye

Newsletter of the Department of Chemistry, Lehigh University

Number 38 • March 2010

“Great importance is given to chemistry as an elementary branch of learning.” — *Lehigh Register 1866*

## DEPARTMENT CLIMBING RAPIDLY IN RESEARCH

—Keith J. Schray

Those of you familiar with the department's history would be aware of the steady loss of resources after our move to the College of Arts and Sciences, particularly in the number of faculty. That was exacerbated by administrative decisions which resulted in a five-year faculty hiring hiatus. With the arrival of Bob Flowers as the department chair in 2004 (see *Mudd In Your Eye* Number 27, July 2004) and new administrators, that process began a long-term reversal. In the last six years, six new faculty have been hired and the research profile of the department has been climbing with no end in sight. Because of the age structure of the department and the resultant retirements, even that pace of hiring has barely kept pace.

When Flowers came he was the twelfth faculty member and we are currently at fourteen. It was clear in the planning document early on that we would have to hire at more than one new faculty per year to climb to the planned faculty numbers at steady-state, and two searches are now in progress. The following figures show other progress that has resulted from this re-growth of the department.

External research funding shown in Figure 1 demonstrates the progress in that area. This is remarkable and more so when you realize that five of the new hires have been at the assistant professor level and the funding process for new faculty takes some years to come on-line. So we anticipate that this curve will continue. Both additional hires (some at the more senior levels) and the maturation of the careers of the junior faculty will continue that trend. Funding sources this year include National Science Foundation (11), National Institutes of Health (4), U.S. Department of Energy (4), and seven various other agencies, corporations, and sub-contracts.

The additional funding is naturally supporting the number of graduate students in the department. In Figure 2 is seen the increase in Ph.D. candidates over this time period and the number of M.S. only has been falling almost as rapidly. Those data and the informal views of the faculty support the idea that the student quality has been climbing as well.

Publications in the department have risen during this period as well, climbing from 21 in 2004 to our high water mark in recent years of 36 in 2009. Twenty-five per-

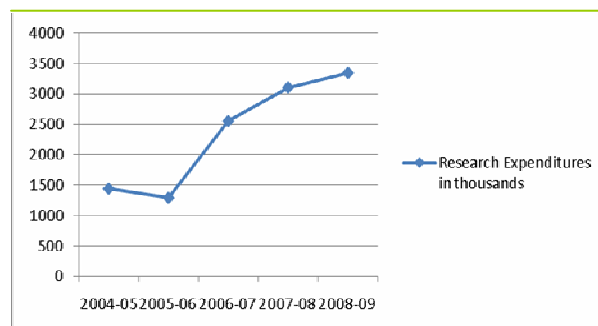


Figure 1. Research Expenditure in Thousands

cent of those 2009 papers were in the premier chemistry journal, *Journal of the American Chemical Society*.

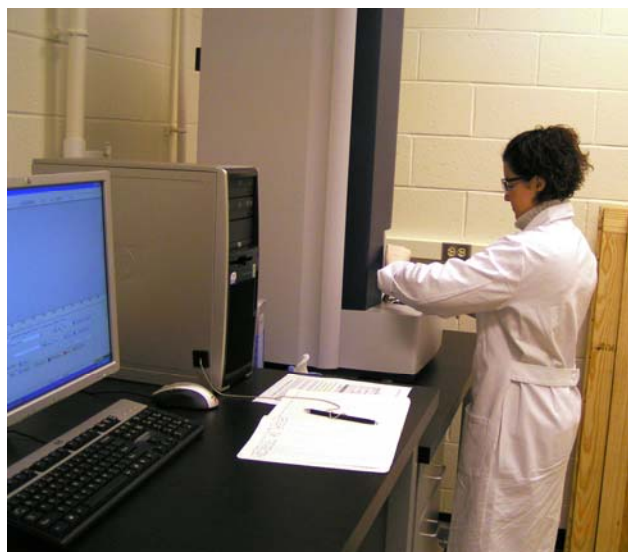
The university has put a large number of resources into the department in this process or re-growth. The \$7 million HVAC renewal two summers ago (see *Mudd In*



Figure 2. Graduate Student Enrollments

*Your Eye* Number 33, November 2007) and the startup costs of the new hires have amounted to about \$10 million. In another major commitment we will, in a future article, show you the new laboratories being built in the STEPS building which will house the Introductory Chemistry Laboratories (three courses) and the Organic Chemistry Laboratories. You will be impressed. This means that the second and third floors of the Mudd building can then be converted to additional research space for additional hires.

