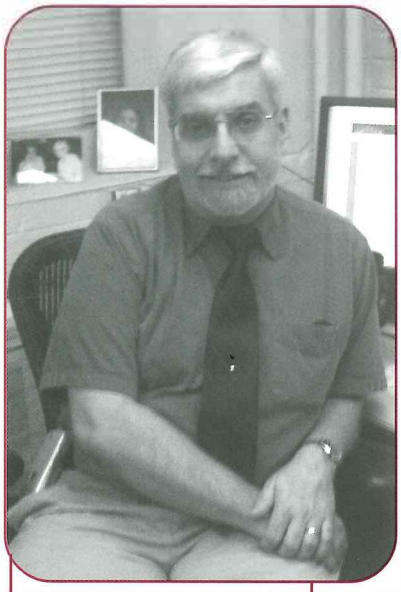
ELEMENTS

The Alumni Magazine of the Department of Chemistry at Virginia Tech - Spring 2005



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From the Department Chair

It is hard to believe that my first academic year as chemistry Department Chair is coming to a close. The activities of the past months are all a blur so this is a good opportunity to reflect and to recognize the highlights of this academic year.

I initiated an administrative reorganization of the Department in the fall of 2004. Roberta Gilbert is now the department Business Manager. Brian Hanson agreed to continue in the role of Associate Chair for Administration. Mark Anderson stepped into the role of Director of Graduate Education and Brian Tissue became the Director of Undergraduate Education. Tom Bell is now the Assistant to the Chair for Research and Special Projects. This top level restructuring of the Department with these very talented individuals is just the first step in providing an organization in the Department that will help everyone meet our goals in education, in research, and in outreach.

Regarding our educational mission, I spent quite some time in January reading over the student evaluations for all of the courses taught in Fall 2004. I can say with certainty that we can be very proud of an outstanding, dedicated faculty. The student comments across the board showed that the students perceived our faculty as knowledgeable, caring, and overall very good. (And students are the harshest of critics.) I am proud to say that Gary Long has been chosen to be one of this year's Wine Award winners for excellence in teaching. This adds to the Department's already impressive array of university-level teaching awards.

In terms of research, the Department also has a great deal to be proud of. Individual faculty continue to be successful in their research activities and teams involving chemistry faculty also are quite productive. Richard Turner joined the Department in January as Director of the Macromolecules and Interfaces Institute, a new organization that brings together all the great activity in macromolecules, adhesives, surfaces, and all kinds of interfaces. One metric to which the university is looking as a measure of success is the NSF Ranking of Research Expenditures. The last ranking involves data from fiscal year 2002 and, in that ranking, the Department of Chemistry rose from #51 in 2001 to #39 in 2002. This is a phenomenal jump that is due to the hard work of all of the faculty and to the efforts of my predecessor, Larry Taylor as Department Chair.

The Department continues to be one that reaches out to the community in many different ways. Many of our faculty work with various levels of K-12 schools to help bring a dimension to their educational

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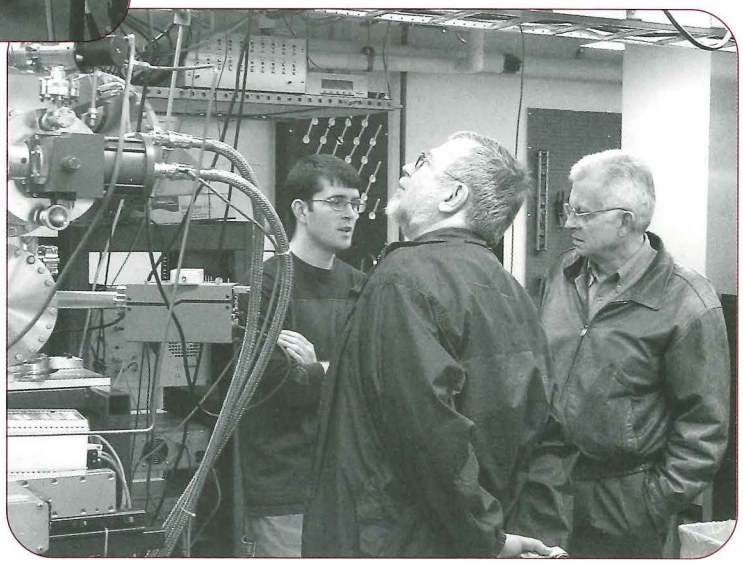
Teachers Visit Chemistry

A group of teachers from Roanoke Valley Governor's School (http://rvgs.k12.va.us/) visited campus on March 7 to learn how they might incorporate nanotechnology into their curriculum. They started their day in Geological Sciences. Carla Slebodnick, Chemistry Instructor, then provided a tour of the crystallography lab and brought the group to ChemPhys. Chemistry faculty gave short presentations on the listed topics: Professor Tissue (luminescent nanoparticles); Professor Alan Esker (POSS nanostructures); Professor Diego Troya (computational chemistry applied to nanoscience). The teachers also tourned Hahn 005, which houses John Morris' surface analytical instruments and Brian Tissue's nanoparticle synthesis chamber. The teachers who attended were: Walker Holt, Cindy Bohland, Fred Hoffman, John Kowalski (science chair), Shewaferaw Shibeshi, Gwen Sibert, Steve Smith, and Cam Srpan.