It seems clear that as the junior faculty “hit their stride” and additional faculty are hired to get the numbers to the target steady-state all these trends will continue. The department, led by Professor Robert Flowers, is certainly on the move.



Professor Glover's Ph.D. student Monica Rieth running a sample on the recently acquired MALDI-TOF mass spectrometer



**SCIENTIFIC LECTURES**  
BEFORE THE  
**CHEMICAL SOCIETY**  
OF THE  
**LEHIGH UNIVERSITY,**  
IN THE  
**HALL of the MORAVIAN DAY-SCHOOL,**  
**BETHLEHEM, PA.**  
**1873.**

1. This Course of Lectures will be opened on **MONDAY EVENING, February 3d,** by Professor **B. WATERHOUSE HAWKINS, F. G. S.,** of London. Subject: "*The Utility of Plan and Evident Design in the Animal Kingdom.*"
2. **MONDAY EVENING, February 10th,** by President **F. A. P. BARNARD, S. T. D., LL. D.,** of Columbia College, New York. Subject: "*The Microscope.*"
3. **MONDAY EVENING, February 17th,** by Professor **WILLIAM H. CHANDLER,** of the Lehigh University. Subject: "*The Chemistry of Coal.*"
4. **MONDAY EVENING, February 24th,** by Professor **GEORGE F. BARKER, M. D.,** of Yale College. Subject: "*The Chemical Discoveries of the Spectroscope.*"

**These Lectures will be illustrated by elaborate and brilliant experiments.**

THE LECTURES WILL COMMENCE AT ONE-QUARTER BEFORE EIGHT O'CLOCK.

**TICKETS FOR THE COURSE,** - - - **\$1.50.**

For sale at the Book-Stores of Weaver & Welden, and Henry T. Clauder, Bethlehem, Pa.

**SINGLE TICKETS,** - - - **75 cents.**

For sale at the door of the Hall.

Bethlehem, Pa., January 22, 1873.

A new exhibit titled "*The Royal Society and the Origins of Scientific Communication*" opened in Linderman Library on January 22. The Chemical Society of Lehigh University, founded by Charles Chandler in 1871, is represented by three posters for the annual lecture series and the meeting minutes book from the first meeting (1871). Also on display are copies of *The American Chemist*, the journal co-edited by Chandler and his brother Charles from 1870–1877.

## INTERIM CHAIR'S MESSAGE

If you've been paying attention to this section you'll have noticed that I am writing this in place of Bob Flowers. I am serving as the interim Chair while Bob is on sabbatical in England with a number of speaking engagements on the continent as well. One major activity this fall has been recruitment of new faculty. It was a veritable seminar heaven here for several weeks with the record being five in one week as we interview prospective faculty in addition to other regular seminars. Some of us now believe you can get too much of a good thing. We are recruiting in the organic and biochemistry areas. This continues a process lead by Dr. Flowers which will lead to the virtual complete (ca 80%) turnover of the faculty in a ten-year period. It makes for a pretty interesting transition. Another area of change on the horizon is the completion of the STEPS (Science, Technology, Environment, Policy and Society) building into which the first- and second-year chemistry laboratories will be moving. While this will have some drawbacks in terms of distance, the new laboratories will be major improvements over those in Mudd. Particularly, the improvement in the organic laboratories hood access for students will bring us into the more demanding modern environment with each student having four feet of hood space in individual (in pairs) hoods. More to come on that in the fall. This will free up space in Mudd for additional research efforts brought about by the new research intensive faculty. May we live in interesting times.

—Keith J. Schray



William Bush Schober (1864–1935), B.A. St. John's College (1886), Ph.D. Johns Hopkins University (1892, with Ira Remsen), Instructor, Lehigh, 1892–1904, Assistant Professor, 1904–1906, Department Chair 1906–1914.

## ALUMNI NEWS

**Tara Baney** (M.S. 1999) has received her Ph.D. from the University of Delaware with research focused on pseudouridine synthases handling of modified tRNA stem-loops. Baney began her career at Merck in 1999 as a Staff Chemist in Regulatory and Analytical Sciences – Analytical, where she provided worldwide analytical, stability, and regulatory expertise to support the development and manufacture of ophthalmic and anti-viral products. She acquired clinical experience as a Medical Program Coordinator, first in the GI, Ophthalmology, and Neuroscience Group, assisting with VIOXX Protocols 136, 158, and 184; subsequently moving to the Molecular Profiling Group, where she primarily provided sample and data collection guidance in focused exploratory studies using RNA expression experiments and serum biomarker studies. Prior to starting her Ph.D. studies through the Merck Doctoral Program, she worked in Global Clinical GMP Quality, where she independently performed quality audits on outgoing clinical supplies, clinical packaging orders, and all relevant paperwork associated with clinical supplies. Tara is now a Clinical Research Specialist with the BRIE group,

**Nancy Brenner** (Ph.D. 1988) has retired from the Clinical Trials Management Department of Merck, West Point, PA.

**Chia Ting Chen** (M.S. 1965) has retired after thirty-four years at OSHA as an industrial hygienist. After leaving Lehigh he received a Ph.D. in physical chemistry (University of Houston) and an M.P.H. in occupational and environmental health (University of Texas at Houston). During his OSHA career Chen served as project officer for the promulgation of health standards for ten petroleum chemicals, ozone, cadmium, 1,3-butadiene and methylene chloride. He also conducted research that led the EPA to change the suspended particulate matter standard from the weight-based standard to the size-based standard. In the years prior to his retirement he focused on the safety and health issues of weapons of mass destruction.

**Michelle DeCrosta** (Ph.D. 1986), formerly director of quality management for Pliva Pharmaceuticals, was recently named senior director of analytical services for Discovery Labs in Warrington, PA.. Quoted in a recent interview in *Genetic Engineering and Biotechnology News* about her company's surfactant (Surfaxin) which is in Phase 3 trials for prevention of respiratory distress syndrome in premature infants, DeCrosta focused on the fact that her company's surfactant is entirely synthetic while currently marketed surfactants are animal-derived and therefore complex both medically and compositionally. The synthetic approach leads to tighter control over product quality. "It's more simplistic, the impurity profiles are predictable, and it's reproducible."

**Lauren Williams Fotiades** (B.S. 2003, M.S. 2004), formerly a research chemist with Aquarian Solutions, has joined the research staff of Dynalene, Inc. at their laboratories in Whitehall, PA. Fotiades is working on the development of improved heat transfer fluids.

**Michael Frey** (Ph.D. 1995) has joined Xerox Corporation in Rochester, NY, where he is Manager of End User I.T. Services worldwide. His position involves file storage, team websites, document management, e-mail, logon/identity issues, and telephony. His team of 40+ employees is geographically dispersed over all the Xerox sites around the globe.

**Lucius J. Kemp** (M.S. 2001) was named Vice President - Commercial Operations North America, at Chemspeed Technologies, Monmouth Junction, NJ. Lucius was formerly Senior Workflow Architect, a post in which he designed drug synthesis and compound dosage formulation equipment manufactured by Chemspeed for inclusion in on-going R&D within the pharmaceutical industry.

**Max Kush** (M.S. 1977) retired this year as a Colonel from the United States Air Force after serving 30 years of combined active duty and reserve forces duty. He is also a Ph.D. candidate, currently engaged with his dissertation research and writing, at Northcentral University with a specialization in Engineering and Technology Management.

**Christine Martey-Ochola** (Ph.D. 2001) was elected President of the United States-Kenya Chamber of Commerce. The group's prime mission is to encourage investment partnerships between U.S. and Kenyan businesses. Christine recently published *The Impact of HIV/AIDS on a Kenyan Village through the Eyes of Babes*. The book is a pictorial story of the impact of HIV/AIDS on a particular rural Kenyan village. The pictures were drawn by children from the Wimagak primary school to show through their art what they feel and see in their community. Christine has arranged that proceeds from the book sales will go towards establishing a school library, water source, health clinic, computer labs and an art center in the village. The book results from a research project Christine initiated when she served on the chemistry faculty of Shippensburg State University. She now serves on the biochemistry faculty of Villanova University.

**John A. Minatelli** (Ph.D. 1974) has left the position of director of pharmaceutical chemical marketing and sales at *DSM Catalytica*/ Pharmaceuticals, in Greenville, NC, and taken an equity position as Senior Vice President for Business Development at Valensa International, Eustis, Florida. Valensa International is a nutraceuticals company manufacturing and selling supercritical CO<sub>2</sub> extracts of saw palmetto, cranberries, algae, chia seeds, and a half-dozen other botanicals. In 2009, John filed two patent

disclosures on an extraction process for *Salvia hispanica* (chia seed) and the beverage produced therefrom for “enhancing gastrointestinal regularity.”