Graduate student, Larry Fiegland, describes the analysis chamber for in-situ infrared and surface spectroscopy to the other teachers. In the background graduate student, Wes Gordon, shows the diminutive nanoparticle synthesis chamber to Shewaferaw Shibeshi.



Graduate student, Scott Day, discusses molecular beam scattering experiments with Walker Holt and Fred Hoffman.

Faculty In The News

Quote of the Season by Chair, Joe Merola, in the Richmond Times Dispatch (11/25/04) concerning Hokie football and chemistry, "We don't have somebody who is making a lot of headlines but we have a whole football team that is making a lot of headlines," he said. "Over the past few seasons, there seemed to have been a belief that a single person was going to carry the team. Now they seem to have come to the realization that it is all of us. That's chemistry."

Jeannine Eddleton, Instructor, and Joe Merola, Chairman, presented a talk entitled "Calories, Carbs, Consumers, and Chemistry" for the College of Science Parent's Day 2004 festivities. Claudia Brodkin, coordinator of Upper division Undergraduate Chemistry Labs, gave tours of the chemistry labs.

Professor Tim Long was recently awarded a grant by the Camille & Henry Dreyfus Foundation entitled: Mentoring academic growth in our communities (MAGIC): teaming research universities with regional science museums.

Neal Castagnoli along with Dr. Jim Bohland, Executive Director of the National Capital Region co-sponsored a very prestigious meeting at the European Studies Center at Riva-San Vitale, Switzerland, April 3-6, 2005. "Looking to the Future: Symposium on Computational Methods in Drug Design". The symposium included more than 25 top international scientists from academia, including Virginia Tech, Georgetown University, Wake Forest University, VCU, UVA, University of Parma (Italy), University Hospital Center (Lausanne, Switzerland), University of Milan; and the pharmaceutical industry including Astra Zeneca (Lund and Molndal, Sweden) and Schering AG (Berlin, Germany). Professor Richard Gandour, former Department Chair, gave an excellent presentation concerning his research.

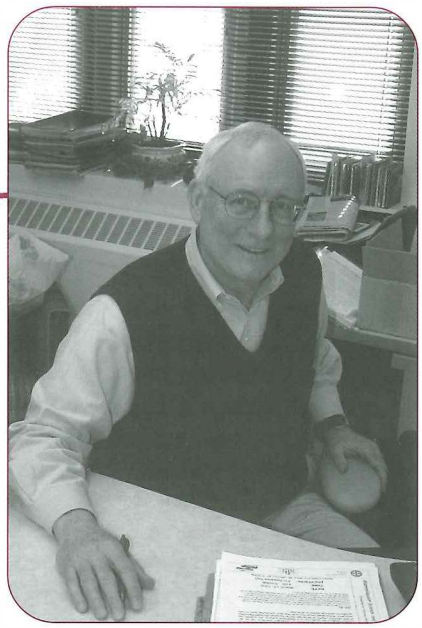
Professor Larry Taylor, former Department Chair, was recently selected to receive the Pfizer, Inc. Green Chemistry Award for his research concerning carbon dioxide-based chromatography.

Professor Gary Long has been selected to receive the 2005 Wine Award for Excellence in Teaching.

Professor Daniel Crawford recently gave a series of lectures in Tennessee and Mississippi on his group's recent research in chiroptical properties: University of Mississippi, University of Memphis, 5th Southern School on Computational Chemistry, Mississippi College, and Jackson State University.

David Kingston was appointed to the International Advisory Board of the Royal Society of Chemistry journal "Natural Product Reports" in September 2004. In addition, he published an article on his group's taxol-tubulin binding work in PNAS: T. Ganesh, R. C. Guza, S. Bane, R. Ravindra, N. Shanker, A. S. Lakdawala, J.P. Snyder, and D.G.I. Kingston, "The Bioactive Taxol Conformation on b-tubulin: Experimental Evidence from Highly Active Constrained Analogs" (Proc. Natl. Acad. Sci USA, 2004, 101, 10006-10011. A "Newsdesk" report on the PNAS paper was published in The Lancet: Oncology (August 2004). Two of Dr. Kingston's publications in J. Nat. Prod. were among the top 10 J. Nat. Prod. articles cited in 2003, as per ISI. The two articles were E. Baloglu and D. G. I. Kingston, "The Taxane Diterpenoids" J. Nat. Prod. 1999, 62, 1448-1472, and D. G. I. Kingston, "Recent Advances in the Chemistry of Taxol", J. Nat. Prod., 2000, 63, 726-734. Dr. Kingston serves as a member of the Editorial Board, "Current Bioactive Compounds" as of September 2004.

New Director for MII



S. Richard Turner, a research fellow at Eastman Chemical Company of Kingsport, TN, has been named director of the Macromolecules and Interfaces Institute and Research Professor in the Department of Chemistry at Virginia Tech. Macromolecules and Interfaces Institute (MII) is an interdisciplinary group of about 50 faculty members who are involved in various aspects of advanced polymeric materials research and education, including novel polymer synthesis, interfaces and adhesion studies, advanced composites, biomaterials, diagnostics, drug delivery, and materials for alternative energy devices.

Turner worked for Xerox and Exxon before joining Eastman Kodak Company in 1982. He transferred to Eastman Chemical in 1993. He has been involved in a broad range of basic and applied research, including photo-conducting polymers and water-soluble polymers. Projects he worked on at Eastman Chemical that the general public would be aware of include making plastics for packaging food, water, and other beverages, and clear, chemically resistant plastics for medical applications.