**Peter Seoane** (Ph.D. 1984), Vice-President for R&D with EagleVision Pharmaceutical Corporation, has relocated with that imaging products firm from Exton, PA, to Winston-Salem, NC. EagleVision develops injectable contrast enhancement media for magnetic resonance imaging.

**Jeremy Webber** (M.S. 2004) has taken a position as Project Manager at CIMA Laboratories, a Cephalon Company engaged in R&D on drug delivery and located in Brooklyn Park, MN. Jeremy was formerly Senior Scientist at MGI Pharma, a drug development firm located in the Minneapolis/St Paul area.

**Marilyn S. Whittemore** (Ph.D. 1999) is a senior synthesis chemist II at Buckman Laboratories in Memphis, TN. She spends her vacation time in Ukraine doing orphan ministry and her husband spends 40% of the year in Ukraine.

**Helen Huiru Zhao** (Ph.D. 1990) and her civil engineer husband, Kai Yu, have formed a custom construction home building company in Indianapolis, IN. Helen, now a licensed real estate broker, does interior design and handles sales transactions.

## FACULTY NEWS

**Jack Alhadef** retired at the end of December 2009.

**Gregory Ferguson** received a grant from the NSF (with Dmitri Vezenov as co-PI) for the purchase of a spectroscopic ellipsometer. This instrument will be used for surface and materials analysis by research groups in the Chemistry Department as well as across the campus. His most recent publication is “An Alternative Method for Fabricating Microcontact Printing Stamps,” *Microelectronic Engineering* **2009**, *86*, 2334–2341 (with G. Jing, J.P. Labukas, W.-Y. Zhang, S.F. Perry, S.-F. Lu, and S. Tatic-Lucic).

**Robert A. Flowers II** was a speaker at an international conference entitled “Organic Free Radicals Ottawa” in honor of Keith Ingold in the summer of 2009. He was co-guest editor with David Procter for a special issue of the journal *Tetrahedron* entitled “Electron-transfer reagents in Organic Synthesis” which appeared at the end of 2009. Flowers also completed a book recently published by the Royal Society of Chemistry entitled “Organic Synthesis Using Samarium Diodide: A Practical Guide,” co-written with David Procter at the University of Manchester in the UK and Troels Skrydstrup at Aarhus University in Denmark. His other recent publications include “Synthesis of  $\gamma$ -substituted Ketones via the Ce(IV)-mediated Oxidative Coupling of Cyclobutanols and Inorganic Hal-

ides,” *Tetrahedron Lett.* **2009**, *50*, 1264–1266 (with B. M. Casey and B. M. Eakin); “Ce(IV)-Based Synthesis of Tetrasubstituted Pyrazoles,” *Synlett* **2009**, 1490–1494 (with J. D. Devery, III, P.K. Mohanta and B. M. Casey); “Generation of Triarylamine Radical Cations Through Reaction of Triarylamines with Cu(II) in Acetonitrile. A Kinetic Investigation,” *J. Phys. Chem. A* **2009**, *113*, 6477–6483 (with K. Sreenath, C. V. Suneesh and K. P. Gopidas); “Solvent-Dependent Oxidative Coupling of 1-Aryl-1,3-dicarbonyls and Styrene,” *Tetrahedron* **2009**, *65*, 10762–10768 (with B. M. Casey, C. A. Eakin and J. Jiao); “Studies on the Mechanism, Selectivity, and Synthetic Utility of Lactone Reduction Using  $\text{SmI}_2$  and  $\text{H}_2\text{O}$ ,” *J. Am. Chem. Soc.* **2009**, *131*, 15467–15473 (with D. Parmar, D. V. Sadasivam, H. Matsubara, P. A. Bradley and D. J. Proctor); and “Efficient protein renaturation using tunable hemifluorinated anionic surfactants as additives,” *Chem. Commun.* **2010**, *46*, 276–278 (with R. Singh).

**Jebrell Glover** gave an invited lecture at Muhlenberg College and two poster papers on his students’ research at the Delaware Membrane Protein Symposium. His most recent publication is “Assembly of  $\{\text{Mo}_7\text{Fe}_{30}\}$  Macroions: Connection to the Virus Capsid Formation,” *J. Am. Chem. Soc.* **2009**, *131*, 15152–15159.

**Ned Heindel** presented a paper on “Testing the Cholinergic Anti-inflammatory Hypothesis: New Pharmaceuticals for Treating Vesication,” at the IUPAC World Congress in Glasgow, UK, in August, 2009 (with coauthors Karine Fabio, Sherri Young, Pramod Mohanta, C. Jeffrey Lacey, and Christophe Guillon). He also presented seminars on “Antidotes to Terrorist Toxins” at High Point University (NC), The Governors School for Science and Technology (VA), and Christopher Newport University (VA). A recent U.S. Patent on a new class of fluorescent and cytotoxic tumor cell markers entitled “Fluorescent Fused-Ring Triazoles and Uses Thereof,” (U.S. Patent 7,598,238 (2009)) was issued to Heindel with Lehigh co-inventors Christophe Guillon and Peter DeMatteo. Heindel was also reappointed to the Editorial Board of *Chemical and Engineering News*.

**Kamil Klier**’s recent publications include “Electronic Structure of  $\text{CeF}_3$  and  $\text{TbF}_3$  by Valence-Band XPS and Theory,” *Journal of Physics and Chemistry of Solids* **2009**, *70*, 1302–1311 (with P. Novak, A. C. Miller, J. A. Spirko, and M. K. Hatalis) and “The Elusive Excited Quintet 5D of  $\text{Tb}_3^+$  - a Source of Luminescence and Resonance Energy Transfer in Terbium Compounds,” *Journal of Chemical Education* **2010**, *87*, 45–46. His active grants are “Catalytic Synthesis of Oxygenates” (PI), sponsored by Enerkem Inc. Canada; “Computational Studies in Support of Display Technology (PI), sponsored by Center for Nanofunctional Materials at the Brookhaven National Laboratory; and “Army Optics VI: Flexible Displays” (Co-PI with M. K. Hatalis), sponsored by DOD-Army-Research Laboratory. Klier continues as an Editor of *Catalysis Reviews—Science and Engineering*.

**Kai Landskron** gave invited lectures at City University of New York, College of Staten Island and the North East Corridor Zeolite Association. His recent publications include “Simple Systematic Synthesis of Periodic Mesoporous Organosilica Nanoparticles with Adjustable Aspect Ratios,” *Nanoscale Res. Lett.* **2009**, *4*, 1524–1529 (with Paritosh Mohanty); “Synthesis of Periodic Mesoporous Coesite,” *J. Am. Chem. Soc.* **2009**, *131*, 9638 (with Paritosh Mohanty and Yingwei Fei); “Synthesis of Periodic Mesoporous Phosphorus-Nitrogen Frameworks by Nanocasting from Mesoporous Silica Using Melt-infiltration,” *J. Mater. Chem.* **2009**, *19*, 2400 (with Paritosh Mohanty); and “Synthesis of Stishovite [9 Nanocrystals from Periodic Mesoporous Silica,” *J. Am. Chem. Soc.* **2009**, *131*, 2764 (with Yingwei Fei). He was also awarded three grants: “Electric Field Swing Adsorption for Carbon Capture,” (Department of Energy); “Periodic Mesoporous Organosilicas for CO<sub>2</sub> Separation Applications (PA Dept of Community & Economic Development and Air Products, Inc.); and “Lehigh University Battery Initiative,” PA Dept of Community & Economic Development