A native of Nashville and long-time resident of Kingsport, Turner received his undergraduate degree in chemistry from Tennessee Tech and his Ph.D. at the University of Florida. He has been active with the American Chemical Society, chairing the Polymeric Materials: Science and Engineering (PMSE) Division in 1992, was general secretary of the Macromolecular Secretariat in 1995, and is on the Petroleum Research Fund advisory board. He has served on National Science Foundation review panels and is on the KensaGroup scientific advisory board. He has served on the editorial board of several journals, holds more than 95 patents and has more than 80 publications. He received a Distinguished Inventors Award from Eastman Kodak in 1993, and was selected a PMSE Fellow in 2002. In 2004, he was named Tennessee Tech alumnus of the year, he received the University of Florida chemistry department outstanding alumni award, and was named one of Tennessee's Top 10 Scientists by Business Tennessee magazine.

Flat Stanley & Chemistry by Brenda Mills

My grandson (Shawn) had a project at school where he had a little character named "Flat Stanley". (Flat Stanley is a popular children's book and because he is flat can travel and go places that we as humans cannot travel as easily.) Anyway, my grandson's assignment was to send Flat Stanley to someone who would take him on great adventures, take pictures and report back to his class on the adventures. Shawn asked Kay Castagnoli if she would take Flat Stanley with her to Italy and Switzerland recently, which she happily agreed to and had great fun introducing him to all the prestigious scientists at the Symposium. As a result, Flat Stanley was able to fly on a big plane to Europe. He attended the Symposium. He enjoyed the Sunday evening reception, attended the meeting, and had lunch with the participants out in the garden at the Casa Maderni in Riva-San Vitale; and the big dinner on Tuesday evening. He was even introduced by Dr. Milton Brown, one of the participants from the Chemistry Department at UVA, as his assistant for Dr. Brown's presentation. All the participants had great fun having their picutres taken with "Flat Stanley" and his part in Dr. Brown's presentation. Then Flat Stanley rode on a bus and a train from Switzerland to Venice where he enjoyed all the sights, visited the museums and art galleries with Kay and had a great time shopping with her, before flying home again.

Faculty Spotlight

Professor Gary L. Long

As this spring marks my 22nd year at Virginia Tech, I have had the chance to witness much change in our Department. Many faces have come and gone. New buildings have been added to relieve the massive overcrowding of the research and teaching labs. Now, when students are wired it's a cell phone or computer (and not coffee) that they are carrying.

But some things have remained unchanged. The second floor of Davidson is not found between the first and third floors of Davidson Hall. It is not where the elevator in the rear of the building takes you when you press "2". The second floor is still the ground floor on the rear side of Davidson. And that's where my research lab has been for 22 years, and my office for 15 years.

I came to Virginia Tech in 1983 when I was 26 years old. My wife, Sharon, and I moved from Gainesville, Florida to Blacksburg with our 3 week old daughter Jessica. Prior to Summer 1983, I had been a post doc in Prof. Jim Winefordner's lab at the University of Florida. Sharon and I moved to Florida in Summer 1982 after I finished my Ph.D. at North Carolina State University.

Sharon and I are both natives of North Carolina. I grew up on the coast while she was raised in the mountains. We met at Wake Forest University. I graduated in 1978 and went to NCSU for grad school. Sharon finished up at WFU with a BA in English the following year. We were married in May 1979 and moved to Raleigh.

My first area of study at Virginia Tech concerned analytical processes in flames and plasmas. This area was an extension of my Ph.D. studies and post-doc work. My group looked at vaporization interferences in flames and the effect of carbon radicals on reduction of refractory metal oxide formation in plasma discharges.

My group also characterized the micro-wave induced plasma (MIP) as an alternative plasma source for atomic emission spectrometry. We developed a method for the direct determination of heavy metals in coal using slurry injection into the direct current plasma.

In the late '80s, most federal agencies declared work in flames and plasmas to have reached a "mature state". This meant no more funding on such work. Exploring other funding avenues, it seemed to me the tools we had developed in our lab could be applied to environment problems. I began collaborating with a scientist in the Geological Survey of Israel (who was using analytical plasmas very much like our group was). This collaboration grew as I received a Fulbright Research Scholarship in 1990-91 to go to Israel and continue this project and others at the Weizmann Institute.

Our family moved to Israel in summer 1990. Jessica was six and Nathan (born in Blacksburg) was four. We were housed on the Weizmann campus (in Rehovot, about 25 km SW of Tel Aviv).

August 1990 brought significant change to Israel with the invasion of Kuwait. When the war started, we experienced Scud missiles hitting only 1 km from our apartment. We all had gas masks, and learned to use them. When the attacks became more numerous, the US Embassy ordered our evacuation, along with other embassy personnel, to the southern-most town (Elat) in Israel. Because I was a Fulbrighter, we had embassy status (as non essential personnel). We stayed in Elat until it was deemed safe for us to return to Rehovot. In Summer 1991 we returned to Blacksburg.

The work abroad allowed my VT research group to focus more effectively on studies in environmental chemistry.

The Long Family Continued from Page 5

This work was based on developing new methods for the extraction and determination of heavy metals in contaminated waters. We developed techniques on chelated assisted extraction using microwave digestion and subcritical water. Additionally, my students also continued work on coupling MIP to Supercritical Fluid Extraction and Chromatography. The latter projects involved the chemical speciation of Cr(III) and Cr(VI) in contaminated waters.