**Tianbo Liu** gave invited lectures at the Gordon Research Conference on Chemistry of Supramolecular Structures, Colby College, Maine (July 2009); Polyoxometalate International Symposium, Jacobs University, Bremen, Germany (July 2009); National Polymer Conference, Tianjin, China (August 2009) and EPI Symposium, Lehigh University (Dec. 2009). His recent publications include “The Lag Periods During the Self-Assembly of {Mo<sub>72</sub>Fe<sub>30</sub>} Macroions: Connection to the Virus Capsid Formation Process,” *J. Am. Chem. Soc.* **2009**, *131*, 15152–15159 (with Jie Zhang, Dong Li, Guang Liu and K. J. Glover); “Synthesis of Modular Inorganic-Organic-Inorganic Polyoxometalates and Their Assembly into Vesicles,” *Angew. Chem. Int. Ed.* **2009**, *48*, 8309–8313 (with Chulikkattil P. Pradeep, Mauricio F. Misdrahi, Feng-Yan Li, Jie Zhang, Lin Xu, De-Liang Long and Leroy Cronin); “Counter-ion Distribution around Hydrophilic Molecular Macroanions: the Source of the Attractive Force in Self-Assembly,” *Angew. Chem. Int. Ed.* **2009**, *48*, 6538–6542 (with Joseph M. Pigga, Melissa L. Kistler, Chwen-Yang Shew, and Mark Antonio); “Accurately Tuning the Charge on Giant Polyoxometalate Type Keplerates through Stoichiometric Interaction with Cationic Surfactants,” *Langmuir* **2009**, *25*, 7328–7334 (with Melissa L. Kistler and Komal G. Patel); “Molybdenum-Oxide Based Polyprotic Nanoacids Showing Different Deprotonations and Related Assembly Processes in Solution,” *Dalton Trans.* **2009**, *26*, 5094–5100 (with Melissa L. Kistler, Pierre Gouzerh, Ana Maria Todea and Achim Müller); “Unprecedented Pentagonal Units in a Dynamical Library: A Keplerate of the Type {(W)W<sub>5</sub>}<sub>12</sub>(Mo<sub>2</sub>)<sub>30</sub>,” *Angew. Chem. Int. Ed.*, **2009**, *48*, 149 (VIP article) (with Christian Schäffer, Alice Merca, Hartmut Bögge, Ana Maria Todea, Melissa L. Kistler, René Thouvenot, Pierre

Gouzerh and Achim Müller); and “Synthesis of Stishovite Nanocrystals from Periodic Mesoporous Silica,” *J. Am. Chem. Soc.* **2009**, *131*, 2764–2765 (with Paritosh Mohanty, Dong Li, Yingwei Fei and Kai Landskron).

**David T. Moore** gave an invited talk at Lebanon Valley College on “Nanoscience for alternative energy applications.” He is also co-PI with Kai Landskron on a grant entitled “Electric Field Swing Adsorption for Carbon Capture Applications.”

**Steven L. Regen**'s recent publications include “Bioconjugate-Based Molecular Umbrellas,” *Bioconjugate Chem.* **2009**, *20*, 183–192 (with V. Janout); “Molecular Umbrella Transport: Reversal of the Classic Size/Lipophilicity Rule,” *J. Am. Chem. Soc.* **2009**, *131*, 1338–1339 (with M. Mehiri, W-H. Chen and V. Janout); “Thermally-Gated Liposomes: A Closer Look,” *Bioconjugate Chemistry* **2009**, *20*, 1037–1043 (with R. Petrov and W-H. Chen); “Loosening and Reorganization of Fluid Phospholipid Bilayers by Chloroform,” *J. Am. Chem. Soc.* **2009**, *121*, 5068–5059 (with S. Turkyilmaz, W-H. Chen, and H. Mitomo); 237. Mitomo, H.; Chen, W-H.; Regen, S. L. “Reduced Sterol-Phospholipid Recognition in Curved Fluid Bilayers,” *Langmuir* **2009**, *25*, 4328–4330 (with H. Mitomo and W-H. Chen); “Oxysterol-Induced Rearrangement of the Liquid-Ordered Phase: A Possible Link to Alzheimer's Disease?” *J. Am. Chem. Soc.* **2009**, *121*, 12354–12357 (with H. Mitomo and W-H. Chen); and “A Fine Line Between Molecular Umbrella Transport and Ionophoric Activity,” *Bioconjugate Chemistry* **2009**, *20*, 1711–1715 (with W-H. Chen, V. Janout, M. Kondo, A. Mosen, M. Goar, R. R. Petrov and M. E. Klotman).

**Dmitri Vezenov** was co-organizer of a nano-themed symposium “Frontiers in Imaging Biological Nanostructures” at the 237th ACS National Meeting, Salt Lake City, UT, March 2009. His recent publications include “Chemical Force Microscopy: Nanoscale Probing of Fundamental Chemical Interactions” in *Handbook of Molecular Force Spectroscopy*, A. Noy (Ed.), Springer, 2008, 97–122 (with A. Noy and C. M. Lieber); “Chemical Force Microscopy: Force Spectroscopy and Imaging of Complex Interactions in Molecular Assemblies” in *Handbook of Molecular Force Spectroscopy*, A. Noy (Ed.), Springer, 2008, 123–143 (with A. Noy and C. M. Lieber); and “Challenges of Sequencing by Synthesis,” *Nature Biotechnology*, 2009, *27*, 1013–1023 (with C. W. Fuller, L. R. Middendorf, S. A. Benner, G. M. Church, T. Harris, X. Huang, S. B. Jovanovich, J. R. Nelson, J. A. Schloss, and D. C. Schwartz). Vezenov's active grants are “Super-Resolution Optical Imaging of the Cytoskeleton Using Excitation by Freely-Diffusing Nanoparticles” (DOE), “MRI: Acquisition of a Spectroscopic Ellipsometer for Surface and Materials Analysis at Lehigh University” (NSF) and “Temporal and Spatial Control of Bacterial Wall Morphogenesis” (Human Frontier Science Program Organization).