Most lately, my work has been more directed toward Chemical Education. I was a program director at NSF in the Division of Undergraduate Education in 1998-99. The Long family moved to Falls Church in Summer 1998. It was most interesting to sit on the "other side of the desk" at a funding agency and work with proposals on chemistry education.

Returning to VT in 1999, I took on the Mobile Chemistry Laboratory Project (which was formed while I was at NSF). My experience at NSF helped me organize the MCL project and procure funding for the program.

The MCL team had five staff members working on the outreach project. Over a four year period we interacted with 40+ high schools and were the primary teaching laboratory for ~10,000 students in Southwest and Southside Virginia. Each school received 4 to 6 visits a year with the mobile lab. Additionally, we supplied experiments (called ChemKits) that were shipped to the classes. (You can visit the MCL program on the web at http://www.chem.vt.edu/mcl).

As a result of the efforts of the MCL team and the teachers, the Chemistry SOL scores of these schools rose nearly 40 points over this period. Enrollment in high school chemistry classes increased each year the MCL was involved with a high school. Sadly, the MCL program ceased in May 2004 because of budget cuts by Richmond.

With the demise of the MCL, my efforts are now directed back to my work in environmental chemistry. A recent grant allowed me to purchase a new ICP for the labs. Finally, the 1983 ICP instrument is being retired! The new instrument allows us to have greater detection sensitivity than the old unit had. Plans are underway for new studies concerning the speciation of metals in groundwaters. This work will be used both in characterization studies and remediation work.

My current group is smaller than in past years. I've had the pleasure of having an undergraduate student this semester in my lab working on a ChemEd project. And in looking back over 22 years, I am glad to have had 12 Ph.D. students, 5 MS students, and 15 undergrads in my lab.

In the classroom, I am teaching General Chemistry for the first time in 12 years. Prior to this time, I have been teaching Analytical Chemistry (lecture and lab) for many, many years. It is refreshing to go back to the first year of chemistry and work with the students. I still find teaching to be exciting. Hopefully, I have excited some of the 8,400 students I have taught in the classroom and lab at VT.

At home, this year marks the first year that Sharon and I are "empty-nesters". Nathan is finishing his first year at Radford University and is working toward a BFA (Bachelor of Fine Arts). Jessica is completing her junior year at Emory and Henry College and is working on BA degrees in Mass Communication and in English. She will be interning at WDBJ7 this summer with the production staff of the morning news programs.

My research students may wonder if I am still playing guitar. The answer is most definitely yes! I'm playing classical, folk, and rock. Mike Johnson and I have been playing together at the summer MCL workshops under the moniker of "Appalachian Granola". Jessica and Nathan have also learned to play and have become quite proficient.

Another development with the Long family is we have taken up sailing. Sharon and I purchased a 30 year old sailboat (16 ft.) last year. We both enjoy sailing on Claytor Lake and working on the boat at home.

If you would like to contact me, drop me a line at long@vt.edu. I would very much like to hear from former students.

Looking for Hokie wallpaper for your PC? Thanks to Professor Gary Long here is a link for the ChemHokie Bird wallpaper downloads. It also has other "artwork" with the ChemHokie Bird. (http://www.chem.vt.edu/chem.-dept/long/files/chemhokie.html).

Alumni Spotlight

A Changing Life

Doug Hausler

(Ph.D., 1980, B.A. 1972)

Change has always been a part (perhaps the driving part) of Doug Hausler's life and career. Born in Wantaugh, NY (Long Island) in 1948, his family moved to south Florida for 5 years in 1956 and then to the Pittsburgh area in 1961. Growing up in the nascent space age, it seem natural that when he was deciding on college that Aerospace Engineering was exactly where he wanted to be. At that time Doug was only aware of Rensselaer and VPI offering that degree. After visiting Troy, NY in the gray of late Fall he decided that Virginia Tech had to be much better. Being in, what he now recognizes as a state of change and teen angst, going out of state and south was just the ticket.

During his sophomore year, Doug was able to work as a Cooperative Education Student in Aerospace Engineering with the Naval Air Rework Facility (NARF) in Norfolk, VA. This put him on campus during the Fall and Spring semesters and avoided the cold and snow of winter for at least 3 years. He got stumped on Celestial Mechanics and the aerospace industry was in a tailspin. He looked around at the jobs his Co-Op employer had available and decided that either Chemical Engineering or, on the outside, Chemistry, might be good. Chemical Enginering would have added another year or two to his academic sojourn and the DRAFT would have likely not allowed him to complete the program, so Doug chose the "easy" solution of changing to Chemistry as a major.

After condensing a 4-year program into the remaining 3 years and graduating in 1972 with a BA in Chemistry, he worked for 5 years with NARF in their support laboratory doing everything from plating solution QA to crash investigations. Since he was passing Old Dominion University every day, Doug decided to take a few advanced classes in the evenings. There, he met his wife to be, Edwige Denyszyn, while she was working as a technical illustrator and coordinating the department volleyball break.

After completing a Masters in Chemistry at ODU, Doug continued on at NARF. At this time he had been promoted to the top technical position at the Lab. He subsequently moved onto a 29 foot sailboat and had dreams of sailing down the coast. Plans changed when he attended a conference at the Fisk Institute in Nashville, TN and met Professor Harold McNair. Harold suggested that perhaps Doug might want to return to VPI and start on a Ph.D. program. Doug and Edwidge applied, was accepted, and left the Virginia coast within a year in 1977. After all, he had a boat that he could sell to finance his studies. (Unfortunately the economy turned south and the boat did not sell until he had almost completed his studies, so much for great plans).

Doug and Edwidge spent 3 years back in beautiful Blacksburg and finished the degree under the excellent tutelage of Professor Larry Taylor. His only regret was that he did not spend more time there, but he succumbed to the lure of industry and accepted a position in the Analytical Group at Phillips Petroleum in Bartlesville, OK. There Doug was able to continue some of his work in instrumentation particularly inductively coupled plasma (ICP) spectrometry and trace element analysis. Doug's and Edwidge's first son, Jean-Philippe, was born 3 months after their move to Bartlesville in 1980. Steffen was born in 1985.

In 1980, Phillips Petroleum Company was 10th or 11th in the petroleum industry but had a lead position in patent applications. In spite of two take-over attempts in 1985, the company continued on. Doug had one of the first ICP-MS instruments in the industry and continued to be a leader in new analytical technology implementation. In 1986, after insisting that he really, really wanted to stay on the technical ladder, "the management", in their

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A Changing Life Continued from Page 7

infinite wisdom, decided that Doug should move to the dark side and take a position as manager. Trying to split his time, and do a good job to both sides proved difficult and as a result, Doug took a position with VG Instruments as their US ICP-MS specialist and moved to Savannah, GA.

A year and a half later, Doug was back at Phillips, on the technical ladder, with a task of investigating new analytical technology. Over the next 15 years, he had the opportunity to move into a number of different technologies as well as progressing through the technical ladder. His last position was that of Senior Physical Scientist.

While in Bartlesville, Doug was involved in various educational-corporate activities including Green Country Science Teachers Workshop (a yearly, hands-on demonstration-based program involving over 300 science teachers from notheast Oklahoma), the Boy Scouts (Steffen attained the rank of Eagle) and Explorer Scouts, and the Bartlesville District Science Fair. He was privileged to serve as Director of the District Fair for 15 years until 2004. Students from four counties competed at the District Fair. Over that time, the Bartlesville District Fair students took many first place awards at the State Science Fair and numerous awards at the International Science and Engineering Fair.

In the late 1990's, mergers and joint ventures were part of the corporate petrochemical culture. Phillips, at that point was involved with natural gas, plastics, refining, and exploration. "Natural gas and pipelines" were broken away to be part of a joint venture with Duke Energy. "Plastics" went to a joint venture with Chevron (now Chevron-Phillips). "Refining/exploration" first acquired Tosco, then the joint venture allied with Conoco to become Conoco Phillips, the top refiner in the US. As a consequence of the joint venture with Conoco, a generous offer was extended to those who wished to be "laid-off". In 2004, at age 55, Doug decided that he would take that generous offer, retire early, and start a new career.

Throughout this time, Edwige had been and continues to be an artist who has worked in many media. Until Steffen was born, oils was the mainstay. Keeping track of two children forced a move to "basketry and weaving" of natural fibers including exotic materials. Edwige's art has continued to evolve through ceramics, beading and beads, and her current passion: glass. Always exploring new concepts, she is currently making unique artistic glass beads and "painting" with glass frit to form solid glass images suitable for framing.

Family update: Philippe is in Buffalo, NY working on independent software development and providing technical and sales support to a cell phone retailer. Steffen is in his sophomore year at California Polytechnic Institute in San Luis Obispo, CA in Mechanical Engineering. Edwige and Doug have since bought property in Eureka Springs, AR with the intent to start a vineyard. They've moved into a new house that is imbedded in 12 acres of hardwood forest. The vineyard has 2 acres planted with vines in their second year. They are putting in another 5 acres this spring. Keels Creek Vineyards (P. O. Box 642, Eureka Springs, AR 72632) should be making wine sometime in 2007. Doug and Edwidge intend to remain small with an emphasis on high quality. See their webpage at www.keelscreek.com which (I am told) will be a work in progress.

Alumni Highlights

ACS Award for Creative Invention

Joseph M. DeSimone (Ph.D. 1990) was honored for environmentally sound synthesis of commodity chemicals and polymers in CO_2, the invention of CO_2-based surfactants, and the discovery of solvent-free manufacturing and service cleaning processes using CO_2 and specially designed detergents.

DeSimone was appointed Assistant Professor of Chemistry at UNC, Chape Hill, NC, where he is now a professor. Since 1995, he has also been a Professor of Chemical Engineering at North Carolina State University and Director of the National Science Foundation Science & Technology Center for Environmentally Responsible Solvents & Processes.

In 2001, DeSimone was Chair of the National Network of National Science Foundation Science & Technology Center Directors. He has also been a member of the editorial boards of a number of polymer journals including the Journal of Polymer Science. He is the author or coauthor of more than 190 refereed publications and some 90 patents, many of which have been licensed to corporations.

Christ Curfman (M.S. 1996) has been with Needle & Rosenberg since 2000, first as a science advisor, then patent agent, and now associate. Curfman's practice focuses on all aspects of patent prosecution and litigation in chemical and biotechnology related technologies. He is registered to practice before the U.S. Patent and Trademark Office and is a member of the State Bar of Georgia. He received bachelor's of science and arts degrees in biology and chemistry and a master's of science degree in chemistry at Virginia Tech. He later obtained a doctorate in chemistry from Emory University and a juris doctorate from Georgia State University College of Law.