## JOSEPH PRIESTLEY – THE LEHIGH CONNECTION

An enigmatic English clergyman who is credited with the discovery of oxygen on August 1, 1774, Joseph Priestley came to the United States in 1794 to join his sons who had begun a land speculation venture in the wilderness of central Pennsylvania. In Northumberland he built a home where he continued experiments in a laboratory wing of the house, and pursued his theological writings and discourses which had created so much difficulty for him in his homeland. Although Priestley died more than 60 years before Lehigh University opened its doors to students, there is a connection between the two.

While living in Northumberland, Priestley made the then difficult trip to Philadelphia four times, often attending meetings of the American Philosophical Society. Here he met and became friends with Tench Coxe, who had served as assistant secretary of the treasury under Alexander Hamilton. Realizing that the use of wood as the principal fuel source would diminish as nearby supplies dwindled, Coxe began acquiring property in northeastern



Harry Toulmin  
Lehigh Co.

Pennsylvania where coal was thought to be present. His son, Judge Charles Coxe, maintained and consolidated the vast holdings, and his grandson, Eckley Brinton Coxe, was groomed to develop the coal mining activities.

Educated at the University of Pennsylvania and mining schools in Freiburg and Paris, Eckley Coxe joined the board of trustees at Lehigh in 1871, at the age of 32 and remained on the board until his death in 1895. When a centennial of chemistry celebration was held in Northumberland in 1874 to commemorate Priestley's discovery of oxygen and the American contributions of chemistry dur-

ing the past century, Eckley joined 76 other chemists at the meeting and visited the grave of the man who had become his grandfather's friend.

Priestley and his wife Mary nee Wilkerson had four children. The oldest, Joseph Priestley Jr. had five children, and his oldest son, Joseph Raynor Priestley, had nine children. One of his daughters, Frances Biddle Priestley, married Major Harry Toulmin and lived in Northumberland. Some time after the death of her husband in 1870, Frances Biddle Priestley Toulmin moved her family to Bethlehem so that her sons, Priestley Toulmin and Harry Toulmin could attend Lehigh.

Harry received the Ph.B. degree in 1886 and was class valedictorian. He went on to earn an M.D. at the University of Pennsylvania and spent most of his career as the medical director of the Penn Mutual Life Insurance Company in Philadelphia.

Priestley Toulmin studied mining engineering and did his B.M. degree thesis work ("The preparation of anthracite coal, with a review of the Deringer breaker") at the Coxe Brothers mines at Drifton, PA where he came under



Priestley Toulmin  
Lehigh Co.

the influence of Eckley Coxe, who made his mining operations available to train Lehigh engineers, and also opened up his extensive library containing more than ten thousand books and journals to Lehigh students. After receiving his degree in 1886 and an E.M. in 1887, Toulmin opened up a new mining venture in Alabama. A loyal Lehigh alumnus and strong supporter of his alma mater, Toulmin named his company the Lehigh Coal Company and their mailing address was Lehigh, Alabama. It was natural, then, for his son, Priestley Toulmin Jr., to attend Lehigh as well. Although he never graduated, Toulmin Jr. did work in the Lehigh mining operations in Alabama. Priestley Toulmin Jr.'s son, Priestley Toulmin III, broke with the family tradition and attended Harvard instead and became an accomplished geologist.

## SPOTLIGHT ON ALUMNI: GUILLERMO LEÓN PALACIO

—John M. Waud (B.S. 1971, Ph.D. Molecular Biology 1978)

Returning to Lehigh in 1975 to begin my graduate program in molecular biology, my wife Doris (M.S. Education 1974) and I were welcomed by many students and faculty. We have stayed in touch with many of these folks over the years. One of the first people we met was Guillermo Palacio. Guillermo was a graduate student from Medellin, Colombia. Guillermo always seemed to be happy, no matter how much stress he or anyone else was under. He also turned out to be very fast. It was fall and soon there was a pick up touch football game behind the Mudd Chemistry building at noon almost every day. Being from Latin America, it was no surprise to find out that Guillermo was better than most of us at soccer. What was a surprise was that he quickly learned to play American



football. Because of his speed, we soon learned that if we threw the football as far as we could, he would run under it and catch the ball.