Chris Bunker (B.S. 1988) was recently named Outstanding Young Alumni at Clemson University where he obtained a Ph.D. degree. Chris is a Senior Research Chemist in the Air Force Research Laboratories, Wright Patterson Air Force Base, Ohio. While a student at Virginia Tech he was active in the Marching Virginians and Alpha Xi Sigma.

We are saddened to note the death of Mary Ellen Smith in Arizona. She was well-known, and loved by the Department of Chemistry at Virginia Tech during her stay in Blacksburg with her husband, Hampton, in the 1970s. An inorganic chemist on our faculty, Hampton passed away as a result of cancer while he was a department member.

Department Chair Continued from Page 1

activities that could not be achieved without our participation. We also have a number of faculty working on projects that have a very high potential of becoming a commercial success and they are involved with different companies that hope to make that happen. One sad note for our outreach involvement is that, even after a lot of hard work dealing with our state legislature, the Mobile Chemistry Lab did not receive state funding this year. We are not ready to give up on the MCL just yet, though, and we are working on ways to get it back on the road.

I invite you to drop me a note by whatever means you prefer to let me know what is happening with you since graduating from Tech. Of course, if you are in the area, please stop by and visit for a bit – the doors to Davidson, Hahn and now, ChemPhysics are always open to you.

Alumni Highlighs Continued from Page 9

Bill Bryant (Ph.D. 1999) was awarded the Outstanding Young Alumni Award from Virginia Tech for the College of Science 2004-05.

Joe DeSimone (Ph.D. 1990) has been elected to the National Academy of Engineering.

Raymond A. Dewberry (B.S. 1974) was promoted to fellow scientist at the Savannah River National Laboratory and named adjunct professor of nuclear science and engineering at Clemson University. He also published a book, History of the 14th Georgia Infantry Regiment (6 Heathwood St., Barnwell, SC 29812).

Jason D. Powell (B.S. 1996) is Assistant Professor of Chemistry and Physics at Ferrum College in Ferrum, Virginia.

Robert E. Schwerzel (B.S. 1965) (Ph.D., President, Technology Guidance Services, LLC in Alpharetta, GA) is teaching a general chemistry class at Gwinnett Technical College 3 days a week for 2 ½ hours each day.

Dr. Ward J. Mavura is at the Egerton University, P.O. Box 536, NJORO, Kenya, East Africa; mavura@africaonline.co.ke.

Katherine W. Stickney (M.S. 1983) with her Virginia Tech-bred American quarter horse, Rapidans Breeze, won their division at the 2004 Penny Oaks Horse Trials in Edinburg, Ind. (4070 Little Hurricane Rd., Martinsville, IN 46151).

Robert Cassity (Ph.D. 1976) is working for ABB in Houston engineering on-line chemical process control systems.

Tom Rhyne (Ph.D. 1971) is Department Head at Appalachian State University.

Jim Green retired last year from the federal government and has resumed work after 30 years.

Ann (M.S. 1972) and **Terry** (Ph.D. 1972) **St. Clair** have retired from NASA Langley Research Center and moved to Mechanicsville, VA.

Tom Murray is teaching chemistry at North Alabama University.

Kathy Elliott Lysko (B.S. 1970) is Head of Chemistry and Biochemistry at Immaculata College in Philadelphia, PA "teaching science to the unwilling".

Russ Koch (Ph.D. 1973) has retired from Firestone and sold his nighttime business making benzo[a]pyrene standards.

Herb O'Toole (Ph.D. 1975) is a patent attorney with Nexsen Pruet, LLC in Greenville, SC.

Andrea G. Zydron who was elected president of the student body for the 2004-05 academic year at the Michigan State University College of Law, will receive a J.D. in May (624, Water Oak Ct., Chesapeake, VA 23322).

Staff Spotlight

Mike Johnson

Mike joined the Chemistry Department in September 1999 after deciding to leave the world of electrical contracting with its headaches and uncertainties. He came to the Department with a Master of Science degree in Life Sciences from Middle Tennessee State University (1975) where he studied plant ecology. His research was on the phenomenon of allelopathy: biochemical antagonisms between competing plant species in a defined ecosystem. His first association with Virginia Tech was in 1976 as an agricultural technician in the Department of Plant Pathology and Physiology where he had been accepted as a candidate in the Ph.D. program. Unfortunately, funding for his research was not forthcoming so, after four years, he chose another direction and studied electrical technology at New River Community College, where he was appointed an adjunct instructor in electrical technology, teaching both on-campus courses and off-campus in industry for the next ten years. At the same time, he formed his own electrical contracting company which became heavily involved in the chemical industry, where he worked as an electrical project engineer, designing and installing such projects as industrial substations, area lighting, power distribution networks, motor start-stop controls, interfacing off-the-shelf single loop PID process controllers (for pH, temperature, mass delivery, etc.) with PLC's, MMI stations, etc, and performing numerous other functions such as instrument calibration and troubleshooting and repair of anything electrical. He is a certified and licensed Master Electrician in the Commonwealth of Virginia.

In the Chemistry Department, Mike is the lecture-demonstrator. In addition to providing requested demonstrations, and occasionally performing them, he strives to find new and more relevant demos, develop improvements over existing demos, and develop new demos, one of which, on critical phenomena, has been accepted by the editor of *Tested Demonstrations* section of Journal of Chemical Education and recommended for publication in that journal. Additionally, he serves as the liaison between the Chemistry Department and Classroom Services for the audio-visual equipment. He was also involved in the ill-fated Mobile Chemistry Laboratory (MCL) project as the lab manager, responsible for providing all chemicals for the labs, interacting with high school teachers and scheduling the school visits. In addition, he provided electrical maintenance and additions to the lab as well as CAD drawings to document all changes. During the past summer, he would periodically drive the MCL around the "cage" parking lot to keep lubricant circulated... and he only ran over one sign!.... Currently, he runs the Chemkit program (introduced by Professor Gary Long) for outreach to Virginia high schools. His other duties include (1) an occasional electrical job in the Department, (2) helping the on campus fixed asset people locate unaccounted for property, and (3) photographing departmental events, etc.

For relaxation, Mike enjoys playing old-time clawhammer style banjo at jams in Radford, Christiansburg, and Marlinton, WV, with occasional jams or gigs at other locations. He and his wife Bonnie enjoy going to old-time and bluegrass musical events for listening, socializing, and flat-footin'. During the warmer season, they have a vegetable garden at their home in Blacksburg (also a catnip patch for their three cats). Weekends are frequently spent hiking or camping in the Cranberry Wilderness area, or biking on the Greenbrier River Trail in Pocahontas County, West Virginia where they have a get-a-way place. (He has so far been unsuccessful at getting her to try spelunking). They both enjoy target shooting and reload their own ammunition. When the weather precludes outdoor activities, they spend time reading, playing music, or working in their woodworking shop, where Mike piddles around with repairing and rebuilding old musical instruments, etc. Bonnie is working on building a dulcimer. Mike likes to read books on astronomy and cosmology, local history, especially concerning the Civil War, and "true" ghost stories. Bonnie also likes to read mysteries.

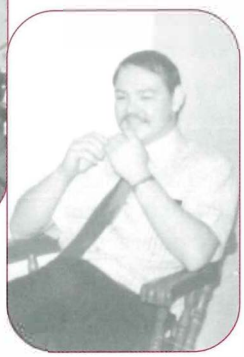
The Department of Chemistry is very fortunate to have Mike Johnson on its staff. He exemplifies the many staff in the Department who are highly qualified and deeply loyal to the Department. Mike's strong professional approach to his job and his all round commitment to excellence readily enhance the image and stature of the Department both on- and off-campus.

Alumni Highlighs Continued from Page 10

WHERE ARE THEY NOW?

Tom A. Perfetti
Ph.D. 1977
&
Guy B. Oldaker III
Ph.D. 1979

J. Herb O'Toole
Ph.D. 1975



Sharon Knopp
M.S. 1972

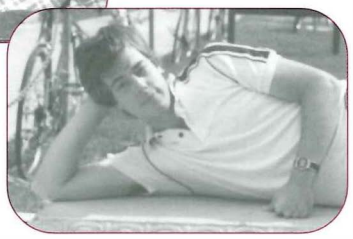
Morris Rorer
Ph.D. 1969

Jim Harvey
Ph.D. 1976

Randy Cutshaw
M.S. 1980

Edward Alan Davis
M.S. 1985

Ann Lankey
M.S. 1970



Robert L. Eagan
Ph.D. 1986

Amelia Sullivan
M.S. 1984

Magdy El-Fayoumy
Ph.D. 1976

A. K. Youssef
Ph.D. 1972

Dwain Davis
M.S. 1980
Ph.D. 1984

Pat Martin
Ph.D. 1986

Bill F. Brubaker
Ph.D. 1982

What's New In Chemistry

Award Winning Professor Spends Sabbatical Year With Professor Dessy

Professor Antonella Badia, an award winning professor at the Universite de Montreal, is spending her sabbatical year with Emeritus Professor Ray Dessy. Reichert Gmbh is providing her with their state-of-the-art Surface Plasmon Resonance Spectrometer to facilitate her work at Virginia Tech. She recently received a Research Innovation Award and a Cottrell Scholar Award, highlighting her creative potential and her excellence in research and teaching. Antonella Badia entered the emerging field of nanoparticles in the mid-1990s when she found that tiny gold nanoparticles – several thousand times smaller than red blood cells – have unique chemical and physical properties. Her research focuses on atomic force microscopy (AFM) investigations of the structure/interfacial property relationships of ultrathin organic films (self-assembled monolayers, supported phospholipids films, conducting polymers). An understanding of how the two-dimensional organization and defect structure of these films determine their redox properties and surface interactions is key to the engineering of functional surfaces for molecular electronic devices, biosensors, and the development of chemically-sensitive AFM techniques.

Macromolecules and Interfaces Institute (MII) Fellowship Recipients

Recipients of the 2005 MII Frontiers in Graduate Research Fellowships were: Natalie Arnett (Jim McGrath, advisor) to receive 1 year fellowship and Rituparna Paul (Alan Eskers, advisor) and Tomonori Saito (Tim Long, advisor) to receive a fellowship covering one semester, plus ½ of the summer.

Help A Hokie

Who better to help than a fellow Hokie? Today's students want to learn more about careers, majors, and what other Hokies are doing. Who better to tell them than you? By becoming a Virginia Tech CareerLink volunteer, you can also help young alumni who may still be unsure what path they want to follow, or other alumni who may be considering a career change. It's easy to volunteer, simply complete the online registration at http://www.career.vt.edu/VTCLHokie/

Tuition and Fees Set for 2005-06

The Virginia Tech Board of Visitors set tuition and fee rates for 2005-06 academic year with the total cost for Virginia students living on campus increasing from $10,062 to $10,834 annually, an increase of $772. Total annual cost for non-resident students will increase from $20,805 to $22,293, an increase of $1,448.