We also realized quickly that Guillermo was a very talented chemist. Guillermo

and I shared a laboratory since we both were working under Dr. Keith J. (KJ) Schray. While we were working in the laboratory, we would talk about many things: biochemistry, sports, philosophy, our homes, and our families. Doris would often come to the laboratory in the evening and do her work while Guillermo and I worked at the lab bench. He told us about Colombia and the people of Colombia. He would talk about the pleasant cities and the remote tropical forests. He often invited us to go to Colombia to see for ourselves all of the wonderful things he described. He always said that if we would come to his country we could stay with him.

In 1978, both Guillermo and I graduated from Lehigh with a Ph.D. I remember that the World Cup was soon to be played and Guillermo's father wrote to tell him that he needed to bring a color television to Colombia so that they could watch the competition for the Cup. When he got back to Colombia, he took a faculty position at the University of Antioquia. This is one of the most prestig-

ious universities in Latin America. He taught organic chemistry and conducted research in natural products. At the same time he started a small business making printing inks. He still maintains his ink business and he remained at Antioquia until he retired in December of 2006.

We exchanged letters and cards over the years and Guillermo returned to the U.S. on at least one occasion. He came to our house to visit with us. We still did not go to Colombia, largely because of the political unrest and our perception of danger there. About five years ago, Colombia elected a new President, Alvaro Uribe. While not everyone agrees with his policies, President Uribe brought stability, peace, and relative prosperity to Colombia.

In 2008, Doris and I finally took Guillermo up on his generous invitation. Not only did we stay at his house and meet his family, but he took two weeks of vacation to travel in the northwest part of Colombia with us! What a spectacular trip. The mountains, valleys, rivers, and wildlife lived up to what he had told us. Because of traveling with Guillermo, we were able to visit not only the city of Medellin where he lives, but also remote villages and undeveloped parts of Colombia. Since both my wife and I speak Spanish, we were also able to meet many of the "paisas." The "paisas" are the people living in this part of Colombia.

We also discovered that Guillermo was not exactly retired. In addition to running his small business, he has returned to teaching and research. But this time he is teaching at a different university, EAFIT. In Spanish this acronym means Technical School of Administration and Finance. He is again teaching organic chemistry and doing research with the help of students. His current area of natural product research is related to phytosterols. Guillermo's smile never retired either. He is an extremely gracious host.

Doris and I have been fortunate to have Guillermo as our friend for all of these years. I thought that perhaps other alums from the mid-70s would be interested to read about Guillermo. If you would like to contact him his address is: Calle 19A, No.27-210 Km.5, Via las Palmas, Medellin, Colombia. His e-mail address is: [gpala-ciog@gmail.com](mailto:gpala-ciog@gmail.com). I am sure Guillermo would like to hear from those of you who know him.

*Guillermo's research laboratory at EAFIT (right)*



**Department of Chemistry  
Lehigh University  
6 East Packer Ave.  
Bethlehem PA 18015-3172**

<http://www.lehigh.edu/~inche>

Department Chair  
Robert A. Flowers, II  
610-758-4048  
rof2@lehigh.edu

Undergraduate and Graduate  
Academic Coordinator  
JoAnn DeSalvatore  
610-758-3471  
jmd207@lehigh.edu

Academic Coordinator  
Jane Derbenwick  
610-758-3470  
rd0b@lehigh.edu

Newsletter Editor  
James J. Bohning  
610-758-3582  
jjba@lehigh.edu

## ***CHEMISTRY DEPARTMENT FACULTY - 1941***



**Top Row (L to R):** J.H. Steele, R.D. Billinger, J.G. Smull, H.A. Smith, E.D. Amstutz, W.A. McGrath, C.H. Reichardt, H.S. Levenson, J.C. Mertz, E.J. Serfass, F.J. Fornoff.

**Middle Row (L to R):** H.V. Anderson, W.W. Ewing, A.A. Diefenderfer, H.A. Neville, H.W. Ullmann, G.C. Beck, C.W. Simmons. **Seated on Floor (L to R):** E. Heins, P.T.W. Strub, R. F. Schultz, T.H. Hazlehurst.