Recent Grants to Chemistry Faculty

Mark R. Anderson: Research experiences for undergraduates in chemistry at Virginia Tech.

Harry C. Dorn: Hyperpolarized xenon encapsulated fullerenes: development of a new class of MRI diagnostic contrast agents.

John Morris: Purchase of an atomic force microscope for the analysis of nanostructured materials used in chemical warfare agent decomposition studies, U.S. Army Research Office.

James McGrath: Improved Proton Exchange Membranes for Direct Methanol Fuel Cells, General Technical Services LLC.

Gordon T. Yee: Understanding radical-anion-bridged coordination polymer magnets.

Alumni Highlighs Continued from Page 12

Belho Metaferia (Ph.D., 1992) has won a Fellows Award for Research Excellence (FARE) 2005 based on scientific merit, originality, experimental design, and overall quality/presentation. The research was titled "Synthesis of substrate-mimic analogues of mycothiol as inhibitors of Rv1170 and Rv1082 of Mycobacterium tuberculosis". FARE 2005 as sponsored by the Scientific Directors, NIH Office of Education, NIH Office of Research on Women's Health, as well as the NIH Fellows Committee. The FARE 2005 Award is a $1000 travel award that can be used to present work at a scientific meeting.

Peter Thompson (M.S. 1994) is currently at Miami University (Ohio) in Oxford, Ohio. He still has the same dog (she is getting grey and is a little stiff when she gets up).

Chemistry Advisory Council

Akers, Frank - GoDigital Network (B.S., 1969, M.S., 1974)

Banks, Scott - White Knight Engineered Products Inc. (B.A., 1981)

Bass, Robert Gerald - Virginia Commonwealth University (B.S., 1954) (Ret.)

Bible, Roy - Pharmacia (B.S., 1948) (Ret.)

Brink, Heather (Ph.D., 1994) and Andy (B.S., 1990, Ph.D., 1994) - Hydrosize Technologies

Calvey, Elizabeth - Food & Drug Admin. (M.S., 1984, Ph.D., 1990)

Coleman, William M., III - RJR, Inc. (M.S., 1971, Ph.D., 1977)

Cook, Gary - Consultant (Ph.D., 1970)

DeSimone, Joseph - University of North Carolina (Ph.D., 1990)

Jenny Filbey - Nobex Corp. (Ph.D., 1987)

Fildes, John - Packer Engineering (Ph.D., 1979)

Glasgow, Michael B. - Ethyl Petroleum (B.S., 1989, Ph.D., 1996)

Gum, Mary L. - Crompton Corp. (Ph.D., 1974)

Kinser, Robin - Philip Morris U.S.A. (B.S., 1973)

Koppelman, Mitchell - Specialty Minerals, Inc. (Ph.D., 1977)

Ogden, R. Wayne - Mead Westvaco Corp. (B.S., 1972, M.S., 1974)

Schwerzel, Robert E. - Technology Guidance Services (B.S., 1965)

Shenton, Rob - Atlantic Research Corporation (B.S., 1977)

Smith, James - E.I.Dupont de Nemours & Co (B.S., 1966)

Smith, Michael - University of Connecticut (B.S., 1969)

Starnes, William - College of William & Mary (B.S., 1955)

Thrasher, Joseph S. - University of Alabama (B.S., 1978; Ph.D., 1981)

Via, Grayson H. -Consultant (M.S., 1961)

Watson, Marshall T. - Consultant (B.S., 1943)

Webster, Dean - North Dakota State University (Ph.D., 1984)

Yost, John - SAIC Advanced Information (B.S., 1993)

Donors

Appreciation is extended to all alumni, friends, faculty and organizations that have contributed to the Department of Chemistry at Virginia Tech over the years. Your gifts make a difference and can be designated for general department needs or specific programs and scholarships. The following names are donors for the period July 1, 2004 to December 31, 2004.

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Create a Chemistry Scholarship

A scholarship in your name or the name of a special loved one is a gift that will live forever. You can help our students to become tomorrow's leaders in industry, academia, and medicine. The Department of Chemistry offers scholarships to both undergraduate and graduate students based on academic potential, academic performance, and financial need. For more information on how to create a scholarship for a deserving Chemistry student, please contact Joe Merola at jmerola@vt.edu or 540-231-4570.

VIRGINIA TECH DEPARTMENT OF CHEMISTRY'S MISSION

The Virginia Tech Department of Chemistry has a long history, a solid reputation and a bright future. Our courses provide the chemical foundation for all Virginia Tech science and engineering students and broaden their understanding about the structure and properties of matter. Our undergraduate and graduate degree programs prepare society's future chemists and scientists. Our faculty's research and scholarships generate and disseminate chemistry knowledge to the Commonwealth, the Nation and the world. And our outreach programs offer opportunities to share this knowledge with others, including practicing professionals, as well as primary and secondary school children. To achieve our mission, the Virginia Tech Department of Chemistry will continue to pursue multi-disciplinary research within and beyond the University, to find innovative ways to instruct students, to forge partnerships with industry and government and to establish a reputation as one of the world's highest ranking chemistry departments.

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Blacksburg, VA 24061

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